SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 1990-91

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

CIVIL NO. 1247 - SD-T

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SECTION 1 - SUMMARY

Section 1 - A summary of the Santa Margarita River Watershed Annual Watermaster Report for the 1990-91 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 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 stream system.

Section 3 - Surface water flows were much higher than normal in 1990-91, ranging from 149 to 251 percent of normal at gaging stations with long records. Surface diversions to irrigation use totaled 891 acre feet compared with 763 acre feet in 1989-90. The total quantity of water in storage in the Watershed on September 30, 1991, was 22,775 acre feet of Santa Margarita River water and 39,666 acre feet of imported water.

Section 4 - Groundwater extractions were 39,938 acre feet compared to 48,450 acre feet in 1989-90. Water purveyors pumped 31,620 acre feet and 8,318 acre feet were pumped by other substantial users.

Section 5 - During 1990-91, 51,166 acre feet of water were imported and distributed in the Santa Margarita River Watershed by six water purveyors. This compares with 46,806 acre feet in 1989-90, an increase of approximately nine percent. Net exports, including wastewater, were 1,996 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 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 91,995 acre feet compared to 96,019 in 1989-90. Of that quantity, 50,460 acre feet were used for agriculture (which includes use by Rancho California Water District of 1,394 acre feet for golf course irrigation and 2,079 acre feet for landscape irrigation), 3,630 acre feet were used for commercial purposes, and 32,242 acre feet were used for domestic purposes; 785 acre feet were discharged to Murrieta Creek; 2,108 acre feet of fresh water were exported and 2,770 acre feet were unaccounted for. Unaccounted for water is the result of many factors including errors in measurement, differences between periods of use and periods of production, losses and unmeasured uses.

Section 8 - Unauthorized water use issues involve storage of surface water without an appropriative water right. In addition, Camp Pendleton has raised three unauthorized water use issues which include: recharge in violation of the 1940 Stipulated Judgment, rediversion and use not in accord with terms of Permit 7032, and export of local water by Eastern Municipal Water District.

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 1990-91 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 $153,000 is proposed for the 1992-93 Water Year.

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 also described the Watermaster's Powers and Duties as well as procedures for funding and operating the Watermaster's Office. The Court also appointed a Steering Committee comprised of representatives from Camp Pendleton, Fallbrook PUD and Rancho California WD 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 1990-91 the U.S.G.S. collected measurements from 13 stations and the Marine Corps Base at Camp Pendleton collected measurements from one additional station.

The U.S.G.S. has had difficulty establishing a high flow rating curve for the DeLuz Creek station and in 1990-91 collected four discharge measurements. The U.S.G.S. has recommended that the station be discontinued because of this difficulty and because of gage access problems.

Monthly flows for these stations are shown on Table 3.2. Of these, stations with long periods of record are shown below. Total flow for Water Years 1989-90 and 1990-91 at these stations, together with the average discharge for the station for the period of record through Water Year 1991, are listed below:

	TOTAL FLOW		AVERAGE FLOW
	1989-90 Acre Feet	1990-91 Acre Feet	Through 1991 Acre Feet
Temecula Creek Near Aguanga	1,113	9,132	4,930 (1957-91)
Murrieta Creek At Temecula	1,850	19,682	7,900 (1924-91)
Santa Margarita River Near Temecula	3,094	27,126	10,800 (1949-91)
Santa Margarita River Near Ysidora	3,340	36,501	24,357 (1923-91)

Comparisons of flows indicate that 1990-91 was considerably wetter than normal with flows ranging from 149 to 251 percent of the long-term averages.

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 Water District into Murrieta Creek just

TABLE 3.1

SANTA MARGARITA RIVER WATERSHED
STREAM GAGING STATIONS

STATION NAME	STATION NO.	AREA SQ. MILES	RECORDED BY	PERIOD OF RECORD
Temecula Creek Near Aguanga	11042400	131	USGS	8/57 –
Wilson Creek Above Vail Lake	11042490	122	USGS	10/89 –
Temecula Creek At Vail Dam	11042520	320	USGS	2/23 – 10/77
Vail Lake at Temecula (Reservoir Storage)	11042510	320	USGS	10/60 –
Pechanga Creek Near Temecula	11042631	14	USGS	10/87 –
Warm Springs Creek Near Murrieta	11042800	55	USGS	10/87 –
Santa Gertrudis Creek Near Temecula	11042900	93	USGS	10/87 –
Murrieta Creek At Temecula	11043000	222	USGS	10/25 –
Santa Margarita River Near Temecula	11044000	588	USGS	2/23 –
Rainbow Creek Near Fallbrook	11044250	10.3	USGS	9/89 –
Sandia Creek Near Fallbrook	11044350	21.4	USGS	9/89 –
Santa Margarita River Near Fallbrook	11044300	620	USGS	10/24 – 80 9/89 –
Santa Margarita River Tributary Near Fallbrook	11044600	0.52	USGS	10/61 – 9/65
DeLuz Creek Near Fallbrook	11044900	47.5	USGS/MRO	2/51 – 67 68 – 77 9/89 –
Santa Margarita River Near DeLuz Station	11045000	705	USGS	10/24 – 9/26
Fallbrook Creek Near Lake O'Neill	NA	9.5	USGS/MRO	10/64 – 9/76 12/88 –
Santa Margarita River At Ysidora	11046000	723	USGS	3/23 –
			WATER YEAR ENDING	1920 1930 1940 1950 1960 1970 1980 1990

TABLE 3.2

SANTA MARGARITA RIVER WATERSHED
MEASURED SURFACE WATER FLOW 1990-91
Quantities in Acre Feet

GAGING STATION	DRAINAGE AREA SQ. MILES	MONTH OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	1990-91 WATER YEAR TOTAL	ANNUAL AVERAGE THRU 1991	YEARS OF RECORD THRU 1991
Temecula Creek																
Near Aguanga	131	35	47	71	95	1,180	6,430	914	216	75	30	19	20	9,132	4,930	34
Wilson Creek																
Above Vail Lake	122	0	0	0	0	5	66	0	0	0	0	0	0	71	N/A	2
Pechanga Creek																
Near Temecula	13.8	0	0	0	0	12	198	0	0	0	0	0	0	210	N/A	4
Warm Springs Creek																
Near Murrieta	55.4	18	4	1	9	224	4,550	4	0	0	0	0	0	4,810	N/A	4
Santa Gertrudis Creek																
Near Temecula	92.8	0	0	0	0	47	1,440	80	0	0	0	0	0	1,567	N/A	4
Murrieta Creek																
At Temecula	222	189	1	1	81	1,990	16,860	159	23	39	54	91	194	19,682	7,900	67
Santa Margarita River																
Near Temecula	588	230	85	69	161	5,330	19,970	400	159	137	149	200	236	27,126	10,800	43 (1949-91)
															20,420	25 (1924-48)
Rainbow Creek																
Near Fallbrook	10.3	27	31	28	40	141	995	180	51	33	37	42	23	1,628	N/A	2
Sandia Creek																
Near Fallbrook	21.4	68	101	130	170	297	3,980	868	432	304	97	96	75	6,618	N/A	2
Santa Margarita River																
Near Fallbrook	620	265	176	173	286	2,700	30,140	1,000	406	346	259	330	297	36,458	N/A	2
DeLuz Creek 1/																
Near Fallbrook	47.5														3,915	25 (1951-77) Except 1968
Santa Margarita River																
At Ysidora	723	0	85	351	292	946	30,710	2,370	766	434	245	133	169	36,501	24,357	68
Fallbrook Creek																
Near Lake O'Neill	9.5	0	0	0	11	31	361	42	22	8	4	0	0	479	1,225 2/	12 (1965-76)
																3 (1989-91)

1/ No continuous record was maintained in 1990-91
2/ Includes wastewater flows
N/R - No Record
N/A - Not Applicable

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 station near Temecula between May 1 and October 31 of each year. Discharges at that station for the months of October, 1990 and May through September, 1991 are shown on the following tabulation:

	MONTHLY DISCHARGE		
	Acre Feet	No. Days	Average Daily cfs
October 1990	230	31	3.7
May 1991	159	31	2.5
June 1991	137	30	2.3
July 1991	149	31	2.4
August 1991	200	31	3.3
September 1991	236	30	4.0
TOTAL	1,111	184	3.0

Release of 785 acre feet by Rancho California Water District constituted most of the measured 1,111 acre feet of water flowing past the Santa Margarita River gage during the six-month period.

3.2 Surface Water Diversions

Surface diversions to surface water storage and groundwater storage during 1989-90 and 1990-91 are shown in Table 3.3. Surface diversions to irrigation, estimated consumptive use, losses and returns for 1990-91 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, 1990 and September 30, 1991. Total Santa Margarita system water in storage at the end of water year 1990-91 totaled 22,775 acre feet, compared to 18,414 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
Quantities in Acre Feet

Surface Water Storage

	Vail Lake		Lake O'Neill	
	1989-90	1990-91	1989-90	1990-91
Storage at end of year (9/30)	17,454	21,815	960	960
Change in Storage	(980)	4,361	60	0
Annual Evaporation	3,158	3,619	380	366
Annual Release	0	6,253	900[1]	900[1]
Diversions to Surface Storage	2,178[1/3]	14,233 [3]	867	957

Groundwater Storage

Recharge (Surface Release)	0	6,253	900[1]	900 [1]
Recharge (Direct)	0	0	2,755	5,178

[1] Estimated
[2] Revised from 1989-90 Report
[3] Equals Change of storage, plus Evaporation, plus Releases

TABLE 3.4

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

	Surface Diversions	Consumptive Use [1]	Losses [2]	Returns [3]
Matthews & Baum	18	13	2	3
Bluebird Ranch	14	10	1	3
Cal June, Inc.	100	67	10	23
Cottle/Strange	250	169	25	56
Agri-Empire, Inc.				
Wilson Creek	146	98	15	33
Chihuahua Creek	203	137	20	46
Twin Creeks Ranch[4]	68	46	7	15
Sage Ranch Nursery	30	20	3	7
Margarita Land and Development Co.	62	42	6	14
TOTAL	891	602	89	200

[1] Consumptive use equals 75% of diversions less losses
[2] Losses equal 10% of diversion
[3] Returns equal 25% of diversion less losses
[4] 1989-90 data, owner unavailable

TABLE 3.5

SANTA MARGARITA RIVER WATERSHED
WATER IN STORAGE
Quantities in Acre Feet

Santa Margarita River Storage	Total Capacity	Water in Storage 9/30/90	Water in Storage 9/30/91
Dunn Ranch Dam	90	0	0
Chihuahua Creek Reservoirs			
Upper	190	0	0
Middle	8	0	0
Lower	10	0	0
Vail Lake	49,370	17,454	21,815
Lake O'Neill	1,200	960*	960 *
Subtotal	50,868	18,414	22,775
Imported Water Storage			
Lake Skinner	44,000	42,370	39,666
TOTAL STORAGE	94,868	60,784	62,441

* - Estimated

SECTION 4 - SUBSURFACE WATER AVAILABILITY

4.1 General

Much of the water from the Santa Margarita River 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. The use of such waters is under the continuing jurisdiction of the Court. Aquifers containing such waters include alluvial deposits located along streams as well as older alluvial deposits. Use of such water 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.

Production by purveyors totaled 31,620 acre feet in 1990-91 compared to 39,655 acre feet in 1989-90. Monthly quantities are shown in Appendix A and annual production for water years between 1966 and 1991 is shown in Appendix B.

Subsurface extractions by private irrigators are based on the irrigated acreage and reported in Appendix C. These groundwater extractions were 8,318 acre feet in 1990-91. 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 production which is not consumed.

TABLE 4.1

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

HYDROLOGIC AREA	WATER PURVEYOR PRODUCTION ACRE FEET	OTHER IRRIGATED ACRES	IRRIGATION PRODUCTION ACRE FEET	TOTAL GROUNDWATER PRODUCTION ACRE FEET	SURFACE WATER DIVERSIONS ACRE FEET	TOTAL PRODUCTION ACRE FEET	ESTIMATED CONSUMPTIVE USE ACRE FEET 2/	ESTIMATED RETURN FLOW ACRE FEET
1. Wilson Creek Above Aguanga GWA Includes Anza Valley	375 (Anza MWC, Lk Rvside)	1,900 1/	2,682	3,057	0	3,057	2,293	764
2. Temecula Creek Above Aguanga GWA	12 (Butterfield Oaks MHP)	607	1,483	1,495	203	1,698	1,258	440
3. Aguanga GWA	51 (Thousand Trails)	506	1,150	1,201	464	1,665	1,214	451
4. Upper Murrieta Creek	-----	-----	-----	-----	-----	-----	-----	-----
5. Lower Murrieta Creek	-----	865	76	76	30	106	79	27
6. Temecula-Murrieta GWA	27,423 (RCWD,MCWD,EMWD)	988	2,009	29,432	0	29,432	22,074	7,358
7. Santa Margarita River Below Gorge								
DeLuz Creek	46 (FPUD)	252	772	818	32	850	637	213
Sandia Creek	-----	126	100	100	100	200	143	57
Rainbow Creek	-----	-----	-----	0	0	-----	-----	-----
Santa Margarita River	3,713 (USMC)	20	46	3,759	62	3,821	592	2,340
TOTAL	31,620	5,344	8,318	39,938	891	40,829	28,290	11,650

1/ Includes lands overlying deep aquifer in Anza Valley

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 889 acre feet is excluded and return flows include measured wastewater returns

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, 5 percent of the wastewater recharged was estimated to have been lost as consumptive use.

4.3 Subsurface Storage

Quantification of the volumes of water in subsurface storage requires definition of four factors which include:

1. Surface area
2. Depth of subsurface source
3. Specific yield of aquifer
4. Depth of water.

Subsurface sources have previously been identified in the Court documents and have also been classified by the Department of Water Resources. In Table 4.2 subsurface storage areas are listed under Court headings and categorized using the same hydrologic subunits (HSU's) and subareas (HSA's) used by the State. The surface areas of the subsurface sources within each HSA were measured from Court Exhibits which show the surface exposure of younger alluvium (Qyal) and older alluvium (Qtoal). These areas are compared on Table 4.2 with previous results by the Department of Water Resources in its Bulletin No. 57 published in 1956, and by The Joint Administration Committee of the Santa Margarita and San Luis Rey Watershed Planning Agency in 1973.

The depths of subsurface sources are generally determined by using drillers' well logs. About 8,500 drillers' logs have been collected from the State Department of Water Resources, Riverside County Flood Control District and San Diego County. These logs are being used along with studies by others to define the depth of younger and older alluvium in each subsurface source.

TABLE 4.2

SANTA MARGARITA RIVER WATERSHED
SURFACE AREAS OF SUBSURFACE STORAGE AREAS

HYDROLOGIC AREA	HYDROLOGIC SUB AREA	DWR 1/ 1956	JAC 2/ 1973	WATERMASTER OFFICE QVAL	QTOAL	TOTAL	
1. Wilson Creek above Aguanga GWA							
a. Burnt Valley	2.74	---	---	277	313	590	
b. Anza Valley	2.73	5,700	9,600	7,286	4,131	11,417	
c. Upper Cahuilla Valley	2.72	710	1,100	959	400	1,359	
d. Lower Cahuilla Valley	2.71	1,300	1,200	1,643	420	2,063	
e. Reed Valley	2.63	---	---	686	172	858	
f. Lewis Valley	2.62	---	---	730	376	1,106	
g. Subtotal		7,710	11,900	11,581	5,812	17,393	
2. Temecula Creek above Aguanga GWA							
a. Chihuahua Valley	2.94			938	157	1,095	
b. Dodge Valley	2.93	1,000	---	908	0	908	
c. Oak Grove Valley	2.92	2,000	2,500	2,251	0	2,251	
d. Lower Culp	2.91	610	1,100	692	296	988	
e. Subtotal		3,610	3,600	4,789	453	5,242	
3. Aguanga GWA (u/s Vail Dam)							
a. Tule Creek /Aguanga (outside GWA)	2.84 P			694	25	719	
b. Tule Creek/Aguanga (inside GWA)	2.84 P	1,200	2,000	1,537	1,837	3,374	
c. Radec	2.83	---	---	169	635	804	
d. Devils Hole	2.82		---	94	0	94	
e. Vail (inside GWA)	2.81 P	310	---	1,444	4,794	6,238	(Excludes Vail Lake)
f. Vail (outside GWA)	2.81 P		---	128	618	746	
g. Lancaster Valley (inside GWA)	2.61 P	940	8,000	1,161	1,763	2,924	
h. Lancaster Valley (outside GWA)	2.61 P			74	292	366	
i. Subtotal		2,450	10,000	5,301	9,964	15,265	
4. Upper Murrieta							
a. Diamond	2.36	2,600	2,800	2,483	0	2,483	
b. Domenigoni	2.35	3,000	3,300	3,061	4	3,065	
c. Lower Domenigoni	2.34	---	---	719	7	726	
d. French (outside GWA)	2.33 P	3,000	3,500	210	669	879	
e. French (inside GWA)	2.33 P	---	---	277	1,404	1,681	
f. Murrieta (outside GWA)	2.32 P	---	---	513	1,230	1,743	
g. Wildomar (outside GWA)	2.31 P	590	---	7	1,124	1,131	
h. Subtotal		9,190	9,600	7,270	4,438	11,708	
5. Lower Murrieta (u/s GWA)							
a. Tucalota (above Sage)	2.44	260	---	323	0	323	
b. Tucalota (above Lk Skinner)	2.43	1,700	---	230	0	230	
c. Bachelor Mtn (below Lk Skinner)	2.41	---	---	272	0	272	(Excludes Lake Skinner)
d. Subtotal		1,960	2,800	825	0	825	
6. Murrieta/Temecula GWA							
a. Pechanga (inside GWA)	2.52 P	2,200	---	2,259	3,375	5,634	
b. Pechanga (outside GWA)	2.52 P			28	802	830	
c. Pauba (inside GWA)	2.51 P	3,000	---	4,071	8,257	12,328	
d. Pauba (outside GWA)	2.51 P			245	395	640	
e. Santa Gertrudis (inside GWA)	2.42 P	580	---	1,744	8,483	10,227	
f. Santa Gertrudis (outside GWA)	2.42 P	---	---	78	1,253	1,331	
g. Murrieta (inside GWA)	2.32 P	4,400	---	5,264	11,043	16,307	
h. Wildomar (inside GWA)	2.31 P		---	803	2,652	3,455	
i. Subtotal		10,180	60,000	14,492	36,260	50,752	
7. DeLuz							
a. Vallecitos (Rainbow)	2.23	450	---	528	0	528	
b. Gavilan (Sandia inside GWA)	2.22 P			7	0	7	
c. Gavilan (Sandia)	2.22 P		---	564	0	564	
d. DeLuz Creek	2.21	---	---	956	0	956	
e. Subtotal		450		2,055	0	2,055	
8. Ysidora							
a. Upper	2.13	1,100	---	1,201	0	1,201	
b. Chappo	2.12	2,240	---	2,431	0	2,431	
c. Ysidora	2.11	860	---	1,246	0	1,246	
d. Subtotal		4,200	4,030	4,878	0	4,878	
9. TOTAL		39,750	101,930	51,191	56,927	108,118	

P Partial
1/ State Department of Water Resources Bulletin 57, "Santa Margarita River Investigation," June, 1956
2/ Joint Administration Committee of the SM & SLR WPA, "Comprehensive Water Quality Management Study," Vol 1, Dec, 1973

At present, maps prepared by others showing depths to bedrock are available for the following groundwater basins:

1. Wilson Creek Area
   a. Burnt Valley
   b. Anza Valley
   c. Upper Cahuilla
   d. Lower Cahuilla

2. Murrieta/Temecula Groundwater Area

3. Ysidora
   a. Upper Sub-basin
   b. Chappo Sub-basin
   c. Ysidora Sub-basin

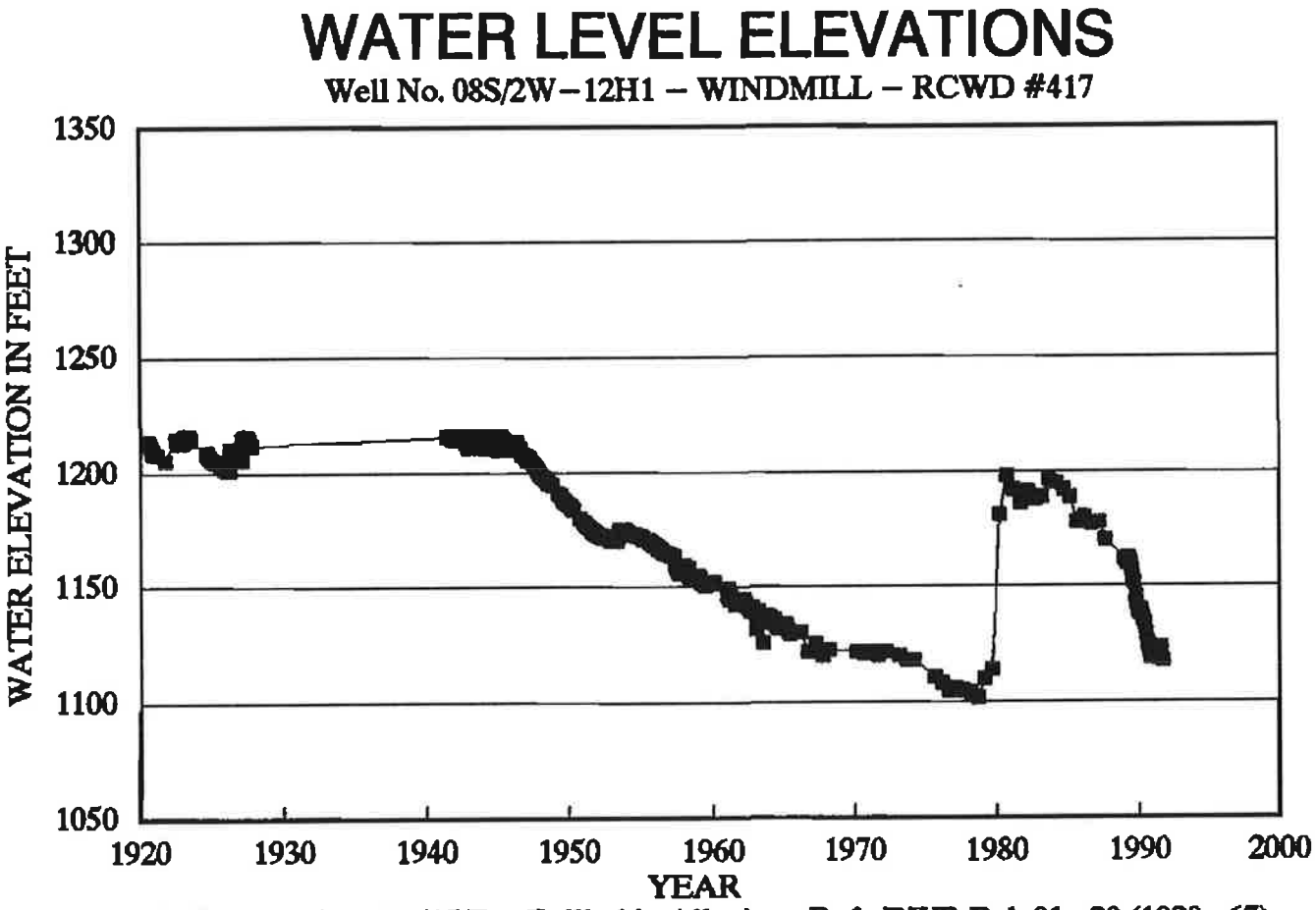
After the surface areas and depths are defined, the total capacity of the subsurface source can be computed by multiplying the total volume by the specific yield. Specific yields may be estimated from data developed in well pumping tests, however few such tests have been conducted in the Santa Margarita River Watershed. The only tests in recent years are those by the Rancho California Water District. In the absence of pump tests, specific yields can be estimated from drillers' logs, and this approach will be used in areas where no well tests are available.

The last component which needs to be identified to determine the quantity of water in subsurface storage is the depth of water. Well water level measurements are available within major purveyors' service areas such as Rancho California Water District, Camp Pendleton, and Murrieta County Water District. However, outside major service areas, groundwater level measurements are sparse. Therefore, there is a need to develop a system of water level measurements in areas outside these major service areas.

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 Water District Service Area downstream from Vail Lake. Note the extended drawdown from 1945 to 1978 and the major recovery during the wet years in 1978-1980.

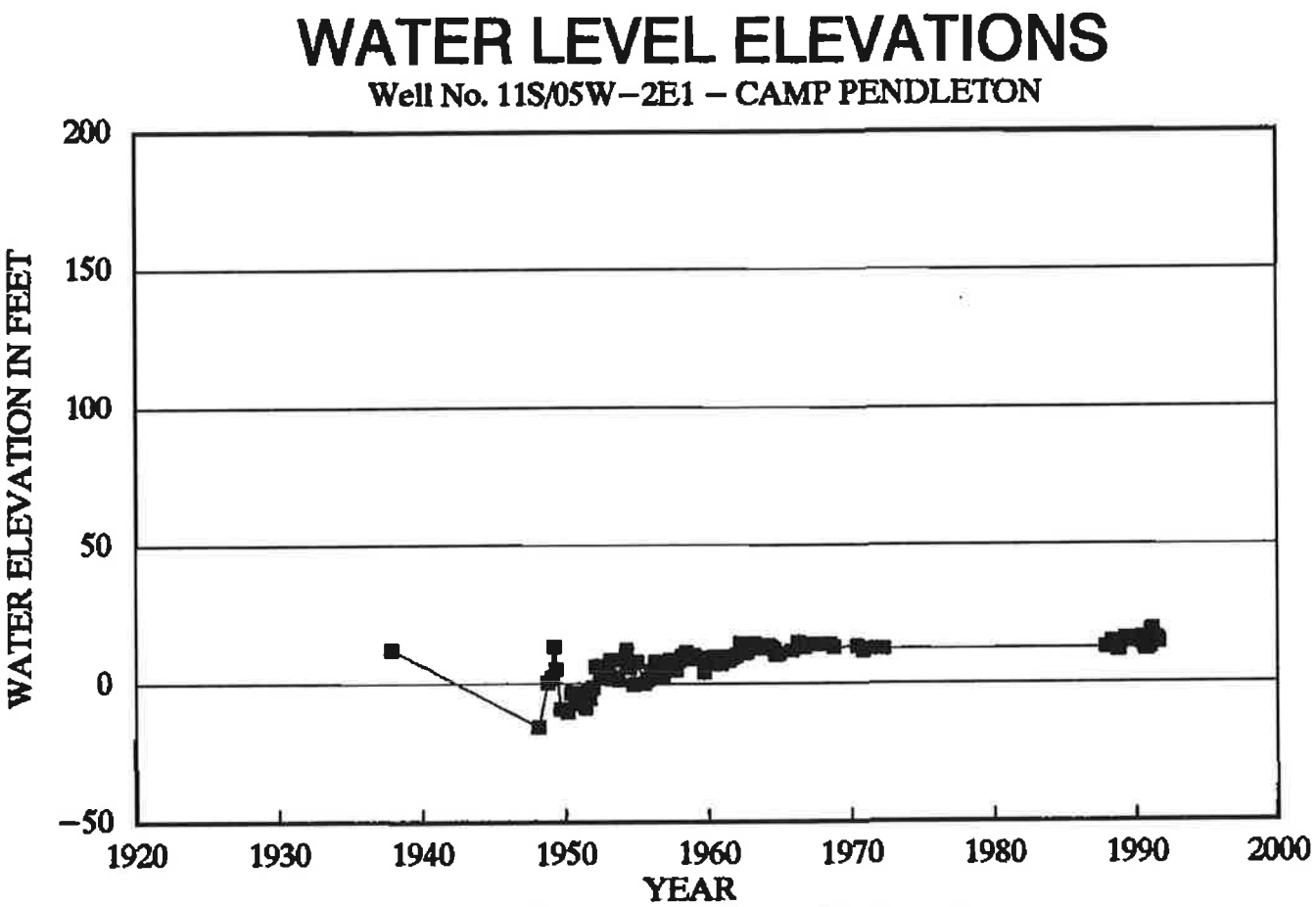
Figure 4.2 shows water levels at Well No. 11S/5W-2E1 at Camp Pendleton. Note the lowered water levels in the late 1940's which led to seawater intrusion of the Ysidora sub-basin. The seawater intrusion has been prevented since then by maintaining water levels above sea level.

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 (1989-91)

FIGURE 4.2



Ground El. 20.06 Ft Depth 83.3 Ft Perf 112–137 Ft. Drilled in Alluvium
Camp Pendleton Records (1937–1972) (1988–1991 dates estimated)

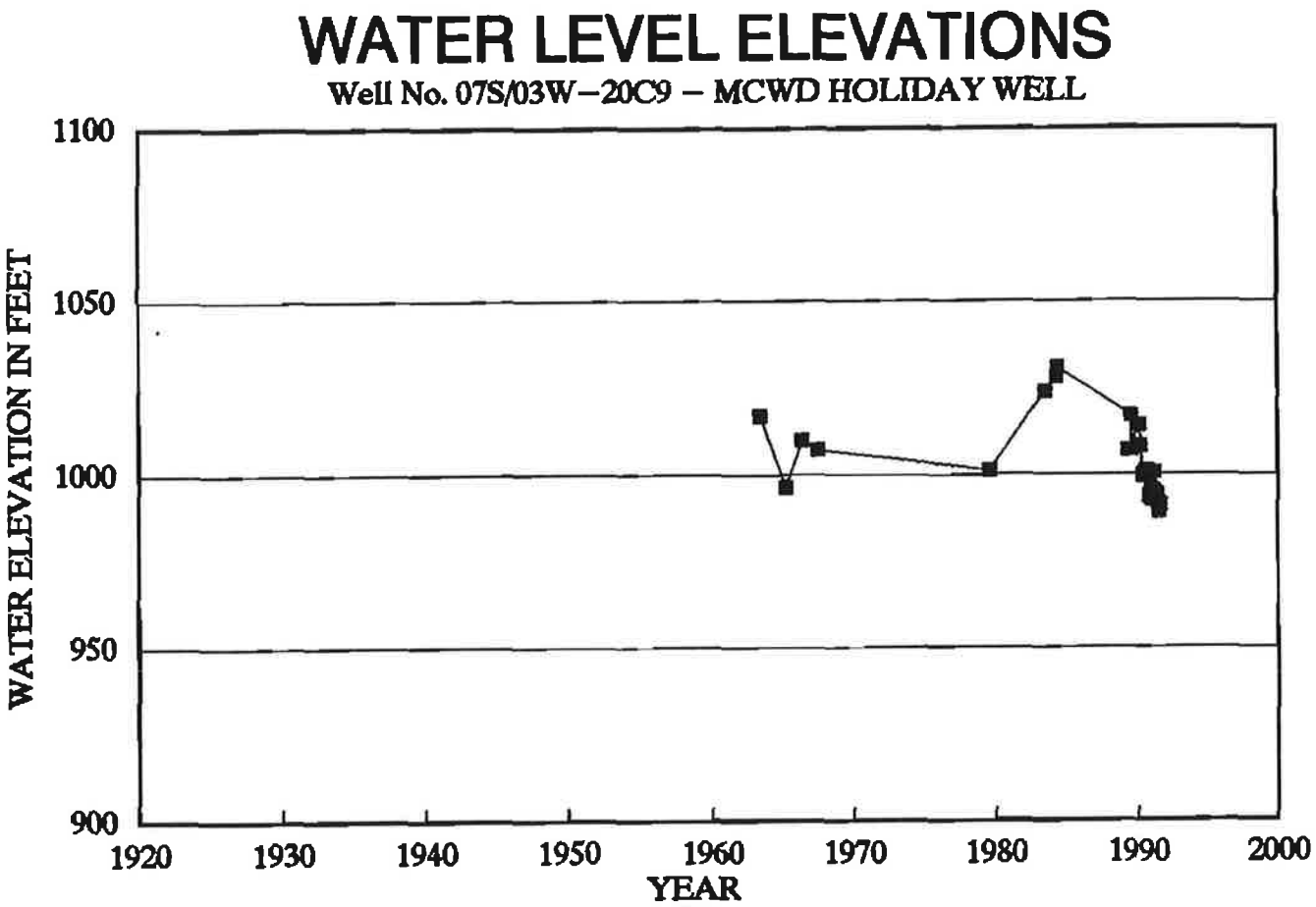
Figure 4.3 shows water levels from Well No. 7S/3W-20C9 (Holiday Well) in the Murrieta County Water District Service Area. Overall, this well's levels show no signs of long-term overdraft. However continuation of the rate of lowering experienced in 1990-91 in wet years could change that conclusion.

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. Note there is little overall trend in water levels since 1973.

Changes in water levels in the above noted wells between the end of the previous water year and the end of the 1991 water year are shown below:

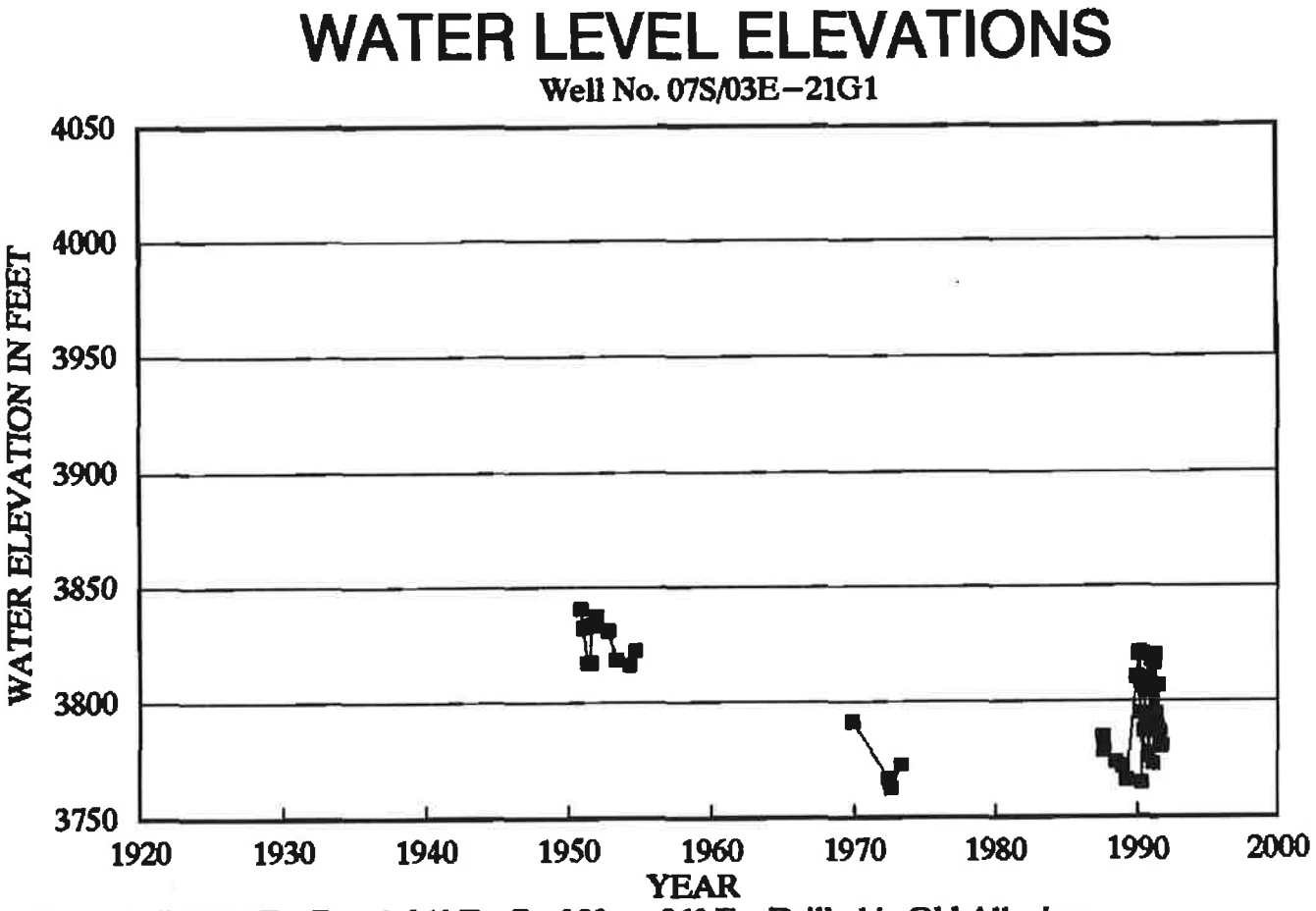
Well	Water Level 1990	Water Level 1991	Change in Water Level Feet
8S/2W-12H1	1121.7	1117.2	Down 4.5
11S/5W-2E1	12.1	14.8	Up 2.7
7S/3W-20C9	1000.8	990.9	Down 9.9
7S/3E-21G1	3775.6	3775.6	No Change

FIGURE 4.3



Ground El. 1080 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 (1987-1991); DWR Bulletin 91-22 (1950-1973) dated 8/7·

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 Metropolitan Water District of Southern California (MWD) for sale to local districts. MWD obtains its water from the State Water Project (SWP) and the Colorado River. Both the State Water Project 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 1990-91 water in storage in the SWP increased from 1.9 million acre feet on September 30, 1990, to 2.4 million acre feet on September 30, 1991. Storage on September 30, 1991, corresponds to 46 percent of the total SWP storage capacity.

Similarly, water in storage in the Colorado River system decreased from 43.5 million acre feet on September 30, 1990, to 41.7 million acre feet on September 30, 1991. On September 30, 1991, those reservoirs contained 65 percent of their total capacity.

Projections of water availability on the State Water Project for the coming year are prepared by the State Department of Water Resources on a monthly basis from February through May. The March 1, 1992 report indicates that projected April through July runoff from rivers in the State ranges from 50 to 70 percent of average. The SWP has approved deliveries of 45 percent for both agricultural entitlement water and municipal and industrial water requests.

The following districts imported water directly or indirectly from MWD into the Santa Margarita River Watershed during 1990-91:

Eastern Municipal Water District
Elsinore Valley Municipal Water District
Fallbrook Public Utility District
Rainbow Municipal Water District
Rancho California Water District
Western Municipal Water District

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
Oroville	3,540	2,150	1,163	1,399
San Luis (State Share)	1,060	216	100	385
Pyramid	171	160	163	164
Castaic	324	184	268	296
Silverwood	73	62	67	68
Perris	132	104	116	120
Total	5,300	2,876	1,877	2,432
Percent of Capacity		54%	35%	46%

MAJOR COLORADO RIVER RESERVOIRS

	Total Capacity	Water in Storage 9/30/89	9/30/90	9/30/91
Flaming Gorge	3,789	2,960	3,082	3,391
Blue Mesa	941	585	618	700
Navajo	1,709	1,310	1,361	1,586
Powell	27,000	19,805	16,252	14,699
Mead	28,537	21,528	20,144	19,233
Mohave	1,818	1,388	1,488	1,571
Havasu	648	563	562	556
Total	64,442	48,139	43,507	41,736
Percent of Capacity		75%	68%	65%

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.

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 is exported by the Fallbrook Sanitary District and wastewater in the Elsinore Valley MWD is exported by that district.

Eastern MWD is currently constructing a 24-inch pipeline along Winchester Road. When completed the pipeline will be used 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.

Exports of minor quantities of water were initiated from Well No. 7S/3E-23D in Anza Valley. About 97,500 gallons were reported to have been exported in September, 1991, to the Seven Up/Royal Crown Bottling Plant in Buena Park, outside the Watershed.

The following paragraphs of this report describe imports during the 1966-1991 period and during Water Year 1990-91. There is also discussion of MWD's Lake Skinner operations which are located on Tucalota Creek.

5.2 Water Years 1966-1991

Water quantities imported into the Santa Margarita River Watershed during Water Years 1966-1991 are shown on Table 5.2. In general imports to these districts are measured, however imports into the Santa Margarita River Watershed were estimated for Eastern MWD, Elsinore Valley MWD, Fallbrook PUD and Rainbow MWD because portions of those districts' service areas are outside the Watershed and meters are not available to allow a direct measurement of water imports into the Watershed.

TABLE 5.2

SANTA MARGARITA RIVER WATERSHED
IMPORTS/EXPORTS 1966-1991
Quantities in Acre Feet

	IMPORTS							EXPORTS					
		ELSINORE			RANCHO			CAMP PENDLETON			ELSINORE		
WATER YEAR	EASTERN MWD	VALLEY MWD	FALLBROOK PUD 1/	RAINBOW MWD	CAL WD	WESTERN MWD 2/	TOTAL IMPORTS	EXPORTS	IMPORTS	NET EXPORT	VALLEY MWD	FALLBROOK SD	TOTAL EXPORTS
1966	1,604	N/R	3,351	1,308	0	24	6,287	3,299	974	2,325	0	0	2,325
1967	1,630	N/R	2,852	1,095	0	20	5,597	3,231	1,243	1,989	0	0	1,989
1968	1,464	N/R	3,423	1,377	0	27	6,291	3,427	1,214	2,213	0	0	2,213
1969	1,741	N/R	2,837	1,253	0	25	5,855	3,350	1,170	2,181	0	0	2,181
1970	1,417	N/R	3,538	1,689	0	31	6,674	3,829	1,113	2,716	0	0	2,716
1971	1,383	N/R	3,405	1,650	0	34	6,473	3,484	1,090	2,395	0	0	2,395
1972	1,470	N/R	3,916	2,037	0	34	7,457	3,479	1,168	2,311	0	0	2,311
1973	1,533	N/R	3,210	1,616	0	30	6,389	3,480	1,187	2,292	0	0	2,292
1974	1,601	N/R	3,967	2,049	0	36	7,654	3,468	1,140	2,327	0	0	2,327
1975	1,969	N/R	3,597	1,247	0	34	6,847	3,034	1,530	1,504	0	0	1,504
1976	2,493	N/R	4,627	2,239	119 *	35	9,513 *	3,555	1,497	2,057	0	0	2,057
1977	2,947	N/R	5,212	2,343	1,845 *	24	12,372 *	3,130	1,416	1,714	0	0	1,714
1978	2,551	569	5,202	2,188	5,774 *	26	16,310 *	3,006	1,283	1,724	0	0	1,724
1979	1,894	712	5,723	2,348	7,009 *	24	17,709 *	4,692	1,427	3,265	0	0	3,265
1980	1,192	696	6,404	2,489	10,126 *	25	20,932 *	3,587	1,405	2,182	0	0	2,182
1981	716	798	8,543	3,153	15,282 *	34	28,527 *	3,827	1,249	2,579	0	0	2,579
1982	1,112	678	7,079	2,460	13,378 *	34	24,741 *	3,696	1,273	2,424	0	0	2,424
1983	1,211	658	6,720	2,190	5,752	26	16,557	2,935	1,242	1,693	0	1029	2,722
1984	699	816	8,506	3,068	6,716	26	19,831	3,178	1,120	2,058	0	1058	3,116
1985	679	808	7,831	3,410	7,158	27	19,913	3,320	1,200	2,120	0	1086	3,206
1986	760	882	8,585	2,945	11,174	34	24,380	3,273	981	2,293	0	1112	3,405
1987	1,155	938	8,656	3,390	7,564	36	21,739	3,379	1,799	1,581	4	1155	2,740
1988	2,047	1,032	8,033	2,985	17,854	36	31,988	4,075	1,872	2,203	55	1180	3,438
1989	3,746	1,341	9,067	3,003	22,895 *	24	40,076 *	3,347	1,446	1,901	74	1,204	3,179
1990	8,578	2,255	10,103	3,818	22,030	22	46,806	2,890	1,451	1,439	114	1,298	2,851
1991	16,621	2,421	7,962	2,904	21,238	20	51,166	2,108	1,219	889	134	973	1,996

1/ Includes DeLuz Heights MWD prior to 1991

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

NR - Not Reported

* - Revised from 1990 Report

Exports over the 1966-1991 period are also shown on Table 5.2. These include estimated water exports on Camp Pendleton less estimated wastewater returns, as well as an estimate of exports by the Fallbrook Sanitary District after 1983, and Elsinore Valley MWD after 1986. Exports do not include water which naturally flows from the Santa Margarita River into the Pacific Ocean.

5.3 Water Year 1990-91

Water quantities imported into and exported from the Santa Margarita River Watershed for months during Water Year 1990-91 are listed on Table 5.3.

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 began construction of a bypass pipeline in an alignment across Well AV-28. A substitute well, designated AV-28B was drilled 40.72 feet west and 8.72 feet south of Well AV-28. The minimum groundwater level to be maintained is an elevation of 1356.64 feet which is equivalent to the previous water level which was expressed in terms of the depth to water from a datum.

TABLE 5.3

SANTA MARGARITA RIVER WATERSHED
IMPORTS/EXPORTS 1990-91
Quantities in Acre Feet

	IMPORTS							EXPORTS					
		ELSINORE			RANCHO			CAMP PENDLETON			ELSINORE		
YEAR	EASTERN	VALLEY	FALLBROOK	RAINBOW	CAL	WESTERN	TOTAL			NET	VALLEY	FALLBROOK	TOTAL
MONTH	MWD	MWD	PUD	MWD	WD	MWD 1/	IMPORTS	EXPORTS	IMPORTS	EXPORT	MWD	SD	EXPORTS
1990													
OCT	1,981	227	1,145	349	2,953	2	6,657	213	96	117	12	102	231
NOV	1,495	227	843	351	1,533	2	4,451	206	100	106	10	86	202
DEC	387	150	722	239	1,258	2	2,758	118	108	10	12	87	109
1991													
JAN	1,233	150	500	180	1,671	1	3,735	128	107	21	10	87	118
FEB	821	121	571	201	244	1	1,959	148	85	63	11	76	150
MAR	802	120	123	44	473	1	1,564	169	116	53	11	85	149
APR	1,169	156	359	123	1,306	1	3,114	212	95	117	10	70	197
MAY	1,542	156	651	231	1,044	2	3,625	230	96	134	11	81	226
JUNE	1,481	273	661	232	1,899	2	4,548	174	94	80	9	65	154
JULY	2,210	273	777	328	3,039	2	6,629	174	93	81	10	78	169
AUG	1,984	284	790	331	3,279	2	6,670	147	105	42	13	72	127
SEPT	1,516	284	820	295	2,539	2	5,456	189	124	65	15	84	164
TOTAL	16,621	2,421	7,962	2,904	21,238	20	51,166	2,108	1,219	889	134	973	1,996

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

Camp Pendleton Imports and Fallbrook Sanitary District Exports are Estimated

The MOU also provides that 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, the local inflow is small compared to the large quantities of imported water inflow and outflow from Lake Skinner. The error of measurement for these large flows is larger than the local inflow in many instances. Accordingly, MWD 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 March, 1991, local runoff into Lake Skinner was estimated to be 938 acre feet, which occurred during six days. In March, 721.4 acre feet were released over 29 days and in April, 194.6 acre feet were released over a seven-day period. The remaining 22 acre feet were released after April. Although the average daily inflow to Lake Skinner was as high as 169 cfs, releases were generally maintained about 15 cfs, except for March 28th and 29th when releases averaged 21 cfs. Thus the area downstream of Lake Skinner benefitted because of reduction in flood flows as well as additional groundwater recharge.

In addition to releases of water mandated by the MOU, MWD also makes releases of water for maintenance or operational purposes from time to time. In November, 1990, MWD discharged 53 acre feet into Tucalota Creek downstream of Lake Skinner as part of the 1990 San Diego Canal shutdown. In December, 1990, MWD discharged 10.62 acre feet into Tucalota Creek as part of the 1990 shutdown of Plants I and II and the Lake Skinner Outlet Conduit. On March 29, 1991, MWD also released 12 acre feet into Murrieta Creek within the Watershed during a shutdown of the pipeline.

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 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 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. Except for approving the Memorandum of Understanding and Agreement on Operation of Lake Skinner in January 1975, the Court has not ruled on any substantial water right matters since 1966. Thus, these changes in water use have not been reviewed by the Court.

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 Water District 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 Water District are not now exercising their overlying rights. Instead, Rancho California Water District 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 County Water District and Eastern Municipal Water District, 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 Water District. 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 is 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 Water District overlies the Murrieta-Temecula Ground Water area. Thus a portion of the import supply delivered to the Rancho Division of Rancho California Water District percolates into the underlying aquifers. The first water pumped by Rancho California Water District in the ensuing year constitutes recapture of such return flows.

Imported water is also supplied to the Santa Rosa Division within Rancho California Water District, 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 Water District supplies into various water right categories is discussed in Section 7.

6.2 Appropriative Surface Water Rights

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

A list of current permits, licenses and other active rights obtained from the SWRCB is shown on Table 6.1.

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	Karl C. & Mamie LaBine	2/13/31	Temecula Creek	Sec. 20, 9S, 2E	DD-820 gpd	D/I	License
7035	Myla Lawler	8/10/31	Cutca Creek	Sec. 29, 9S, 1E	DD-5725 gpd	D/I	License
7731	Karl 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 P. & 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 P. 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 P. 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)

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.

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 system, and are listed in the various Interlocutory Orders developed in this litigation.

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." Thus the SWRCB presently considers the Santa Margarita River System to be 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. First, the Board is precluded from accepting any application to appropriate water from the Santa Margarita River System except where the proposed appropriation is consistent with conditions contained in the Declaration.

2. Second, 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. Third, 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 for the 1990-91 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
Western Municipal Water District

Lake Riverside Estates is listed with major water purveyors although it produces make-up water for losses in 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 only the Cahuilla and Pechanga Indian Reservations use significant quantities of water. The third Reservation is the Ramona Indian Reservation which has no resident population.

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

The data collected for the 1990-91 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. 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 the period 1966-1991 Water Years 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 1990-91 was 0 acre feet from Well No. 1 and 35 acre feet from Well No. 2 for a total production of 35 acre feet. The depth of water in Well No. 1 ranged from 42 feet to 87 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 system and were, therefore, declared to be outside the Court's jurisdiction.

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.

TABLE 7.1

SANTA MARGARITA RIVER WATERSHED
WATER PRODUCTION AND USE
Quantities in Acre Feet
1990-91

	PRODUCTION			USE					
	GROUNDWATER	IMPORT	TOTAL	AG	COMM	DOM	LOSS	TOTAL	WATER RIGHT
WATER PURVEYORS									
Anza Mutual Water Company	35	0	35	0	0	31	4	35	Appropriative
Eastern MWD	456	16,621	17,077	851	0	15,372	854	17,077	Appropriative
Elsinore Valley MWD	0	2,421	2,421	0	0	2,179	242 2/	2,421	----
Fallbrook PUD	46	7,962	8,008	5,146	244	2,070	548	8,008	Appropriative
Lake Riverside Estates	340	0	340	0	340 6/	0	0	340	Appropriative
Murrieta CWD	464	0	464	15	88	250	111	464	Appropriative
Rainbow MWD	0	2,904	2,904	2,276	0	364	264	2,904	----
Rancho California WD	26,503	21,238	47,741	32,924 8/	2,940	10,603	1,274 1/	47,741	Various
U.S.M.C. - Camp Pendleton	3,713	0	3,713	194	--- 3/	1,250	2,269 2/ 4/	3,713	Appropriative/ Riparian
Western MWD	0	20	20		18	0	2 2/	20	----
INDIAN RESERVATIONS									
Cahuilla	233	0	233	225	0	8	0	233	Overlying/ Reserved
Pechanga	58	0	58	0	0	58	0	58	Overlying/ Reserved
MOBILE HOME PARKS/CAMPGROUNDS									
Butterfield Oaks Mobile Home Park	12	0	12	0	0	11	1 2/	12	Riparian/ Overlying
Thousand Trails Resorts	51	0	51	0	0	46	5 2/	51	Overlying
SUBSTANTIAL USERS	8,918 5/	0	8,918	8,829	0	0	89 7/	8,918	
TOTAL	40,829	51,166	91,995	50,460	3,630	32,242	5,663	91,995	

1/ Includes 785 acre feet released into Murrieta Creek, import recharge of 701 acre feet, less the negative loss of 212 acre feet
2/ Assumes 10% loss
3/ Listed with Domestic uses
4/ Includes exports of 2108 acre feet
5/ 891 acre feet for surface diversion, 8318 acre feet from groundwater minus 233 acre feet on the Cahuilla Reservation and minus 58 acre feet on the Pechanga Reservation
6/ Recreation Use
7/ 10% of surface diversions
8/ Includes 1,394 acre feet for golf course irrigation and 2,079 acre feet for landscape irrigation

Eastern Municipal Water District

Eastern MWD is a member agency of Metropolitan Water District and its service area includes a portion of the Rancho California Water District. 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. Water for their service area is imported or produced locally from Well 7S/3W-15N which is 345 feet deep.

Groundwater production for the 1990-91 Water Year in the Santa Margarita River Watershed totaled 456 acre feet and imports totaled 16,621 acre feet as 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 134 feet in March, 1990. 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 1990-91, Eastern MWD reclaimed 3,554 acre feet of wastewater, of which 1,282 acre feet were reused and 2,272 acre feet were recharged into the groundwater basin.

Eastern MWD is currently constructing a 24-inch pipeline along Winchester Road. When completed the pipeline will be used 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. Camp Pendleton representatives have indicated their objection to export of that portion of the wastewater that originates within the Santa Margarita River Watershed.

Estimates of water production and use for the period 1966-1991 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 that service area 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 2,421 acre feet were imported into the portion of their service area which is inside the Santa Margarita River Watershed in 1990-91. Also during 1990-91, approximately 134 acre feet of wastewater were exported from that same area.

Fallbrook Public Utility District

In 1990-91, Fallbrook PUD imported 13,939 acre feet through its contract with the San Diego County Water Authority as shown in Appendix A. Of this quantity, 2,871 acre feet were delivered to the former DeLuz area which is entirely within the Santa Margarita River Watershed. Of the remaining importations it is estimated that 46 percent, or 5,091 acre feet, were delivered to lands inside the Santa Margarita River Watershed. The remainder was delivered to lands in the adjacent San Luis Rey River Watershed. Thus, imports to the Watershed totaled 7,962 acre feet in 1990-91.

In addition to importations, the District has three wells which have supplied water since 1977. In 1990-91 these wells produced 46 acre feet as shown in Appendix A.

All three of these wells are drilled 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. These wells are cased 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 system and outside the Court's jurisdiction.

Production during the period 1966 to 1991 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 1990-91 was 340 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 County Water District serves the area in the vicinity of the town of Murrieta in Riverside County. In Water Year 1990-91, Murrieta CWD produced 464 acre feet of water from five wells as shown in Appendix A.

Information about these five wells is provided in the following tabulation.

Well Designation	Well Name	1990-91 Production Acre Feet	Casing Depth Feet	Water Depth Feet	Well Depth Feet	Perforated Interval Feet
7S/3W-20C9	Holiday	169	25	90 - 101	307	60 - 307
7S/3W-20G5	House	85	50	105 - 119	298	120 - 252
7S/3W-17R2	Lynch	0	26	63 - 67	212	172 - 212
7S/3W-18J2	North	105	50	127 - 142	650	240 - 260
						500 - 640
7S/3W-20D	South	105	50	111 - 124	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. This finding was based on evidence available to the Court prior to the Judgment date of March 8, 1962. The Court also noted that it was impossible based on evidence available at that time to determine the depth of the younger alluvial deposits throughout the Valley with exactness but that subsequent findings could be made if needed because the Court would retain continuing jurisdiction. Older alluvial deposits are found below the younger alluvium.

The uppermost perforation of 60 feet is well below the maximum depth of younger alluvium found by the Court in 1962. Accordingly the production water for all of Murrieta CWD wells is from the older alluvium under a groundwater appropriative right. Representatives of Camp Pendleton object to this finding on the basis that the younger alluvium may be greater than that estimated by the Court.

Production for the period between 1966 and 1991 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. About ten percent of the District's service area is inside the Watershed. Most of the District is in the San Luis Rey River Watershed. As shown in Appendix A, total deliveries in the Watershed, which are all imported water, amounted to 2,904 acre feet.

Total imports to the District, for years between 1966 and 1991, as well as the estimated portion served inside the Santa Margarita River Watershed, are shown in Appendix B.

Rancho California Water District

Rancho California Water District serves water to a 99,600 acre service area in the central portion of the Watershed. The District produces water from approximately 70 wells and also imports water, as shown in Appendix A. Use is also shown in Appendix A under the categories of agriculture, commercial, domestic, golf course irrigation and landscaping. In Water Year 1990-91, 26,503 acre feet of local supplies were pumped from the Murrieta-Temecula Ground Water Area and 21,238 acre feet were imported for total production of 53,994 acre feet. In addition, 6,253 acre feet of water from Vail Dam were recharged. During 1990-91, 785 acre feet were released into the Santa Margarita River to maintain flows.

The District reclaimed 352 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, 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, 6,253 acre feet were released from Vail during 1990-91. Releases from Vail for groundwater recharge for the period 1972 to 1991 are shown on Table B-7.

It has been noted that Permit 7032 provides that the water from Vail is to be used for irrigation purposes, whereas in 1990-91, approximately 29% of the District's water use was for domestic and commercial purposes.

It has also been noted that the Vail permit provides for recovery of the recharged water using four wells which were operational in 1946, whereas the District is now recovering water from the younger alluvium using about 15 wells.

Thus it would appear to be appropriate to amend Permit 7032 by adding domestic and commercial use to the type of use permitted, adding wells constructed since Application 11518 was filed and modifying the place of use. Discussions with representatives of the Division of Water Rights of the SWRC Board indicate that it is not unusual for urbanization to result in the need to change various provisions of older water rights.

The Vail recharge has been reduced by five percent to reflect evaporation and transpiration losses during recharge as well as minor recharge to the older alluvium. This five percent loss rate will be considered as a provisional rate until data or analysis are developed to improve this estimate.

Imported Water Return Flows

During 1990-91, Rancho California WD imported 21,238 acre feet of water compared to 22,029 acre feet in 1989-90. Quantities of imported water served to the Rancho Division and the Santa Rosa Division are shown below for water years 1989-90 and 1990-91.

Month	Imported Deliveries Rancho Div.		Imported Deliveries Santa Rosa Div.		Total Imported Deliveries	
	1990	1991	1990	1991	1990	1991
October	549	444	1,149	2,509	1,698	2,953
November	0	359	934	1,174	934	1,533
December	101	235	1,294	1,023	1,395	1,258
January	0	486	286	1,185	286	1,671
February	100	86	113	158	213	244
March	275	131	382	342	657	473
April	215	1	481	1,305	696	1,306
May	323	161	1,407	883	1,730	1,044
June	542	381	1,862	1,518	2,404	1,899
July	1,179	836	2,825	2,203	4,004	3,039
August	1,169	939	2,989	2,340	4,158	3,279
September	1,180	702	2,674	1,837	3,854	2,539
Total	5,633	4,761	16,396	16,477	22,029	21,238

The Santa Rosa Division does not overlie the groundwater area except for 342 acres south of Murrieta, 766 acres northwest of Murrieta and 1,072 acres in the California Oaks area. Data on water use on these lands has been reported since December, 1991 but is not yet available for 1990-91 or prior years.

Return flows from imported water delivered to the Rancho Division are computed as shown on Table 7.2 for 1989-90 and Table 7.3 for 1990-91.

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 1989-90, 25% of the supply to the Rancho Division was imported and in 1990-91, 23% was imported.

TABLE 7.2

SANTA MARGARITA RIVER WATERSHED
RANCHO CALIFORNIA WATER DISTRICT
RETURN FLOW CREDIT
1989-1990
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
USE									
AGRICULTURAL *									
Total	2,192.83	356.11	248.24	644.17	87.51	602.01	1,908.03	1,087.20	7,126.10
% Import	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Import	558.55	90.71	63.23	164.08	22.29	153.34	486.01	276.93	1,815.15
% Credit	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Credit	184.32	29.93	20.87	54.15	7.36	50.60	160.38	91.39	599.00
COMMERCIAL									
Total	2,186.25	572.49	205.48	370.05	0.00	0.71	63.17	(2.85)	3,395.30
% Import	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Import	556.88	145.82	52.34	94.26	0.00	0.18	16.09	(0.73)	864.85
% Credit	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Credit	55.69	14.58	5.23	9.43	0.00	0.02	1.61	(0.07)	86.48
DOMESTIC									
Total	1,476.74	3,495.04	450.66	4,878.51	251.77	85.53	710.56	244.37	11,593.18
% Import	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Import	376.15	890.25	114.79	1,242.65	64.13	21.79	180.99	62.25	2,953.00
% Credit	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Credit	94.04	222.56	28.70	310.66	16.03	5.45	45.25	15.56	738.25
TOTAL USE	5,855.82	4,423.64	904.38	5,892.73	339.28	688.25	2,681.76	1,328.72	22,114.58
TOTAL									
Total Import	1,491.59	1,126.78	230.36	1,500.99	86.42	175.31	683.09	338.45	5,633.00
Total Credit	334.05 **	267.08	54.80	374.23	23.39	56.07	207.24	106.88	1,423.73
Total Credit Qyal		133.54	54.80		23.39				211.73
Total Credit Qtoal		133.54		374.23		56.07	207.24	106.88	877.96

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

TABLE 7.3

SANTA MARGARITA RIVER WATERSHED
RANCHO CALIFORNIA WATER DISTRICT
RETURN FLOW CREDIT
1990-1991
RANCHO DIVISION
Quantities in Acre Feet

	HYDROGEOLOGIC AREAS								
AQUIFER	0 NO HYDRO-GEO CODE	1 MURRIETA MESA 1/2 QVAL 1/2 QTOAL	2 SANTA GERTRUDIS QVAL	3 LOWER MESA QTOAL	4 PAUBA QVAL	5 SOUTH MESA QTOAL	6 UPPER MESA QTOAL	7 PALOMAR QTOAL	TOTAL
USE									
AGRICULTURAL *									
Total	2,681.47	1,687.91	238.84	1,362.83	313.74	561.22	2,147.52	1,134.08	10,127.61
% Import	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Import	618.53	389.35	55.09	314.36	72.37	129.46	495.36	261.60	2,336.11
% Credit	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Credit	204.11	128.48	18.18	103.74	23.88	42.72	163.47	86.33	770.92
COMMERCIAL									
Total	290.51	613.50	207.21	613.42	80.29	385.28	61.03	0.67	2,251.91
% Import	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Import	67.01	141.51	47.80	141.50	18.52	88.87	14.08	0.15	519.44
% Credit	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Credit	6.70	14.15	4.78	14.15	1.85	8.89	1.41	0.02	51.94
DOMESTIC									
Total	871.11	1,401.18	390.66	4,740.44	79.28	91.74	494.53	191.62	8,260.56
% Import	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Import	200.94	323.21	90.11	1,093.47	18.29	21.16	114.07	44.20	1,905.44
% Credit	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Credit	50.23	80.80	22.53	273.37	4.57	5.29	28.52	11.05	476.36
TOTAL USE	3,843.09	3,702.59	836.71	6,716.69	473.31	1,038.24	2,703.08	1,326.37	20,640.08
TOTAL									
Total Import	886.48	854.07	193.00	1,549.32	109.18	239.49	623.51	305.95	4,761.00
Total Credit	261.05 **	223.44	45.49	391.26	30.31	56.90	193.40	97.39	1,299.22
Total Credit Qval		111.72	45.49		30.31				187.51
Total Credit Qtoal		111.72		391.26		56.90	193.40	97.39	850.66

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

The percent of imported water which became 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 is computed to be 1,423.73 acre feet in 1989-90 and 1,299.22 acre feet in 1990-91.

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. Import return flows in these areas can be credited against pumping from the younger alluvium. These credits for the Rancho Division are 211.73 acre feet in 1989-90 and 187.51 acre feet in 1990-91.

In addition to return flows, 701 acre feet of imported water were recharged in Pauba Valley in 1990-91.

Division of Local Water

During 1990-91 Rancho California WD pumped 26,503 acre feet of groundwater. Some of this water was pumped from the younger alluvium as recovery of import return flows, import recharge and Vail recharge and some from the older alluvium under groundwater appropriative rights.

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 was approximately 30 feet. 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. Geological Survey. 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 are 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 USED TO PREPARE U. S. EXHIBIT 16

Wells Shown on U.S. Exhibit 16	Depth of Younger Alluvium Per Well Log*	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
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 70 wells for the period between 1966 and 1991.

These wells were located on U.S. Exhibit 15L to determine the aquifer at the ground surface at the well location. Of the 70 wells, nine 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 70 listed wells, 38 are either outside the groundwater area or pump 100% from the older alluvium aquifer. The remaining 32 wells are listed in Table 7.4 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 percent of the production from the younger alluvium is then computed as the ratio of the portion of the perforated interval in younger alluvium to the total perforated interval. The younger alluvium was considered to be very shallow in wells located very close to the surface contact between the younger alluvium and the older alluvium.

TABLE 7.4

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	Shallow	0.0%	Murrieta	No. 108 Winchester
107	7S/3W-26J1	55	60-590	12/14/82	Shallow	0.0%	Murrieta	No. 110 Winchester
108	7S/3W-25E1	55	60-590	12/14/82	Shallow	0.0%	Murrieta	No. 109 Franklin Ave
109	8S/2W-17J1	52	70-210	07/14/80	75	4.2%		Brown clay and gravel at 75' to 105'
110	8S/1W-6K1	54	70-460	10/14/82	165	43.2%		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	39.5%		See #110
116	8S/1W-6J	Unknown	60-390	Not Available	165	31.8%		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	8.8%		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	24.4%		Brown Clay 175'-185'
135	7S/3W-27K10	55	70-170	05/27/87	Shallow	0.0%	Murrieta Valley	
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	Unknown		Not Available	Shallow	Unknown		Well not equipped
205	7S/3W-35A	96	150-1000	12/23/65	Shallow	0.0%	Santa Gertrudis/ Murrieta Valley	
210	8S/2W-12K	None	48-228	05/17/57	160	62.2%		Clay cobblestones 160'-167'
218	8S/2W-20C1	27	48-289	01/10/54	115	27.8%		Old No. 28; soft clay at 115' to 120'
466	8S/3W-1P2	Unknown	106-822	01/29/52	Shallow	0.0%	Murrieta Valley	
220	7S/3W-35	Unknown	Unknown	Not Available		0.0%		
467	8S/2W-12K1	Unknown	50-100	Not Available		100.0%		Old JK Well, #221, See 12H1
223	8S/2W-20C1	Unknown	48-250	04/17/53	115	33.2%		CAF Well; nearby well 218 at 115'; 17Q at 62'
224	8S/2W-15D	Unknown	48-250	03/17/53	106	28.7%		Old Well 50
230	8S/2W-12	Unknown	24-113	05/31/19	>113	100.0%		Old Well 30
231	8S/2W-20B6	55	80-270	Not Available	115	21.9%		Old P31, 105, 111 Well 218 at 115'
232	8S/2W-11J1	51	95-295	06/04/80	135	28.6%		Old P32; coarse sand & clay 135' - 155'
233	8S/2W-12K1	51	95-295	06/04/80	145	35.7%		Sand & clay 145'-220'
234	8S/2W-11P1	52	80-400	11/12/82	125	14.1%		Brown Clay at 125'; sand & clay at 125' to 140'
235	8S/3W-1Q	55	Unknown	06/15/87	Shallow	0.0%	Murrieta Valley	
236	No data				Unknown	Unknown		No Production
240	8S/2W-11	Unknown	48-298	01/15/53	112	25.6%		Old Well No. 40; Well 11L1 is 112'
301	7S/3W-18Q1	93	140-640	09/13/79	Shallow	0.0%	Murrieta	Old JR1

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 1990-91, imports to Improvement District A amounted to approximately 20 acre feet.

Deliveries to Improvement District A through turnout WR-13 for the period 1969 to 1991 are shown in Table 5.2.

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 3,713 acre feet in Water Year 1990-91. This production is from the younger alluvium and is based on riparian and appropriative rights. Of this quantity, 2,108 acre feet were exported out of the Watershed as shown in Appendix A.

A portion of the exported water amounting to 1,219 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 1966-1991.

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 the Bureau of Indian Affairs reports that 58 people reside on the Reservation. These residents use water primarily for domestic purposes as well as for livestock watering and grazing. The Bureau estimates that total domestic water use, based on 125 gallons per capita per day, amounts to a total annual use of about eight acre feet.

In 1990-91, 218 acres were leased for irrigation use. Crops included 58 acres of potatoes and 160 acres of oats which were estimated to have used 225 acre feet of water. Water was supplied from the Agri-Empire, Inc. water system which includes six wells at various locations in the Anza Valley based on overlying rights.

Pechanga Indian Reservation

The Bureau of Indian Affairs reports that about 420 people reside on the Reservation and use approximately 58 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. There are no residents on the Reservation and no reported irrigation water use.

7.4 Mobile Homes/Campgrounds

There are a number of mobile home parks (MHP) 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 use reported by other substantial users in the Santa Margarita River Watershed is shown on Table 7.1 to be 8,918 acre feet. This estimate was based on reported irrigated acreage and includes 891 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 Office. 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. These dams have capacities to store 172, 8 and 10 acre feet respectively. The application was protested by downstream interests.

During the storms in February and March of 1991, all of these reservoirs filled and spilled. The stored water was subsequently used to irrigate crops in the Oak Grove Valley. It was determined that 100 acre feet had been stored without a water right. After discussions, Agri-Empire agreed to:

1. Install an outlet and meter below the lower reservoir to measure and release water into the Chihuahua Creek channel.

2. Release 100 acre feet of water as soon as possible into Chihuahua Creek. This release and meter readings are to be reported to the Watermaster.

3. Release one-half (50%) of the water in the system into Chihuahua Creek at the aforementioned outlet until Water Right Application 28930 is approved.

4. Report, on a water year basis, readings from the meters at the outlet and in the pipeline.

Subsequently, the State Water Resources Control Board has advised Agri-Empire that in Orders 89-25 and 91-07 the Board has declared the Santa Margarita River System to be fully appropriated.

8.3 Bluebird Ranch

During 1990-91, there was a complaint from a downstream landowner concerning excessive water use on Bluebird Ranch which had recently changed ownership. Upon investigation it was determined that approximately 14 gallons per minute (gpm) were being diverted from Fern Creek for irrigation use on Bluebird Ranch.

Bluebird Ranch owners have riparian rights to divert water from Fern Creek onto lands within the Fern Creek Watershed. In addition, Bluebird Ranch owners are successors to a non-statutory appropriative water right described in Exhibit D to Interlocutory Judgment No. 32. Exhibit D indicates a right to divert 32 gpm from Fern Creek for irrigation use with a priority date of April 11, 1892. Separate correspondence indicates that this appropriative right was based in part on diversions out of the Watershed.

Bluebird Ranch presently irrigates approximately 43 acres, generally within the Fern Creek Watershed. Thus the observed diversions were deemed to be well within the riparian and appropriative rights of the Bluebird Ranch.

Bluebird Ranch owners supplement their water supply with a well which pumps water from basement complex formation. Waters in basement complex have been found to be outside Court jurisdiction.

8.4 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.

8.5 Camp Pendleton Issues

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

1. Recharge in Violation of the Stipulated Judgment - Camp Pendleton representatives have indicated that they believe the storage of water by Rancho California WD in Vail Lake exceeds RCWD's share of the Santa Margarita River flow as allocated under the 1940 Stipulated Judgment. This potential will be investigated by the Watermaster.

2. Rediversion and Use not in Accord with Terms of Permit 7032 - As noted in Section 7 of the report, the place of use, rediversion facilities and the type of use of water appropriated under Rancho California WD's Vail Dam Application No. 11518 and Permit 7032 have changed since the Application was filed in 1947. Thus Permit 7032 should be amended to provide for current and projected future conditions. Rancho California WD has agreed that an amendment is in order and has initiated action under the prescribed procedures of the State Water Resources Control Board.

3. Eastern MWD Export of Local Water - As noted in Section 7 of the report, Eastern MWD is constructing a 24-inch pipeline. The purpose of the pipeline is to transport wastewater for reuse within the Watershed as well as for export of up to 10 mgd from the Watershed. Camp Pendleton has objected to the export of that portion of the wastewater that originates within the Santa Margarita River Watershed. Accordingly, Watermaster tasks for the coming year include development of operating rules with Eastern MWD so as to avoid exportation of local water from the Watershed.

SECTION 9 - THREATS TO WATER SUPPLY

9.1 General

Three general threats to the long-term water supply in the Santa Margarita River Watershed were described in the 1988-89 Watermaster Report. 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.

In addition to the foregoing, San Diego County continues to consider construction of a landfill at a site upstream from groundwater basins in the lower Santa Margarita River and a soil treatment facility has been constructed on the Cahuilla Indian Reservation, over objections by the Cahuilla Band of Mission Indians.

9.2 High Nitrate Concentrations

Water samples continue to be collected from Rainbow Creek at Willow Glen Road by the Environmental and Natural Resources Management Office at Camp Pendleton as part of their surface water quality monitoring program. Analysis of the water quality samples collected in November 1990 and June 1991 indicated nitrate concentrations as shown below. The drinking water limit is 10 mg/l as N.

Nitrate Concentrations in Rainbow Creek
At Willow Glen Road

	Mg/l as N
November 1990	25.7
June 1991	9.7

Flynn Rainbow Nurseries is located in Rainbow Valley upstream from the gaging and sampling station. In 1990-91 the nursery implemented a number of changes in its operation which should result in improved water quality in Rainbow Creek.

One change involves the way fertilizer is applied. In the past, fertilizer was added to the water during irrigation; now it is added to the soil before planting.

In addition they have initiated a water recycling project. This project diverts return flows from Rainbow Creek into a seven acre foot reservoir. The water is then pumped by a 60 hp pump back into the water supply system.

In addition, plans call for increasing groundwater pumping from 11 wells on the property. Such pumping will lower groundwater levels and reduce return flows into Rainbow Creek.

More recently, the Mission Resource Conservation District has submitted a proposal to the State Water Resources Control Board for a Community Participation Project. This project proposes to improve water quality in Rainbow Creek through seminars, distribution of educational literature and demonstration of best management practices.

No comprehensive water quality sampling has been done in Anza Valley since 1986 when the U.S. Geological Survey gathered data to complete Water-Resources Investigation Report 88-4029. In 1986 the U.S.G.S. reported that the EPA drinking water limit of 10 mg/l was exceeded in 8 of 30 wells sampled. The U.S.G.S. attributed the high concentrations to animal wastes (through wells) 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.

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 since last year.

Groundwater levels for Anza Mutual Water Company's Well No. 1 (7S/3E-21G1) were the same in October, 1991 as in October, 1990 indicating no net lowering of water levels over the year.

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 Water District. The District has indicated that it operates the basin so as to develop its maximum perennial yield. If the District is successful in its approach there should be no net lowering of groundwater levels over an extended period of time.

Accordingly, 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. If there is no continual decline in water levels or other adverse impact, then overdraft conditions do not exist.

Data obtained from the aforementioned monitoring programs and reviewed as part of the annual Watermaster report process should provide timely notice in the event of continued decline of water levels.

9.4 Salt Balance

A key issue in management of salt buildup is the export of water from the upper Santa Margarita River Watershed.

During 1990, agreement to allow Live Stream Discharge to the Santa Margarita River was reached among four parties: Eastern Municipal Water District, Fallbrook Public Utility District, Rancho California Water District and the United States Marine Corps Base at Camp Pendleton.

With the foregoing agreement in place, the Regional Water Quality Control Board approved a resolution modifying the water quality objectives of the Santa Margarita Hydrologic Unit as set forth in the Comprehensive Water Quality Control Plan Report, San Diego Region (9) (Basin Plan). This modification cleared the way for discharge of a portion of the treated wastewaters from plants operated by Eastern Municipal Water District and Rancho California Water District into Murrieta Creek.

The Agreement provides that the first five mgd of combined wastewater production from the two treatment facilities are to be reused in the Temecula-Murrieta area (upstream). The next two mgd are to be released into the Santa Margarita River system as carriage water. Combined production exceeding seven mgd but less than 27 mgd is to be allocated 30 percent to upstream uses and 70 percent to downstream uses. Production in excess of 27 mgd is to be dedicated to reuse in the Temecula-Murrieta area (upstream).

Quantities recharged at Camp Pendleton would be extracted later, blended with less saline water produced by a reverse osmosis plant at Camp Pendleton, if required, and reused by Fallbrook PUD and Camp Pendleton.

Besides providing a cost-effective solution to the disposal of wastewater in the upper Santa Margarita River area, this project also provides the potential for controlling salt balance in the Watershed.

During 1991, questions were raised by the State Department of Health Services regarding the criteria for recharging treated wastewater into groundwater basins which supply potable water. These questions have raised issues concerning the viability of the Live Discharge program and the parties continue to work to resolve this issue.

9.5 Proposed Landfill

San Diego County continued to seek approvals for Class III landfill sites in the northern part of San Diego County. One of these sites, termed the Aspen site, is located along Rainbow Creek about two miles upstream from its confluence with the Santa Margarita River. In 1990-91 the County investigated a number of alternatives to sites previously identified.

The Aspen site remains on the list of potential sites. It would be shortsighted to locate a landfill upstream from valuable groundwater resources when other sites are available with less exposure.

9.6 Soil Treatment Facility

During 1990-91 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 hydro-carbons (Non-RCRA hazardous waste). The soil treatment facility was constructed over the objections of the Cahuilla Band of Mission Indians.

There was concern about potential contamination of downstream water so the facility was inspected.

The facility overlies deposits of basement complex rocks. Groundwater within basement complex rocks in this location was found by the Court in Interlocutory Judgment No. 33A to be vagrant, local percolating water which does not add to, contribute to or support the Santa Margarita River or its tributaries. The Court further found that the use of such groundwater is not subject to the Court's continuing jurisdiction.

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 temporary berms around the perimeter of the site and has constructed a holding pond to collect runoff that falls within the treatment facility. In addition the operator is developing a permanent plan for containment of runoff under 100-year rainfall conditions. These precautions will prevent surface runoff from the site from entering Cahuilla Creek under most circumstances.

SECTION 10 - WATER QUALITY

10.1 Surface Water Quality

Records of the laboratory analysis of samples from surface streams in the Santa Margarita River Watershed are available in various Federal, State and local agency reports, as well as in files of various organizations in the Santa Margarita River Watershed. In 1990-91 surface water quality in the Watershed was monitored by Camp Pendleton and Eastern Municipal Water District. 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 November 1990 and September 1991 is shown on Table D-1.

During 1990-91 Eastern Municipal Water District conducted two comprehensive sampling programs in the Santa Margarita River Watershed. One program was part of an Anti-Degradation Analysis conducted between March and May, 1991. The other is the Santa Margarita River Monitoring Program which collected samples between April and August of 1991.

Anti-Degradation Analysis

Between March 12, 1991 and May 14, 1991, samples were collected from the Santa Margarita River at Willow Glen for comparison with treated effluent from the Rancho California Regional Water Reclamation Facility at Temecula.

These samples were analyzed for a full range of organic compounds as well as Standard Chemical and physical characteristics of the waters.

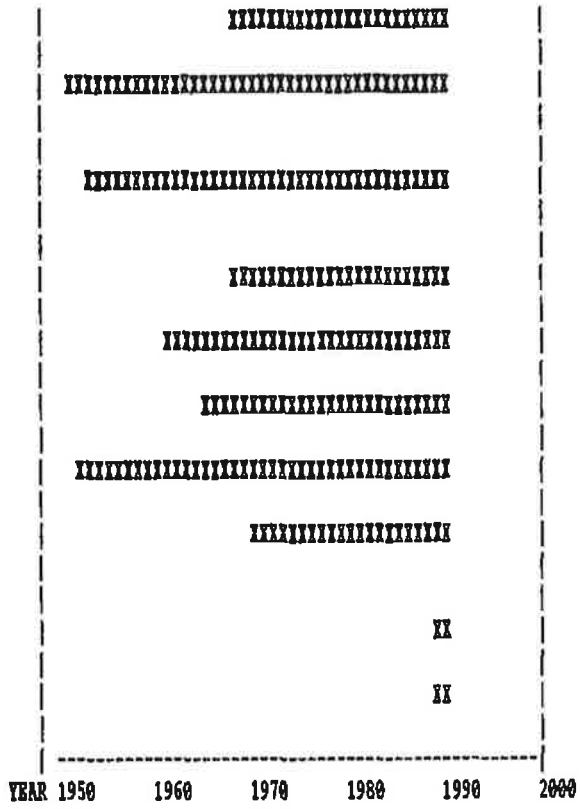
The results indicated concentrations below primary Title 22 drinking water limits for both waters except for coliforms. However concentrations at the Willow Glen sampling point exceeded a number of secondary standards as shown on Table 10.2. These include iron, manganese, sulfate and conductivity. The effluent from the Rancho California Regional Reclamation Facility exceeded the Basin Plan objectives for Boron and Percent Sodium.

TABLE 10.1

SANTA MARGARITA RIVER WATERSHED
CURRENT WATER QUALITY MONITORING STATIONS 1/

STATION	SAMPLING FREQUENCY	PERIOD FROM	PERIOD TO
Fallbrook Creek/NWS	Periodically	1968	Present
Santa Margarita River Near FPUD Sump	Periodically	1951	Present
DeLuz Creek at DeLuz/ Murrieta Road (McDowell)	Periodically	1953	Present
Murrieta Creek Near Temecula	Periodically	1968	Present
Temecula Creek at I-15	Periodically	1961	Present
Fallbrook Creek at Lake O'Neill	Periodically	1965	Present
Lake O'Neill	Periodically	1952	Present
Rainbow Creek at Willow Glen Road	Periodically	1970	Present
Sandia Creek Near Fallbrook	Periodically	1989	Present
Santa Margarita River at Temecula Gorge	Periodically	1989	Present

PERIOD OF RECORD



1/ Stations sampled by USMC, Camp Pendleton

TABLE 10.2

COMPARISON OF
BASIN PLAN OBJECTIVES AND TITLE 22 LIMITS
WITH
AVERAGE CONCENTRATIONS OF SELECTED CONSTITUENTS
SANTA MARGARITA RIVER AT WILLOW GLEN
AND
RANCHO CALIFORNIA REGIONAL WATER RECLAMATION FACILITY EFFLUENT
MARCH - MAY 1991

Constituent	Basin Plan Objective	Title 22 MCL	Santa Margarita River at Willow Glen	Rancho California Regional Reclamation Facility
Inorganic Chemical				
Iron	300 mg/l	300 mg/l (secondary)	*4710 mg/l	488.3 mg/l
Manganese	50 mg/l	50 mg/l (secondary)	91.4 mg/l	36.0 mg/l
Sulfate	300 mg/l	250 mg/l (secondary)	280 mg/l	140 mg/l
% Sodium	60%	____	32%	64%
Boron	0.5 mg/l		0.3 mg/l	0.6 mg/l
Conductivity		900/1600/2200 umhos/cm (secondary)	1562 umhos/cm	1138 umhos/cm
Physical				
Color	20 units	15 units	11 units	37 units
Bacteriological				
Total Coliform (MPN/100 ml)	10,000	____	2,060	28,750
Fecal Coliform (MPN/100 ml)	2,000	____	110	7,300

* One sample had iron concentration of 16,500 mg/l

Santa Margarita River Monitoring Program

Under the Santa Margarita River Monitoring Program Eastern Municipal Water District collects samples from several sites along the Santa Margarita River system from Temecula Creek near I-15 to the estuary near I-5. Samples were collected on 16 days between April 28, 1991, and August 30, 1991.

These samples were analyzed for total dissolved solids, total nitrogen, nitrate as nitrogen and phosphorus. Algae, dissolved oxygen and temperature data were also collected.

The increases in total dissolved solids, total nitrogen, nitrate and phosphorus between Willow Glen and the DeLuz Road crossing reflects the effect of inflows from Rainbow Creek and Sandia Creek as shown on Table 10.3.

TABLE 10.3

SANTA MARGARITA RIVER WATERSHED
SUMMARY OF EASTERN MUNICIPAL WATER DISTRICT'S
SANTA MARGARITA RIVER MONITORING PROGRAM
APRIL - AUGUST, 1991

SITE	AVERAGE TOTAL DISSOLVED SOLIDS MG/L	TOTAL NITROGEN MG/L	NITRATE MG/L	PHOSPHORUS MG/L	DISSOLVED OXYGEN PPM	TEMPERATURE CENTIGRADE
Temecula Creek at I-15	766	2.3	1.92	0.15	8.0	22.5
Santa Margarita River Near Temecula	633	---	---	---	8.6	21.0
Santa Margarita River At MWD Crossing	---	---	---	---	8.9	22.9
Santa Margarita River At Willow Glen	807	1.66	0.77	0.18	7.7	22.4
Santa Margarita River At DeLuz Road Crossing	1,003	4.32	3.82	0.39	9.6	21.6
Santa Margarita River At Camp Pendleton	866	1.67	1.22	0.16	8.3	20.3
Santa Margarita River East of Stuart Mesa Road	7,270	2.45	1.52	1.86	7.1	20.3
Santa Margarita River At I-15 (Estuary)	17,083	3.83	2.83	0.62	7.5	19.0

10.2 Groundwater Quality

Water quality data collected from ten wells at Camp Pendleton during 1990-91 and prior years are presented on Appendix Table D-6. Review of the data indicates the following:

a. Total dissolved solids in five of the ten wells monitored are increased from previous concentrations. Comparison with historic trends indicates that such increases may be expected over extended dry periods.

b. Nitrate concentrations are reduced from their levels in 1989 and prior years. It is noted that Well 10S/4W-7A2 has concentrations of 7.5 mg/l nitrate in June 1991 while no other well has a concentration in 1990-91 above 2.7 mg/l. Other wells that had relatively high nitrate concentrations during the 1977 drought have experienced major reductions in nitrate concentrations.

c. Because of the high sulfate concentrations in samples taken at Willow Glen, which were noted in Table 10.2, sulfate concentrations in wells at Camp Pendleton were reviewed. The data indicate that concentrations of sulfate continue to fluctuate within the historical range. Apparently the high levels being observed at Willow Glen are being blended with high quality flood waters and flows from DeLuz Creek.

Water quality sampling data for seven wells in Murrieta CWD are listed in Appendix Table D-3. Only the "House Well" was sampled in 1991. However that well showed a 22 percent increase in total dissolved solids although the recent higher concentration still meets drinking water standards.

Water quality data from wells in Rancho California WD are shown in Appendix Table D-4. Of 20 wells sampled in 1991, 10 showed increases in total dissolved solids from the prior reading. Well No. 135 shows wide variations in total dissolved solids above drinking water standards. These concentrations vary from 945 mg/l in June 1990 to as much as 2670 mg/l in December 1990. That well is rarely used. All other wells produced water in 1990-91 well within drinking water limits for total dissolved solids.

Well No. 109 continues to show sulfate concentrations above secondary standards of 250 mg/l.

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

11.1 General

Primary Watermaster tasks are listed in Table 11.1 together with the budgeted hours of time to be devoted to each task during the current 1991-92 Water Year and over the five Water Years 1992-93 through 1996-97. A projection of Watermaster Office expenditures over the next five years is also shown on Table 11.1.

11.2 Task Description

These tasks are briefly described in the following paragraphs.

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 basis of existing water rights and comparing water rights with water use.

TABLE 11.1

SANTA MARGARITA RIVER WATERSHED
PROJECTED WATERMASTER TASKS
Estimated Hours per Water Year

WATERMASTER TASKS	CURRENT YEAR	PROJECTED FUTURE YEARS				
	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
1. Update List of Substantial Users	50	50	50	50	50	50
2. Collect Water Production, Use, Import and Availability Data	100	100	100	100	100	100
3. Collect Well Construction and Water Level Data	250	100	50	50	50	50
4. Administer Water Rights	---	100	100	100	100	100
5. Determine Changes in Subsurface Storage	450	200	200	200	100	100
6. Collect Water Quality Data	100	40	40	40	40	40
7. Determine Salt Balance	110	0	50	50	150	80
8. Prepare List of All Water Users under Court Jurisdiction	100	100	100	100	100	100
9. Attend Meetings	150	150	150	150	150	150
10. Administer Lake Skinner MOU	60	60	60	60	60	60
11. Administer Steering Committee Matters	150	150	150	150	150	150
12. Prepare Court Reports/Budgets	150	100	100	100	100	100
13. Miscellaneous Computer Operation	60	60	60	60	60	60
14. Monitor Streamflow and Water Quality Measuring Stations	50	50	50	50	50	50
15. Monitor Water Quality Activities and Water Right Appropriations	50	50	50	50	50	50
16. Miscellaneous Administrative Services	300	100	100	100	100	100
17. Data Management	2,300	2,000	2,000	2,000	2,000	2,000
18. Prepare Inventory of Stockponds and Reservoirs	100	30	30	30	30	100
19. Contingency for Unforeseen Tasks	200	200	200	200	200	200
20. TOTAL	4,730	3,640	3,640	3,640	3,640	3,640
21. ESTIMATED BUDGET	$196,221	$153,000	$161,000	$169,000	$177,000	$186,000

5. 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.

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. 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.

8. Prepare List of All Water Users Under Court Jurisdiction - This major task has been deferred because it 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.

9. Attend Meetings - This task provides for attending meetings to remain apprised of activities which affect water matters in the Santa Margarita River Watershed.

10. 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. This task includes cooperation with MWD in the development of an MOU for MWD's Eastside Reservoir Project.

11. 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.

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

13. Miscellaneous Computer Operations - Efficient operation of the Watermaster Office is based on maximizing the use of computers. This requires periodic attendance at training sessions, classes and/or acquisition and use of new software and computer equipment.

14. Monitor Streamflow and Water Quality Measuring Stations Operation and maintenance of existing stream gaging stations and water quality monitoring stations are handled by others. However, the Watermaster Office relies on the data from these stations and assists in interpretation of station data and in maintaining or improving the quality of station records and data. This task includes determining source of flows measured at gaging stations.

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

16. Miscellaneous Administrative Services - This task provides for office administration, operation and general correspondence.

17. Data Management - This task provides for assistance to the Watermaster with data management for reports and correspondence.

18. 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 State Water Resources Control Board 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.

19. Contingency for Unforeseen Tasks - This task provides for tasks that cannot be foreseen two or three years ahead.

SECTION 12 - WATERMASTER OFFICE BUDGET 1992-93

A proposed Watermaster Office Budget of $153,000 for the Water Year ending September 30, 1993, is included in this report as Table 12.1. The proposed budget reflects an increase in the cost for Accounting, Payroll and Financial Management performed by Fallbrook Public Utility District from $200 per month to $300 per month.

In addition to the operation of the Watermaster Office, the Watermaster has executed an Agreement with the U.S. Geological Survey to operate gaging stations in the Watershed in 1991-92. It is anticipated that this Agreement will be continued in succeeding years, and the estimated costs of $99,985 for the year 1991-92 has been increased by 10% for the year 1992-93 as shown on Table 12.1. These costs are offset by revenues to be received from four parties who are sponsoring the gaging station program, also as shown on Table 12.1. These revenues are pursuant to an Agreement between the Watermaster and the four participating parties.

TABLE 12.1

SANTA MARGARITA RIVER WATERSHED
PROPOSED WATERMASTER OFFICE BUDGET
Water Year Ending September 30, 1993

	APPROVED BUDGET CURRENT YEAR 1991-1992	PROPOSED BUDGET 1992-1993
	Total	Total
Watermaster Office	$	$
Rent	2,400	2,400
Accounting Services	3,960	4,000
Supplies	1,980	2,000
Insurance		
General Liability & Professional	4,000	4,000
Printing	1,320	1,200
Audit	2,100	2,100
Publications	2,100	2,200
Clerical/Data Management	31,200	36,000
Engineering Assistance	20,400	4,000
Utilities		
Telephone	2,100	2,100
Sanitation	1,200	1,000
Electric	900	900
Miscellaneous Operating/Maintenence	2,400	2,000
Watermaster		
Consulting Services	104,141	75,000
Automobile Expense	4,800	3,600
Travel Reimbursements	3,600	4,800
Equipment		
Computer	1,500	1,500
Software	1,200	1,200
Furniture	960	300
Copy Machine	360	400
Contingency	3,600	2,300
SUBTOTAL	$196,221	$153,000
Estimated Cost of Gaging Station Operation ($99,985 x 1.10)		109,984
Less Revenues from Four Parties to Gaging Station Agreement		(109,984)
NET OPERATING COST OF WATERMASTER OFFICE		$153,000

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1990-91

APPENDIX A
WATER PRODUCTION AND USE
WATER YEAR 1990-91

JULY 1992

TABLE A-1

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

EASTERN MUNICIPAL WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION			USE						RECLAIMED WASTE WATER			
MONTH YEAR	WELLS	IMPORTED 1/	TOTAL	AG 2/	COMM	DOM 3/	TOTAL	LOSS	TOTAL USE+LOSS	REUSE IN SMRW	EXPORT	RECHARGED	TOTAL
1990													
OCT	0	1,981	1,981	127	0	1,755	1,882	99	1,981	163	0	173	336
NOV	0	1,495	1,495	98	0	1,322	1,420	75	1,495	77	0	250	327
DEC	24	387	411	30	0	360	390	21	411	63	0	263	326
1991													
JAN	61	1,233	1,294	31	0	1,198	1,229	65	1,294	114	0	195	309
FEB	48	821	869	20	0	806	826	43	869	77	0	213	290
MAR	35	802	837	8	0	787	795	42	837	102	0	218	320
APR	15	1,169	1,184	21	0	1,104	1,125	59	1,184	96	0	184	280
MAY	43	1,542	1,585	37	0	1,469	1,506	79	1,585	116	0	249	365
JUNE	50	1,481	1,531	62	0	1,392	1,454	77	1,531	138	0	182	320
JULY	68	2,210	2,278	98	0	2,066	2,164	114	2,278	117	0	180	297
AUG	58	1,984	2,042	128	0	1,812	1,940	102	2,042	113	0	80	193
SEPT	54	1,516	1,570	191	0	1,301	1,492	78	1,570	106	0	85	191
TOTAL	456	16,621	17,077	851	0	15,372	16,223	854	17,077	1,282	0	2,272	3,554

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
Quantities in Acre Feet

	PRODUCTION							USE					
MONTH YEAR	LOCAL	TOTAL DISTRICT IMPORT	DELUZ AREA IMPORT	FALLBROOK AREA IMPORT	SMRW IMPORT /1	TOTAL SMRW IMPORT	TOTAL PRODUCTION	AG	COMM	DOM	TOTAL IN SMRW	LOSS*	TOTAL USE IN SMRW
1990													
OCT	0	1,972	440	1,532	705	1,145	1,145	752	22	274	1,048	97	1,145
NOV	0	1,448	327	1,121	516	843	843	660	25	220	905	(62)	843
DEC	0	1,309	223	1,086	499	722	722	425	19	225	669	53	722
1991													
JAN	0	863	191	672	309	500	500	375	18	155	548	(48)	500
FEB	3	977	225	752	346	571	574	377	16	168	561	13	574
MAR	7	251	13	238	109	122	129	122	16	79	217	(88)	129
APR	4	660	103	557	256	359	363	127	10	86	223	140	363
MAY	6	1,156	220	936	431	651	657	300	18	146	464	193	657
JUNE	7	1,182	218	964	443	661	668	417	24	204	645	23	668
JULY	7	1,343	295	1,048	482	777	784	512	23	157	692	92	784
AUG	6	1,391	279	1,112	512	791	797	488	25	187	700	97	797
SEPT	6	1,387	337	1,050	483	820	826	591	28	169	788	38	826
TOTAL	46	13,939	2,871	11,068	5,091	7,962	8,008	5,146	244	2,070	7,460	548	8,008

(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
Quantities in Acre Feet

	PRODUCTION	USE					
MONTH YEAR	WELLS	AG	COMM	DOM	TOTAL DELIVERED	LOSS*	TOTAL USE
1990							
OCT	53	1	10	29	40	13	53
NOV	42	1	8	22	31	11	42
DEC	29	0	8	16	24	5	29
1991							
JAN	26	1	7	14	22	4	26
FEB	28	1	2	5	8	20	28
MAR	18	1	5	13	19	-1	18
APR	26	1	5	13	19	7	26
MAY	39	2	7	21	30	9	39
JUNE	42	2	8	26	36	6	42
JULY	54	1	9	30	40	14	54
AUG	56	1	9	29	39	17	56
SEPT	51	3	10	32	45	6	51
TOTAL	464	15	88	250	353	111	464

* Loss = Total production less total delivered

TABLE A-4

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION			USE				
MONTH YEAR	LOCAL	IMPORT TO WATERSHED	TOTAL IN WATERSHED	AG	COMMERCIAL/ DOMESTIC	TOTAL DELIVERIES	LOSS*	TOTAL USE
1990								
OCT	0	349	349	272	45	317	32	349
NOV	0	351	351	280	39	319	32	351
DEC	0	239	239	188	29	217	22	239
1991								
JAN	0	180	180	135	29	164	16	180
FEB	0	201	201	156	27	183	18	201
MAR	0	44	44	29	11	40	4	44
APR	0	123	123	92	20	112	11	123
MAY	0	231	231	182	28	210	21	231
JUNE	0	232	232	182	29	211	21	232
JULY	0	328	328	263	35	298	30	328
AUG	0	331	331	264	37	301	30	331
SEPT	0	295	295	233	35	268	27	295
TOTAL	0	2,904	2,904	2,276	364	2,640	264	2,904

*Loss = 10% of use

TABLE A-5

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

RANCHO CALIFORNIA WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION					USE										RECLAIMED WASTE WATER		
	LOCAL			IMPORT	TOTAL	AG	GOLF COURSE	LANDSCAPE	COMM	DOM	SMR RELEASE	VAIL RECHARGE	IMPORT RECHARGE	TOTAL USE	LOSS *	TOTAL	REUSE IN SMRW	EXPORT	RECHARGE
MONTH YEAR	WELLS IN GWA	WELLS OUT GWA	VAIL RELEASE																
1990																			
OCT	2,811	0	0	2,953	5,764	4,438	55	299	430	1,886	167	0	0	7,275	(1,511)	5,764	15	0	0
NOV	2,557	0	0	1,533	4,090	3,174	38	214	323	1,096	0	0	0	4,845	(755)	4,090	18	0	0
DEC	2,085	0	0	1,258	3,343	2,884	233	134	289	974	0	0	0 *	4,514	(1,171)	3,343	19	0	0
1991																			
JAN	368	0	0	1,671	2,039	2,226	93	147	222	872	0	0	0	3,560	(1,521)	2,039	34	0	0
FEB	2,785	0	0	244	3,029	1,215	30	73	128	533	0	0	0 *	1,979	1,050	3,029	28	0	0
MAR	282	0	660	473	1,415	1,691	91	92	60	570	0	660	183 *	3,347	(1,932)	1,415	1	0	0
APR	2,075	0	421	1,306	3,802	865	24	29	95	345	0	421	518 *	2,297	1,505	3,802	42	0	0
MAY	3,106	0	1,537	1,044	5,687	2,083	109	199	242	663	48	1,537	0 *	4,881	806	5,687	54	0	0
JUNE	2,752	0	793	1,899	5,444	2,174	155	138	290	830	149	793	0 *	4,529	915	5,444	44	0	0
JULY	2,467	0	793	3,039	6,299	2,641	169	230	286	897	158	793	0 *	5,174	1,125	6,299	16	0	0
AUG	2,233	0	1,622	3,279	7,134	2,868	206	263	278	930	129	1,622	0	6,296	838	7,134	40	0	0
SEPT	2,982	0	427	2,539	5,948	3,192	191	261	298	1,007	134	427	0	5,510	438	5,948	41	0	0
TOTAL	26,503	0	6,253	21,238	53,994	29,451	1,394	2,079	2,941	10,603	785	6,253	701	54,207	(213)	53,994	352	0	0

*Loss = Total production less total use

TABLE A-6

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

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

	PRODUCTION			USE						RECLAIMED WASTE WATER		
MONTH YEAR	AG	CAMP SUPPLY	TOTAL	AGRICULTURE 1/ IN-SMRW	AGRICULTURE 1/ OUT-SMRW	CAMP SUPPLY 2/ IN-SMRW	CAMP SUPPLY 2/ OUT-SMRW	TOTAL EXPORT	TOTAL* IN-SMRW	RECHARGED IN-SMR 3/	IMPORT 4/ RECHARGED IN SMRW	TOTAL RECHARGED IN SMRW
1990												
OCT	28	350	378	11	17	154	196	213	165	80	96	176
NOV	24	342	366	9	15	151	191	206	160	85	100	185
DEC	28	180	208	11	17	79	101	118	90	80	108	188
1991												
JAN	21	205	226	8	13	90	115	128	98	94	107	201
FEB	0	264	264	0	0	116	148	148	116	85	85	170
MAR	68	228	296	27	41	100	128	169	127	94	116	210
APR	57	316	373	22	35	139	177	212	161	94	95	189
MAY	86	319	405	34	52	141	178	230	175	94	96	190
JUNE	90	212	302	35	55	93	119	174	128	92	94	186
JULY	61	244	305	24	37	107	137	174	131	95	93	188
AUG	10	251	261	4	6	110	141	147	114	94	105	199
SEPT	81	248	329	31	50	109	139	189	140	83	124	207
TOTAL	554	3,159	3,713	216	338	1,389	1,770	2,108	1,605	1,070	1,219	2,289

* Assumes no losses

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

2/ Camp Supply water use is divided with 44% used inside the SMRW and 56% used outside

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
MISCELLANEOUS WATER PRODUCTION AND IMPORTS
Quantities in Acre Feet

1990-1991

MONTH YEAR	WESTERN MWD IMPORTS TO IMPROVEMENT DISTRICT A	PRODUCTION			
		ANZA MUTUAL WATER CO.	THOUSAND TRAILS	BUTTERFIELD OAKS MOBILE HOME PARK	LAKE RIVERSIDE ESTATES
1990					
OCT	2.20	2.89	5.48	0.30 E	48.49
NOV	2.10	1.77	4.40	0.30 E	10.69
DEC	1.70	1.94	2.78	0.30 E	32.62
1991					
JAN	1.30	1.55	2.63	0.30 E	1.61
FEB	1.30	1.53	4.38	0.30 E	78.14
MAR	1.10	1.11	2.67	0.30 E	22.24
APR	1.00	1.91	2.69	0.30 E	3.01
MAY	1.70	5.87	5.17	0.48	17.19
JUNE	1.80	3.76	4.10	0.53	44.30
JULY	2.30	4.85	5.52	0.63	33.40
AUG	2.10	3.97	5.37	0.70	23.70
SEPT	2.10	3.91	5.40	0.30 E	24.38
SUBTOTAL				4.74 7.50 *	
TOTAL	20.70	35.06	50.59	12.24	339.77

E indicates an estimate

* Estimated non-metered lawn watering

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
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APPENDIX B
WATER PRODUCTION AND USE
WATER YEAR 1965-66 TO WATER YEAR 1990-91

JULY 1992

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/	TOTAL	AG 2/	COMM	DOM 3/	TOTAL	LOSS	TOTAL USE+LOSS	REUSE IN SWRF	EXPORT	RECHARGED	TOTAL
1966	0	1,604	1,604	1,520	0	4	1,524	80	1,604	0	0	100	100
1967	0	1,630	1,630	1,544	0	4	1,548	82	1,630	0	0	100	100
1968	0	1,464	1,464	1,386	0	5	1,391	73	1,464	0	0	100	100
1969	0	1,741	1,741	1,648	0	6	1,654	87	1,741	0	0	100	100
1970	0	1,417	1,417	1,340	0	7	1,346	71	1,417	0	0	101	101
1971	0	1,383	1,383	1,306	0	8	1,314	69	1,383	0	0	119	119
1972	0	1,470	1,470	1,388	0	8	1,396	74	1,470	0	0	242	242
1973	0	1,533	1,533	1,447	0	10	1,456	77	1,533	0	0	217	217
1974	0	1,601	1,601	1,511	0	10	1,521	80	1,601	0	0	193	193
1975	0	1,969	1,969	1,859	0	11	1,871	98	1,969	0	0	253	253
1976	145	2,493	2,638	2,356	0	150	2,506	132	2,638	134	0	155	289
1977	431	2,947	3,378	2,723	64	423	3,209	169	3,378	244	0	70	314
1978	375	2,551	2,926	2,409	0	371	2,780	146	2,926	300	0	75	375
1979	289	1,894	2,183	1,784	0	290	2,074	109	2,183	350	0	147	497
1980	281	1,192	1,473	1,116	0	283	1,399	74	1,473	375	0	220	595
1981	282	716	998	663	0	285	948	50	998	375	0	304	679
1982	321	1,112	1,433	1,038	0	323	1,361	72	1,433	375	0	386	761
1983	106	1,211	1,317	1,131	0	120	1,251	66	1,317	375	0	466	841
1984	236	699	935	644	0	244	888	47	935	400	0	525	925
1985	314	679	993	624	0	319	943	50	993	450	0	565	1,015
1986	229	760	989	700	0	239	940	49	989	600	0	509	1,109
1987	89	1,155	1,244	638	0	543	1,182	62	1,244	650	0	554	1,204
1988	4	2,047	2,051	524	0	1,424	1,948	103	2,051	650	0	650	1,300
1989	685	3,746	4,431	1,146	0	3,064	4,209	222	4,431	1,058	0	1,636	2,694
1990	492	8,578	9,070	1,476	0	7,140	8,616	454	9,070	1,567	0	2,160	3,727
1991	456	16,621	17,077	851	0	15,372	16,223	854	17,077	1,282	0	2,272	3,554

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

*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 EXPORTED FROM SMRW	% WASTEWATER FROM SLR* WATERSHED	WASTEWATER IMPORTED FROM SLR* WATERSHED
1966	395	81	320	0	19	75
1967	460	80	368	0	20	92
1968	524	80	419	0	20	105
1969	588	79	465	0	21	123
1970	652	78	509	0	22	143
1971	717	78	559	0	22	158
1972	782	77	602	0	23	180
1973	847	76	644	0	24	203
1974	912	75	684	0	25	228
1975	976	75	732	0	25	244
1976	1,040	74	770	0	26	270
1977	1,105	73	807	0	27	298
1978	1,170	72	842	0	28	328
1979	1,234	72	888	0	28	346
1980	1,298	71	922	0	29	376
1981	1,363	70	954	0	30	409
1982	1,428	69	985	0	31	443
1983	1,492	69	1,029	1,029	0	0
1984	1,556	68	1,058	1,058	0	0
1985	1,621	67	1,086	1,086	0	0
1986	1,685	66	1,112	1,112	0	0
1987	1,750	66	1,155	1,155	0	0
1988	1,815	65	1,180	1,180	0	0
1989	1,881	64	1,204	1,204	0	0
1990	1,952	66	1,298	1,298	0	0
1991	1,622	60	973	973	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

* - San Luis Rey

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	464	15	88	250	353	111	464

* 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

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		VAIL DIVERSIONS 1/			IMPORT	TOTAL 2/	AG	GOLF COURSE	LANDSCAPE	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	RECHARGE	IRRIGATION	TOTAL DIVERSIONS																
1966		0	0	185 **	185	0								0	0						
1967	4,288	0	0	1,136 **	1,136	0	5,424							0	0			5,424	0	0	0
1968	5,100	0	0	398 **	398	0	5,498							0	0			5,498	0	0	0
1969	3,617	0	0	697 **	697	0	4,314							0	0			4,314	0	0	0
1970	6,721	0	0	840 **	840	0	7,561							0	0			7,561	0	0	0
1971	7,960	0	0	203 **	203	0	8,163							0	0			8,163	0	0	0
1972	8,369	0	0	1,541 **	1,541	0	9,910							0	0			9,910	0	0	0
1973	7,726	0	0	524 **	524	0	8,250							0	0			8,250	0	0	0
1974	10,163	0	0	1,066 **	1,066	0	11,229							0	0			11,229	0	0	0
1975	10,357	0	0	369 **	369	0	10,726							0	0			10,726	0	0	0
1976	11,809	0	0	50 **	50	119	11,978							0	0			11,978	0	0	0
1977	10,522	0	0	0	0	1,845	12,367							0	0			12,367	0	0	0
1978	8,930	0	0	0	0	5,774	14,704							0	0			14,704	0	0	0
1979	11,371	0	0	0	0	7,009	18,380							0	0			18,380	0	0	0
1980	12,621	0	10,944	0	10,944	10,126	33,691							10,944	0			33,691	0	0	0
1981	15,612	0	6,802	0	6,802	15,282	37,696							6,802	0			37,696	0	0	0
1982	12,631	0	6,058	0	6,058	13,378	32,067							6,058	0			32,067	0	0	0
1983	16,577	98	12,113	715	12,828	5,752	35,255							12,113	0			35,255	0	0	0
1984	25,660	4	6,612	1,144	7,756	6,716	40,136							6,612	0			40,136	0	0	0
1985	24,373	0	5,027	1,201	6,228	7,158	37,759							5,027	0			37,759	0	0	0
1986	26,997	0	8,722	1,053	9,775	11,174	47,946							8,722	0			47,946	0	0	0
1987	33,735	0	8,089	273	8,362	7,564	49,661							8,089	0			49,661	48	0	0
1988	21,367	0	4,844	0	4,844	17,854	44,065							4,844	0			44,065	82	0	0
1989	26,131 *	0	0	0	0	22,895 *	49,026 *	25,533	4/	4/	3,316	13,198	852	0	2,294	45,193 *	3,833 *	49,026 *	168	0	0
1990	33,241	0	0	0	0	22,030	55,271	27,643	4/	4/	3,940	14,916	902	0	0	47,401	7,870	55,271	133	0	0
1991	26,503	0	6,253	0	6,253	21,238	53,994	29,451	1,394	2,079	2,941	10,603	785	6,253	701	54,207	(213)	53,994	352	0	0

1/ Figures from 1966 to 1972 supplied by USGS; 1972 to 1991 supplied by RCWD

2/ Total production = Wells, Total Diversions and Import

3/ Loss = Total production less total use

4/ Included in Ag

* - Revised from 1990 Report

** - 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
Quantities in Acre Feet

	PRODUCTION			USE						RECLAIMED WASTE WATER		
				AGRICULTURE 1/		CAMP SUPPLY 2/		TOTAL	TOTAL*			
WATER YEAR	AG	CAMP SUPPLY	TOTAL	IN-SMRW	OUT-SMRW	IN-SMRW	OUT-SMRW	EXPORT	IN-SMRW	RECHARGED IN-SMR 3/	IMPORT 4/ 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	2,182	2,777	3,350	2,549	1,019	1,170	2,189
1970	1,106	5,633	6,739	431	675	2,479	3,154	3,829	2,910	1,032	1,113	2,145
1971	819	5,330	6,149	319	500	2,345	2,985	3,484	2,665	921	1,090	2,011
1972	817	5,323	6,140	319	498	2,342	2,981	3,479	2,661	900	1,168	2,068
1973	1,003	5,121	6,124	391	612	2,253	2,868	3,480	2,644	949	1,187	2,137
1974	909	5,202	6,111	355	554	2,289	2,913	3,468	2,643	915	1,140	2,055
1975	757	4,593	5,350	295	462	2,021	2,572	3,034	2,316	989	1,530	2,519
1976	885	5,384	6,269	345	540	2,369	3,015	3,555	2,714	949	1,497	2,447
1977	994	4,506	5,500	388	606	1,983	2,523	3,130	2,370	942	1,416	2,358
1978	176	5,177	5,353	69	107	2,278	2,899	3,006	2,347	1,164	1,283	2,446
1979	1,070	7,213	8,283	417	653	3,174	4,039	4,692	3,591	1,065	1,427	2,493
1980	835	5,495	6,330	326	509	2,418	3,077	3,587	2,743	1,101	1,405	2,506
1981	1,464	5,240	6,704	571	893	2,306	2,934	3,827	2,877	1,119	1,249	2,368
1982	1,447	5,024	6,471	564	883	2,211	2,813	3,696	2,775	982	1,273	2,254
1983	942	4,215	5,157	367	575	1,855	2,360	2,935	2,222	1,252	1,242	2,494
1984	1,078	4,501	5,579	420	658	1,980	2,521	3,178	2,401	1,323	1,120	2,443
1985	1,069	4,764	5,833	417	652	2,096	2,668	3,320	2,513	1,419	1,200	2,619
1986	953	4,807	5,760	372	581	2,115	2,692	3,273	2,487	1,259	981	2,240
1987	1,098	4,838	5,936	428	670	2,129	2,709	3,379	2,557	1,367	1,799	3,166
1988	1,223	5,944	7,168	477	746	2,616	3,329	4,075	3,093	1,523	1,872	3,396
1989	856	5,043	5,900	334	522	2,219	2,824	3,347	2,553	1,301	1,446	2,747
1990	855	4,228	5,083	333	522	1,860	2,368	2,890	2,193	1,277	1,451	2,728
1991	554	3,159	3,713	216	338	1,389	1,770	2,108	1,605	1,070	1,219	2,289

* Assumes No Losses

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

2/ Camp Supply water use is divided with 44% used inside the SMRW and 56% used outside

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

4/ 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 3/.
No record available for effluent from Plant 2 returned to SMRW for 1966-1974 and after 1982.
Calculation of import recharged in Santa Margarita River from Plant 2 is based on zero when no record is available.

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1990-91

APPENDIX C
SUBSTANTIAL USERS OUTSIDE
ORGANIZED WATER SERVICE AREAS

JULY 1992

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 90-91	IRRIGATED CROP 90-91	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	35.00	Alf,Rye,Sudan		145.50	
and Elizabeth G.	Rancho Santa Fe, Ca.	583-040-021	13.45	64.00	Oats & Barley			
Trustees, Strange	92067	583-130-001-3	80.00	2.00	Permanent pasture			
Living Trust of 4-15-88	43023 Hwy 79	583-120-001-2	120.00					
		583-060-003-9	41.60					
						8S/1E-29L		162.00
Twin Creek Ranch, L.P.	c/o Lawrence Wrobleski	583-120-081	17.29	0.00				
(Information from	P. O. Box 407	583-120-083	68.09	40.00	Oats	8S/1E-28N1	Total	67.76
1990 report)	Murietta, Ca. 92362					8S/1E-28N(2)	|	
	44201 Hwy 79 Aguanga					(Well & Diversion)	|	
	44735 Hwy 79 Aguanga	583-120-084	179.39	80.00	Range Grass/Oats	8S/1E-29H	|	
		583-150-001	80.00	0.00			of	
		583-140-014	48.03	20.00	Row Crops	8S/1E-33F	|	
		583-140-015	40.00	20.00	Row Crops	8S/1E-33G1	|	
		583-140-016	40.00	20.00	Row Crops	8S/1E-33B	554.40	
		583-140-018	10.09	0.00				
		583-140-020	10.15	0.00				

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 90-91	IRRIGATED CROP 90-91	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-23M	9.90	
Harris, Homer H. and Dolores G.	40444 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				
Missionary Foundation, Inc.	m/t 5169 Harriett Cir Riverside, CA 92505	581-170-004 *	310.00	Total		8S/1E-17B	200.00	
				of		8S/1E-17H		
	44200 Sage Rd	581-180-009 *	120.00	]				
	Aguanga, Ca. 92536	581-190-001 *	320.00	80.00	Potatoes			
* Land leased to Agri-Empire, Inc.		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		146.00
TOTAL				506.00			1149.70	463.76

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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 90-91	IRRIGATED CROP 90-91	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		203.00
		113-130-01	150.09	|		9S/2E-17		
		113-140-03	196.54	of		9S/2E-16N2		
				|		9S/2E-16N		
				|		9S/2E-16P1		
				|		9S/2E-16N1		
				|		9S/2E-16P2		
				|		9S/2E-16K-Kohler Canyon Reservoir		
		113-140-04	503.24	|				
		113-140-05	45.09	|				
		113-140-06	93.94	|				
		114-020-09	37.16	285.00	Potatoes		712.50	
		114-030-08	331.79	and		9S/2E-22		
		114-030-26	42.87	101.00	Oats		50.50	
Bergman, Arlie W.	37126 Hwy 79	113-140-01 *	358.62	Total of				
and Coral R.	Aguanga, Ca. 92536	113-140-02 *	38.75	80.00	Potatoes		200.00	
		114-020-12	108.78	0.00				
* Land leased to		114-030-10	41.51	0.00				
Agri-Empire, Inc.		113-130-03	115.75					
		113-130-04	39.65					
Ward, Alvis A	m/t 2 Rue Biarritz	112-030-58	69.83	20.00	Pasture	9S/1E-1Q(1)		
	Newport Beach, Ca. 92660			33.00	Grain/Grass	9S/1E-1Q(2)	20.00	
	38790 Highway 79	112-030-22	24.77	10.00	Pasture	9S/1E-1K		
	Warner Springs, Ca. 92086	112-030-38		40.00	Crops irrigated from Donald Ward Well 9S/1E-1P(1)			
Ward, Donald F.	38790 Highway 79	112-030-67	67.41	10.00	Oats/Sudan			
	Aguanga, Ca. 92536	112-030-59	160.00	8.00	Oats	9S/1E-1P(1)	309.40	
						9S/1E-1P(2)	16.00	
Templeton, Robert D.	35490 Highway 79	114-120-42	78.41	5.00	Alfalfa	9S/2E-35D1		
and Linda K.	Warner Springs, Ca. 92086					9S/2E-35D1		
		114-070-07	76.42	13.00	Pasture	9S/2E-27R1		
						9S/2E-27R2		
						9S/2E-27J		
		114-080-14	42.51	29.00	Pasture		174.60	
		114-080-13	21.30	13.00	Alfalfa		Total	
TOTAL				607.00			1483.00	203.00

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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 90-91	IRRIGATED CROP 90-91	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA								
ANZA VALLEY								
Agri-Empire, Inc.	P.O. Box 490 San Jacinto, Ca. 92383							
	Section 8	573-090-005	45.17	45.00	Oats			20.00
		573-100-002	27.79	25.00	Oats			13.00
	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-11M4 7S/3E-11P3		
	Section 13	575-100-037	57.80	0.00				
	Section 14	575-110-021	143.75	110.00	Barley	7S/3E-14D1		55.00
		575-110-027	54.45	0.00				
		575-310-002	39.09	0.00		7S/3E-14C2		
		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	of				
		575-080-018	10.13	|				
		575-080-019	31.29	37.00	Barley			18.50
		575-080-021	20.00	Total				
		575-080-022	20.00	of				
		575-080-024	20.00	|				
		575-080-027	20.00	|				
		575-090-010	38.80	170.00	Oats			85.00
	Section 17	573-180-011	39.74	30.00	Potatoes			75.00

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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 90-91	IRRIGATED CROP 90-91	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	Potatoes			313.00
	Section 20	576-060-009	8.26	Total				
		576-060-031	16.09	of				
		576-060-033	79.45	160.00	Potatoes			400.00
		576-060-037	41.41	|				
		576-070-003	80.00	and				
		576-070-005	116.57	65.00	Oats			33.00
	Section 21	576-080-003	133.72	133.72	Grain			66.86
* Land leased from		576-110-001*	160.00	40.00	Potatoes			100.00
Louise Phebe Hamilton Tr				80.00	Oats			40.00
P. O. Box 102, Anza, Ca. 92306								
		576-110-002	28.00	Total of				
		576-110-004	50.00	78.00	Barley			39.00
		576-110-006	19.29	Total		7S/3E-21R3		
		576-110-007	17.82	of				
		576-110-008	17.00	|				
		576-110-009	18.41	35.00	Oats			17.50
	Section 22	575-120-012	88.03	Total				
		575-130-003	19.55	of				
		575-130-006	40.89	70.00	Oats			35.00
		575-130-008	18.56	Total				
		575-130-009	20.06	|				
		575-130-010	20.07	|				
		575-130-011	19.19	of				
		575-130-012	18.18	|				
		575-130-013	19.02	|				
		575-130-014	19.00	|				
		575-130-015	17.56	80.00	Potatoes			200.00
	Section 23	575-140-019	105.04	82.00	Potatoes			205.00

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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 90-91	IRRIGATED CROP 90-91	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 Paul Pablo 11-900 Ramona Rd, Banning, 92220 and Patricia Liera 183 N. Sbarif Ave, San Jacinto, 92383	Section 29	576-120-002*	640.00	120.00	Oats		60.00	
Greenwald, Alvin G.	Greenwald, Bain & Hendler 6300 Wilshire Blvd 1200 Los Angeles, Ca. 90048	573-180-001	156.38	156.38	Pasture/Potatoes	7S/3E-17E	492.60	
		576-070-001	70.00	70.00	Pasture	7S/3E-20N	126.00	
Cahuilla Indian Reservation	Section 26	576-130-002*	640.00	160.00	Oats	7S/3E-27D1	80.00	
				58.00	Potatoes		145.00	
* Land leased to Agri-Empire, Inc.	Section 27	576-130-001*	640.00					
					Domestic Wells	7S/2E-14M1	Total	
					Reported by	7S/2E-14M2	|	
					Bureau of Indian Affairs	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-31M1	|	
						7S/3E-34E1	|	
						8S/2E-4P1	|	
						8S/3E-2A1	|	
						8S/3E-2D1	|	
						8S/3E-2E1	|	
						8S/3E-2K1	|	
						8S/3E-6B1	|	
						8S/3E-6J1	8.00	
SUBTOTAL ANZA VALLEY				1,930.10			2,627.46	0.00

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 90-91	IRRIGATED CROP 90-91	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				1,980.10			2,682.46	0.00

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 90-91	IRRIGATED CROP 90-91	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	
Murrieta Stud	m/t P. O. Box 1187 Arcadia, Ca. 91006							
	42670 Juniper	906-240-006	38.18	32.00	Pasture	7S/3W-20E(1)	124.00	
	42680 Kalmia	906-250-013	53.83	50.00	Pasture	7S/3W-20E(2)	189.00	
	42660 Ivy Murrieta, Ca. 92362	909-140-001	20.00	18.00	Pasture	7S/3W-20L	69.00	
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	
Delaney, Jane M.	m/t 41820 Hawthorne Murrieta, Ca. 92362 42551 Guava St Murrieta, Ca. 92362	909-090-034 909-090-033	12.36 12.32	24.00	Pasture	7S/3W-28D	91.20	
International Immunology	m/t 25549 Adams Ave Murrieta, Ca. 92362	909-060-020 909-170-010	9.33 9.55					
		909-170-011	27.77	10.00	Pasture		38.00	
Temecula Ranchos c/o Milo D. Rowell	m/t 2100 Tulare St #405 Fresno, CA 93271 45055 Rio Linda Rd Temecula, Ca. 92390	926-200-006 926-430-006	429.43 48.92	378.46 41.20	Citrus Citrus	8S/2W-14P1 8S/2W-14F	258.00 195.00	
Anza Grove	c/o McMillan Farm Mgt. 29379 Rancho Cal. Rd #201 Temecula, Ca. 92390	942-180-002 942-240-003 942-240-004 942-240-005	40.28 40.83 40.83 39.31	40.00 40.00 40.00 40.00	Citrus Grapes/Citrus Citrus Citrus	7S/2W-26B1	173.00	
Bear Valley Vineyard Co., Ltd. AND Manley Bear Valley Partners	c/o McMillan Farm Mgt. 29379 Rancho Cal. Rd #201 Temecula, Ca. 92390	904-050-030 904-030-021 904-030-020 904-060-009 904-060-008 904-060-010	17.51 90.12 2.38 129.46 48.00 153.47	0.00 90.00 0.00 0.00 36.00 0.00	Wine Grapes Wine Grapes	7S/3W-18Q	252.00	

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 90-91	IRRIGATED CROP 90-91	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
MURRIETA-TEMECULA GROUNDWATER AREA (Cont)								
Nevada Beverage Co.	m/t P. O. Box 93538 Las Vegas, Nevada 89193 41621 Magnolia Avenue Murrieta, Ca. 92362	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. 92362	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	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	26.60 13.30	
Pechanga Indian Reservation				Domestic Wells Reported by Bureau of Indian Affairs		8S/2W-26K1 8S/2W-26R1 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 57.60	
TOTAL MURRIETA-TEMECULA GROUNDWATER AREA				987.66			2008.80	0.00

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 90-91	IRRIGATED CROP 90-91	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
SANTA MARGARITA RIVER BELOW GORGE								
DE LUZ CREEK								
Ezor, Albert E. and Sylvia L.	m/t 31421 Cavendish Dr. Los Angeles, Ca. 90064	101-271-17	47.79	14.00 8.00	Avocados Kiwi	8S/4W-29D	45.00	
Woosley, Donna J.	Rt 6, Box 49-B Fallbrook, Ca. 92028 40710 DeLuz Rd, Fallbrook	101-271-13	42.28	8.00	Pasture	8S/4W-29E(1) 8S/4W-29E(2)	30.40	
Durling, Robert G. and Eleanor J.	40401 DeLuz Rd Fallbrook, Ca. 92028	101-271-08	25.60	9.75	Citrus	8S/4W-29H 8S/4W-29H(1) 8S/4W-29H(2)	32.00 Total	
Durling, Don & Margaret	41500 DeLuz Road Fallbrook, Ca. 92028	101-210-28-00 101-180-05-00 101-210-41 101-210-27 101-210-39 101-180-01	40.09 11.44 15.16 64.64 116.07 32.30	35.00	Citrus and Avocados	8S/4W-20G 8S/4W-20H(1) 8S/4W-20H(2)	0.00 70.00 120.00	
Matthews, Richard R. and Baum, Mary J.	m/t Stephen Lopardo, Esq. 205 W. Alvarado St. Fallbrook, Ca. 92028 DeLuz Road	101-220-12 101-210-53	31.63 50.44	12.00	Avocados and Citrus	8S/4W-20A(1) 8S/4W-20H(1) 8S/4W-20H(2) 8S/4W-20A(2) 8S/4W-20H(3) 8S/4W-20A	Total Well Production Of 18.00 (Diversion)	18.00
Durling Nursery, Inc.	40401 DeLuz Rd Fallbrook, Ca. 92028	101-210-42	53.14	53.00	Avocados and Citrus		208.00	
Raley, Harold R and Mary E.	41321 DeLuz Creek Rd Fallbrook, Ca. 92028	101-210-11	15.23	8.50 0.50	Avocados Citrus	8S/4W-20Q(1) 8S/4W-20Q(2)	21.35 Total	
Herbel, John & Jeraldine	41257 DeLuz Rd Fallbrook, Ca. 92028	101-210-12	30.28	10.00 18.00 2.00	Avocados Citrus Row crops	8S/4W-20Q(1) 8S/4W-20Q(2) 8S/4W-20Q(3)	66.20 Total	

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 90-91	IRRIGATED CROP 90-91	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					8S/4W-20P(2)	0.00	
						8S/4W-20P(3)	35.00	
Welburn, Douglas J.	Rt. 6, Box 77	101-571-08	26.98	12.50	Row Crops	8S/4W-28G1	50.00	
and Sue	Fallbrook, Ca. 92028							
	40751 DeLuz Murrieta Rd							
Nezami, Mohammed	2193 Calle Rociada	101-312-01	82.29	35.00	Flowers	8S/4W-31L		14.70
Bluebird Ranch	Fallbrook, Ca. 92028			8.00	Avocados			
		101-312-02	58.17			8S/4W-31K	75.80	
TOTAL DELUZ CREEK				251.75			771.75	32.70
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		100.00
TOTAL SANDIA CREEK				126.00			100.00	100.00
SANTA MARGARITA RIVER								
Henderson, Leland	m/t Margarita Land	918-040-10	200.00	20.00	Citrus, Avocados	8S/3W-33Q1	45.62	
	& Development	918-060-17	40.00	0.00		8S/3W-33Q(2)		
	PO Box 584					8S/3W-33Q		62.03
	Fallbrook, Ca. 92088							
	47981 & 47991 Willow Glen Rd							
	Temecula, Ca. 92390							
TOTAL SANTA MARGARITA RIVER				20.00			45.62	62.03

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 90-91	IRRIGATED CROP 90-91	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
LOWER MURRIETA								
Duncan, Frank	m/t 1850 N. Whitley #1219	571-020-046	122.59					
and Marjorie R.	Hollywood, Ca. 90028	571-020-047	40.80					
(Sage Ranch Nursery)	42525 E. Benton Rd.	571-020-048	36.75					
		571-020-049	148.86					
		571-520-005	34.31					
		571-520-007	109.50					
		571-520-008	99.43					
		571-520-009	80.23					
		470-210-007	53.62					
		470-220-004	121.00	845.00	Olive trees	7S/3E-7E		30.00
Zamora, John	39800 E. Benton Rd.	915-120-18	37.74	20.00	Pasture		76.00	
and Linda	Temecula, Ca. 92390							
TOTAL LOWER MURRIETA				865.00			76.00	30.00
GRAND TOTAL				5,343.51			8,317.33	891.49

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1990-91

APPENDIX D
WATER QUALITY DATA

JULY 1992

TABLE D-1

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY 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
Naval Weapons	05/89	1601	1112	111	73.3	128	---	203	317	229	13.6
Station at	06/89	2500	1120	114	72.6	145	---	196	301	235	10.7
Fallbrook Creek	07/89	1629	1160	127	71.7	128	---	197	324	241	6.2
	01/90	1630	1140	121	74.5	137	3.0	212	384	260	1.4
	04/90	1110	812	83.1	45.5	94.7	4.9	125	255	152	4.2
	05/90	1680	1160	110	71.9	138	2.3	210	358	262	1.0
	11/90	1750	1160	116	0.19	152	---	213	314	248	3
	06/91	1760	1180	110	78.4	146	---	193	345	235	2.1
Fallbrook PUD	05/89	1259	838	98.0	41.6	106	---	141	198	197	29.3
Sump at Santa	06/89	1298	810	92.5	40.7	119	---	150	189	189	23.8
Margarita River	07/89	1252	790	98.1	40.1	100	---	143	191	202	11.5
	01/90	1440	940	114	55.5	105	11.8	191	301	186	12.1
	04/90	1460	946	122	57.7	112	11.8	180	301	193	10.7
	05/90	1340	906	106	45.3	107	9.1	165	254	202	6.6
	11/90	1390	834	97	46.8	111	---	213	314	248	3
	06/91	1530	984	104	55	113	---	193	345	235	2.1

TABLE D-1 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY 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
Sandia Creek	05/89	1260	800	107	53.1	80	---	174	168	176	17
Near Santa	06/89	1678	798	106	52.6	84.7	---	195	167	183	7.86
Margarita	07/89	1241	816	125	54.4	75.8	---	196	170	173	4.4
	01/90	1220	760	104	52.6	77.3	2.6	183	186	174	3.0
	04/90	1240	830	104	54.0	83.2	2.6	195	183	181	2.8
	05/90	1260	830	101	50.7	79.5	2.2	205	203	183	1.2
	11/90	1360	860	105	54.8	90	---	222	162	167	5
	06/91	1510	1030	116	62.3	92	---	245	195	177	5
DeLuz Creek	05/89	718	408	24.8	6.94	111	---	81.3	72	140	7.3
At McDowell	06/89	1260	720	96.4	42.6	92.8	---	188	117	202	<0.4
	07/89	1097	675	93.5	37.0	78.6	---	170	102	201	<0.4
	01/90	1250	776	108	52.4	84	1.7	200	185	214	0.45
	04/90	1190	802	103	49.1	89.4	2.0	180	158	196	1.1
	05/90	1240	820	101	48.3	83.7	1.5	195	170	204	8.8
	11/90	1450	876	92.8	55.8	108	---	254	162	174	1
	06/91	1380	866	107	57.7	93	---	214	170	200	1.7
Murrieta Creek	05/89	1130	708	94.7	40.30	80.7	---	166	125	197	<0.40
At Temecula	06/89	650	354	14.3	4.40	108	---	69.8	61.4	117	2.97
	07/89	654	375	19.2	4.87	105	---	69.2	66	139	1.30
	01/90	810	444	53.7	16.7	97.3	2.7	84.3	93.6	200	<0.05
	04/90	850	530	59.3	17.2	97.6	2.8	90	34.3	226	<0.05
	05/90	850	544	46.3	13.8	110	2.8	95	117	169	0.38
	11/90	722	404	43.3	14.2	86.1	---	78	53.5	174	1.2
	06/91	904	514	60.7	17.1	94.7	---	94.8	88.7	188	1

TABLE D-1 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY 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
Temecula Creek	05/89	1540	1052	117	49.4	103	---	168	278	116	1.23
At Interstate 15	06/89	1148	674	110	24.9	92.4	---	106	110	281	2.79
	07/89	1086	680	131	27.4	84.1	---	105	108	281	0.04
	01/90	1090	670	116	25.4	89.1	2.2	118	150	297	0.59
	04/90	1150	784	123	26.2	98.3	3.0	105	127	308	0.81
	05/90	1150	772	121	26.1	94.0	2.2	110	164	310	0.33
	11/90	1160	706	111	26.1	94	---	109	145	280	0.93
	06/91	1190	732	116	25	95.7	---	98.9	116	272	2.1
Santa Margarita	05/89	1035	680	101	22.3	77.9	---	105.0	128	278	8.5
River at	06/89	749	426	34.9	9.56	102.0	---	78.9	73.6	145	2.53
Temecula Gorge	07/89	798	456	50.6	11.4	95.7	---	79.8	76.4	181	0.4
	01/90	1080	664	113	25.2	90.5	2.4	114	150	295	0.55
	04/90	1130	748	119	25.8	98.5	2.9	1115	113	296	0.78
	05/90	1050	682	83.4	20.9	110	3.0	100	208	210	0.47
	11/90	1090	682	94.6	23	89.5	---	105	107	258	0.85
	06/91	1030	550	66	16.2	99.6	---	97.9	73.3	203	<1

* 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	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Rainbow Creek at Willow Glen Road	05/89	773	444	40.2	11.4	89.1	---	82.5	76.9	163	8.9
	06/89	1610	1060	177	52.6	132	---	162	323	100	96.6
	07/89	1508	1141	135	53.4	111	---	155	309	100	105
	01/90	1520	976	117	54.8	109	28.6	116	670	106	40
	04/90	1530	1040	111	51.11	118	42.4	160	376	80	36.3
	05/90	1450	1030	106	47.2	116	24.5	155	333	124	21.4
	11/90	1630	854	111	53.9	119	---	<0.02	337	151	25.7
	06/91	1440	1250	131	67.3	135	---	<0.02	491	168	9.7
Santa Margarita River Upstream of Rainbow Creek	06/91	1220	766	77.4	35.1	106	---	180	189	165	0.07
	09/91	926	552	54.5	19.6	117	---	121	90	42.5	0.08
DeLuz Road at Santa Margarita River	06/91	1510	992	114	63.6	116	---	202	223	188	2.8
Rancho California 3cfs Meter	06/91	640	378	15.7	4.7	104	---	70.6	45.3	---	0.68
	08/91	742	434	33.6	7.96	104	---	81.8	76.1	148	8.86

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 7S/3W-20C09	06/16/89	1300	775	122	39	100	2	178	66	372	40
House Well 7S/3W-20G06	06/16/89	660	345	34	3	95	2	87	60	153	<1
	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
Lynch Well 7S/3W-17R02	06/16/89	760	410	70	17	55	1	86	30	262	8
North Well 7S/3W-18J02	06/16/89	730	390	40	7	98	2	98	45	201	<1
South Well 7S/3W-17N	09/07/90	690	405	62	17	68	2	83	56	229	4
Alson Well 7S/3W-7M	06/06/90	1520	915	138	46	110	1	250	81	433	31
Morris Well 7S/3W-19R	09/07/90	530	280	38	7	68	3	50	49	168	3

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 7S/3W-34G1	05/23/90	630	365	30	6	91	2	101	35	107	3
No. 102 8S/3W-2Q1	01/04/89	695	370	9	2	134	1	101	25	195	<1
No. 105 7S/3W-25M1	07/06/89	500	280	30	6	66	2	71	22	134	14
No. 106 7S/3W-26R1	06/29/88	920	485	38	5	143	3	182	66	70	16
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 8S/1W-06E1	03/31/88	1100	630	70	23	132	6	115	163	268	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
No. 120 8S/2W-17G	06/20/90	570	330	6	1	116	1	82	31	113	11
No. 121 7S/3W-34J	10/27/89	900	475	63	14	99	2	109	28	290	<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 8S/1W-7B	06/06/90	1100	690	69	27	132	6	130	170	281	4
No. 124 8S/2W-11R1	06/20/90	660	380	38	4	92	3	97	48	153	13
No. 125 8S/2W-12H	06/20/90	740	425	17	5	132	3	99	54	186	4
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 7/3W-36M	07/06/89	400	230	27	3	54	2	59	7	101	25
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
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 8S/1W-7C	03/28/90	970	605	50	20	112	5	120	131	235	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 7S/2W-32G	12/29/87	460	295	24	7	65	1	60	11	104	7
No. 140 7S/2W-33F	02/18/88	560	325	33	10	65	2	77	14	153	13
No. 141 8S/2W-11P	01/06/88	780	440	64	11	82	3	65	91	217	13
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. 149A 7S/3W-28A	08/26/88	950	540	71	211	96	1	115	47	302	18
No. 150 7S/3W-27P	09/29/88	1950	1235	134	29	225	2	290	220	390	15
No. 151	09/20/88	5780	3410	280	114	840	5	1660	670	369	<1
7S/3W-34B	07/25/91	860	485	53	16	103	4	90	130	183	---
	07/28/91	730	400	39	12	100	3	91	58	177	---
	07/29/91	600	340	9	2	122	5	63	34	204	---

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 7S/2W-27J	03/28/91	530	315	19	6	83	2	83	16	110	2
No. 202 7S/2W-36J1	12/11/88	740	440	47	18	84	3	97	48	223	17
No. 203	05/18/88	960	580	50	39	110	4	96	115	275	---
8S/1W-6P1	06/29/88	970	530	44	36	112	4	120	123	250	5
	06/12/91	800	415	21	17	108	3	91	90	174	2
No. 204 7S/2W-26G	05/22/91	740	425	50	12	85	3	120	18	198	19
No. 205	03/28/88	500	290	23	3	81	2	83	27	107	21
7S/3W-35A	03/13/91	490	275	22	3	75	2	62	23	113	21
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 7S/2W-28J	05/22/91	790	435	40	14	105	2	150	35	162	8
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

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. 215	08/15/90	650	380	40	13	71	3	100	14	162	11
7S/2W-34M	09/26/90	---	---	---	---	---	---	---	---	---	13
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
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
No. 232	08/15/90	960	590	71	19	110	5	98	130	235	30
8S/2W-11J	09/26/90	---	---	---	---	---	---	---	---	---	35
	09/25/91	980	565	74	19	106	5	98	120	244	37
No. 233	06/15/88	900	535	71	21	100	5	96	136	247	4
8S/2W-12K	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-1Q	06/20/90	420	230	22	4	56	2	50	6	128	18
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
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 QN
	07/26/90	525	296	48	4.8	54	1.0	45	14	191	1.5 QN
	07/17/91	462	261	31	3.2	66	0.8	44	12	155	0.8 QN
8S/2W-35D01	08/03/89	660	347	43	5.5	87	1.2	78	35	169	.35 QN
8S/2W-29A01	08/02/89	346 **	207	31	11	24	0.4	18	7.0	131 **	2.0 QN
	07/24/90	354	193	32	11	25	0.4	24	6.7	133	2.0 QN
	07/18/91	361	194	32	10	26	0.4	25	6.0	134	1.8 QN
8S/2W-34B04	10/05/89	600	---	---	---	---	---	---	---	198	.47 QN
8S/2W-28Q02	10/05/89	629 **	378	48	19	49	0.6	76	14	169 **	4.2 QN
	07/26/90	613	383	48	18	47	0.7	75	12	171	3.9 QN
	07/18/91	618	379	49	18	49	0.6	83	14	172	3.0 QN
8S/2W-20J01	08/15/90	1130	596	100	22	110	2.3	110	200	236	1.3 QN
8S/2W-20J02	08/15/90	404	216	42	6.3	38	0.8	27	12	159	1.2 QN
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 QN
8S/2W-29B03	03/06/90	478	275	14	1.9	84	0.8	65	16	123	<0.1 QN
8S/2W-29B05	03/02/90	397	229	29	9.5	43	1.2	35	4.9	141	1.8 QN
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 QN

* - Alkalinity as CAC03

** - Value slightly different than provisional data reported in 1989-90

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-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-33M	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 CaCO3

** - Value slightly different than provisional data reported in 1989-90

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	1989										
(Bldg 2201)	June	1302	734	78.1	23.0	85.9	---	136	145	212	<0.4
	1991										
	Jan	1271	---	81	36.1	152	---	166	---	---	<0.04
	June	1290	752	99	32.4	133	---	167	136	237	<0.4
10S/5W-23J1	1989										
(Bldg 2301)	June	1139	662	71.5	21.7	80.8	---	117	128	209	<0.4
	1990										
	Jan	1150	632	90.6	32.4	102	---	160	170	214	<0.5
	1991										
	Jan	1112	---	73.7	32	128	---	136	136	---	<0.04
	June	1090	662	87.4	29.7	117	---	140	121	204	<0.4
10S/4W-18H4	1989										
(Bldg 2373)	June	1156	688	74.6	24.4	67.9	---	130	138	197	8.9
	1990										
	Jan	1120	630	86.4	32.3	101	---	156	166	210	<0.05
	Apr	1160	720	98.8	34.8	107	---	152	146	218	1.4
	1991										
	Jan	1202	---	84.1	40.5	117	---	162	153	---	<0.04
	June	1180	736	102	37.1	106	---	163	138	197	<0.4

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-18E3	1989										
(Bldg 2393)	June	1166	758	80.5	28.1	67.4	---	132	157	198	9.5
	1990										
	Jan	1230	748	97.4	39.7	106	---	178	179	226	<0.05
	Apr	1190	733	99.6	37.5	112	---	159	156	207	2.5
	1991										
	June	1130	680	97.6	37.6	100	---	139	142	166	2.7
10S/4W-7R2	1989										
(Bldg 2603)	June	1281	765	76.5	25.1	82.4	---	149	153	209	10.3
	Apr	1270	788	104	36.5	126	---	173	161	215	2.6
	1991										
	June	1400	836	111	41.1	130	---	195	155	215	0.04
10S/4W-7H2	1989										
(Bldg 2671)	June	1137	826	79.1	28.5	85.5	---	157	158	246	12.6
	1990										
	Jan	1290	772	96.3	38.6	116	---	184	179	252	0.9/1.2
	Apr	1320	817	109	42.1	128	---	177	167	249	5.4
	1991										
	Jan	401	---	87.3	44.4	103.1	---	20.5	179	---	1.07

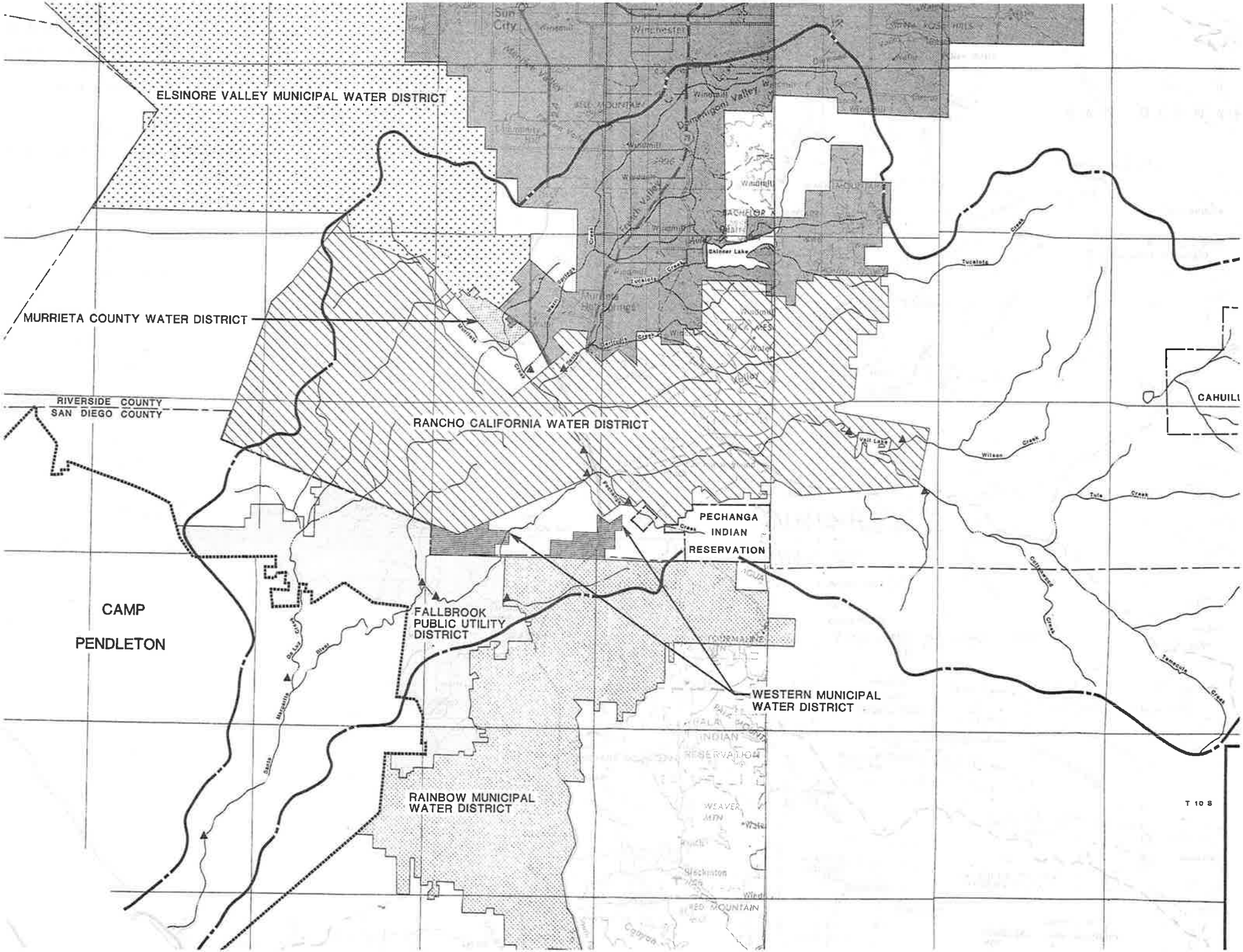
TABLE D-6 (cont'd)

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-7A2	1989										
(Bldg 2673)	June	1073	688	72.1	23.9	59.6	---	120	140	184	15.9
	Jan	1080	572	91.2	34.2	80.2	---	151	178	174	1.4
	1990										
	Apr	1130	718	111	42.1	91	---	148	167	175	9.1
	1991										
	June	1190	718	113	40.3	93.8	---	173	180	160	7.5
10S/5W-23K2	1989										
(Bldg 33924)	June	1207	698	75.6	22.8	84	---	138	137	231	<0.4
	Apr	1240	728	100	32.9	129	---	158	148	245	1.3
	1991										
	Jan	1193	---	80.6	35.2	131	---	21.3	146	---	<0.04
	June	1160	676	88.1	29.6	118	---	141	129	224	<0.04
10S/5W-13R2	1990										
(Bldg 2363)	Jan	1030	540	*96	26.6	94.8	---	141	130	200	0.7
	1991										
	June	1150	702	98.7	32	109	---	149	125	288	1.3
10S/5W-23G3	1991										
(Bldg 33926)	June	1160	684	83.4	28.3	125	---	145	124	223	<0.04

* - Reported as .96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MURRIETA COUNTY WATER DISTRICT
RIVERSIDE COUNTY
SAN DIEGO COUNTY
RANCHO CALIFORNIA WATER DISTRICT
PECHANGA INDIAN RESERVATION
CAMP PENDLETON
FALLBROOK PUBLIC UTILITY DISTRICT
WESTERN MUNICIPAL WATER DISTRICT
RAINBOW MUNICIPAL WATER DISTRICT
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