SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 1992-93

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

CIVIL NO. 1247 - SD-T

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JULY 1994

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SECTION 1 - SUMMARY

Section 1 - A summary of the Santa Margarita River Watershed Annual Watermaster Report for the 1992-93 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 far above normal in 1992-93, with long-term station flows ranging from 8 to 12 times the long-term average flow. Surface diversions to irrigation use totaled 711 acre feet compared with 701 acre feet in 1992-93. The total quantity of water in storage in the Watershed on September 30, 1993 was 64,973 acre feet, of which 26,900 acre feet was Santa Margarita River water and 38,073 acre feet was imported water.

Section 4 - Groundwater extractions were 42,695 acre feet compared to 42,696 acre feet in 1991-92. Water purveyors pumped 36,480 acre feet (including 109 acre feet estimated to have been used for domestic purposes on the Pechanga and Cahuilla Indian Reservations) and 6,215 acre feet were pumped by other substantial users.

Section 5 - During 1992-93, 27,815 acre feet of water were imported and distributed in the Santa Margarita River Watershed by seven water purveyors. This compares with 37,908 acre feet in 1991-92 and 51,166 acre feet in 1990-91 and represents a 27 percent decrease from 1991-92 and a 46 percent decrease from 1990-91. Net exports, including wastewater, were 2,896 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 71,221 acre feet compared to 81,306 in 1991-92. Of that quantity, 42,575 acre feet were used for agriculture, 2,737 acre feet were used for commercial purposes, and 21,832 acre feet were used for domestic purposes; 519 acre feet were discharged to Murrieta Creek; 2,329 acre feet of fresh water were exported and 1,229 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 2,558 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, a proposed landfill near Rainbow Creek, and a soil treatment facility.

Section 10 - Water quality data collected by organizations in the Watershed for 1992-93 are presented in Appendix D.

Section 11 - Projected time requirements to provide for the primary Watermaster tasks are presented for the next five water years.

Section 12 - A Watermaster Office budget of $153,300 is proposed for the 1994-95 Water Year. In addition, the cost of operation of gaging stations by the U. S. Geological Survey (U.S.G.S.) is estimated to be $110,000, for a total of $263,300.

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 currently is 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 1992-93 the U.S.G.S. operated 12 stations and the Marine Corps Base at Camp Pendleton collected measurements from one additional station.

On January 16-17, 1993, a major storm occurred in the Santa Margarita River Watershed, creating the most severe flooding conditions in the Watershed since stream gage records began in 1923. During the flood, stream gaging stations on Rainbow Creek and Sandia Creek were destroyed and gaging equipment at the stations on the Santa Margarita River near Fallbrook and at Ysidora was lost. Water stages were so much above normal that peak discharges had to be estimated by the U.S.G.S. using indirect means. Estimated peak flows at stations operated and maintained by the U.S.G.S. are as follows:

Station	Peak Discharge cfs
Temecula Creek near Aguanga	8,100
Wilson Creek above Vail Lake	1,100
Pechanga Creek near Temecula	3,000
Warm Springs Creek near Murrieta	3,500
Santa Gertrudis Creek near Temecula	1,300
Murrieta Creek near Temecula	25,000
Santa Margarita River near Temecula	31,000
Rainbow Creek near Fallbrook	8,000
Sandia Creek near Fallbrook	5,100
Santa Margarita River near Fallbrook	39,000
DeLuz Creek near DeLuz	9,700
Santa Margarita River at Ysidora	45,000

TABLE 3.1

SANTA MARGARITA RIVER WATERSHED
STREAM GAGING STATIONS
1992-93

STATION NAME	STATION NO.	AREA SQ. MILES	RECORDED BY	PERIOD OF RECORD
Temecula Creek Near Aguanga	11042400	131	USGS	8/57 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Wilson Creek Above Vail Lake	11042490	122	USGS	10/89 XXXX
Temecula Creek At Vail Dam	11042520	320	USGS	2/23 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 10/77
Vail Lake at Temecula (Reservoir Storage)	11042510	320	USGS	10/60 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Pechanga Creek Near Temecula	11042631	13.8	USGS	10/87 XXXXXX
Warm Springs Creek Near Murrieta	11042800	55.4	USGS	10/87 XXXXXX
Santa Gertrudis Creek Near Temecula	11042900	92.8	USGS	10/87 XXXX X
Murrieta Creek At Temecula	11043000	222	USGS	10/25 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Santa Margarita River Near Temecula	11044000	588	USGS	2/23 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Rainbow Creek Near Fallbrook	11044250	10.3	USGS	9/89 XXXX
Sandia Creek Near Fallbrook	11044350	21.4	USGS	9/89 XXXX
Santa Margarita River Near Fallbrook	11044300	620	USGS	10/24 80 9/89 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXX
Santa Margarita River Tributary Near Fallbrook	11044600	0.52	USGS	10/61 9/65 XXXX
DeLuz Creek Near DeLuz	11044800	33	USGS/NRO	2/51 67 68 77 9/89 XXXXXXXXXXXXXXXX XXXXXXXXXX X X
Santa Margarita River Near DeLuz Station	11045000	705	USGS	10/24 9/26 XX
Fallbrook Creek Near Lake O'Neill	NA	9.5	USGS/NRO	10/64 9/76 12/88 XXXXXXXXXXXX XXXXX
Santa Margarita River At Ysidora	11046000	723	USGS	3/23 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
			WATER YEAR ENDING	1920 1930 1940 1950 1960 1970 1980 1990

Monthly flows for these stations 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 1992-93 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 are shown on Table 3.2 A.

Total flow for Water Years 1991-92 and 1992-93 at long-term stations, together with the average discharge for the station for the period of record through Water Year 1992, are listed below:

	TOTAL FLOW		AVERAGE FLOW
	1991-92 Acre Feet	1992-93 Acre Feet	Through 1992 Acre Feet
Temecula Creek Near Aguanga	3,269	40,593	4,880 (1957-92)
Murrieta Creek At Temecula	11,974	87,481	7,933 (1925-92)
Santa Margarita River Near Temecula	17,538	132,454	11,050 (1949-92) 20,390 (1923-48)
Santa Margarita River Near Ysidora	33,478	243,951	21,088 (1949-92) 31,390 (1923-48)

Comparisons of flows at stations with long records indicate that flows in 1992-93 were far above normal. Annual discharge at the above long-term stations ranged from 8 to 12 times the long-term average flow.

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

TABLE 3.2

SANTA MARGARITA RIVER WATERSHED
MEASURED SURFACE WATER FLOW
1992-93
Quantities in Acre Feet

GAGING STATION	DRAINAGE AREA SQ. MILES	MONTH OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	1992-93 WATER YEAR TOTAL	ANNUAL AVERAGE THRU 1992	YEARS OF RECORD THRU 1992
Temecula Creek Near Aguanga	131	23	49	302	22,180	11,640	2,260	1,220	1,030	668	458	400	363	40,593	4,880	35
Wilson Creek Above Vail Lake	122	0	0	0	1,590	426	0	0	0	0	0	6	28	2,050	N/A	3
Pechanga Creek Near Temecula	13.8	0	0	9	3,900	1,350	575	36	59	30	14	11	0	5,985	N/A	5
Warm Springs Creek Near Murrieta	55.4	29	8	140	13,880	5,280	548	13	117	0	0	0	0	20,015	N/A	5
Santa Gertrudis Creek Near Temecula	92.8	0	0	52	6,650	3,030	2,570	2,780	1,740	3	1	0	0	16,826	N/A	5
Murrieta Creek At Temecula	222	182	15	568	50,320	27,730	4,450	2,490	1,510	178	14	9	15	87,481	7,933	68
Santa Margarita River Near Temecula	588	253	82	966	77,150	41,090	5,920	2,950	2,450	373	147	614	459	132,454	11,050 20,390	44 (1949-92) 25 (1923-48)
Rainbow Creek Near Fallbrook	10.3	33	15	113	5,980	3,070	764	236	96	54	25	21	24	10,431	N/A	3
Sandia Creek Near Fallbrook	21.4	129	122	204	14,590	7,100	2,220	861	580	479	223	91	74	26,673	N/A	3
Santa Margarita River Near Fallbrook	620	294	194	1,910	89,880	47,780	8,000	4,190	3,350	1,500	703	622	537	158,960	N/A	3
DeLuz Creek Near DeLuz	33	66	78	163	22,450	11,100	2,890	1,070	580	436	142	40	24	39,039	3,770	25 (1951-77) Except 1968 1 (1989-90)
Santa Margarita River At Ysidora	723	364	174	2,780	139,000	71,960	15,170	7,010	4,280	1,840	564	500	309	243,951	21,088 31,390	43 (1949-92) 26 (1923-48)
Fallbrook Creek Near Lake O'Neill	9.5	1	5	47	4,525	1,083	245	116	94	83	24	15	3	6,241	1,194 *	12 (1965-76) 4 (1989-92)

* 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 ----------												0	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 Near Fallbrook	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)

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

of each year. Discharges at that station for the months of October, 1992 and May through September, 1993 are shown on the following tabulation:

	MONTHLY DISCHARGE		
	Acre Feet	No. Days	Average Daily cfs
October 1992	255	31	4.2
May 1993	2,600	31	42.3
June 1993	371	30	6.2
July 19923	148	31	2.4
August 1993	632	31	10.3
September 1993	463	30	7.8
TOTAL	4,469	184	12.2

Rancho California WD released 124 acre feet into Murrieta Creek in October 1992 to maintain flows at the Temecula gaging station. Flows during May 1993 - September 1993 were maintained in part by releases from Vail.

3.2 Surface Water Diversions

Surface diversions to surface water storage and groundwater storage during 1991-92 and 1992-93 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. Surface diversions to irrigation, estimated consumptive use, losses and returns for 1992-93 are shown in Table 3.4.

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, 1992 and September 30, 1993. Total Santa Margarita River stream system water in storage at the end of Water Year 1992-93 totaled 26,900 acre feet, compared to 22,490 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 3.3

SANTA MARGARITA RIVER WATERSHED
SURFACE WATER DIVERSIONS TO STORAGE
1992-93
Quantities in Acre Feet

Surface Water Storage

	Vail Lake		Lake O'Neill	
	1991-92	1992-93	1991-92	1992-93
Storage end of prior year	21,815	22,190	960	300
Inflow	6,248	53,931	1,426[1]	6,309[2]
Spill	0	13,409	0	4,183
Diversions to Surface Storage	5,453[3]	40,429[3]	1,426	2,126[4]
Annual Evaporation	3,629	4,668	366	280
Release to GW Storage	2,244	31,704	1,720[5]	300
Apparent Seepage to GW	0	0	N/A	1,296
Change of Storage	+ 375	+ 4,150	- 660	+ 250
Storage End of Year	22,190	26,340 (USGS)	300	550

Groundwater Storage

Recharge Release from Storage Facility	2,244	31,704	1,720	300
Direct Recharge	0	0	5,431	639

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1 702 AF diverted from the Santa Margarita River, 724 AF inflow from Fallbrook Creek

2 68 AF diverted from the Santa Margarita River, 6,241 AF inflow from Fallbrook Creek

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

4 Inflow less spill

5 Includes seepage

TABLE 3.4

SANTA MARGARITA RIVER WATERSHED
SURFACE WATER DIVERSIONS TO IRRIGATION
1992-93
Quantities in Acre Feet

	Surface Diversions	Consumptive Use [1]	Losses [2]	Returns [3]
Prestininzi	18	13	2	3
Bluebird Ranch	26	17	3	6
Chambers	4	2.7	0.4	0.9
Cal June, Inc.	120	81	12	27
Cottle/Strange	238	161	23	54
Agri-Empire, Inc.				
Chihuahua Creek	100 E	67	10	23
Kohler Canyon	10	7	1	2
Papac	38	26	4	8
Sage Ranch Nursery	101	68	10	23
Margarita Land and Development Co.	56	38	5	13
TOTAL	711	480.7	70.4	159.9

[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

TABLE 3.5

SANTA MARGARITA RIVER WATERSHED
WATER IN STORAGE
1992-93
Quantities in Acre Feet

Santa Margarita River Storage	Total Capacity	Water in Storage 9/30/92	Water in Storage 9/30/93
Dunn Ranch Dam	90	0	0
Chihuahua Creek Reservoirs			
Upper	± 47	0	10
Middle	N/A	0	Destroyed
Lower	N/A	0	Destroyed
Vail Lake	49,370	22,190	26,340
Lake O'Neill	1,200	300*	550
Subtotal	50,707	22,490	26,900
Imported Water Storage			
Lake Skinner	44,000	38,073	38,073
TOTAL STORAGE	94,707	60,563	64,973

* - Estimated

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 1992-93 production by purveyors totaled 36,480 acre feet and includes estimated water use on the Pechanga and Cahuilla Indian Reservations of 109 acre feet. This compares to 35,633 acre feet in 1991-92, of which 84 acre feet were estimated to have been used on the Pechanga and Cahuilla Indian Reservations. Monthly quantities are shown in Appendix A and annual production for water years between 1966 and 1993 is shown in Appendix B. Use on the Indian Reservations is included in Appendix C.

Subsurface extractions by private irrigators are based on the irrigated acreage and reported in Appendix C. These groundwater extractions were 6,215 acre feet in 1992-93. 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
1992-93

HYDROLOGIC AREA	WATER PURVEYOR 1/ 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 2/	ESTIMATED RETURN FLOW ACRE FEET
1. Wilson Creek Above Aguanga GWA Includes Anza Valley	242 (Anza MWC, Lk Rvside) (Cahuilla)	1,747 3/	1,474	1,716	0	1,716	1,287	429
2. Temecula Creek Above Aguanga GWA	12 (Butterfield Oaks MHP)	813	954	966	148	1,114	824	290
3. Aguanga GWA	42 (Thousand Trails)	307	738	780	238	1,018	746	272
4. Upper Murrieta Creek	0	0	0	0	0	0	0	0
5. Lower Murrieta Creek	0	410	42	42	101	143	100	43
6. Temecula-Murrieta GWA	32,152 (RCWD,MCWD,EMWD) (Pechanga)	1,155	1,775	33,927	0	33,927	25,445	8,482
7. Santa Margarita River Below Gorge								
DeLuz Creek	86 (FPUD)	287	1,100	1,186	48	1,234	922	312
Sandia Creek	0	126	100	100	120	220	156	64
Rainbow Creek	0	0	0	0	0	0	0	0
Santa Margarita River	3,946 (USMC)	20	32	3,978	56	4,034	636	2,994
TOTAL	36,480 4/	4,865	6,215	42,695	711	43,406	30,116	12,886

1/ Includes estimated domestic use on Indian Reservations
2/ 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 403 acre feet is excluded and return flows include measured wastewater returns
3/ Includes lands overlying deep aquifer in Anza Valley
4/ Includes 109 acre feet for Indian Reservations and 36,371 acre feet for purveyors

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.

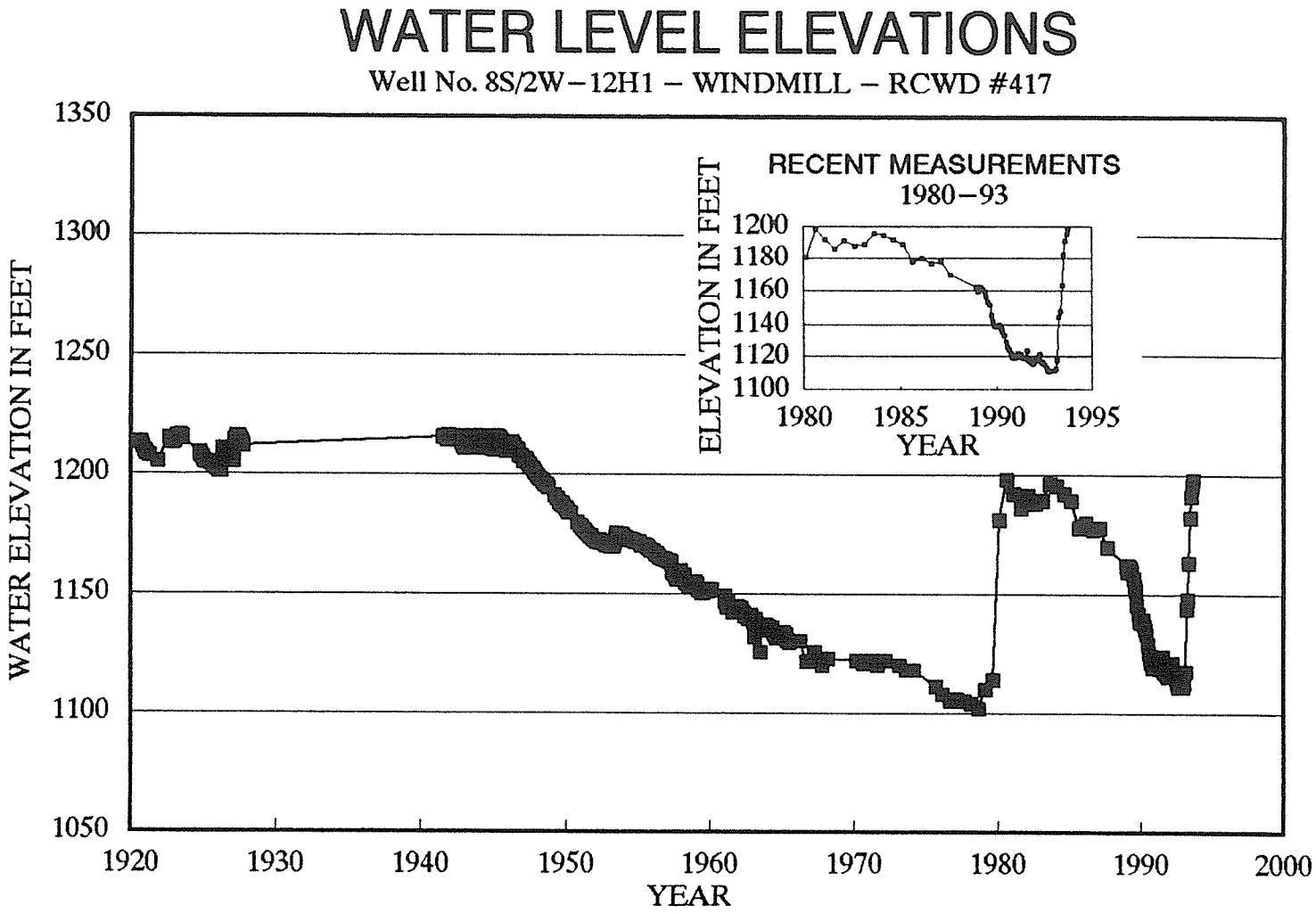
Historic water levels in four wells at various locations in the Watershed are shown on Figures 4.1, 4.2, 4.3 and 4.4. Figure 4.1 shows water levels in Well No. 8S/2W-12H1 (Windmill Well) located in the Rancho California WD Service Area downstream from Vail Lake. Note the extended drawdown from 1945 to 1978, the major recovery during the wet years in 1978-1980, and the effect of recent dry years. Water level in the well at the end of 1992 was 1,111.1 feet, within nine feet of the historical low of 1,102 feet reached in September 1978. During Water Year 1993 water levels rose 87 feet to 1198.1 feet, about the same level as those reached in the 1980's following the last major storms in the Watershed. The drawdown during the late 1980's and the rapid recovery 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 1992 show no long-term trends. Fluctuations in recent years illustrate recharge during the winter months and drawdown during 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 rose 3.3 feet between the fall of 1992 and the fall of 1993.

Figure 4.3 shows water levels from Well No. 7S/3W-20C9 (Holiday Well) in the Murrieta County Water District Service Area. Water levels in this well were up 7.4 feet following a 14.2 foot drop over the last two years. The Lynch Well, which had no production in 1992-93 and serves as a monitoring well, showed an increase of nine feet over the year.

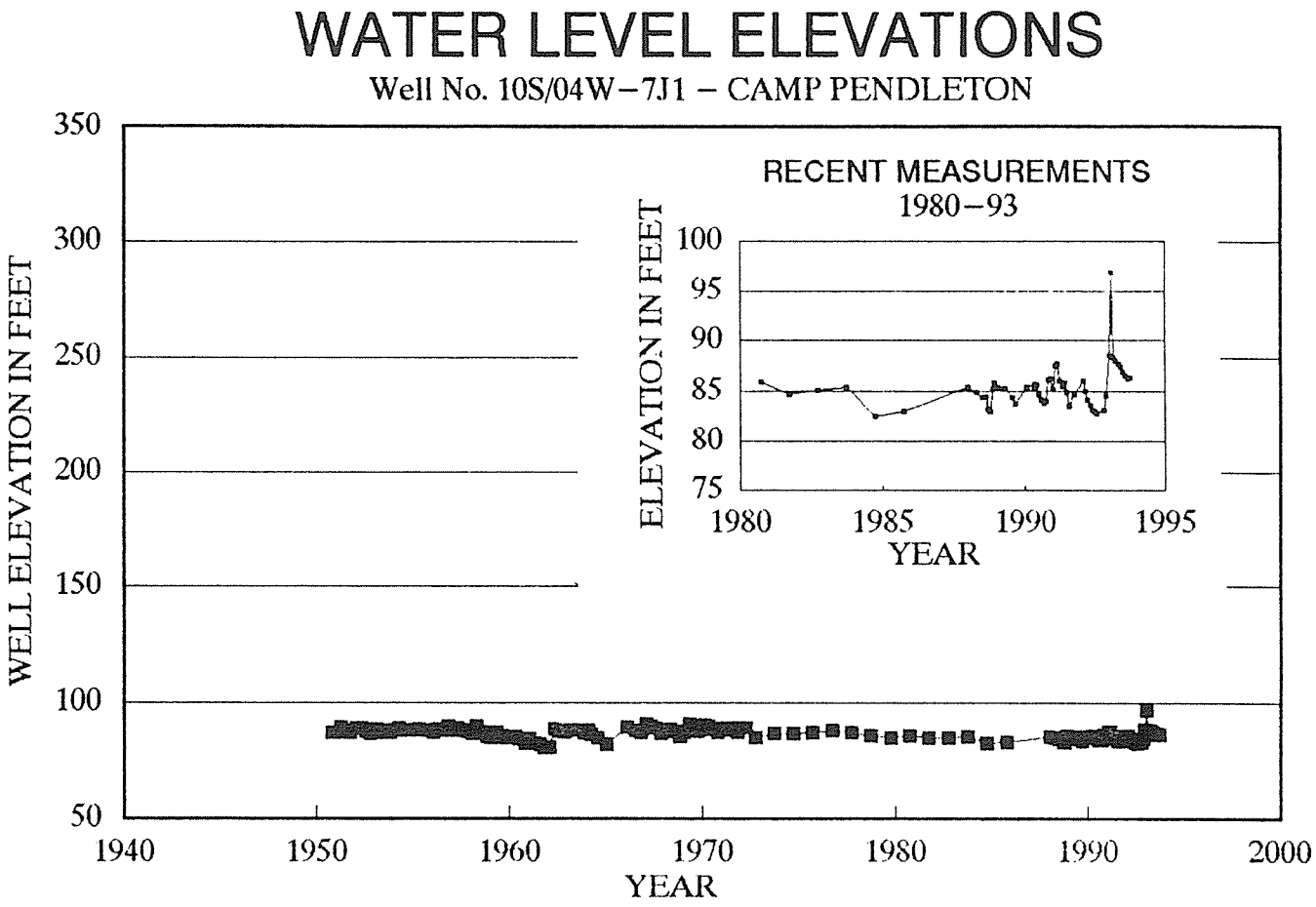
Figure 4.4 shows water levels for Well No. 7S/3E-21G1, Anza Mutual Water Company's Well No. 1 located in the Anza Valley. Water levels in this well are down one foot this year after rising two feet last year and there appears to be little overall trend in water levels since 1973. Recent measurements 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.

FIGURE 4.1



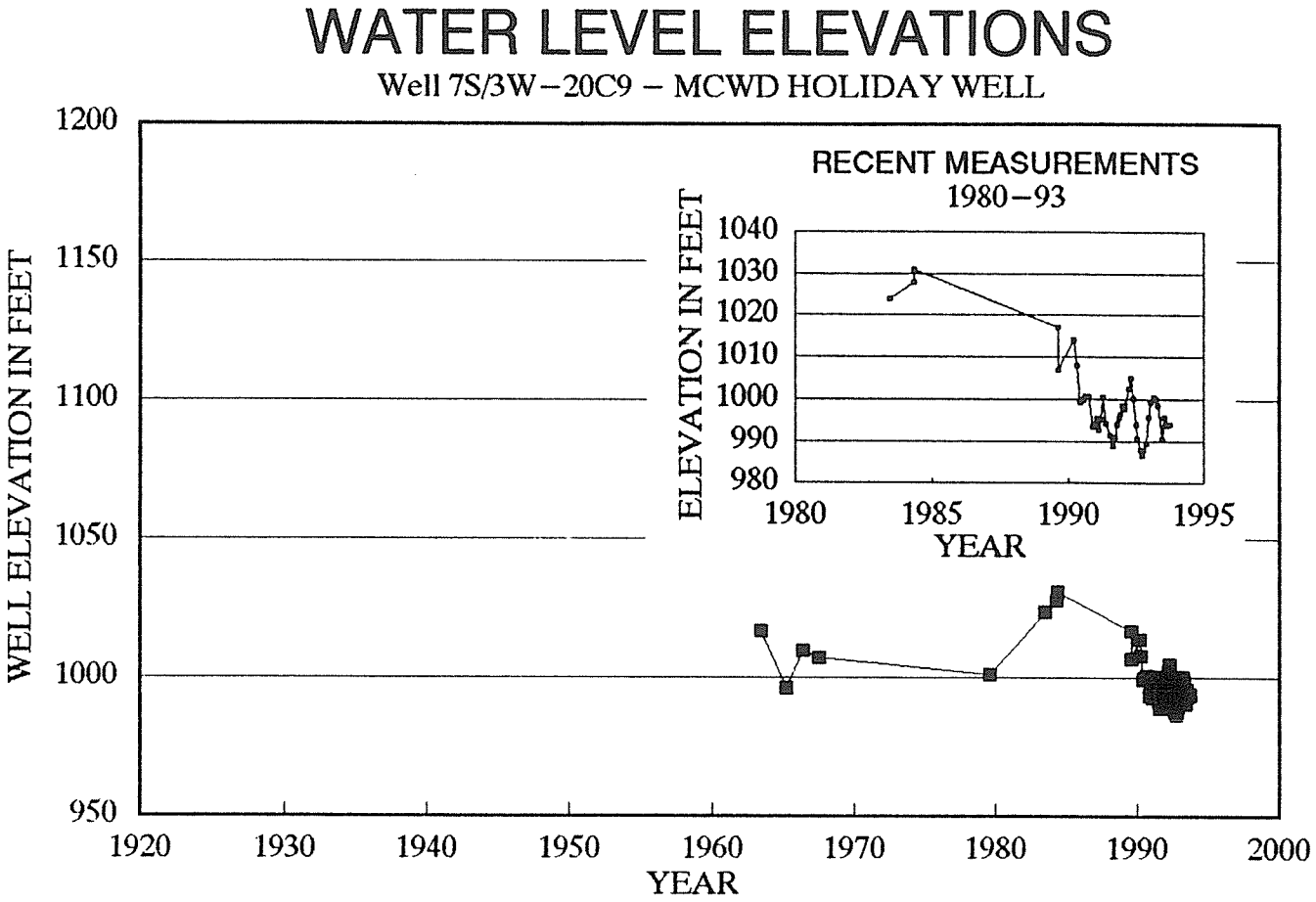
Ground El. 1216 Ft. Depth 515 Ft. Drilled in Alluvium Ref: DWR Bul 91-20 (1920-67)
RCWD Master Plan (1970-83); LH Rpt (1983-87); RCWD Reports (1989-93)

FIGURE 4.2



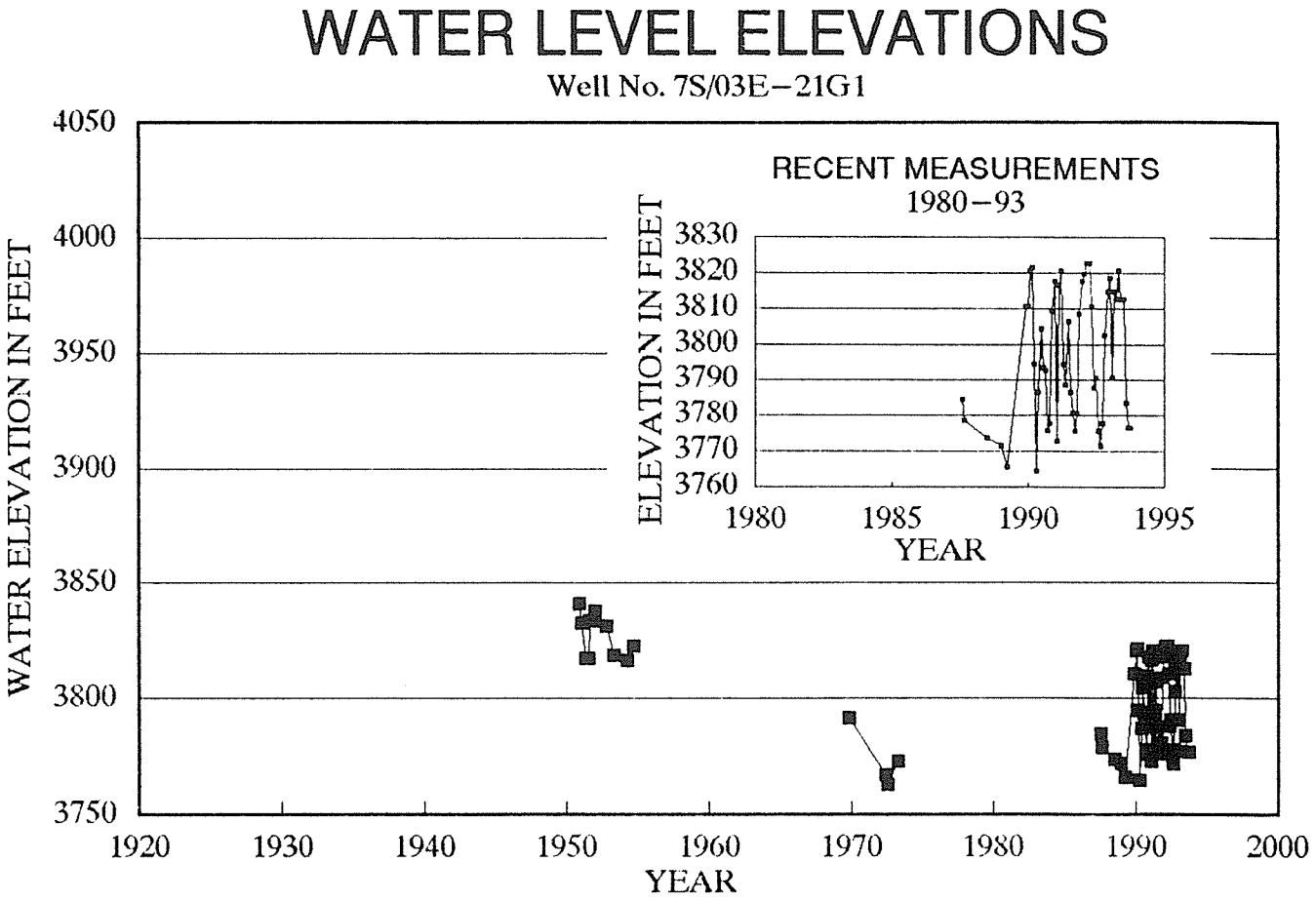
Ground El. 93 Ft Depth 138.8 Ft Perf Unknown Drilled in Alluvium
Camp Pendleton Records (1950-1972)(1988-1993) LII Study (1973-85) dates estimated

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 (1987–1993) 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 1993 water year are shown below:

Well	Water Elevation 1992 Feet	Water Elevation 1993 Feet	Change in Water Level Feet
8S/2W-12H1	1111.1	1198.1	Up 87.0
10S/4W-7J1	83.1	86.4	Up 3.3
7S/3W-20C9	986.6	994.0	Up 7.4
7S/3E-21G1	3777.6	3776.6	Down 1.0

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 1992-93 water in storage in the SWP increased from 2.3 million acre feet on September 30, 1992, to 4.2 million acre feet on September 30, 1993. Storage on September 30, 1993, corresponds to 80 percent of the total SWP storage capacity.

Similarly, water in storage in the Colorado River system increased from 40.9 million acre feet on September 30, 1992, to 48.0 million acre feet on September 30, 1993. On September 30, 1993, those reservoirs contained 74 percent of their total capacity.

Projections of water availability on the SWP for the coming year (1994) are prepared by the State Department of Water Resources on a monthly basis from February through May. The May 1, 1994 report indicates that because of low rainfall of 65 percent of average for the State, the SWP has approved 50 percent of approved requests for delivery in 1994.

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 9/30/89	9/30/90	9/30/91	9/30/92	9/30/93
Oroville	3,540	2,150	1,163	1,399	1,317	2,666
San Luis (State Share)	1,060	216	100	385	381	944
Pyramid	171	160	163	164	159	156
Castaic	324	184	268	296	257	263
Silverwood	73	62	67	68	68	68
Perris	132	104	116	120	117	120
Total	5,300	2,876	1,877	2,432	2,299	4,217
Percent of Capacity		54%	35%	46%	43%	80%

MAJOR COLORADO RIVER RESERVOIRS

	Total Capacity	Water in Storage 9/30/89	9/30/90	9/30/91	9/30/92	9/30/92
Flaming Gorge	3,789	2,960	3,082	3,391	3,106	3,471
Blue Mesa	941	585	618	700	604	720
Navajo	1,709	1,310	1,361	1,586	1,579	1,625
Powell	27,000	19,805	16,252	14,699	14,085	18,825
Mead	28,537	21,528	20,144	19,233	19,416	21,379
Mohave	1,818	1,388	1,488	1,571	1,623	1,375
Havasu	648	563	562	556	548	579
Total	64,442	48,139	43,507	41,736	40,961	47,974
Percent of Capacity		75%	68%	65%	64%	74%

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 Rancho California 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 1,072 acre feet of treated wastewater was exported by Eastern MWD in 1992-93.

No water from Well No. 7S/3E-23D in Anza Valley was exported in 1992-93.

The following paragraphs of this report describe imports during Water Year 1992-93 and during the 1966-1993 period. There is also discussion of MWD's existing Lake Skinner operations as well as proposed operations in Domenigoni Valley.

5.2 Water Year 1992-93

Water quantities imported into and exported from the Santa Margarita River Watershed for months during Water Year 1992-93 are listed on Table 5.2.

5.3 Water Years 1966-1993

Water quantities imported by districts into the Santa Margarita River Watershed during Water Years 1966-1993 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 1966-1993 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
1992-93
Quantities in Acre Feet

	IMPORTS								EXPORTS							
									CAMP PENDLETON			U.S.	ELSINORE			
YEAR MONTH	EASTERN MWD	ELSINORE VALLEY MWD	FALLBROOK PUD	RAINBOW MWD	RANCHO CAL WD	U.S. NAVAL WS	WESTERN MWD 1/	TOTAL IMPORTS	EXPORTS	IMPORTS	NET EXPORT	NAVAL WS	EASTERN MWD	VALLEY MWD	FALLBROOK SD *	TOTAL EXPORTS
1992																
OCT	604	636	803	211	1,791	9	4	4,058	188	217	(29)	0.3	0	13	120	104
NOV	155	636	649	130	901	6	3	2,480	178	174	4	0.4	0	11	117	132
DEC	139	9	262	87	86	2	0	585	139	185	(46)	0.3	211	14	119	298
1993																
JAN	193	9	138	48	0	14	1	403	111	238 *	(127)	0.6	237	13	132	255
FEB	142	23	146	44	0	15	1	371	127	211 *	(84)	6.1	47	13	100	82
MAR	261	23	331	151	0	17	1	784	163	184	(21)	4.5	36	12	97	129
APR	365	100	552	277	391	15	2	1,702	122	133	(11)	2.1	281	12	87	371
MAY	532	100	634	213	1,142	8	2	2,631	206	135	71	0.5	216	11	87	386
JUNE	847	90	758	170	1,536	6	5	3,412	199	116	83	0.4	82	13	93	271
JULY	832	90	864	192	1,862	6	3	3,849	294	114	180	0.4	104	12	105	401
AUG	770	99	971	222	1,810	7	4	3,883	317	103	214	0.4	(64)	13	102	265
SEPT	553	99	877	220	1,892	12	4	3,657	285	116	169	0.3	(78)	13	96	200
TOTAL	5,393	1,914	6,985	1,965	11,411	117	30	27,815	2,329	1,926	403	16	1,072	150	1,255	2,896

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

* Estimated

TABLE 5.3

SANTA MARGARITA RIVER WATERSHED
IMPORTS/EXPORTS
1966-1993
Quantities in Acre Feet

	IMPORTS								EXPORTS							
									CAMP PENDLETON			U.S.	ELSINORE			
YEAR MONTH	EASTERN MWD	ELSINORE VALLEY MWD	FALLBROOK PUD 1/	RAINBOW MWD	RANCHO CAL WD	U.S. NAVAL WS	WESTERN MWD 2/	TOTAL IMPORTS	EXPORTS	IMPORTS	NET EXPORT	NAVAL WS	EASTERN MWD	VALLEY MWD	FALLBROOK SD	TOTAL 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	6,985	1,965	11,411	117	30	27,815	2,329	1,926	403	16	1,072	150	1,255	2,896

1/ Includes DeLuz Heights MWD prior to 1991

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

E - Estimate

N/R - Not Reported

* Revised data

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 1992-93, water levels in Well AV-28B reached a low of 1,357.22 feet in October 1992. MWD released 25.43 acre feet in October 1992 to maintain groundwater levels in Well AV-28B above the minimum. Groundwater levels rose to a maximum of 1,370.98 feet at the end of February 1993 in response to major storms. The levels had declined to 1,364.04 feet on September 30, 1993.

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 1992-93, local runoff into Lake Skinner totaled 8,507.10 acre feet following major storms in January and February 1993. Releases began on January 8, 1993 and, except for January 19 and 20, continued through June 1993. Monthly releases were as follows:

Month	Release Acre Feet
January 1993	520.0
February	835.0
March	2,125.7
April	2,769.6
May	2,240.1
June	16.7
TOTAL	8,507.1

The maximum mean daily rate of release was 48.4 cubic feet per second on April 17-19, but most of the water released in March, April and May was at rates of approximately 45-46 cubic feet per second.

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 January 1993, MWD discharged 2.9 acre feet into Rainbow Creek from the No. 2 Pipeline, as part of a normal shutdown of Pipelines 1 and 2 and the Rainbow Tunnel.

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.

Accordingly, MWD has begun development of an MOU for the Domenigoni Valley Reservoir Project. The MOU will provide for monitoring groundwater levels west of the west dam by wells similar to those downstream of Lake Skinner as well as for determining and releasing local reservoir inflows.

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 1966 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 a claimed 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 Grammer	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. Grammer	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

APPLICATIONS

28930	Agri-Empire, Inc.	10/22/86	Chihuahua Creek	Sec. 1, 9S, 2E Sec. 2, 9S, 2E Sec. 11, 9S, 2E	ST-70 AF*	I	

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; D - Domestic; R - Recreation; E - Fire Protection; H - Fish Culture
ST - Diversion to Storage; I - Irrigation; M - Municipal; S - Stockwatering; Z - Other

* - Storage capacities in existing reservoirs are 172 AF (Sec. 1), 8 AF (Sec. 2) and 10 AF (Sec. 11)

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	USE
Anderson, Nina B.	Nezami, Mohammed	April 11, 1892	Fern Creek	NW 1/4 Of SE 1/4 Sec 31, T8S, R4W	32 gpm	Irrigation
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	Irrigation
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	Domestic, Irrigation, Stock Water
United States	United States	1883	Santa Margarita River	Sec 5, T10S, R4W	20 cfs 1200 AF/Yr	Domestic, Irrigation, Stock Water

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 1992-93 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 1992-93 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 1966-1993 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 1992-93 was 6 acre feet from Well No. 1 and 26 acre feet from Well No. 2 for a total production of 32 acre feet. The depth of water in Well No. 1 ranged from 40 feet to 91 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
1992-93

	PRODUCTION			USE					
	LOCAL	IMPORT	TOTAL	AG	COMM	DOM	LOSS	TOTAL	WATER RIGHT
WATER PURVEYORS									
Anza Mutual Water Company	32	0	32	0	0	29	3 1/	32	Appropriative
Eastern MWD	524	5,393	5,917	36	0	5,585	296	5,917	Appropriative
Elsinore Valley MWD	0	1,914	1,914	0	0	1,723	191 1/	1,914	----
Fallbrook PUD	86	6,985	7,071	4,386	272	2,077	336	7,071	Appropriative
Lake Riverside Estates	192	0	192	0	192 2/	0	0	192	Appropriative
Murrieta CWD	508	0	508	4	105	323	76	508	Appropriative
Rainbow MWD	0	1,965	1,965	1,655	0	132	178	1,965	----
Rancho California WD	31,029	11,411	42,440	29,265	2,141	10,618	416 3/	42,440	Various
U.S.M.C. - Camp Pendleton	3,946	0	3,946	374	----- 4/	1,081	2,491 1/ 5/	3,946	Appropriative/ Riparian
U.S. Naval Weapons Station	0	117	117	0	----- 4/	106	11 1/	117	----
Western MWD	0	30	30	0	27	0	3 1/	30	----
INDIAN RESERVATIONS									
Cahuilla	232	0	232	214	0	18	0	232	Overlying/ Reserved
Pechanga	91	0	91	0	0	91	0	91	Overlying/ Reserved
MOBILE HOME PARKS/CAMPGROUNDS									
Butterfield Oaks Mobile Home Park	12	0	12	0	0	11	1 1/	12	Riparian/ Overlying
Thousand Trails Resorts	42	0	42	0	0	38	4 1/	42	Overlying
SUBSTANTIAL USERS	6,712 6/	0	6,712	6,641	0	0	71 7/	6,712	
TOTAL	43,406	27,815	71,221	42,575	2,737	21,832	4,077	71,221	

1/ Assumes 10% loss
2/ Recreation Use
3/ Includes 519 acre feet released into Murrieta Creek
4/ Listed with Domestic uses
5/ Includes exports of 2,329 acre feet
6/ 711 acre feet for surface diversion, 6,324 acre feet from groundwater minus 232 acre feet on the Cahuilla Reservation and minus 91 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
1991-92

	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 1992-93 Water Year in the Santa Margarita River Watershed totaled 524 acre feet from one well and imports totaled 7,287 acre feet. A portion of that import amounting to 1,894 acre feet was exported from the Santa Margarita River Watershed resulting in net import of 5,393 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 152 feet in September, 1993. 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 1992-93, Eastern MWD reclaimed 3,613 acre feet of wastewater, of which 1,696 acre feet were reused, 192 acre feet were discharged into Temecula Creek, 653 acre feet were recharged into the groundwater basin, and 1,072 acre feet were exported.

During 1992-93, Eastern MWD completed construction of a 24-inch pipeline along Winchester Road to transport wastewater from the Rancho California Regional Water Reclamation Facility to areas within the Watershed for reuse as well as for export of up to 10 mgd from the Watershed. The portion of wastewater which might be exported from the Watershed relative to the proportion of native water in the supply to the wastewater treatment plant's sewer area was considered in an investigation by the Watermaster in 1991-92.

It was concluded that in that year about one-third of the supply to the plant originated as groundwater in the Santa Margarita River Watershed. The other two-thirds originated 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. Approximately 30 percent of the reclaimed water was exported in 1992-93.

Estimates of water production and use for the period 1966-1993 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 1,914 acre feet were imported into the portion of their service area which is inside the Santa Margarita River Watershed in 1992-93. Also during 1992-93, approximately 150 acre feet of wastewater were exported from that same area.

Fallbrook Public Utility District

In 1992-93, Fallbrook PUD imported 12,695 acre feet through its contract with the San Diego County Water Authority as shown in Appendix A. Of this quantity, 2,120 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 4,865 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 6,985 acre feet in 1992-93.

In addition to importations, the District has three wells which have supplied water since 1977. In 1992-93 these wells produced 86 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 1993 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 1992-93 was 192 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 1992-93, Murrieta CWD produced 508 acre feet of water as shown in the following tabulation and in Appendix A.

Well Designation	Well Name	1992-93 Production Acre Feet	Casing Depth Feet	Water Depth Feet	Well Depth Feet	Perforated Interval Feet
7S/3W-20C9	Holiday	176	25	90 - 102	307	60 - 307
7S/3W-20G5	House	100	50	107 - 127	298	120 - 252
7S/3W-17R2	Lynch	0	26	54 - 64	212	172 - 212
7S/3W-18J2	North	232	50	140 - 153	650	240 - 260
						500 - 640
7S/3W-20D	South	<1	50	112 - 128	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 90 to 102 feet in 1992-93. Accordingly all of Murrieta CWD well production is from the older alluvium under a groundwater appropriative right.

Production for the period between 1966 and 1993 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 1992-93 amounted to 1,965 acre feet.

Total imports to the District, for years between 1966 and 1993, 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 47 wells in 1992-93 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 1992-93, 31,029 acre feet of local supplies were pumped from the Murrieta-Temecula Ground Water Area and 11,411 acre feet were

imported for total production of 42,440 acre feet not including 31,704 acre feet of water released from Vail Dam for recharge. During 1992-93, 519 acre feet were released into the Santa Margarita River system: 124 acre feet in October 1992 to meet the 3 cfs requirement and 395 acre feet were pumped into Murrieta Creek from Well 135 to lower groundwater levels at a construction site.

The District reclaimed 374 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, 31,704 acre feet were released from Vail during 1992-93. Releases from Vail for groundwater recharge for the period 1972 to 1993 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
1992-93
Quantities in Acre Feet

MONTH YEAR	AG	COMM	DOM	TOTAL
1992				
OCT	35	4	99	138
NOV	10	3	46	59
DEC	8	3	44	55
1993				
JAN	23	3	27	53
FEB	8	3	21	32
MAR	3	3	16	22
APR	10	2	19	31
MAY	38	3	39	80
JUNE	68	4	57	129
JULY	80	5	58	143
AUG	128	6	77	211
SEPT	105	5	64	174
TOTAL	516	44	567	1,127

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. During 1992-93 the Watermaster conducted preliminary analysis of how provisions of the 1940 Stipulated Judgment might limit Rancho California WD's storage of water in Vail Lake. This analysis was summarized in a progress report which is under study by the parties.

Imported Water Return Flows

During 1992-93, Rancho California WD imported 11,411 acre feet of water compared to 16,931 acre feet in 1991-92. Quantities of imported water delivered to the Rancho Division and the Santa Rosa Division are shown below for Water Years 1991-92 and 1992-93.

Month	Imported Deliveries Rancho Div.		Imported Deliveries Santa Rosa Div.		Total Imported Deliveries	
	1992	1993	1992	1993	1992	1993
October	303	168	1,771	1,623	2,074	1,791
November	0	20	841	881	844	901
December	0	0	143	86	143	86
January	0	0	0	0	0	0
February	0	0	0	0	0	0
March	0	0	0	0	0	0
April	51	40	277	351	328	391
May	537	449	919	693	1,456	1,142
June	728	552	1,552	984	1,280	1,536
July	887	721	2,074	1,141	2,961	1,862
August	918	577	2,819	1,233	3,737	1,810
September	534	655	2,574	1,237	3,108	1,892
Total	3,958	3,182	12,973	8,229	16,931	11,411

Return flows for 1992-93 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 1992-93, 15.19 percent of the supply to the Rancho Division was imported and 38.3 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
1992-1993
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	1,846.42	1,011.93	270.17	1,598.46	688.79	772.96	1,889.90	1,325.11	9,403.73
% Import	15.19	15.19	15.19	15.19	15.19	15.19	15.19	15.19	15.19
Import Use	280.40	153.68	41.03	242.75	104.60	117.38	287.01	201.24	1,428.08
% Credit	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00
Credit	92.53	50.71	13.54	80.11	34.52	38.74	94.71	66.41	471.27
COMMERCIAL									
Total Use	14.04	709.23	300.87	710.68	46.33	73.86	20.83	0.16	1,876.00
% Import	15.19	15.19	15.19	15.19	15.19	15.19	15.19	15.19	15.19
Import Use	2.13	107.71	45.69	107.93	7.04	11.22	3.16	0.02	284.90
% Credit	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Credit	0.21	10.77	4.57	10.79	0.70	1.12	0.32	0.00	28.49
DOMESTIC									
Total Use	397.49	1,409.89	372.24	5,539.36	90.43	322.69	456.14	172.43	8,760.68
% Import	15.19	15.19	15.19	15.19	15.19	15.19	15.19	15.19	15.19
Import Use	60.36	214.11	56.53	841.23	13.73	49.01	69.27	26.19	1,330.43
% Credit	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Credit	15.09	53.53	14.13	210.31	3.43	12.25	17.32	6.55	332.61
TOTAL USE	2,257.95	3,131.05	943.28	7,848.51	825.55	1,169.51	2,366.87	1,497.70	20,040.40
TOTAL									
Total Import Use	342.90	475.49	143.25	1,191.90	125.37	177.61	359.44	227.45	3,043.41
Total Credit	107.84 **	115.01	32.24	301.21	38.66	52.11	112.35	72.96	832.36
Total Credit Qyal		57.51	32.24		38.66				128.40
Total Credit Qtoal		57.51		301.21		52.11	112.35	72.96	596.13

* 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
1992-1993
SANTA ROSA DIVISION
Quantities in Acre Feet

	HYDROGEOLOGIC AREAS		
AQUIFER	1 MURRIETA WOLF 1/2 QYAL 1/2 QTOAL	8 RTS 279, 280 & 285 1/4 QYAL 3/4 QTOAL	TOTAL
AGRICULTURAL *			
Total Use	0.00	1,064.65	1,064.65
% Import	38.30	38.30	
Import Use	0.00	407.74	407.74
% Credit	33.00	33.00	
Credit	0.00	134.55	134.55
COMMERCIAL			
Total Use	21.53	165.91	187.44
% Import	38.30	38.30	
Import Use	8.25	63.54	71.78
% Credit	10.00	10.00	
Credit	0.82	6.35	7.18
DOMESTIC			
Total Use	0.00	869.39	869.39
% Import	38.30	38.30	
Import Use	0.00	332.96	332.96
% Credit	25.00	25.00	
Credit	0.00	83.24	83.24
TOTAL USE	21.53	2,099.95	2,121.48
TOTAL			
Total Import Use	8.25	804.23	812.48
Total Credit	0.82	224.15	224.97
Total Credit Qyal	0.41	56.04	56.45
Total Credit Qtoal	0.41	168.11	168.52

* 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.

There are other areas classified as being in the Santa Rosa Division that also overlie the groundwater area and water use data on these areas is being gathered for future reports.

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 1992-93 is computed to be 832.36 acre feet for the Rancho Division and 224.97 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 1992-93 for the Rancho Division are 128.40 acre feet and 56.45 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 1992-93.

Division of Local Water

During 1992-93, Rancho California WD pumped 31,029 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 1993.

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, Exh. 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.

During 1992-93 the geologic well logs for Rancho California WD wells in Murrieta Valley were reviewed to determine if water from the younger alluvium was being pumped. Six wells were checked as shown in the following tabulation.

RCWD Wells in Murrieta Valley	Depth of Younger Alluvium From Well Log	Log Characteristic	Perforated Interval
106	0	Top of 0-40' clay	130-980
107	70	Top of 70'-85' gravel and clay	60-590
108	55	Top of 55'-70' gravel/sandy clay	60-590
135	11	Top of 11'-22' silty clay	70-170
205	10	Top of 10'-20' sandy clay	150-1000
301	26	Top of 26'-32' blue clay	140-640

Comparison of the top of the perforated interval with the depth of the younger alluvium estimated from the driller's well log indicates that, except for Well No. 107, none of the wells are perforated in the younger alluvium. For Well No. 107 the top 10 feet of the 60 to 590 feet of perforated interval is within the younger alluvium.

The information on Table 7.6 has been modified to incorporate the foregoing findings.

Well logs for Well Nos. 466 and 235 were also reviewed. These wells are located very close together in the lower part of Long Canyon. The geologic log for one of the wells, No. 466 (formerly Cantarini and No. 219), shows hard pan between depths of 22 and 49 feet and hard clay between 49 and 60 feet. Production from this well is clearly from the older alluvium.

The geologic log for Well No. 235 (formerly No. 137) shows only sand and gravel at those depths and no clay until a depth of 145 feet. Perforated interval in Well No. 235 is not known, but the well is located near the contact between younger and older alluvium.

Production from the younger alluvium and older alluvium for 1992-93 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 3,259 acre feet were pumped from the younger alluvium and 27,770 were pumped from the older alluvium in 1992-93.

Two wells, Nos. 149 and 151 were added to Table 7.7 in 1992-93. Well 149 is located in Section 7C, T8S, R1W and is perforated below 200 feet. Well 151 is located in Section 2Q, T8S, R2W in older alluvium. Thus both the added wells produce water from the older alluvium.

Several wells were deleted from Table 7.7. Well Nos. 223 and 224 were converted to monitoring wells, Well No. 107 was abandoned, and Well Nos. 218, 230 and 240 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.

TABLE 7.7
SANTA MARGARITA RIVER WATERSHED

RANCHO CALIFORNIA WATER DISTRICT
WELL PRODUCTION FROM YOUNGER AND OLDER ALLUVIUM
1992-93
Quantities in Acre Feet

WELL NO.	QYAL	QTOAL	TOTAL
101	0.00	71.00	71.00
102	0.00	306.00	306.00
105	0.00	455.00	455.00
106	0.00	88.00	88.00
108	0.00	0.00	0.00
109	1.74	29.26	31.00
110	664.41	770.60	1,435.00
113	0.00	552.00	552.00
115	0.00	0.00	0.00
116	0.00	0.00	0.00
117	0.00	0.00	0.00
118	0.00	507.00	507.00
119	0.00	0.00	0.00
120	0.00	937.00	937.00
121	0.00	0.00	0.00
122	0.00	0.00	0.00
123	39.50	169.50	209.00
124	0.00	179.00	179.00
125	0.00	440.00	440.00
126	0.00	1,340.00	1,340.00
128	0.00	0.00	0.00
129	0.00	41.00	41.00
130	0.00	1,158.00	1,158.00
131	0.00	536.00	536.00
132	306.94	438.06	745.00
133	0.00	345.00	345.00
135	0.00	94.00	94.00
138	0.00	1,956.00	1,956.00
139	0.00	427.00	427.00
140	0.00	2,037.00	2,037.00
141	0.00	277.00	277.00
143	0.00	705.00	705.00
144	0.00	497.00	497.00
145	0.00	585.00	585.00
149	0.00	47.00	47.00
151	0.00	0.00	0.00
201	0.00	420.00	420.00
203	0.00	580.00	580.00
204	0.00	1.00	1.00
205	0.00	1,797.00	1,797.00
207	0.00	125.00	125.00
208	0.00	487.00	487.00
209	0.00	348.00	348.00
210	1,235.29	88.71	1,324.00
211	0.00	0.00	0.00
212	0.00	211.00	211.00
215	0.00	403.00	403.00
216	0.00	163.00	163.00
217	0.00	998.00	998.00
231	0.00	34.00	34.00
232	495.07	1,235.93	1,731.00
233	514.80	1,285.20	1,800.00
234	1.72	9.28	11.00
235	0.00	2,277.00	2,277.00
301	0.00	71.00	71.00
302	0.00	26.00	26.00
309	0.00	2,222.00	2,222.00
TOTAL	3,259.46	27,769.54	31,029.00

This production of 3,259 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 1992-93 there were total return flow credits of 184.85 acre feet. Deducting this from the younger alluvium pumpage leaves 3,074 acre feet of production under the Vail appropriation right. In 1992-93, 31,704 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, 516 acre feet were used for agricultural purposes within the service area designated in Permit 7032.

The remaining production of 2,558 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, 2,558 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 1992-93, imports to Improvement District A amounted to approximately 30 acre feet.

Deliveries to Improvement District A through turnout WR-13 for the period 1966 to 1993 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 3,946 acre feet in Water Year 1992-93. This production is from the younger alluvium and is based on riparian and appropriative rights. Of this quantity, 2,329 acre feet were exported out of the Watershed as shown in Appendix A.

A portion of the exported water amounting to 1,926 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 1966-1993.

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 1992-93, 117 acre feet were imported of which 16 acre feet of wastewater were exported, as shown in Appendix A. Imports and use between 1969 and 1993 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 deliveries on the Cahuilla Indian Reservation are not measured, however Reservation representatives report that 130 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 18 acre feet from wells listed in Appendix C.

In 1992-93, 280 acres were leased for irrigation use. Crops included 80 acres of potatoes, 80 acres of oats, and 120 acres of barley. 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 650 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 91 acre feet per year for domestic purposes. There is no reported irrigation use.

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 6,712 acre feet, not including Indian Reservations. This estimate was based on reported irrigated acreage and includes 711 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.

Agri-Empire requested that the SWRCB consider a settlement whereby Agri-Empire would discontinue operation of a riparian diversion from Temecula Creek in exchange for being allowed to continue to store water at the remaining reservoir on Chihuahua Creek.

The SWRCB responded that they could not approve the proposed exchange because of restrictions on the use of water under a riparian right and because the proposal still required storage of water which is unavailable in this fully appropriated stream. The SWRCB subsequently requested that Agri-Empire provide written confirmation regarding the future use of the reservoir.

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 1992-93 the Watermaster conducted preliminary analysis of how provisions of the 1940 Stipulated Judgment might limit Rancho California WD's storage of water in Vail Lake. This analysis was summarized in a progress report which is under study by the parties.

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 1992-93, after import return flow credits were considered, 3,074 acre feet were produced from the younger alluvium by Rancho California WD under Permit 7032. Table 7.3 indicates that 516 acre feet were used within the 7032 Service Area for agricultural purposes. The remaining 2,558 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.

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.

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. Proposed San Diego County Landfill along Rainbow Creek.
5. Construction of a soil treatment facility on the Cahuilla Indian Reservation.

9.2 High Nitrate Concentrations

In recent years high concentrations of nitrate have been measured on Rainbow Creek and in Anza Valley. During 1992-93 water samples were collected from Rainbow Creek at Willow Glen Road and from the Santa Margarita River upstream and downstream from Rainbow Creek by the Environmental and Natural Resources Management Office at Camp Pendleton as part of their surface water quality monitoring program. Nitrate concentrations in these samples taken on May 25, 1993 are shown below:

	Discharge cfs	Nitrate as Nitrate
Santa Margarita River upstream of Rainbow Creek	41	2.7 mg/l
Rainbow Creek at Willow Glen	1.5 E	16.6 mg/l
Santa Margarita River downstream of Rainbow Creek	54	3.1 mg/l

E - Estimate by U.S.G.S.

The measured nitrate concentrations in Rainbow Creek 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 some delays the project contract was received by the District in 1994. The project includes installation of a stream gaging station on Rainbow Creek to monitor nitrate and phosphate concentrations. The project also includes distribution of educational literature, seminars, and demonstration of a tailwater recovery project. The project is now expected to be initiated in the September of 1994.

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 have concentrations below the EPA drinking water limit for nitrate.

Since 1986, the U.S.G.S. has collected water samples from four wells on the Cahuilla Indian Reservation 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 one foot between October, 1992 and October, 1993.

No recent 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 rose 87 feet in 1992-93. Well 7S/3W-20C9 in the Murrieta CWD area rose 7.4 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 January 1994, the RWQCB issued a draft Basin Plan Update for comment. The draft contains a section on salt balance which described five strategies for dealing with salt build up:

1. Reduce pumping to perennial yield
2. Increase irrigation efficiency
3. Reduce fertilizer application
4. Improve quality of imported waters
5. Increase use of reclaimed waters

9.5 Proposed Landfill

San Diego County continued to seek approvals for Class III landfill sites in the northern part of San Diego County. In 1993 the County deleted one site and initiated consideration of another so that the following four sites are now under consideration:

1. Aspen Road site
2. Gregory Canyon Road site
3. Merriam Mountain South site
4. San Marcos/San Elijo site

The Aspen Road site is in the Santa Margarita River Watershed along Rainbow Creek about two miles upstream from its confluence with the Santa Margarita River. The other sites are outside the Santa Margarita River Watershed.

In June 1993 an Interim Solid Waste Commission was formed to advise the San Diego County Board of Supervisors regarding solid waste matters and to form a new governance system for solid waste disposal. In August 1993 the County agreed to suspend work until the Commission has completed formation of the new organization except for one study. The one study was of a potential site at San Elijo Ranch near San Marcos.

9.6 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 Watermaster responded with comments on the plan in August 1993.

SECTION 10 - WATER QUALITY

10.1 Surface Water Quality

In 1992-93 surface water quality in the Watershed was monitored by Camp Pendleton and Eastern MWD. Stations monitored by Camp Pendleton are listed on Table 10.1 which also shows the available period of record at these locations. Water quality data collected in May 1993 are shown on Appendix Table D-1.

Of the stations sampled in 1993 only DeLuz Creek at McDowell showed a significant increase in total dissolved solids from the range of 700-800 mg/l up to 1,310 mg/l.

The 1993 sample taken from DeLuz Creek is also significantly higher than prior samples in sulfate and nitrate. This fluctuation is normally explained by low flows. Unfortunately flow measurements were only resumed on DeLuz Creek in October 1992 so flow comparisons with previous samples cannot be made. However it is probable the flows in 1993 were higher than in prior years because of the extremely wet January and February floods. Thus the increase in TDS may be the result of increased leaching of soils because of the wet year. If so the higher TDS levels may not persist next year.

In general, measurements of the total dissolved solids in 1992-93 are within the range of fluctuation since 1991; some stations were at the top of the range and others were not. Stations with total dissolved solids near the top of the range of fluctuation were Temecula Creek at I-15 and Santa Margarita River at Temecula. Stations where measurements were in the lower part of the range were the Santa Margarita River stations at Willow Glen, at DeLuz Road, and at the Camp Pendleton Diversion Dam.

Water quality data for surface streams sampled by Rancho California WD in prior years are shown in Appendix Table D-2.

Santa Margarita River Monitoring Program

Under the Santa Margarita River Monitoring Program, Eastern MWD has collected samples from eight sites along the Santa Margarita River stream system from Temecula Creek near I-15 to the estuary near I-5.

Samples collected at these sites on a monthly basis since April, 1991 have been analyzed for a wide variety of information including total dissolved solids, total nitrogen, nitrate as nitrogen, total phosphorus and dissolved oxygen. This information plus temperature, velocity and flow data collected at the sites are shown on Appendix Table D-8.

TABLE 10.1

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY STATIONS
MONITORED BY USMC, CAMP PENDLETON
1992-93

STATION	SAMPLING FREQUENCY	PERIOD FROM	PERIOD TO	PERIOD OF RECORD
Fallbrook Creek/NWS	Periodically	1968	Present	XXXXXXXXXXXXXXXXXXXXXXXX
Santa Margarita River Near FPUD Sump	Periodically	1951	Present	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
DeLuz Creek at DeLuz/ Murrieta Road (McDowell)	Periodically	1953	Present	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Murrieta Creek Near Temecula	Periodically	1968	Present	XXXXXXXXXXXXXXXXXXXXXXXX
Temecula Creek at I-15	Periodically	1961	Present	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Fallbrook Creek at Lake O'Neill	Periodically	1965	1992	XXXXXXXXXXXXXXXXXXXXXXXXXXXX
Lake O'Neill	Periodically	1952	1992	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Rainbow Creek at Willow Glen Road	Periodically	1970	Present	XXXXXXXXXXXXXXXXXXXXXX
Sandia Creek Near Fallbrook	Periodically	1989	Present	XXXXX
Santa Margarita River at Temecula Gorge	Periodically	1989	Present	XXXXX
Santa Margarita River Upstream of Rainbow Creek	Periodically	1991	Present	XXX
DeLuz Road at Santa Margarita River	Periodically	1991	Present	XXX

YEAR 1950 1960 1970 1980 1990 2000

In addition to the data listed on Appendix Table D-8, samples from the Camp Pendleton diversion dam site were also analyzed for inorganic chemical constituents as shown on Appendix Table D-7.

10.2 Groundwater Quality

During 1992-93 samples of groundwater were collected from seven wells at Camp Pendleton as shown on Appendix Table D-6. Water quality showed little change from prior years. The analysis for Well 10S/5W-23K2 showed total dissolved solids of 331 mg/l, about half of the concentration that the other values in the analysis would indicate.

The ratio of TDS to specific conductance for the wells sampled during 1993 was 0.59 compared to 0.63 in 1992 and 0.59 in 1991. The return of this ratio to that observed in 1991 indicates that these changes are apparently within the range of historic fluctuations.

Water quality sampling data for seven wells in Murrieta CWD are listed in Appendix Table D-3. Samples collected from the Holiday, House and North wells in 1993 showed little change from prior samplings.

Water quality data for Rancho California WD wells are shown in Appendix Table D-4. New data were collected from 14 wells during 1992-93.

TDS concentrations increased in seven of the 14 wells, decreased in four wells and had no change or no report for the other three wells. No wells had significant changes in TDS.

Appendix Table D-5 shows water quality data collected in prior years by the U.S.G.S. from wells on Indian Reservations. In 1993 samples were collected from six wells on the Pechanga Indian Reservation. Values were consistent with historical results, except for Well 8S/2W-34B04 where specific conductance decreased from 564 umhos in 1991 to 267 umhos in 1993. Total dissolved solids in that well decreased from 339 mg/l to 170 mg/l over the same period. That is the lowest total dissolved solids concentration noted in recent 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 MOU - This task provides for monitoring the operation of Lake Skinner to ensure that MWD is in compliance with the provisions of the Memorandum of Understanding on the Operation of Lake Skinner.

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. Development of Domenigoni Valley Reservoir Project MOU - This task includes cooperation with MWD in the development of an MOU which will provide for maintenance of local surface flows in Warm Springs Creek after construction of a dam in Domenigoni Valley.

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	1993/94	$154,400	$115,540	$269,940
Projected Years	1994/95	$153,300	$110,000	$263,300
	1995/96	$161,000	$115,000	$277,000
	1996/97	$169,000	$122,000	$291,000
	1997/98	$177,000	$128,000	$305,000
	1998/99	$186,000	$134,000	$320,000

SECTION 12 - WATERMASTER OFFICE BUDGET 1993-94

A proposed Watermaster Office Budget of $263,300 for the Water Year ending September 30, 1995, is included in this report as Table 12.1.

This budget includes $153,300 for the Watermaster Office and $110,000 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, 1995

	APPROVED BUDGET CURRENT YEAR 1993-1994	PROPOSED BUDGET 1994-1995
	Total	Total
Watermaster Office	$	$
Rent	2,400	2,400
Accounting Services	4,000	4,000
Supplies	2,000	1,500
Insurance		
General Liability & Professional	4,000	4,000
Printing	1,200	1,500
Audit	2,100	2,100
Publications	2,200	1,500
Clerical/Data Management	40,000	40,000
Engineering Assistance	4,000	2,000
Utilities		
Telephone	2,100	2,000
Sanitation	1,000	1,200
Electric	900	900
Miscellaneous Operating/Maintenance	2,000	2,000
Mileage/Travel		1,500
Watermaster		
Consulting Services	75,000	75,000
Automobile Expense	3,600	3,000
Travel Reimbursements	4,800	5,500
Equipment		
Computer/Software	1,500	2,000
Equipment Maintenance	1,200	1,200
Copy Machine	400	---
SUBTOTAL WATERMASTER OFFICE	$154,400	$153,300
Estimated Cost of USGS Gaging Station Operation	115,540	110,000
TOTAL	$269,940	$263,300

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1992-93

APPENDIX A
WATER PRODUCTION AND USE
WATER YEAR 1992-93

JULY 1994

TABLE A-1

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

EASTERN MUNICIPAL WATER DISTRICT
1992-93
Quantities in Acre Feet

	PRODUCTION					USE						RECLAIMED WASTE WATER				
MONTH 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
1992																
OCT	53	719	115	604	657	5	0	620	625	32	657	157	0	0	282	439
NOV	42	165	10	155	197	5	0	182	187	10	197	86	0	0	303	389
DEC	33	418	279	139	172	5	0	158	163	9	172	42	211	0	68	321
1993																
JAN	31	203	10	193	224	6	0	206	212	12	224	8	237	192	0	437
FEB	27	142	0	142	169	4	0	157	161	8	169	9	47	0	0	56
MAR	46	439	178	261	307	5	0	287	292	15	307	47	36	0	0	83
APR	58	365	0	365	423	1	0	401	402	21	423	110	281	0	0	391
MAY	44	619	87	532	576	0	0	547	547	29	576	227	216	0	0	443
JUNE	54	1,117	270	847	901	1	0	855	856	45	901	240	82	0	0	322
JULY	48	1,237	405	832	880	2	0	834	836	44	880	297	104	0	0	401
AUG	50	1,071	301	770	820	1	0	778	779	41	820	228	(64)	0	0	164
SEPT	38	792	239	553	591	1	0	560	561	30	591	245	(78)	0	0	167
TOTAL	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

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 A-2

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

FALLBROOK PUBLIC UTILITY DISTRICT
1992-93
Quantities in Acre Feet

		PRODUCTION						USE					
MONTH YEAR	WELLS	TOTAL DISTRICT IMPORT	DELUZ AREA IMPORT	FALLBROOK AREA IMPORT	FALLBROOK SMRW IMPORT 1/	TOTAL SMRW IMPORT	TOTAL PRODUCTION	AG	COMM	DOM	TOTAL IN SMRW	LOSS*	TOTAL USE IN SMRW
1992													
OCT	8	1,404	291	1,113	512	803	811	647	28	242	917	(106)	811
NOV	8	1,131	238	893	411	649	657	444	22	164	630	27	657
DEC	9	494	65	429	197	262	271	221	20	158	399	(128)	271
1993													
JAN	4	278	19	258	119	138	142	48	14	106	168	(26)	142
FEB	0	296	18	278	128	146	146	25	10	89	124	22	146
MAR	5	630	76	553	255	331	336	114	14	85	213	123	336
APR	9	1,012	160	853	392	552	561	256	18	140	414	147	561
MAY	9	1,363	12	1,352	622	634	643	322	26	164	512	131	643
JUNE	8	1,331	270	1,061	488	758	766	495	26	228	749	17	766
JULY	9	1,548	282	1,266	582	864	873	549	30	211	790	83	873
AUG	9	1,665	379	1,286	592	971	980	657	29	264	950	30	980
SEPT	8	1,543	310	1,233	567	877	885	608	35	226	869	16	885
TOTAL	86	12,695	2,120	10,575	4,865	6,985	7,071	4,386	272	2,077	6,735	336	7,071

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
1992-93
Quantities in Acre Feet

	PRODUCTION	USE					
MONTH YEAR	WELLS	AG *	COMM	DOM	TOTAL DELIVERED	LOSS **	TOTAL USE
1992							
OCT	45	0	13	35	48	-3	45
NOV	33	0	7	24	31	2	33
DEC	29	0	6	21	27	2	29
1993							
JAN	23	0	6	18	24	-1	23
FEB	21	0	3	2	5	16	21
MAR	28	0	4	13	17	11	28
APR	32	0	6	19	25	7	32
MAY	58	1	10	35	46	12	58
JUNE	57	0	13	38	51	6	57
JULY	62	1	11	35	47	15	62
AUG	63	1	12	45	58	5	63
SEPT	57	1	14	38	53	4	57
TOTAL	508	4	105	323	432	76	508

* 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
1992-93
Quantities in Acre Feet

	PRODUCTION			USE				
MONTH YEAR	LOCAL	IMPORT TO WATERSHED	TOTAL IN WATERSHED	AG	COMMERCIAL/ DOMESTIC	TOTAL DELIVERIES	LOSS*	TOTAL USE
1992								
OCT	0	211	211	181	11	192	19	211
NOV	0	130	130	110	8	118	12	130
DEC	0	87	87	69	10	79	8	87
1993								
JAN	0	48	48	38	6	44	4	48
FEB	0	44	44	36	4	40	4	44
MAR	0	151	151	130	7	137	14	151
APR	0	277	277	237	15	252	25	277
MAY	0	213	213	182	11	193	20	213
JUNE	0	170	170	141	14	155	15	170
JULY	0	192	192	160	15	175	17	192
AUG	0	222	222	187	15	202	20	222
SEPT	0	220	220	184	16	200	20	220
TOTAL	0	1,965	1,965	1,655	132	1,787	178	1,965

*Loss = 10% of use

TABLE A-5

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

RANCHO CALIFORNIA WATER DISTRICT
1992-93
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 1/ RELEASE														
1992																	
OCT	2,975	0	571	1,791	5,337	4,380	247	1,221	124	571	0	6,543	(1,206)	5,337	26	0	0
NOV	2,660	0	286	901	3,847	3,520	250	1,126	0	286	0	5,182	(1,335)	3,847	24	0	0
DEC	1,051	0	300	86	1,437	2,491	176	751	0	300	0	3,718	(2,281)	1,437	7	0	0
1993																	
JAN	738	0	1,650	0	2,388	707	84	547	0	1,650	0	2,988	(600)	2,388	4	0	0
FEB	582	0	2,461	0	3,043	185	91	407	0	2,461	0	3,144	(101)	3,043	2	0	0
MAR	1,749	0	6,147	0	7,896	85	77	336	0	6,147	0	6,645	1,251	7,896	17	0	0
APR	2,970	0	397	391	3,758	814	88	417	0	397	0	1,716	2,042	3,758	20	0	0
MAY	4,009	0	4,752	1,142	9,903	2,299	175	852	0	4,752	0	8,078	1,825	9,903	57	0	0
JUNE	3,160	0	4,334	1,536	9,030	3,222	195	1,058	130 *	4,334	0	8,939	91	9,030	50	0	0
JULY	4,160	0	4,099	1,862	10,121	3,192	223	1,154	146 *	4,099	0	8,814	1,307	10,121	62	0	0
AUG	3,655	0	3,609	1,810	9,074	4,420	260	1,459	119 *	3,609	0	9,867	(793)	9,074	54	0	0
SEPT	3,320	0	3,098	1,892	8,310	3,950	275	1,290	0	3,098	0	8,613	(303)	8,310	55	0	0
TOTAL	31,029	0	31,704	11,411	74,144	29,265	2,141	10,618	519	31,704	0	74,247	(103)	74,144	378	0	0

1/ Does not include spill

* Incidental discharge into Murrieta Creek from Well 135

** Loss = Total production less total use

TABLE A-6

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

U.S.M.C. - CAMP PENDLETON
EXCLUDING NAVAL WEAPONS STATION SHOWN ON A-7
1992-93
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
1992												
OCT	91	227	318	35	56	95	132	188	130	89	217	306
NOV	30	279	309	12	18	119	160	178	131	80	174	254
DEC	20	224	244	8	12	97	127	139	105	89	185	274
1993												
JAN	0	184	184	0	0	73	111	111	73	80	238 **	318
FEB	35	175	210	14	21	69	106	127	83	117	211 **	328
MAR	77	190	267	30	47	74	116	163	104	92	184	276
APR	53	145	198	21	32	55	90	122	76	82	133	215
MAY	140	209	349	55	85	88	121	206	143	86	135	221
JUNE	81	260	341	31	50	111	149	199	142	84	116	200
JULY	154	351	505	60	94	151	200	294	211	86	114	200
AUG	211	329	540	82	129	141	188	317	223	85	103	188
SEPT	175	306	481	68	107	128	178	285	196	79	116	195
TOTAL	1,067	2,879	3,946	416	651	1,201	1,678	2,329	1,617	1,049	1,926	2,975

* Assumes no losses

** Estimated

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
Quantities in Acre Feet

	PRODUCTION			USE				WASTE WATER
MONTH YEAR	LOCAL	IMPORT TO WATERSHED 1/	TOTAL	AG	COMMERCIAL/ DOMESTIC	LOSS 2/	TOTAL USE	EXPORTED
1992								
OCT	0.0	9.2	9.2	0.0	8.4	0.8	9.2	0.3
NOV	0.0	6.0	6.0	0.0	5.5	0.5	6.0	0.4
DEC	0.0	2.4	2.4	0.0	2.2	0.2	2.4	0.3
1993								
JAN	0.0	14.0	14.0	0.0	12.7	1.3	14.0	0.6
FEB	0.0	14.7	14.7	0.0	13.4	1.3	14.7	6.1
MAR	0.0	17.3	17.3	0.0	15.7	1.6	17.3	4.5
APR	0.0	15.0	15.0	0.0	13.6	1.4	15.0	2.1
MAY	0.0	8.4	8.4	0.0	7.6	0.8	8.4	0.5
JUNE	0.0	5.5	5.5	0.0	5.0	0.5	5.5	0.4
JULY	0.0	6.0	6.0	0.0	5.5	0.5	6.0	0.4
AUG	0.0	6.6	6.6	0.0	6.0	0.6	6.6	0.4
SEPT	0.0	11.6	11.6	0.0	10.5	1.1	11.6	0.3
TOTAL	0.0	116.7	116.7	0.0	106.1	10.6	116.7	16.3

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

1992-1993

MONTH YEAR	WESTERN MWD IMPORTS TO IMPROVEMENT DISTRICT A	PRODUCTION			
		ANZA MUTUAL WATER CO.	THOUSAND TRAILS	BUTTERFIELD OAKS MOBILE HOME PARK	LAKE RIVERSIDE ESTATES
1992					
OCT	3.70	2.76	3.13	0.30 E	20.05
NOV	2.80	2.03	3.05	0.30 E	3.59
DEC	0.00	0.85	1.75	0.30 E	5.89
1993					
JAN	1.40	0.95	2.07	0.30 E	1.61
FEB	1.20	0.76	2.18	0.30 E	0.00
MAR	1.30	1.38	0.79	0.30 E	0.93
APR	2.00	1.95	4.69	0.30 E	4.46
MAY	2.50	3.41	4.00	0.48 P	10.87
JUNE	4.90	3.74	3.57	0.53 P	40.28
JULY	2.80	5.17	5.01	0.63 P	27.85
AUG	3.70 *	5.13	5.57	0.70 P	41.24
SEPT	3.70 *	4.03	6.63	0.26	35.32
SUBTOTAL				4.70 7.50 **	
TOTAL	30.00	32.16	42.44	12.20	192.09

* Average for August-September

** Estimated non-metered lawn watering

E indicates an estimate

P indicates prior measurments from 1990-91

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1992-93

APPENDIX B
WATER PRODUCTION AND USE
WATER YEAR 1965-66 TO WATER YEAR 1992-93

JULY 1994

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

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 * PRODUCTION	AG	COMM/DOM	TOTAL DELIVERED	LOSS **	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	2,120	10,575	4,865	6,985	7,071	4,386	2,349	6,735	336	7,071

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

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

This table has combined the historic production of DeLuz Heights Municipal Water District with Fallbrook Public Utility District for years prior to 1991

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	16 P	1,096 *	0	0
1987	1,750	66	1,155	26	1,129 *	0	0
1988	1,815	65	1,180	26	1,154 *	0	0
1989	1,881	64	1,204	23	1,181 *	0	0
1990	1,952	66	1,298	27	1,271 *	0	0
1991	1,622	60	973	13	960 *	0	0
1992	1,730	63	1,090	7	1,083 *	0	0
1993	2,051	62	1,271	16	1,255	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

* 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

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 watershed

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

1/ Figures from 1966 to 1972 supplied by USGS; 1972 to 1993 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		
				AGRICULTURE 1/		CAMP SUPPLY 2/		TOTAL	TOTAL 3/			
WATER YEAR	AG LOCAL	CAMP SUPPLY	TOTAL	IN-SMRW	OUT-SMRW	IN-SMRW	OUT-SMRW	EXPORT	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

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.

* Revised from 1991-92 for years 1969-1992

** Revised data

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	16 P
1987	0	116	116	0	105	11	116	26
1988	0	120	120	0	109	11	120	26
1989	0	128	128	0	116	12	128	23
1990	0	145	145	0	132	13	145	27
1991	0	109	109	0	99	10	109	13
1992	0	99	99	0	90	9	99	7
1993	0	117	117	0	106	11	117	16

1/ - Estimate 1969-1984 - Records not available

2/ - Loss = 10% of Use

E - Estimate

P - Partial year data

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1992-93

APPENDIX C
SUBSTANTIAL USERS OUTSIDE
ORGANIZED WATER SERVICE AREAS

JULY 1994

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	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)	90.00	
						8S/1E-7N(2)		
						8S/1E-7Q(1)		
						8S/1E-7Q(2)		
Cottle, Thomas C.	42551 Hwy 79	583-040-028	25.52	66.00	Oats &			
	Aguanga, Ca. 92536	583-040-029	19.89	(Total)	Pasture	8S/1E-19K	79.40	
						8S/1E-19G4		
		583-040-024	23.48					
		583-040-025	23.12					
		583-040-026	23.16					
		583-040-027	22.64					
						8S/1E-29L		88.00
Strange, Owen W.	m/t P.O. Box 1974	583-040-022	97.78					
and Elizabeth G.	Rancho Santa Fe, Ca.	583-040-021	13.45					
Trustees, Strange	92067	583-130-001-3	80.00		Alfalfa			
Living Trust of 4-15-88	43023 Hwy 79	583-120-001-2	120.00		and			
	Aguanga, Ca. 92536	583-060-003-9	41.60	40.00	Permanent pasture			
						8S/1E-29L		150.00
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		
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		
		583-150-001	80.00	13.00	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	488.00	
		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 92-93	IRRIGATED CROP 92-93	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)	30.00	
						8S/1E-18J(1)	Total	
		581-160-015	7.42	10.00	Walnuts			
		581-150-009	7.00	0.00		8S/1E-18H(1)		
						8S/1E-18H(2)		
		581-180-002	20.00	0.00				
		581-180-004	20.00	0.00				
		581-180-014	20.00	0.00		8S/1E-17M		
Missionary Foundation, Inc.	m/t 1625 Tonia Ct. Riverside, CA 92506-5346	581-170-006	310.00	0.00		8S/1E-17B		
				0.00		8S/1E-17H		
	44200 Sage Rd Aguanga, Ca. 92536	581-180-009	120.00	0.00				
		581-190-001	320.00	0.00				
		581-120-006	200.00	5.00	Citrus,	8S/1E-8K2	40.50	
				5.00	Grapes & Row			
				10.00	Deciduous			
		581-070-005	640.00	0.00		8S/1E-9Q - Diversion		0.00
TOTAL				307.00			737.80	238.00

 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 92-93	IRRIGATED CROP 92-93	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)		100.00
		113-130-01	150.09	|		9S/2E-17		
E - Estimated		113-140-03	196.54	of		9S/2E-16N2	133.00	
				|		9S/2E-16M	88.00	
				|		9S/2E-16F1	79.00	
				|		9S/2E-16N1	0.00	
				|		9S/2E-16F2	14.00	
				|		9S/2E-16K - Diversion		10.00
		113-140-04	503.24	|				
		113-140-05	45.09	|				
		113-140-06	93.94	|				
		114-020-09	37.16	165.00	Potatoes			
		114-030-08	331.79	195.00	Oats and	9S/2E-22	18.00	
		114-030-26	42.87	190.00	Wheat			
Bergman, Arlie W.	37126 Hwy 79	113-140-01 *	358.62	Total		9S/2E-16B(1)	Total	
and Coral R.	Aguanga, Ca. 92536			of		9S/2E-16B(2)	of	
				|		9S/2E-16G	157.00	
* 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		
	Aguanga, Ca. 92536	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 92-93	IRRIGATED CROP 92-93	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	9S/2E-27R1 9S/2E-27R2 9S/2E-27J	Total of 150.00	
		114-080-014 *	42.51	42.00	Potatoes			
		114-080-013 *	21.30	15.00	Potatoes			
TOTAL				813.00			954.40	148.00

 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 92-93	IRRIGATED CROP 92-93	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	Row Crops	7S/3E-17E	575.52	
	Los Angeles, Ca. 90036	576-070-001	70.00	70.00	Pasture	7S/3E-20N	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	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	244.00	
						7S/3E-11P3	382.00	
	Section 13	575-100-037	57.80	0.00				
	Section 14	575-110-021	143.75	100.00	Potatoes and	7S/3E-14D1	125.00	
		575-110-027	54.45	100.00	Oats			
		575-310-002	39.09	0.00		7S/3E-14C2	149.00	
		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	Potatoes			
	Section 17	573-180-011	39.74	30.00	Grain			

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CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	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	Barley			
	Section 20	576-060-009	8.26	Total				
		576-060-031	16.09	of				
		576-060-033	79.45	135.00	Potatoes			
		576-060-037	41.41	|				
		576-070-003	80.00	and				
		576-070-005	116.57	160.00	Barley			
				and				
	Section 21	576-080-003	133.72	150.00	Oats			
		576-100-029	40.00	40.00	Potatoes			
* Land leased from		576-110-001*	160.00	35.00	Oats			
Louise Phebe Hamilton Tr				40.00	Potatoes			
P. O. Box 102, Anza, Ca. 92306								
		576-110-002	28.00	0.00				
		576-110-004	50.00	0.00				
		576-110-006	19.29	0.00		7S/3E-21R3	305.00	
		576-110-007	17.82	0.00				
		576-110-008	17.00	0.00				
		576-110-009	18.41	0.00				
	Section 22	575-120-012	88.03	Total				
		575-130-003	19.55	of				
		575-130-006	40.89	70.00	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	75.00	Oats			
		575-130-013	19.02	and				
		575-130-014	19.00	|				
		575-130-015	17.56	35.00	Potatoes			
	Section 23	575-140-019	105.04	82.00	Oats			

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CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	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	Total of 80.00 Oats				
* Land leased to Agri-Empire, Inc.	Section 27	576-130-001*	640.00	80.00 Potatoes		7S/3E-27D1	214.00	
				Domestic Wells Reported by Bureau of Indian Affairs		7S/2E-14M1	Total	
						7S/2E-14M2	|	
						7S/2E-23G1	|	
						7S/2E-23H1	|	
						7S/2E-23K1	|	
						7S/2E-23Q1	|	
						7S/2E-25F1	|	
						7S/2E-26B2	|	
						7S/2E-28Q1	|	
						7S/2E-34E1	|	
						7S/2E-36A1	of	
						7S/2E-36J1	|	
						7S/3E-26A1	|	
						7S/3E-29Q1	|	
						7S/3E-30P1	|	
						7S/3E-31L2	|	
						7S/3E-31N1	|	
						7S/3E-34E1	|	
						8S/2E-4P1	|	
						8S/3E-2A1	|	
						8S/3E-2D1	|	
						8S/3E-2E1	|	
						8S/3E-2K1	|	
						8S/3E-6B1	|	
						8S/3E-6J1	18.19	
* Land leased from Paul Pablo 11-900 Ramona Rd, Banning, Ca. 92220 and Patricia Liera 183 N. Sharif Ave, San Jacinto, Ca. 92383	Section 29	576-120-002*	640.00	120.00 Barley				
SUBTOTAL ANZA VALLEY				1,697.00			1,437.19	0.00

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CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
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				1,747.00			1,492.19	0.00

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SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	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	11.50	Bermuda Grass	7S/3W-28R	43.70	
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	8.00	Pasture	7S/3W-21K	7.50	
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-14F	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	50.00	
		943-060-001	94.49	89.00	Citrus			
		943-060-002	26.50	29.00	Citrus			
Anza Grove	c/o McMillan Farm Mgt.	942-180-002	40.28	40.00	Citrus			
	29379 Rancho Cal. Rd	942-240-003	40.83	40.00	Grapes/Citrus			
	#201	942-240-004	40.83	40.00	Citrus			
	Temecula, Ca. 92390	942-240-005	39.31	40.00	Citrus	7S/2W-26B1	261.00	
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	189.00	
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				

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	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 506 Murrieta, Ca. 92362 41621 Magnolia Avenue	906-020-041 906-020-042	18.66 38.20	16.00 26.00	Pasture Pasture	7S/3W-7R 7S/3W-18B	61.00 99.00	
Boots, Clydene	P. O. Box 321 Murrieta, CA 92362 25555 Washington Ave Murrieta, Ca. 92564	909-090-019 909-100-017	16.66	14.00	Pasture	7S/3W-21P	53.20	
Rancho California Association No. 2	3146 Quiet Hills Escondido, Ca. 92025 42835 Ivy St., Murrieta	906-240-007 904-040-071-5	53.66 3.02	56.00 Total	Pasture	7S/3W-19R	212.00	
Carson, David M. and Carol J.	25471 Hayes Ave Murrieta, Ca. 92362	909-260-036 909-260-042	8.87 4.31	7.00 3.50	Pasture Pasture	7S/3W-29G	39.90	
Pechanga Indian Reservation				Domestic Wells Reported by Bureau of Indian Affairs		8S/2W-26K1 8S/2W-26N1 8S/2W-27E1 8S/2W-28Q1 8S/2W-29B1 8S/2W-29F1 8S/2W-29G1 8S/2W-29J1 8S/2W-34E1 8S/2W-34F1 8S/2W-34F2 8S/2W-34F3 8S/2W-34M1 8S/2W-34N1 8S/2W-35G1 8S/2W-35G2	Total | | | | | | | of | | | | | | 90.97	
TOTAL MURRIETA-TEMECULA GROUNDWATER AREA				1154.66			1865.47	0.00

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	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.	m/t 31421 Cavendish Dr.	101-271-17	47.79	6.00	Avocados	8S/4W-29D(1)	17.20	
and Sylvia L.	Los Angeles, Ca. 90064			2.00	Kiwi	8S/4W-29D(2)	Total	
Woosley, Donna J.	Rt 6, Box 49-B	101-271-13	42.28	8.00	Pasture	8S/4W-29E(1)	30.40	
	Fallbrook, Ca. 92028					8S/4W-29E(2)	Total	
	40710 DeLuz Rd, Fallbrook							
Durling, Robert G.	40401 DeLuz Rd	101-271-08	25.60	9.75	Citrus	8S/4W-29M	Total	
and Eleanor J.	Fallbrook, Ca. 92028			4.00	Pasture	8S/4W-29N(1)	of	
						8S/4W-29N(2)	40.00	
Durling, Don & Margaret	41500 DeLuz Road	101-210-39	116.07	Total		8S/4W-20M(1)	80.00	
	Fallbrook, Ca. 92028				Citrus and	8S/4W-20M(2)	145.00	
		101-210-41	15.16		Avocados	8S/4W-20G	0.00	
		101-210-27	64.64	of	Container			
		101-210-28-00	40.09		Nursery		80.00	
		101-180-05-00	11.44		Stock		145.00	
		101-180-01	32.30	35.00				
Prestininzi, Pete	2525 E. Mission Road	101-220-12	31.63					
and Dorothy N.	Fallbrook, Ca. 92028	101-210-53	50.44	12.00	Avocados	8S/4W-20A(1)	6.00	
	Richmond Truck Trail				and Citrus	8S/4W-20H(1)	6.00	
	and DeLuz Murrieta Road					8S/4W-20H(2)	6.00	
						8S/4W-20A(2)		
						8S/4W-20H(3)		
						8S/4W-20A - Diversion		18.00
Durling Nursery, Inc.	40401 DeLuz Rd	101-210-42	53.14	50.00	Avocados	8S/4W-20L(1)	100.00	
	Fallbrook, Ca. 92028				and Citrus	8S/4W-20L(2)	35.00	
					Container	8S/4W-20L(3)	10.00	
					Nursery	8S/4W-20L(4)	10.00	
					Stock	8S/4W-20F	50.00	
Raley, Harold R	41125 DeLuz Rd	101-210-11	15.23	8.50	Avocados	8S/4W-20Q(1)	21.35	
and Mary E.	Fallbrook, Ca. 92028			0.50	Citrus	8S/4W-20Q(2)	Total	
Herbel, John & Jeraldine	41257 DeLuz Rd	101-210-12	30.28	10.00	Avocados	8S/4W-20Q(1)	Total	
	Fallbrook, Ca. 92028			18.00	Citrus	8S/4W-20Q(2)	of	
				2.00	Row crops	8S/4W-20Q(3)	66.20	

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CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
SANTA MARGARITA RIVER BELOW GORGE								
DE LUZ CREEK (Cont)								
Wagner, Wilbur A.	m/t 14539 San Dieguito	101-210-23	17.19	11.00	Avocados			
and Shirley A.	La Mirada, Ca. 90638	101-210-22	4.55	6.50	Citrus/Persimmon	8S/4W-20P(1)	0.00	
	DeLuz Road, Fallbrook			Total		8S/4W-20P(2)	0.00	
						8S/4W-20P(3)	35.00	
Chambers, Robert R.	m/t 11439 Laurelcrest Dr.	101-571-03	41.72	17.00	Flowers	8S/4W-28A	20.00	
and Clytia M.	Studio City, Ca. 91604					8S/4W-28A - Diversion		4.00
	40888 DeLuz-Murrieta Rd.							
Welburn, Douglas J.	Rt. 6, Box 77	101-571-08	26.98	10.00	Row Crops	8S/4W-28G1	40.00	
and Sue	Fallbrook, Ca. 92028							
	40751 DeLuz Murrieta Rd							
Nezami, Mohammed	2193 Calle Rociada	101-312-02	58.17	45.00	Flowers	8S/4W-31K(1)	Total	
Bluebird Ranch	Fallbrook, Ca. 92028			7.00	Avocados	8S/4W-31K(2)	of	
						8S/4W-31K(3)	|	
		101-312-01	82.29	25.00	Flowers	8S/4W-31L	156.80	
						8S/4W-31L - Diversion		25.92
SUBTOTAL DELUZ CREEK				287.25			1099.95	47.92
SANDIA CREEK								
Cal June, Inc.	P. O. Box 9551	101-360-40	126.32	50.00	Avocados	8S/4W-25P(1)	Total	
	No. Hollywood, CA 91609			75.00	Fruit	8S/4W-25P(2)	Well	
	40376 Sandia Creek			1.00	Citrus	8S/4W-25P(3)	Production	
	Fallbrook, Ca. 92028					8S/4W-25P(4)	of	
						8S/4W-25P(5)	100.00	
						8S/4W-25P - Diversion		120.00
SUBTOTAL SANDIA CREEK				126.00			100.00	120.00

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 92-93	IRRIGATED CROP 92-93	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	Citrus and Total Avocados	8S/3W-33Q1 8S/3W-33Q(2) 8S/3W-33Q - Diversion	28.16 4.00	55.76
SUBTOTAL SANTA MARGARITA RIVER				20.00			32.16	55.76
TOTAL SANTA MARGARITA RIVER BELOW GORGE				433.25			1,232.11	223.68
LOWER MURRIETA								
Robertson, Richard and Janet (Sage Ranch Nursery)	m/t P. O. Box 7060 Hemet, CA 92545 42525 E. Benton Rd.	571-020-046 571-020-047 571-020-048 571-020-049 571-520-005 571-520-007 571-520-008 571-520-009 470-210-007 470-220-004	122.59 40.80 36.75 148.86 34.31 109.50 99.43 80.23 53.62 121.00	Total of 400.00	Olive trees	7S/3E-7D 7S/3E-7E - Diversion	4.00	101.00
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)	Total of 38.00 Domestic	
TOTAL LOWER MURRIETA				410.00			42.00	101.00
GRAND TOTAL				4,864.91			6,323.97	710.68
GRAND TOTAL (Not including Indian Reservation Domestic Use)				4,864.91			6,214.81	710.68

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SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1992-93

APPENDIX D
WATER QUALITY DATA

JULY 1994

TABLE D-1

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY CAMP PENDLETON

Site Location	Date Tested	Discharge cfs	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
					Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Fallbrook Creek	05/89	N/A	1601	1112	111	73.3	128	---	203	317	229	13.6
at Naval	06/89	N/A	2500	1120	114	72.6	145	---	196	301	235	10.7
Weapons Station	07/89	N/A	1629	1160	127	71.7	128	---	197	324	241	6.2
	01/90	N/A	1630	1140	121	74.5	137	3.0	212	384	260	1.4
	04/90	N/A	1110	812	83.1	45.5	94.7	4.9	125	255	152	4.2
	05/90	N/A	1680	1160	110	71.9	138	2.3	210	358	262	1.0
	11/90	N/A	1750	1160	116	0.19	152	---	213	314	248	3
	06/91	N/A	1760	1180	110	78.4	146	---	193	345	235	2.1
	06/92	N/A	1700	1240	117	73	151	---	209	342	329	7.97
	05/93	N/A	1150	771	125	68.2	151	1.88	119	226	176	5.3
Fallbrook PUD	05/89	N/A	1259	838	98.0	41.6	106	---	141	198	197	29.3
Sump at Santa	06/89	N/A	1298	810	92.5	40.7	119	---	150	189	189	23.8
Margarita River	07/89	N/A	1252	790	98.1	40.1	100	---	143	191	202	11.5
	01/90	16.1 *	1440	940	114	55.5	105	11.8	191	301	186	12.1
	04/90	4.51 *	1460	946	122	57.7	112	11.8	180	301	193	10.7
	05/90	6.28 *	1340	906	106	45.3	107	9.1	165	254	202	6.6
	11/90	2.96 *	1390	834	97	46.8	111	---	213	314	248	3
	06/91	4.5 e	1530	984	104	55	113	---	193	345	235	2.1
	06/92	4.4	1300	878	84.3	38.4	113	---	154	233	233	8.54
	05/93	45	1130	763	70.3	33.1	103	4.36	105	211	190	3.1
Sandia Creek	05/89	N/A	1260	800	107	53.1	80	---	174	168	176	17
Near Santa	06/89	N/A	1678	798	106	52.6	84.7	---	195	167	183	7.86
Margarita	07/89	N/A	1241	816	125	54.4	75.8	---	196	170	173	4.4
	01/90	3.97 *	1220	760	104	52.6	77.3	2.6	183	186	174	3.0
	04/90	4.93 *	1240	830	104	54.0	83.2	2.6	195	183	181	2.8
	05/90	2.89 *	1260	830	101	50.7	79.5	2.2	205	203	183	1.2
	11/90	1.69 *	1360	860	105	54.8	90	---	222	162	167	5
	06/91	3.4 e	1510	1030	116	62.3	92	---	245	195	177	5
	06/92	3.7	1420	940	107	51.9	90.7	---	236	214	233	16.4
	05/93	10 e	1250	866	102	44.9	81.4	2.33	178	190	174	20.4

N/A - Not Available
* - average
e - estimate

TABLE D-1 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY CAMP PENDLETON

Site Location	Date Tested	Discharge cfs	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
					Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
DeLuz Creek	05/89	N/A	718	408	24.8	6.94	111	---	81.3	72	140	7.3
At McDowell	06/89	N/A	1260	720	96.4	42.6	92.8	---	188	117	202	<0.4
	07/89	N/A	1097	675	93.5	37.0	78.6	---	170	102	201	<0.4
	01/90	0	1250	776	108	52.4	84	1.7	200	185	214	0.45
	04/90	0.38 *	1190	802	103	49.1	89.4	2.0	180	158	196	1.1
	05/90	0	1240	820	101	48.3	83.7	1.5	195	170	204	8.8
	11/90	N/A	1450	876	92.8	55.8	108	---	254	162	174	1
	06/91	N/A	1380	866	107	57.7	93	---	214	170	200	1.7
	06/92	N/A	1230	764	87	39.5	78.7	---	197	157	307	2.21
	05/93	11	1810	1310	63.8	30.9	61.4	<.5	203	371	298	16.4
Murrieta Creek	05/89	2.12 *	1130	708	94.7	40.30	80.7	---	166	125	197	<0.40
At Temecula	06/89	2.12 *	650	354	14.3	4.40	108	---	69.8	61.4	117	2.97
	07/89	2.15 *	654	375	19.2	4.87	105	---	69.2	66	139	1.30
	01/90	3.97 *	810	444	53.7	16.7	97.3	2.7	84.3	93.6	200	<0.05
	04/90	4.93 *	850	530	59.3	17.2	97.6	2.8	90	34.3	226	<0.05
	05/90	2.89 *	850	544	46.3	13.8	110	2.8	95	117	169	0.38
	11/90	0.024 *	722	404	43.3	14.2	86.1	---	78	53.5	174	1.2
	06/91	0.25	904	514	60.7	17.1	94.7	---	94.8	88.7	188	1
	06/92	2.00	1110	646	69.2	21.2	132	---	138	101	329	0.88
	05/93	7.6	1050	762	64.4	31.4	104	7.63	86.3	205	157	0.9
Temecula Creek	05/89	0.47 *	1540	1052	117	49.4	103	---	168	278	116	1.23 **
At Interstate 15	06/89	0.48 *	1148	674	110	24.9	92.4	---	106	110	281	2.79
	07/89	0.41 *	1086	680	131	27.4	84.1	---	105	108	281	0.04
	01/90	3.95 *	1090	670	116	25.4	89.1	2.2	118	150	297	0.59
	04/90	1.06 *	1150	784	123	26.2	98.3	3.0	105	127	308	0.81
	05/90	1.54 *	1150	772	121	26.1	94.0	2.2	110	164	310	0.33
	11/90	1.406 *	1160	706	111	26.1	94	---	109	145	280	0.93
	06/91	1.25	1190	732	116	25	95.7	---	98.9	116	272	2.1
	06/92	1.4	1190	750	113	23.9	97.3	---	105	170	348	2.21
	05/93	9.4	1050	729	86	30.7	96.3	<.5	84	174	248	3.5

N/A - Not Available
* - average
** Lab reported 123

TABLE D-1 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY CAMP PENDLETON

Site Location	Date Tested	Discharge cfs	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
					Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Santa Margarita	05/89	2.59 *	1035	680	101	22.3	77.9	---	105.0	128	278	8.5
River at	06/89	2.6 *	749	426	34.9	9.56	102.0	---	78.9	73.6	145	2.53
Temecula Gorge	07/89	2.56 *	798	456	50.6	11.4	95.7	---	79.8	76.4	181	0.4
	01/90	9.74 *	1080	664	113	25.2	90.5	2.4	114	150	295	0.55
	04/90	2.77 *	1130	748	119	25.8	98.5	2.9	1115	113	296	0.78
	05/90	4.65 *	1050	682	83.4	20.9	110	3.0	100	208	210	0.47
	11/90	1.43 *	1090	682	94.6	23	89.5	---	105	107	258	0.85
	06/91	1.5	1030	550	66	16.2	99.6	---	97.9	73.3	203	<1
	06/92	3.4	967	596	71.3	16.5	103	---	98.5	139	244	8.86
	05/93	17	1050	734	75.9	34	113	<.5	90.2	216	185	1.8
Rainbow Creek at	05/89	N/A	773	444	40.2	11.4	89.1	---	82.5	76.9	163	8.9
Willow Glen Road	06/89	N/A	1610	1060	177	52.6	132	---	162	323	100	96.6
	07/89	N/A	1508	1141	135	53.4	111	---	155	309	100	105
	01/90	2.57 *	1520	976	117	54.8	109	28.6	116	670	106	40
	04/90	1.47 *	1530	1040	111	51.11	118	42.4	160	376	80	36.3
	05/90	1.4 *	1450	1030	106	47.2	116	24.5	155	333	124	21.4
	11/90	0.52 *	1630	854	111	53.9	119	---	**178	337	151	25.7
	06/91	0.56	1440	1250	131	67.3	135	---	**210	491	168	9.7
	06/92	0.41	1650	1220	129	59.2	131	---	201	381	233	13.7
	05/93	1.5 e	1360	933	109	46.9	104	<.5	146	232	207	16.6
Santa Margarita	06/91	N/A	1220	766	77.4	35.1	106	---	180	189	165	0.07
River Upstream of	09/91	N/A	926	552	54.5	19.6	117	---	121	90	42.5	0.08
Rainbow Creek	06/92	N/A	1100	726	66.9	28.7	115	---	150	187	212	0.44
	05/93	N/A	1070	722	67.8	30.9	103	<.5	94	217	166	2.7
DeLuz Road at	06/91	4.5 e	1510	992	114	63.6	116	---	202	223	188	2.8
Santa Margarita	06/92	4.4	1380	**1880	98.1	45.2	106	---	200	234	223	8.86
River	05/93	45	900	620	71.9	34.9	99.1	4.03	111	104	183	11.1
Rancho California	06/91	N/A	640	378	15.7	4.7	104	---	70.6	45.3	---	0.68
3cfs Meter	08/91	N/A	742	434	33.6	7.96	104	---	81.8	76.1	148	8.86
	06/92	N/A	905	550	58.2	13	105	---	88.300	144	195	4.87

* - average
N/A - Not Available
e - estimate
** Laboratory results believed to be in error

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
Santa Margarita	08/21/86	880	540	70	15	96	2	110	115	198	5
River at	11/25/86	1050	600	110	24	85	3	103	105	311	4
Gaging Station	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

* - Laboratory reported as 940

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
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
Lynch Well	06/16/89	760	410	70	17	55	1	86	30	262	8
7S/3W-17R02											
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
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
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
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
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
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

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. 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
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
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
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
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

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. 138 8S/2W-6F	10/30/90	460	240	19	2	74	2	71	13	113	18
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
No. 140	02/18/88	560	325	33	10	65	2	77	14	153	13
7S/2W-33F	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
No. 144 7S/3W-27D3	09/14/88	610	335	8	<1	114	1	95	33	92	<1
No. 145 7S/3W-28C	10/04/90	800	490	43	8	110	2	110	78	171	<1
No. 149 8S/1W-2C	06/15/93	---	---	---	---	---	---	---	---	---	5
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 7S/3W-34B Abandoned	09/20/88	5780	3410	280	114	840	5	1660	670	369	<1
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	---
No. 155 7S/3W-28C	09/16/93	680	355	22	2	108	1	90	64	104	<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. 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	12/11/88	740	440	47	18	84	3	97	48	223	17
7S/2W-36J1											
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
No. 204	05/22/91	740	425	50	12	85	3	120	18	198	19
7S/2W-26G											
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
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
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
No. 209	05/22/91	790	435	40	14	105	2	150	35	162	8
7S/2W-28J											
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
No. 212	03/28/88	640	330	42	2	74	3	81	33	146	14
8S/2W-11N	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

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. 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-17M12	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
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
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
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	---	---
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

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
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
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
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
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
8S/2W-20J02	08/15/90	404	216	42	6.3	38	0.8	27	12	159	1.2 @N
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

* - 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-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
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
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
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
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

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
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
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
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

* - Reported as .96

TABLE D-7

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

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	04/24/91	1480	890	122	58	112	6	220	250	220	3.6
River at	05/10/91	---	920	92	433	112	4.2	191	213	240	---
Camp Pendleton	05/22/91	---	---	---	---	---	---	---	---	---	1.1
Diversion Dam	06/05/91	---	850	---	---	---	---	---	---	---	---
	06/17/91	1320	855	105	47	104	4	200	200	226	0.1
	07/02/91	---	865	---	---	---	---	---	---	---	---
	07/15/91	---	840	103	---	108	3.6	149	205	---	<0.1
	07/30/91	---	845	---	---	---	---	---	---	---	---
	08/15/91	---	775	95	40	112	4.2	187	---	---	<0.1
	08/27/91	---	915	---	---	---	---	---	---	---	---
	09/17/91	---	840	80	44	---	---	187	201	---	<0.1
	09/24/91	---	885	---	---	---	---	---	---	---	---
	10/10/91	---	825	95	---	---	---	172	191	---	0.2
	10/22/91	---	790	---	---	---	---	---	---	---	---
	11/26/91	---	795	91	37	106	---	190	180	---	0.05
	12/20/91	---	815	100	48	108	4	190	130	---	0.05
	01/21/92	---	850	110	45	118	6	200	220	---	1.3
	02/25/92	---	825	94	48	108	5	190	220	---	2.9
	03/31/92	---	700	76	35	92	4	150	180	---	3.7
	04/21/92	---	865	93	40	112	5	190	220	---	2.6
	05/12/92	---	870	---	---	---	---	---	---	---	---
	05/26/92	---	755	99	41	98	7	160	200	---	2.7
	06/09/92	---	865	---	---	---	---	---	---	---	---
	06/23/92	---	---	95	41	109	3.8	179	205	---	0.6
	07/07/92	---	790	---	---	---	---	---	---	---	---
	07/21/92	---	750	---	---	---	---	---	---	---	<0.1
	08/05/92	---	865	---	---	---	---	---	---	---	---
	09/15/92	---	810	91	41	---	---	176	---	236	<0.1
	10/27/92	1300	800	98	41	110	3.1	177	180	192	0.2
	11/20/92	1250	770	91	44	110	4.9	101	200	243	0.3
	01/29/93	1000	710	76	35	83	4	130	170	168	5.2
	02/24/93	520	365	45	16	44	3.2	75	78	124	9.3
	03/31/93	1240	696	---	---	---	---	---	---	---	---

TABLE D-7 (cont'd)

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

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 Brackish	04/24/91	1450	790	92	40	170	---	---	---	---	---
	05/10/91	---	900	---	---	---	---	---	---	---	---
	03/31/93	1140	624	---	---	---	---	---	---	---	<0.05
Santa Margarita River at Estuary	04/24/91	2590	1160	122	70	400	---	---	---	---	---
	03/31/93	1470	760	---	---	---	---	---	---	---	<0.05

TABLE D-8

SANTA MARGARITA RIVER WATERSHED
SELECTED BIOLOGICAL WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

Site Location	Date Tested	Temp o C	DO mg/l	pH units	TDS mg/l	NO3 @N mg/l	Total Phosphorus mg/l	Total Nitrogen mg/l	Velocity ft/s	Flow gpm
Temecula Creek at I-15	04/24/91	21	5.2	---	720	1.5	0.08	2.3	1.30	790
	05/10/91	19	8.0	7.64	815	---	---	---	0.50	636
	05/22/91	22	7.4	7.6	805	---	0.1	2.4	0.68	468
	06/05/91	17	5.2	6.8	780	---	---	---	1.00	552
	06/17/91	23	8.4	7.3	765	2.1	0.12	---	0.70	707
	07/02/91	23	9.4	6.8	760	---	---	---	0.68	639
	07/15/91	21	4.8	7.7	750	1.7	0.3	---	0.57	447
	07/30/91	20	9.8	7.3	610	---	---	---	0.63	402
	08/15/91	23	8.0	7.3	800	0.7	0.5	1.8	---	---
	08/27/91	23	6.6	7.2	755	---	---	---	0.58	329
	09/17/91	20	6.8	7.3	755	0.7	0.1	---	0.71	448
	09/24/91	21	4.2	7.4	780	---	---	---	---	---
	10/10/91	19	6.4	7.0	---	1.8	0.4	---	0.70	526
	10/22/91	18	5.0	7.3	735	---	---	---	0.87	973
	11/26/91	15	8.4	7.7	785	0.9	0.23	1.3	0.61	496
	12/20/91	12	12.4	7.4	725	0.9	0.37	1.6	---	---
	01/21/92	---	---	---	745	0.4	2.0	1.5	---	---
	02/25/92	---	8.2	7.1	860	---	---	---	1.11	3333
	03/31/92	---	10.14	7.3	800	2.5	0.8	3.9	1.16	4680
	04/21/92	---	7.06	7.4	810	1.6	1.3	2.4	0.72	1929
	05/12/92	17	7.18	7.8	790	---	---	---	0.84	2506
	05/26/92	---	4.44	7.6	790	1.5	0.17	1.9	---	---
	06/09/92	16	9.5	7.5	795	---	---	---	0.65	192
	06/23/92	16	8.9	7.4	755	1.1	0.6	---	0.58	272
	07/07/92	14	10.0	7.4	765	---	---	---	---	---
	07/21/92	---	---	---	750	0.1	0.1	---	---	---
	08/05/92	14	8.38	7.4	800	---	---	---	0.65	828
	08/18/92	---	---	7.5	610	0.8	0.1	1.5	---	---
	08/31/92	19	7.9	7.5	755	---	---	---	---	---
	09/15/92	21	6.5	7.4	765	0.1	0.1	0.3	0.49	337
	09/29/92	20	6.27	7.5	755	0.8	<0.1	1.0	0.43	337
	10/27/92	---	---	---	795	1	0.1	1.1	0.41	308
	11/20/92	14	7.57	7.6	745	4	0.1	4.52	0.49	459
	01/29/93	---	---	---	---	1.8	4.8	7	---	---
	02/24/93	15.2	8.4	7.6	405	0.6	1.1	4.1	---	---
	03/31/93	---	---	7.86	802	0.8	0.19	---	---	---
	04/30/93	27	7	7.8	860	0.4	---	1.5	---	---
	06/24/93	30	6.4	8.1	870	1	0.2	2.1	0.46	604
	07/14/93	29	8.95	7.9	855	1	0.1	3.02	0.40	560

TABLE D-8 (cont'd)

SANTA MARGARITA RIVER WATERSHED
SELECTED BIOLOGICAL WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

Site Location	Date Tested	Temp o C	DO mg/l	pH units	TDS mg/l	NO3 @N mg/l	Total Phosphorus mg/l	Total Nitrogen mg/l	Velocity ft/s	Flow gpm
Santa Margarita River at Temecula	04/24/91	21	6.4	---	715	---	---	---	---	---
	05/10/91	19	8.4	8.23	785	---	---	---	---	---
	05/22/91	23.5	11.8	8.4	660	---	---	---	---	---
	06/05/91	23	7.4	7.3	595	---	---	---	---	---
	06/17/91	24	7.4	8.3	545	---	---	---	---	---
	07/02/91	23	9.0	6.9	600	---	---	---	---	---
	07/15/91	22	5.6	7.8	550	---	---	---	---	---
	07/30/91	21	10.4	7.9	750	---	---	---	---	---
	08/15/91	25	9.9	7.9	475	---	---	---	---	---
	08/27/91	24	9.6	7.8	570	---	---	---	---	---
	09/17/91	25	9.9	8.1	450	---	---	---	---	---
	09/24/91	24	6.2	8.0	585	---	---	---	---	---
	10/10/91	22	10.0	7.7	575	---	---	---	---	---
	10/22/91	20	7.8	7.8	505	---	---	---	---	---
	11/26/91	13	11.6	8.3	720	---	---	---	---	---
	12/20/91	12	11.4	7.5	700	---	---	---	---	---
	02/25/92	---	9.4	7.2	840	---	---	---	---	---
	03/31/92	---	10.87	7.7	660	---	---	---	---	---
	04/21/92	---	9.61	7.7	720	---	---	---	---	---
	05/12/92	18	8.42	7.8	775	---	---	---	---	---
	05/26/92	---	6.77	7.8	705	---	---	---	---	---
	06/09/92	18	5.84	8.1	710	---	---	---	---	---
	06/23/92	19	10.2	8.1	605	---	---	---	---	---
	07/07/92	16	10.2	7.9	580	---	---	---	---	---
	07/21/92	21	10.8	8.2	600	---	---	---	---	---
	08/05/92	15	8.53	7.8	625	---	---	---	---	---
	08/18/92	25	8.0	8.1	750	---	---	---	---	---
	08/31/92	22	8.5	8.0	570	---	---	---	---	---
	09/29/92	23	6.5	8.0	530	---	---	---	---	---
	10/27/92	---	---	---	465	---	---	---	---	---
	11/20/92	15	10.7	8.1	640	---	---	---	---	---
	02/24/93	14.8	8.4	8.0	395	---	---	---	---	---
	03/31/93	---	---	8.13	650	0.63	0.17	---	---	---
	04/30/93	26.2	7.4	8.3	665	0.2	---	1.4	---	---
	06/24/93	31	7.75	8.3	820	0.9	0.2	2.71	---	---
	07/14/93	30	10.3	8.4	800	0.7	0.1	2.12	0	0

TABLE D-8 (cont'd)

SANTA MARGARITA RIVER WATERSHED
SELECTED BIOLOGICAL WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

Site Location	Date Tested	Temp o C	DO mg/l	pH units	TDS mg/l	NO3 @N mg/l	Total Phosphorus mg/l	Total Nitrogen mg/l	Velocity ft/s	Flow gpm
MWD Crossing										
San Diego State Biological Station										
	04/28/91	21.5	11	---	---	---	---	---	---	---
	05/11/91	21	10.5	---	---	---	---	---	---	---
	06/28/91	21	6.5	---	---	---	---	---	---	---
	06/30/91	25	9.6	---	---	---	---	---	---	---
	06/30/91	25	7.0	---	---	---	---	---	---	---
	07/20/91	21.5	9.8	---	---	---	---	---	---	---
	08/22/91	25	8.0	---	---	---	---	---	---	---

TABLE D-8 (cont'd)

SANTA MARGARITA RIVER WATERSHED
SELECTED BIOLOGICAL WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

Site Location	Date Tested	Temp o C	DO mg/l	pH units	TDS mg/l	NO3 @N mg/l	Total Phosphorus mg/l	Total Nitrogen mg/l	Velocity ft/s	Flow gpm
Santa Margarita River										
at Willow Glen	04/24/91	19.5	6.6	---	935	1.1	0.08	1.9	0.31	1965
	05/10/91	19	9.0	8.36	1045	---	---	---	0.07	1171
	05/22/91	19.5	9.0	8.5	855	1.7	0.1	1.76	0.1	2181
	06/05/91	20	5.8	6.8	740	---	---	---	0.15	2129
	06/17/91	23	7.0	7.8	740	<0.1	0.43	<0.1	0.09	1483
	07/02/91	22	7.4	7.1	735	---	---	---	0.08	1543
	07/15/91	23	5.8	7.8	725	0.2	<0.1	---	0.07	30.5
	07/30/91	22	9.8	7.9	715	---	---	---	0.08	35.01
	08/15/91	25	---	7.9	540	0.05	<0.1	2.0	---	---
	08/27/91	25	8.7	7.9	610	---	---	---	0.17	2065
	09/17/91	22	9.9	8.2	570	0.2	0.1	---	0.09	1236
	09/24/91	24.5	6.2	8.2	510	---	---	---	---	---
	10/10/91	21	8.5	---	600	0.8	0.1	---	0.09	1547
	10/22/91	19	8.7	7.9	565	---	---	---	0.12	1875
	11/26/91	12	11.7	8.4	78	<0.1	0.4	0.7	0.03	445
	12/20/91	10	14.8	7.8	805	0.1	0.27	0.4	---	---
	01/21/92	---	---	---	890	1.0	1.8	1.6	---	---
	02/25/92	---	10.4	8.0	935	---	0.1	---	0.22	3044
	03/31/92	---	---	8.1	750	2.9	0.78	3.8	---	---
	04/21/92	---	11.7	8.7	895	1.6	1.7	2.3	0.53	3894
	05/12/92	19	11.3	8.8	885	---	---	---	0.57	3914
	05/26/92	---	5.79	7.9	180	3.1	1.4	5.8	---	---
	06/09/92	17	7.5	8.4	650	---	---	---	0.07	3713
	06/23/92	17	8.7	8.4	625	0.1	0.15	---	0.08	3722
	07/07/92	17	10.9	8.1	670	---	---	---	0.26	2024
	07/21/92	20	10.2	8.5	---	<0.1	<0.1	---	0.06	3231
	08/05/92	17	7.2	8.0	690	---	---	---	0.41	3145
	08/18/92	29	8.67	8.4	635	0.1	<0.1	1.1	---	---
	08/31/92	22	9.47	8.2	615	---	---	---	---	---
	09/15/92	22	8.85	8.2	610	<0.1	<0.1	0.3	0.09	1110
	09/29/92	23	7.01	8.2	590	0.3	<0.1	0.6	0.04	783
	10/27/92	---	---	---	690	1.1	0.1	2.0	---	---
	11/20/92	14.5	11.1	8.4	785	0.7	<0.1	0.7	0.06	1312
	01/29/93	---	---	---	---	2.8	0.3	3.5	---	---
	02/24/93	12.7	9.56	8.1	340	1.5	0.2	3.4	---	---
	03/31/93	---	---	8.23	602	1.16	0.1	---	---	---
	04/30/93	20	9.5	8.4	630	0.5	---	1.81	---	---
	05/27/93	23	---	8.4	765	0.6	0.1	0.62	---	---
	06/24/93	21	9.15	8.2	625	0.8	<0.1	0.8	0.31	2695
	07/14/93	24	15.1	8.4	715	0.9	0.1	2.62	0.27	2849

TABLE D-8 (cont'd)

SANTA MARGARITA RIVER WATERSHED
SELECTED BIOLOGICAL WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

Site Location	Date Tested	Temp o C	DO mg/l	pH units	TDS mg/l	NO3 @N mg/l	Total Phosphorus mg/l	Total Nitrogen mg/l	Velocity ft/s	Flow gpm
Santa Margarita River										
at DeLuz Road	04/24/91	19	10.2	---	990	6.2	0.63	7.7	1.48	7135
	05/10/91	18.5	8.0	8.25	1055	---	---	---	1.35	7659
	05/22/91	20	9.4	8.5	1020	4	0.3	4.0	1.16	8742
	06/05/91	18	6.8	6.8	965	---	---	---	1.28	4791
	06/17/91	21	8.4	8.1	980	3	0.15	---	0.88	3775
	07/02/91	21	10.8	7.3	990	---	---	---	0.9	2314
	07/15/91	22	6.2	8.1	1010	2.1	0.5	---	0.89	3308
	07/30/91	21	10.6	8.0	940	---	---	---	0.93	2831
	08/15/91	24	11.5	---	895	1.4	1	3.2	---	---
	08/27/91	24	9.0	8.0	875	---	---	---	0.98	2483
	09/17/91	20	9.6	7.5	860	1.7	1.1	---	0.85	2662
	09/24/91	24	5.7	8.2	840	---	---	---	---	---
	10/10/91	19	8.8	8.0	780	3	0.9	---	1.06	2058
	10/22/91	18	8.6	8.1	780	---	0.6	---	1.16	3473
	11/26/91	13	9.2	8.2	954	1.2	0.73	1.7	0.58	1381
	12/20/91	11	7.5	8.0	1010	1.6	0.29	1.9	---	---
	01/21/92	---	---	---	1030	2.6	0.7	3.1	---	---
	02/25/92	---	8.8	8.0	955	---	0.25	---	1.86	14703
	03/31/92	---	9.65	8.0	820	5.8	0.23	6.4	2.30	23306
	04/21/92	---	7.21	8.1	985	4.8	0.41	5.6	1.68	8562
	05/12/92	21	9.2	8.3	960	---	---	---	1.68	9120
	05/26/92	---	7.5	8.1	825	4.2	0.53	5.5	---	---
	06/09/92	18	9.3	8.2	950	---	---	---	1.27	4004
	06/23/92	22	7.8	8.3	910	2.9	0.6	---	1.34	3069
	07/07/92	16	10.84	8.2	920	---	---	---	---	---
	07/21/92	22	8.9	8.4	875	0.2	0.2	---	0.93	2471
	08/05/92	15	9.76	8.2	1020	---	---	---	1.00	2442
	08/18/92	29	6.45	8.3	940	2.1	0.2	3.0	---	---
	08/31/92	21	9.01	8.2	885	---	---	---	---	---
	09/15/92	22	8.15	8.1	915	0.2	0.3	0.7	1.17	2456
	09/29/92	25	6.78	8.3	890	1.5	0.2	1.7	0.58	1790
	11/20/92	14.5	10.12	8.2	980	2.3	0.2	2.3	1.11	2210
	02/24/93	13.3	9.8	8.1	375	2.0	0.6	3.7	---	---
	03/31/93	---	---	8.2	650	1.96	0.19	---	---	---
	04/30/93	21	10	8.4	710	1.3	---	3.9	---	---
	05/27/93	26.2	13.1	8.8	810	0.8	0.3	0.83	---	---
	06/24/93	28	7.9	8.4	850	2.7	0.1	2.92	0.62	604
	07/14/93	26	9.9	8.6	820	2.5	0.1	3.3	1.54	8241

TABLE D-8 (cont'd)

SANTA MARGARITA RIVER WATERSHED
SELECTED BIOLOGICAL WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

Site Location	Date Tested	Temp o C	DO mg/l	pH units	TDS mg/l	NO3 @N mg/l	Total Phosphorus mg/l	Total Nitrogen mg/l	Velocity ft/s	Flow gpm
Santa Margarita River at Camp Pendleton Diversion Dam	04/24/91	18	9.2	8.3	890	3.6	0.19	4.8	0.97	10410
	05/10/91	18.5	6.4	7.94	920	---	---	---	0.68	5809
	05/22/91	20.25	8.6	---	---	1.1	0.2	1.3	0.54	4267
	06/05/91	21	6.3	7.1	850	---	---	---	0.68	2936
	06/17/91	22	7.2	7.7	855	0.1	0.17	---	0.71	2341
	07/02/91	23	10.4	6.8	865	---	---	---	0.83	1810
	07/15/91	21	5.8	8.1	840	<0.1	0.1	---	0.28	415
	07/30/91	24	10.4	7.8	845	---	---	---	---	---
	08/15/91	25	10.8	8.1	775	<0.1	0.6	3.5	---	---
	08/27/91	21.5	5.4	7.9	915	---	---	---	0.98	1288
	09/17/91	24	4.6	8.4	840	<0.1	0.2	---	0.29	808
	09/24/91	20	6.0	8.2	885	---	---	---	---	---
	10/10/91	19.5	8.2	8.5	825	0.2	0.6	---	0.67	961
	10/22/91	12	9.2	8.2	790	---	---	---	0.64	1005
	11/26/91	12	8.1	8.0	795	0.05	0.27	0.4	0.30	0.55
	12/20/91	---	14.0	8.2	815	0.05	0.69	0.4	1.26	1417
	01/21/92	---	---	---	850	1.3	0.4	1.8	---	---
	02/25/92	---	---	7.8	825	2.9	0.12	3.4	---	---
	03/31/92	---	11.34	7.9	700	3.7	0.22	4.4	---	---
	04/21/92	---	10.0	7.9	865	2.6	0.35	3.2	---	---
	05/12/92	18	9.3	8.1	870	---	---	---	1.12	6894
	05/26/92	---	7.52	8.1	755	2.7	0.52	3.7	---	---
	06/09/92	18	11.2	8.2	865	---	---	---	0.46	3336
	06/23/92	16	10.4	---	---	0.6	0.6	---	0.34	2729
	07/07/92	16	11.8	8.3	790	---	---	---	---	---
	07/21/92	19	10.8	8.5	750	<0.1	0.2	---	0.13	223
	08/05/92	16	10.29	8.1	865	---	---	---	0.34	---
	09/15/92	22	---	8.0	810	<0.1	0.2	---	---	---
	10/27/92	---	---	8.3	800	0.2	0.2	0.4	---	---
	11/20/92	16	---	8.3	770	0.3	0.2	0.6	---	---
	01/29/93	---	---	8	710	5.2	0.4	5.7	---	---
	02/24/93	13.6	9.54	7.9	365	2.1	0.3	3.3	---	---
	03/31/93	---	---	8.18	696	2.7	0.17	---	---	---
	04/30/93	20	9.2	8.5	710	1.6	---	2.2	---	---
	05/27/93	27.5	8.2	8.4	755	0.6	0.1	0.61	---	---
	06/24/93	27	8.65	8.6	805	1.2	0.1	1.51	0.76	4830
	07/14/93	28	10	8.4	765	0.6	0.2	1.01	0.67	2432

TABLE D-8 (cont'd)

SANTA MARGARITA RIVER WATERSHED
SELECTED BIOLOGICAL WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

Site Location	Date Tested	Temp o C	DO mg/l	pH units	TDS mg/l	NO3 @N mg/l	Total Phosphorus mg/l	Total Nitrogen mg/l	Velocity ft/s	Flow gpm
Santa Margarita River										
at Brackish	04/24/91	18	7.4	7.2	820	---	0.2	<0.1	---	---
	05/10/91	17.5	4.3	7.74	900	---	---	---	---	---
	05/22/91	17	7.6	7.8	1045	0.1	0.7	0.6	---	---
	06/05/91	23	7.4	7.3	1320	---	---	---	---	---
	06/17/91	21.5	6.2	7.6	8220	5.7	0.64	---	---	---
	07/02/91	24	8.4	7.2	11415	---	---	---	---	---
	07/15/91	27	8.4	7.9	20725	0.1	0.2	---	---	---
	07/30/91	24	7.6	7.6	22000	---	---	---	---	---
	08/15/91	23	3.7	7.8	20100	<0.1	1.5	2.9	---	---
	08/27/91	24	9.4	8.0	29920	---	---	---	---	---
	09/17/91	22	10.4	7.9	24220	0.1	0.5	---	---	---
	10/10/91	19	5.0	7.8	30620	0.7	1.1	---	---	---
	10/22/91	19	8.0	8.0	33340	---	---	---	---	---
	11/26/91	13	10.4	8.1	28460	18	<0.1	19	---	---
	12/20/91	11	14.0	8.1	28320	0.6	0.26	1	---	---
	01/21/92	---	---	---	3400	0.2	0.8	0.7	---	---
	02/25/92	---	9.2	7.6	28500	0.8	0.42	1.3	---	---
	03/31/92	---	9.77	7.7	500	2	0.96	3.3	---	---
	04/21/92	19	8.14	7.8	910	1	0.46	2.1	---	---
	05/12/92	18	7.84	8.1	865	---	---	---	---	---
	05/26/92	---	6.59	7.8	930	0.5	0.64	1.7	---	---
	06/09/92	18	6.54	7.8	2750	---	---	---	---	---
	06/23/92	16	6.07	7.7	1170	0.1	2.2	---	---	---
	07/07/92	18	8.9	7.6	17450	---	---	---	---	---
	07/21/92	21	12.7	7.9	16070	<0.1	0.5	---	---	---
	08/05/92	19	8.75	7.9	18695	---	---	---	---	---
	08/18/92	29	8.8	8.2	20210	0.1	0.7	1.4	---	---
	08/31/92	22	5.6	7.6	21335	---	---	---	---	---
	09/15/92	21	6.09	7.5	24610	<0.1	0.4	0.6	---	---
	09/29/92	23	4.05	7.6	30720	0.1	0.2	0.4	---	---
	10/27/92	---	---	---	31260	0.2	0.2	0.8	---	---
	11/20/92	16	8.29	7.8	26565	0.2	0.2	0.2	---	---
	01/29/93	---	---	8	735	4.7	0.5	5.4	---	---
	02/24/93	13.6	9.56	7.8	330	1.9	0.2	3.0	---	---
	03/31/93	---	---	8.11	624	<.05	0.22	---	---	---
	04/30/93	20	9.5	8.4	575	1.4	---	2.0	---	---
	05/27/93	20.8	8.9	8.4	780	0.3	0.2	0.31	---	---
	06/24/93	28	8.9	8.4	860	0.3	0.1	0.3	0.5	7648

TABLE D-8 (cont'd)

SANTA MARGARITA RIVER WATERSHED
SELECTED BIOLOGICAL WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
SANTA MARGARITA RIVER MONITORING PROGRAM

Site Location	Date Tested	Temp o C	DO mg/l	pH units	TDS mg/l	NO3 @N mg/l	Total Phosphorus mg/l	Total Nitrogen mg/l	Velocity ft/s	Flow gpm
Santa Margarita River at Estuary	04/24/91	18	9.9	7.4	1160	0.7	0.36	2.2	---	---
	05/10/91	17	5.7	7.8	6540	---	---	---	---	---
	05/22/91	17.5	11.6	7.9	4180	1.7	---	1.75	---	---
	06/05/91	21	2.0	7.2	4735	---	---	---	---	---
	06/17/91	19	7.6	7.9	19340	4.4	1.3	---	---	---
	07/02/91	20	7.8	7.4	24930	---	---	---	---	---
	07/15/91	22	6.9	8.0	29870	3.4	0.2	---	---	---
	07/30/91	22	10.5	8.0	16500	---	---	---	---	---
	08/15/91	23	3.4	7.8	50688	1.2	1.4	3.9	---	---
	08/27/91	22	8.1	8.0	35160	---	---	---	---	---
	09/17/91	20	7.4	8.1	34020	1	0.4	---	---	---
	09/24/91	19	7.0	8.4	35760	---	---	---	---	---
	10/10/91	18	7.9	8.3	37340	3.1	0.3	---	---	---
	10/22/91	19	8.8	8.3	37040	---	---	---	---	---
	11/26/91	12	8.2	8.2	34700	22	0.1	23	---	---
	12/20/91	12	11.8	8.1	35440	0.4	<0.1	0.7	---	---
	01/21/92	---	---	---	2330	0.1	0.8	0.7	---	---
	02/25/92	---	7.4	7.5	33040	3.7	0.41	4.3	---	---
	03/31/92	---	8.84	7.8	1280	1.9	0.66	3.5	---	---
	04/21/92	17	5.03	7.6	1670	4.5	0.5	5.2	---	---
	05/12/92	18	3.18	8.1	2470	---	---	---	---	---
	05/26/92	---	3.46	7.6	1340	1.4	0.91	2.6	---	---
	06/09/92	17	3.25	7.7	4450	---	---	---	---	---
	06/23/92	17	3.0	7.8	5290	2	2.2	---	---	---
	07/07/92	17	3.7	7.6	22850	---	---	---	---	---
	07/21/92	18	5.3	8.1	28380	0.1	0.4	---	---	---
	08/05/92	18	4.92	7.9	28235	---	---	---	---	---
	08/18/92	24	4.75	8.0	29385	0.2	0.4	1.5	---	---
	08/31/92	21	4.14	7.5	23260	---	---	---	---	---
	09/15/92	19	---	7.4	32410	<0.1	0.2	---	---	---
	09/29/92	23	7.3	8.0	35940	<0.1	<0.1	<0.1	---	---
	10/27/92	---	---	---	34515	0.2	0.1	0.6	---	---
	11/20/92	16.7	8.45	8.0	34625	0.2	0.1	0.2	---	---
	01/29/93	---	---	7.8	2030	6.2	0.4	6.8	---	---
	02/24/93	13	9.76	7.9	375	1.4	0.2	3.9	---	---
	03/31/93	---	---	8.07	760	<.05	0.22	---	---	---
	04/30/93	19	8	8.3	4310	2.3	0.4	2.42	---	---
	05/27/93	---	12	8.3	3010	1	0.7	1.5	---	---
	06/24/93	23	7.9	7.8	25685	2.9	0.2	3.4	---	---
	07/14/93	23	6.15	8.1	32070	2.8	0.1	4.25	0	0

TABLE D-9

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
WET WEATHER CONTINGENCY PLAN MONITORING

Element	Unit	01/17/93	01/18/93	01/27/93	02/01/93
Site: Pala Pond Discharge					
NH4	(mg/l)	1.5	<0.1	<0.1	1.3
Ca	(mg/l)	7.2	32	69	42
Mg	(mg/l)	6.4	11	27	14
K	(mg/l)	78	9.4	6.7	11
Na	(mg/l)	114	118	115	161
HCO3	(mg/l)	79	95	199	157
Cl	(mg/l)	79	91	145	171
F	(mg/l)	0.24	0.14	0.27	0.26
NO3	(mg/l)	12	21	12	8.4
SO4	(mg/l)	67	160	153	155
Hard	(mg/l)	97	125	282	166
%Na	(%)	64	69	46	66
MBAS	(mg/l)	<0.1	<0.1	<0.1	<0.1
TDS	(mg/l)	350	549	655	610
TSS	(mg/l)	110	490	1	1
NH3-N	(mg/l)	1.2	<0.1	<0.1	1
NO3-N	(mg/l)	2.7	4.7	2.7	1.9
NO2-N	(mg/l)	0.05	0.04	0.07	0.02
TIN	(mg/l)	3.95	4.74	2.77	2.92
EC	(mhos/c)	500	750	950	1150
B	(mg/l)	0.4	0.4	0.2	0.5
Total P	(mg/l)	2.1	2.6	0.4	1
pH	(unit)	7.7	7.6	7.2	7.1
BOD	(mg/l)	4	9	5	7
Fe	(mg/l)	N/A	1.9	0.12	0.21
Mn	(mg/l)	N/A	0.13	0.06	0.07
Flow	(cfs)	N/A	1,993	5.84	N/A

TABLE D-9 (cont'd)

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
WET WEATHER CONTINGENCY PLAN MONITORING

Element	Unit	01/08/93	01/17/93	01/27/93	02/02/93	02/11/93	02/16/93
Site: Temecula Creek Upstream from Pala Pond							
NH4	(mg/l)	<.1	0.4	<.1	<.1	0.2	0.2
Ca	(mg/l)	21	17	103	110	110	128
Mg	(mg/l)	6.9	11	28	28	29	32
K	(mg/l)	6.9	6	6.4	7.4	7	7
Na	(mg/l)	46	28	104	88	77	114
HCO3	(mg/l)	85	46	488	516	470	586
Cl	(mg/l)	49	13	85	72	56	79
F	(mg/l)	0.32	0.03	0.28	0.24	0.2	0.2
NO3	(mg/l)	11	14	0.9	0.4	<.01	<.01
SO4	(mg/l)	44	82	78	82	80	130
Hard	(mg/l)	78	85	377	374	396	454
%Na	(%)	53	45	37	32	29	35
MBAS	(mg/l)	<.1	<.1	<.1	<.1	0.07	0.14
TDS	(mg/l)	270	485	600	650	605	820
TSS	(mg/l)	3000	NA	20	20	160	115
NH3-N	(mg/l)	<.1	0.3	<.1	<.1	0.2	0.2
NO3-N	(mg/l)	2.5	3.2	0.2	0.1	<.1	<.1
NO2-N	(mg/l)	0.45	0.05	0.02	0.01	<.1	<.1
TIN	(mg/l)	2.9	3.55	0.22	0.11	0.2	0.2
EC	(mhos/c)	400	790	1000	1100	930	1320
B	(mg/l)	0.2	0.1	0.4	0.3	0.1	0.2
Total P	(mg/l)	0.3	0.7	0.3	0.7	0.5	0.4
pH	(unit)	8.1	7.9	7.4	7.4	7.6	7.6
BOD	(mg/l)	2	<1	7	9	10	10
Fe	(mg/l)	190	NA	0.88	1.67	8	0.57
Mn	(mg/l)	2	NA	1.11	1.39	1.1	2.2
Flow	(cfs)	92	e 2000	e 13	8	e 33	e 21

e - estimate

TABLE D-9 (cont'd)

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
WET WEATHER CONTINGENCY PLAN MONITORING

Element	Unit	01/08/93	01/17/93	01/27/93	02/02/93	02/11/93	02/16/93
Site: Santa Margarita River near Temecula (Downstream)							
NH4	(mg/l)	<.1	0.9	<.1	<.1	0.2	0.2
Ca	(mg/l)	20	22	42	75	75	93
Mg	(mg/l)	7	5.3	15	25	27	24
K	(mg/l)	8.8	4.3	10.6	6.7	6	4
Na	(mg/l)	22	18	168	138	64	82
HCO3	(mg/l)	65	52	157	214	186	259
Cl	(mg/l)	36	73	167	147	67	84
F	(mg/l)	0.15	0.07	0.3	0.29	0.2	0.3
NO3	(mg/l)	1.3	12	2.6	8.8	0.7	0.6
SO4	(mg/l)	30	63	156	174	110	160
Hard	(mg/l)	72	77	170	298	300	333
%Na	(%)	35	36	67	50	31	35
MBAS	(mg/l)	<.1	<.1	<.1	<.1	<.05	<.05
TDS	(mg/l)	170	244	700	690	480	620
TSS	(mg/l)	610	NA	120	65	570	345
NH3-N	(mg/l)	<.1	0.7	<.1	<.1	0.2	0.2
NO3-N	(mg/l)	0.3	2.7	0.6	2	3.1	2.6
NO2-N	(mg/l)	0.75	<0.05	<.01	0.08	<.1	<.1
TIN	(mg/l)	1	3.4	0.6	2.2	3.3	2.8
EC	(mhos/c)	250	385	1050	109	710	980
B	(mg/l)	0.1	0.1	0.6	0.1	0.1	0.1
Total P	(mg/l)	0.5	0.2	1.1	0.5	1.2	0.8
pH	(unit)	7.8	7.9	8	8	7.8	7.8
BOD	(mg/l)	3	2	<1	<1	3	---
Fe	(mg/l)	70	NA	7.45	1.67	39	12
Mn	(mg/l)	0.87	NA	0.25	1.39	1	0.76
Flow *	(cfs)	689	e 5000	e 59	48	e 160	e 75

* - USGS Gaging Station No. 11044000

e - estimate

TABLE D-9 (cont'd)

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
WET WEATHER CONTINGENCY PLAN MONITORING

Element	Unit	01/08/93	01/17/93	01/27/93	02/02/93	02/11/93	02/16/93
Site: Temecula Creek at Pala Road							
NH4	(mg/l)	---	0.4	---	---	---	---
Ca	(mg/l)	---	24	---	---	---	---
Mg	(mg/l)	---	5.8	---	---	---	---
K	(mg/l)	---	5	---	---	---	---
Na	(mg/l)	---	20	---	---	---	---
HCO3	(mg/l)	---	64	---	---	---	---
Cl	(mg/l)	---	78	---	---	---	---
F	(mg/l)	---	<.01	---	---	---	---
NO3	(mg/l)	---	22	---	---	---	---
SO4	(mg/l)	---	52	---	---	---	---
Hard	(mg/l)	---	86	---	---	---	---
%Na	(%)	---	36	---	---	---	---
MBAS	(mg/l)	---	<.1	---	---	---	---
TDS	(mg/l)	---	180	---	---	---	---
TSS	(mg/l)	---	1120	---	---	---	---
NH3-N	(mg/l)	---	0.3	---	---	---	---
NO3-N	(mg/l)	---	4.9	---	---	---	---
NO2-N	(mg/l)	---	<.05	---	---	---	---
TIN	(mg/l)	---	5.2	---	---	---	---
EC	(mhos/c)	---	310	---	---	---	---
B	(mg/l)	---	0.2	---	---	---	---
Total P	(mg/l)	---	0.5	---	---	---	---
pH	(unit)	---	7.8	---	---	---	---
Turb	(mg/l)	---	>200	---	---	---	---

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	Total Phosphate mg/l	Total Phosphorous mg/l	Flow cfs
Santa Margarita River	01/24/91	900	22.6	---	2.09	---	3
at FPUD Sump	02/13/91	965	30	---	2.1	---	3
USGS Station # 11044300	03/13/91	720	0.9	---	0.2	---	e 20
	04/08/91	1005	37	---	4.3	---	e 23
	05/06/91	1150	18	---	1.4	---	e 6
	06/10/91	955	2	---	0.9	---	e 6.8
	07/08/91	935	11	---	1.4	---	e 3.4
	08/12/91	840	2	---	0.7	---	e 5.2
	09/09/91	785	1	---	0.2	---	e 6.8
	10/14/91	690	9.3	---	0.8	---	2.9
	11/12/91	900	8.7	---	1.4	---	1.4
	12/09/91	945	7.5	---	0.7	---	1.8
	01/13/92	890	8	---	1.5	---	8.1
	02/09/92	575	8.4	---	4.9	---	6.4
	03/16/92	905	7.1	---	0.6	---	7.9
	04/13/92	940	13	---	3.4	---	13
	05/11/92	970	11	---	1.2	---	12
	06/08/92	945	7.5	---	0.9	---	5.9
	07/13/92	835	12	---	0.47	---	3.4
	08/17/92	830	6.3	---	0.8	---	e 5.5
	09/14/92	850	1.1	---	0.3	---	9.6
	10/13/92	830	7.1	1.6	0.3	---	2.5
	11/09/92	915	11.9	2.7	0.7	---	3.2
	12/14/92	830	7.1	1.6	0.3	---	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	7.1	---	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	---	0.1	---	11
	08/10/93	810	8.8	---	0.4	---	9.6
	09/21/93	630	5.6	---	3	---	16

e - estimate

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	Total Phosphate mg/l	Total Phosphorous mg/l	Flow cfs
Rainbow Creek	01/24/91	1170	120	---	9.21	---	0.39
near Fallbrook	02/13/91	1165	151	---	12	---	0.58
USGS Station # 11044250	03/13/91	1340	115	---	2.7	---	3.5
	04/08/91	1075	1.3	---	6.4	---	3.4
	05/06/91	1325	94	---	7.2	---	1.1
	06/10/91	1415	17	---	4.3	---	0.58
	07/08/91	1325	82	---	6.8	---	0.48
	08/12/91	1270	17	---	3.5	---	0.69
	09/09/91	1275	11	---	2.2	---	0.59
	10/14/91	130	41	---	4.8	---	0.11
	11/12/91	1320	43	---	6	---	0.31
	12/09/91	1290	45	---	3.5	---	0.46
	01/13/92	1330	44	---	3.7	---	0.68
	02/09/92	795	35	---	5.8	---	1.4
	03/16/92	1200	36	---	3.7	---	1.6
	04/13/92	1090	53	---	3.4	---	2.4
	05/11/92	1255	42	---	3.4	---	1.1
	06/08/92	1260	38	---	4.3	---	0.45
	07/13/92	1350	31	---	0.36	---	0.49
	08/17/92	1395	26	---	5	---	0.29
	09/14/92	1440	7	---	1.8	---	0.54
	10/13/92	1425	31	7	1.8	---	0.46
	11/09/92	1410	35.4	8	2.5	---	0.42
	12/14/92	1290	33	7.5	1.9	---	0.48
	01/26/93	490	15	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	---	1.8	---	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	---	0.5	---	e .34
	08/10/93	795	9.7	---	0.4	---	0.32
	09/21/93	750	11	---	0.6	---	0.41

e - estimate

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	Total Phosphate mg/l	Total Phosphorous mg/l	Flow cfs
Murrieta Creek	01/24/91	570	4	---	0.95	---	0.09
at Temecula	02/13/91	475	4	---	0.4	---	0.03
USGS Station # 11043000	03/13/91	750	<0.4	---	0.2	---	18
	04/08/91	750	21	---	0.6	---	1.6
	05/06/91	535	4.4	---	0.4	---	0.29
	06/10/91	345	2	---	0.1	---	1.1
	07/08/91	450	6.1	---	0.3	---	0.38
	08/12/91	360	2.8	---	0.1	---	1.5
	09/09/91	640	2.4	---	<0.1	---	3.8
	10/14/91	525	2.2	---	0.2	---	2.5
	11/12/91	460	2.8	---	0.4	---	0.06
	12/09/91	450	3.5	---	0.4	---	0.05
	01/13/92	520	4	---	0.3	---	0
	02/09/92	175	4.9	---	3.4	---	0.36
	03/16/92	510	2.7	---	0.6	---	0
	04/13/92	560	5.3	---	0.6	---	0.09
	05/11/92	545	3.5	---	0.6	---	0
	06/08/92	630	10.6	---	0.3	---	1.8
	07/13/92	585	10	---	0.1	---	2.3
	08/17/92	510	12	---	0.1	---	2.5
	09/14/92	460	2.8	---	0.1	---	2.7
	10/13/92	405	7.1	1.6	0.1	---	2.2
	11/09/92	570	0.4	0.1	0.8	---	0.05
	12/14/92	545	3.5	0.8	0.3	---	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	---	0.3	---	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	---	0.1	---	e 0.32
	08/10/93	605	2.6	---	0.8	---	0.31
	09/21/93	500	2.6	---	<0.1	---	0.43

e - estimate

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	Total Phosphate mg/l	Total Phosphorous mg/l	Flow cfs
Santa Margarita River	01/24/91	800	2.2	---	0.4	---	1.1
near Temecula	02/13/91	780	2.2	---	0.6	---	0.81
USGS Station # 11044000	03/13/91	830	13	---	0.4	---	15
	04/08/91	790	9.7	---	40.0	---	8.3
	05/06/91	750	3.5	---	0.4	---	2
	06/10/91	570	1.3	---	0.1	---	2.8
	07/08/91	565	4.4	---	0.3	---	5.1
	08/12/91	540	1.9	---	0.1	---	2.7
	09/09/91	680	1.5	---	<0.1	---	4.3
	10/14/91	475	15	---	0.3	---	4
	11/12/91	705	3.5	---	0.3	---	1.1
	12/09/91	700	3.5	---	0.4	---	1.2
	01/13/92	770	6.2	---	6.0	---	6
	02/09/92	245	2.7	---	2.8	---	2.6
	03/16/92	760	3.1	---	6.1	---	2.8
	04/13/92	800	12	---	8.9	---	6.3
	05/11/92	790	25	---	1.2	---	4.7
	06/08/92	650	5.8	---	0.3	---	7.2
	07/13/92	550	7	---	0.1	---	3.3
	08/17/92	570	6.7	---	<0.1	---	2.8
	09/14/92	555	1.2	---	0.1	---	3.1
	10/13/92	495	6.2	1.4	0.1	---	3.1
	11/09/92	720	1.8	0.4	1.2	---	1.5
	12/14/92	650	10	2.3	0.2	---	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	---	0.3	---	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	---	0.1	---	2.2
	08/10/93	615	1.8	---	0.2	---	4.4
	09/21/93	530	1.3	---	0.3	---	11

e - estimate

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	Total Phosphate 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	---	3.7	---	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	15	3.5	---	0.2	8.3
	04/14/93	780	18	---	0.6	---	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	---	0.2	---	e 0.20
	08/10/93	250	3.1	---	0.2	---	e 0.20
	09/21/93	---	---	---	---	---	0.03

e - estimate

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

RAMONA INDIAN RESERVATION

CAHUILLA INDIAN RESERVATION

RIVERSIDE COUNTY
SAN DIEGO COUNTY

ORANGE COUNTY

CAMP PENDLETON

VISTA

OCEANSIDE

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

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