SANTA ANA RIVER WATERMASTER

FOR

ORANGE COUNTY WATER DISTRICT

v. CITY OF CHINO, et al.

CASE NO. 117628 - COUNTY OF ORANGE

FORTY-SECOND
ANNUAL REPORT
OF THE
SANTA ANA RIVER WATERMASTER

FOR WATER YEAR
OCTOBER 1, 2011 - SEPTEMBER 30, 2012

APRIL 30, 2013

SANTA ANA RIVER WATERMASTER

ORANGE COUNTY WATER DISTRICT v. CITY OF CHINO, et al.
CASE NO. 117628--COUNTY OF ORANGE

WATERMASTER
Samuel H. Fuller
Roy L. Herndon
Thomas A. Love
Michael R. Markus
John V. Rossi

MAILING ADDRESS
c/o SBVMWD
380 East Vanderbilt Way
San Bernardino CA 92408-3593
Telephone (909) 387-9200
FAX (909) 387-9247

April 30, 2013

To: Clerk of Superior Court of Orange County and all Parties

Re: Watermaster Report for Water Year October 1, 2011 - September 30, 2012

Ladies and Gentlemen:

We have the honor of submitting herewith the Forty-Second Annual Report of the Santa Ana River Watermaster. The supporting Basic Data Appendices are bound separately.

The principal findings of the Watermaster for the Water Year 2011-12 are as follows:

At Prado

1	Measured Outflow at Prado	121,123	acre-feet
2	Base Flow at Prado	93,068	acre-feet
3	Annual Weighted TDS in Base and Storm Flows	597	mg/L
4	Annual Adjusted Base Flow	101,056	acre-feet
5	Cumulative Adjusted Base Flow	5,122,715	acre-feet
6	Other Credits (Debits)	365	acre-feet
7	Cumulative Entitlement of OCWD	1,764,000	acre-feet
8	Cumulative Credit	3,398,480	acre-feet
9	One-Third of Cumulative Debit	0	acre-feet
10	Minimum Required Base Flow in 2012-13	34,000	acre-feet

At Riverside Narrows

1	Base Flow at Riverside Narrows	42,641	acre-feet
2	Annual Weighted TDS in Base Flow	664	mg/L
3	Annual Adjusted Base Flow	42,641	acre-feet
4	Cumulative Adjusted Base Flow	1,889,524	acre-feet
5	Cumulative Entitlement of IEUA and WMWD	640,500	acre-feet
6	Cumulative Credit	1,249,024	acre-feet
7	One-Third of Cumulative Debit	0	acre-feet
8	Minimum Required Base Flow in 2012-13	12,420	acre-feet

Based on these findings, the Watermaster concludes that there was full compliance with the provisions of the Stipulated Judgment in 2011-12.

At the end of the 2011-12 water year, Inland Empire Utilities Agency (formerly Chino Basin Municipal Water District) and Western Municipal Water District have a cumulative credit of 3,398,480 acre-feet to their Base Flow obligation at Prado Dam. San Bernardino Valley Municipal Water District has a cumulative credit of 1,249,024 acre-feet to its Base Flow obligation at Riverside Narrows.

The Watermaster continued to exercise surveillance over the many active and proposed projects within the watershed for their potential effect on Base Flow.

Sincerely yours,

Santa Ana River Watermaster

By: _____
Samuel H. Fuller

_____
Michael R. Markus

_____
Roy L. Herndon

_____
John V. Rossi

_____
Thomas A. Love

SANTA ANA RIVER WATERMASTER

FOR

ORANGE COUNTY WATER DISTRICT

v. CITY OF CHINO, et al.

CASE NO. 117628 - COUNTY OF ORANGE

FORTY-SECOND
ANNUAL REPORT
OF THE
SANTA ANA RIVER WATERMASTER

FOR WATER YEAR
OCTOBER 1, 2011 - SEPTEMBER 30, 2012

APRIL 30, 2013

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF PLATES

(Located at back of report)

TABLE OF CONTENTS (Continued)

APPENDICES

The following appendices are bound separately and available for review at the office of the Secretary of the Santa Ana River Watermaster.

CHAPTER I

WATERMASTER ACTIVITIES AND WATER CONDITIONS

Introduction

This Forty-Second Annual Report of the Santa Ana River Watermaster covers Water Year 2011-12. The annual report is required by the Stipulated Judgment (Judgment) in the case of Orange County Water District v. City of Chino, et al., Case No. 117628-County of Orange, entered by the court on April 17, 1969. The Judgment became effective on October 1, 1970. It contains a declaration of rights of the water users and other entities in the Lower Area of the Santa Ana River Basin downstream of Prado Dam as against those in the Upper Area tributary to Prado Dam, and provides a physical solution to satisfy those rights. Chapter IV presents a history of the litigation and a summary of the Judgment.

The physical solution accomplishes, in general, a regional intrabasin allocation of the surface flow of the Santa Ana River System. The Judgment leaves to each of the major hydrologic units within the basin the determination and regulation of individual rights therein and the development and implementation of its own water management plan subject only to compliance with the physical solution.

The Judgment designates four public agencies to represent the interests of the Upper and Lower Areas and gives them the responsibility to fulfill the obligations set forth in the Judgment, including the implementation of the physical solution. The Lower Area is represented by Orange County Water District (OCWD). The Upper Area is represented by San Bernardino Valley Municipal Water District (SBVMWD), Western Municipal Water District of Riverside County (WMWD), and Inland Empire Utilities Agency (IEUA), formerly the Chino Basin Municipal Water District (CBMWD). The locations of the districts are shown on Plate 1, "Santa Ana River Watershed".

The court appoints a five-member Watermaster Committee (Watermaster) to administer the provisions of the Judgment. The duties of the Watermaster are to maintain a continuous accounting of each of the items listed in the letter of transmittal at the front of this report and to report thereon annually for each water year to the court and the parties. The water year begins October 1 and ends the following September 30. The time for submission of the annual report was amended by the Court (dated December 24, 1981) to be seven months after the end of the water year (April 30).

For the Water Year 2011-12 the Watermaster consisted of Samuel H. Fuller, Roy L. Herndon, Thomas A. Love, Michael R. Markus, and John V. Rossi. Mr. Herndon was elected Chairman and Mr. Fuller was elected Secretary/Treasurer at the January 18, 2013 meeting. The history of the Watermaster Committee membership is presented in Chapter IV.

Compilation of Basic Data

The Watermaster annually compiles the basic hydrologic and water quality data necessary to determine compliance with the provisions of the Judgment. The data include records of stream discharge (flow) and quality for the Santa Ana River (River) at Prado Dam and at Riverside Narrows as well as discharges for most tributaries; flow and quality of nontributary water entering the River; rainfall records at locations in or adjacent to the Watershed; and other data that may be used to support the determinations of the Watermaster.

For Water Year 2011-12 the United States Geological Survey (USGS) provided discharge and water quality data for the River at two gaging stations, “Santa Ana River Below Prado” (Prado) and “Santa Ana River at Metropolitan Water District (MWD) Crossing” (Riverside Narrows). The discharge data at both stations consist of computed daily mean discharges, expressed in cubic feet per second (cfs), based on continuous recordings. The water quality data at Prado consist of daily maximum and minimum and mean values for electrical conductivity (EC), measured as specific conductance and expressed in microsiemens per centimeter (μs/cm) based on a continuous recording, and twice-monthly measured values for total dissolved solids (TDS), expressed in milligrams per liter (mg/L). The water quality data at Riverside Narrows consist of twice-monthly values for both EC and TDS. The USGS also provided discharge data for other gaging stations for streams tributary to Prado, including, among others, the Santa Ana River at E Street in San Bernardino, Chino Creek at Schaefer Avenue, Cucamonga Creek near Mira Loma, and Temescal Creek in the City of Corona (see Appendix A). At times the USGS must estimate daily mean discharges due to damaged or malfunctioning recording equipment.

The Water Year 2011-12 daily mean discharge record at Prado is considered by the USGS to be "fair”. Daily mean discharges at the station are controlled at times by storage operations in the reservoir behind Prado Dam just upstream. The maximum and minimum daily mean discharge values during the water year were, respectively, 1,050 cfs on October 6, 2011 and 58 cfs on August 3, 2012. The maximum and minimum daily flow-weighted mean EC values reported by the USGS at Prado were 1,211 μs/cm on October 4, 2011 and 449 μs/cm on November 21, 2011, respectively. The corresponding calculated TDS concentrations were 725 and 269 mg/L. EC records were rated “good” by the USGS.

The Water Year 2011-12 daily mean discharge record at Riverside Narrows was rated by the USGS to be “poor”. The maximum and minimum daily mean discharge values during the year were 351 cfs on March 17, 2011 and 33 cfs on July 30, 2012, respectively. The maximum and minimum EC values reported by the USGS were 1,070 μs/cm on August 16, 2012 and 609 μs/cm on March 26, 2012, respectively. The corresponding measured TDS concentrations were 660 mg/L and 365 mg/L.

To assist in making its determinations each year the Watermaster refers to the records of many precipitation stations located in or near the Santa Ana River Watershed. The record for the former Perris Hill Station 163 in the Bunker Hill-San Timoteo area, operated by the San Bernardino County Flood Control District, was used to define the hydrologic base

period for the physical solution in the Judgment. The record for San Bernardino County Department of Public Works (SBCDPW) Station 2146, which was located very near to Station 163 at the San Bernardino County Hospital, was used until Water Year 2000-01 in the Annual Reports of the Watermaster in order to provide a comparison with historical conditions.

During Water Year 2000-01 Station 2146 was destroyed when the hospital buildings were demolished. For several years the Watermaster used estimated precipitation data based on the records for three nearby stations. The SBCDPW established a new station 2146-A near the location of the former Station 2146. During the preparation of the report for Water Year 2004-05, the precipitation total recorded at station 2146-A was sufficiently close to the estimate prepared from the three nearby stations that the Watermaster used the record for station 2146-A.

The USGS established a precipitation gage network during the 2003-04 Water Year to assist local flood control agencies with flood prediction in the area of the “Old Fire”, which burned a large portion of the northerly mountains of the Santa Ana River Watershed area during October and November 2003. When the flood control agencies declined to fund the ongoing operation of the precipitation gage network, the Parties to the Judgment agreed to add the precipitation gage program to the ongoing stream gage program. The Parties also added a gage designated as “Gilbert Street Precipitation Gage” (USGS No. 340742117161701) at the same location as SBCDPW Station 2146-A. The Gilbert Street Gage was placed into operation in October 2005.

The Watermaster has compared the record from the USGS Gilbert Street Gage to the record from the Station 2146-A gage and has found them to be virtually identical. The Watermaster has accepted the Gilbert Street Gage in this report as the most accurate and reliable of the two gages.

For Water Year 2011-12, the total precipitation recorded at the Gilbert Street gage was 9.01 inches, or 50% of the average of 17.98 inches that occurred during the 26-year base period (1934-35 through 1959-60) that was used in the formulation of the physical solution. Plate 3 graphically portrays the annual precipitation reported by the Watermaster from 1934-35 through 2011-12.

Watermaster Determinations

Each year the Watermaster uses its long-established procedures to analyze the basic hydrologic and water quality data in order to determine, at Riverside Narrows and at Prado, the Base Flow, the Adjusted Base Flow, the Cumulative Credits or Debits to Upper Area parties, and the Minimum Required Base Flow for the following water year. The procedures include determining, for both locations, the amounts of Nontributary Flow or other non-storm flow to be excluded from Base Flow.

During Water Year 2011-12 there were no sources of nontributary flow in the River at Riverside Narrows. There was one source of nontributary flow in the River at Prado, that the Watermaster has not included in Base Flow.

Eastern Municipal Water District (EMWD) reported that it discharged 1,225 acre-feet of treated wastewater to Temescal Creek, with a flow-weighted average TDS of 666 mg/L, that originated in the San Jacinto River Watershed. Discharges from the San Jacinto Watershed were not taken into account in the settlement discussions and calculations that led to the flow obligations in the Judgment. In the past the Watermaster decided that fifty percent of any portion of such discharges that reach Prado Reservoir and that are subsequently captured by OCWD should be added to the Cumulative Credit at Prado (after the usual water quality adjustment). OCWD Hydrogeologist Gwen Sharp estimated that 735 acre-feet of the EMWD treated wastewater, with an average TDS concentration of 701 mg/L, reached Prado Reservoir, that 729 acre-feet of it was captured by OCWD, and recommended that the Cumulative Credit at Prado be increased accordingly using the previously established fifty percent rule. The Watermaster accepted the estimate and the recommendation.

The determinations of the Watermaster for Water Year 2011-12 are explained in detail for Prado in Chapter II and for Riverside Narrows in Chapter III. A summary of annual determinations by the Watermaster for both locations for the period 1970-71 through 2011-12 is presented in Table 1. Note that the Base Flow obligations set forth in the Judgment at both Prado and Riverside Narrows have been met and cumulative credits have accrued to the Upper Area.

TABLE 1

SUMMARY OF FINDINGS AT PRADO

Water Year	Rainfall (in)[1]	USGS Measured Flow (ac-ft)	Total Flow (ac-ft)[2]	Base Flow (ac-ft)[3]	Weighted TDS (mg/L)[4]	Adjusted Base Flow (ac-ft)	Cumulative Credit (ac-ft)[5]
1970-71	11.97	51,864	51,864	38,402	727	38,402	-3,598
1971-72	9.62	51,743	51,743	40,416	707	40,416	-5,182
1972-73	18.46	76,848	77,484	48,999	638	51,531	4,349
1973-74	12.72	128,436	62,511	43,106	633	45,513	7,862
1974-75	13.49	93,397	61,855	50,176	694	51,263	17,125
1975-76	15.86	120,590	59,209	45,627	635	48,098	23,223
1976-77	11.95	72,278	62,953	48,387	660	50,000	31,223
1977-78	30.47	255,043	252,850	58,501	383	73,955	63,178
1978-79	17.51	145,198	134,506	71,863	580	79,049	100,227
1979-80	30.93	536,174	527,760	82,509	351	106,505	164,732
1980-81	10.45	118,300	117,888	74,875	728	74,875	205,652
1981-82	18.34	143,702	143,367	81,548	584	89,431	253,083
1982-83	32.36	426,273	426,750	111,692	411	138,591	353,036
1983-84	10.81	178,730	177,606	109,231	627	115,876	431,514
1984-85	12.86	163,247	162,912	125,023	617	133,670	523,184
1985-86	17.86	196,900	197,373	127,215	567	141,315	622,499
1986-87	8.08	140,872	143,191	119,848	622	127,638	708,137
1987-88	13.78	176,292	166,818	124,104	582	136,308	802,445
1988-89	12.64	159,659	152,743	119,572	583	131,230	891,675
1989-90	8.53	144,817	143,463	119,149	611	127,986	977,661
1990-91	15.48	195,186	186,426	111,151	514	128,379	1,064,040
1991-92	16.54	198,280	189,677	106,948	499	124,862	1,146,902
1992-93	30.92	571,138	566,630	128,067	368	163,499	1,268,401
1993-94	11.62	159,560	152,808	111,186	611	119,432	1,345,833
1994-95	25.14	429,270	422,816	123,468	415	152,792	1,458,387
1995-96	11.92	217,160	190,553	131,861	514	152,299	1,568,686
1996-97	18.64	249,685	198,459	136,676	514	157,861	1,684,547
1997-98	33.41	462,646	456,316	154,021	392	193,553	1,836,100
1998-99	8.02	184,998	182,310	158,637	581	174,369	1,968,469
1999-00	11.09	207,850	188,538	148,269	527	169,644	2,096,113
2000-01	16.13	222,559	208,535	153,914	525	176,360	2,230,473
2001-02	5.08	174,968	156,596	145,981	587	159,728	2,348,201
2002-03	16.22	256,157	245,947	146,113	463	174,970	2,482,058
2003-04	10.80	214,102	201,967	143,510	508	166,472	2,606,777
2004-05	29.89	638,513	637,568	154,307	348	199,570	2,766,713
2005-06	13.23	247,593	246,101	147,736	517	170,266	2,898,541
2006-07	4.61	156,147	153,823	129,830	604	140,216	3,002,288
2007-08	13.70	199,690	194,309	116,483	495	136,382	3,100,835
2008-09	10.14	162,698	161,026	102,711	527	117,519	3,178,543
2009-10	17.79	243,776	243,690	103,099	443	125,179	3,263,211
2010-11	23.50	324,892	313,018	102,031	528	116,655	3,339,059
2011-12	9.01	121,123	121,123	93,068	597	101,056	3,398,480

TABLE 1 (Continued)

SUMMARY OF FINDINGS AT RIVERSIDE NARROWS

Water Year	Rainfall (in)[1]	USGS Measured Flow (ac-ft)	Total Flow (ac-ft)[2]	Base Flow (ac-ft)[3]	Weighted TDS (mg/L)[4]	Adjusted Base Flow (ac-ft)	Cumulative Credit (ac-ft)[5]
1970-71	11.97	42,732	24,112	17,061	704	17,012	1,762
1971-72	9.62	41,257	22,253	16,157	712	16,017	2,529
1972-73	18.46	33,048	32,571	17,105	700	17,105	4,384
1973-74	12.72	25,494	24,494	16,203	700	16,203	5,337
1974-75	13.49	20,970	19,644	15,445	731	15,100	5,187
1975-76	15.86	27,627	26,540	17,263	723	16,977	6,914
1976-77	11.95	24,871	23,978	18,581	722	18,286	9,950
1977-78	30.47	182,500	181,760	22,360	726	21,941	16,641
1978-79	17.51	47,916	47,298	26,590	707	26,456	27,847
1979-80	30.93	254,333	253,817	25,549	676	25,549	38,146
1980-81	10.45	34,698	34,278	19,764	715	19,550	42,446
1981-82	18.34	83,050	82,708	32,778	678	32,778	59,974
1982-83	32.36	279,987	279,645	57,128	610	57,128	101,852
1983-84	10.81	83,087	82,745	56,948	647	56,948	143,550
1984-85	12.86	79,113	78,771	69,772	633	69,772	198,072
1985-86	17.86	99,600	99,258	68,220	624	68,220	251,042
1986-87	8.08	78,093	77,752	59,808	649	59,808	295,600
1987-88	13.78	80,047	79,706	55,324	620	55,324	335,674
1988-89	12.64	62,717	62,376	52,259	607	52,259	372,683
1989-90	8.53	58,500	58,159	53,199	590	53,583	411,016
1990-91	15.48	74,525	73,790	45,041	616	45,041	440,807
1991-92	16.54	71,768	71,427	40,306	620	40,306	465,863
1992-93	30.92	267,384	267,043	41,434	634	41,434	492,047
1993-94	11.62	45,477	45,006	31,278	677	31,278	508,075
1994-95	25.14	245,617	243,411	45,562	646	45,562	538,387
1995-96	11.92	83,256	81,786	54,548	625	54,548	577,685
1996-97	18.64	107,280	104,518	62,618	624	62,618	625,053
1997-98	33.41	214,375	213,033	65,013	601	65,013	674,816
1998-99	8.02	76,294	76,294	73,094	603	73,094	732,660
1999-00	11.09	75,572	75,572	63,499	602	63,499	780,909
2000-01	16.13	78,091	75,331	61,872	603	61,872	827,531
2001-02	5.08	68,844	59,434	58,705	606	58,705	870,986
2002-03	16.22	92,166	88,502	57,747	617	57,747	913,483
2003-04	10.80	77,336	75,799	54,788	634	54,788	953,021
2004-05	29.89	355,503	355,503	65,760	616	65,760	1,003,531
2005-06	13.23	111,840	111,113	67,161	608	67,161	1,055,442
2006-07	4.61	57,868	56,022	56,123	635	56,123	1,096,315
2007-08	13.70	78,619	74,554	46,776[6]	674	46,776[6]	1,127,841
2008-09	10.14	69,027	67,567	43,902	663	43,902	1,156,493
2009-10	17.79	112,631	112,631	45,887	643	45,887	1,187,130
2010-11	23.50	174,075	174,075	49,753	654	49,753	1,221,633
2011-12	9.01	45,049	45,049	42,641	664	42,641	1,249,024

TABLE 1 (Continued)

(1) Measured at San Bernardino County Department of Public Works (SBCDPW) Station 2146 (former San Bernardino County Hospital) until Water Year 2000-01. Estimated for that location for Water Years 2000-01 through 2003-04. Measured at SBCDPW Station 2146-A for Water Year 2004-05. Measured at USGS Gilbert Street Precipitation Gage at San Bernardino for Water Year 2005-06. For 2006-07, measured at SBCDPW 2146 from Oct. 1 to Dec. 21 and at USGS Gilbert Street Precipitation Gage for the remainder of the year. Measured at USGS Gilbert Street Precipitation Gage at San Bernardino since Water Year 2007-08.

(2) As determined by the Watermaster, Total Flow based on Computed Inflow at Prado or measured flow at Riverside Narrows in any year may be exclusive of any Nontributary Flow, Exchange Water or other "water management" flows and, at Prado, may include discharges from Lake Elsinore or the San Jacinto Watershed that reach the Santa Ana River.

(3) As determined by the Watermaster: (a) Base Flow at Prado in any year is exclusive of Storm Flow and may be exclusive of any Nontributary Flow, Exchange Water or other "water management" flows as well as any discharges from Lake Elsinore or the San Jacinto Watershed that reach the Santa Ana River; (b) Base Flow at Riverside Narrows in any year is exclusive of Storm Flow and may be exclusive of any Nontributary Flow, Exchange Water or other "water management" flows and, beginning in 1979-80, includes wastewater from Rubidoux CSD that is treated at the Riverside Regional WWTP.

(4) For Base and Storm Flow at Prado and Base Flow only at Riverside Narrows.

(5) As determined by the Watermaster, Cumulative Credit at Prado in any year may include credit for a portion of any water discharged from Lake Elsinore or the San Jacinto Watershed that reach the Santa Ana River.

(6) The Base Flow amount for Water Year 2007-08 at Riverside Narrows was published as 47,760 acre-feet in the Thirty-Eighth Annual Report. The correct amount is 46,776 acre-feet.

Notable Watershed Programs and Activities

Each year when the Watermaster is compiling and analyzing the information it needs to prepare its report to the Court, it also takes notice of programs and activities in the Watershed that, while they do not directly enter into the determinations of the Watermaster, do have significant potential to affect River flow or quality. The following are brief descriptions of four such items.

Upper Area Treated Wastewater Discharges

Data on treated wastewater discharged in the Upper Area are compiled annually because wastewater is a major contributor to Base Flow in the River. The historical data on treated wastewater discharged are summarized in Table 2. The locations of wastewater treatment plants are shown on Plate 2.

Salt Exports from the Upper Area

High salinity water, mostly from groundwater desalters, is exported from the Upper Area to the ocean through Santa Ana Watershed Project Authority's Santa Ana Regional Interceptor (SARI) and IEUA's Non-Reclaimable Wastewater System (NRWS). This salt export helps to protect River water quality and, therefore, helps the Upper Area parties comply with the Judgment. The available historical data on salt export are summarized in Table 3. The SARI first went into service in Water Year 1985-86. The NRWS has been in service since prior to 1970, but records of flow data prior to Water Year 1981-82 are missing.

The locations of the SARI and NRWS pipelines are shown on Plate 2.

Arundo donax Eradication

Arundo donax is a non-native species of reed that has invaded many waterways in California. It displaces native vegetation, resulting in undesirable habitat for animals. *Arundo* also consumes water at the rate of about 5.6 acre-feet per acre per year compared to only about 1.9 for native plants, a net water loss of about 3.7 acre-feet per year per acre of *Arundo*. By the early 1990s there were about 10,000 acres of *Arundo* in the Santa Ana River Watershed. In 1997 a consortium of local, state and federal agencies launched a long term eradication program in the watershed for reasons of both habitat restoration and water savings. *Arundo* spreads quickly downstream as roots and rhizomes break off during high streamflows. Therefore the eradication program began at the farthest upstream locations and is working toward the River mouth. Each location requires multiyear retreatment. To date the consortium has eradicated 4,500 acres of *Arundo* in the watershed.

TABLE 2
TREATED WASTEWATER EFFLUENT DISCHARGED ABOVE PRADO
(acre-feet)

Water Year	Treated wastewater discharges upstream from Colton that generally do not flow continuously to Santa Ana River above E Street				Treated wastewater discharges to Santa Ana River and its tributaries that have hydraulic continuity to the Santa Ana River above Riverside Narrows					Treated wastewater discharges to Santa Ana River between Riverside Narrows and Prado Dam								Treated wastewater discharges to Temescal Creek or its tributaries which have hydraulic continuity to the Santa Ana River					Total Discharge to Surface Flow of the Santa Ana River	Total Treated Wastewater Discharged in Watershed
	Redlands	Beaumont	Yucaipa	Subtotal (A)	San Bernardino	Colton	Rialto	RIX[1]	Subtotal (B)	Riverside	Corona	IEUA #1[2]	IEUA #2	IEUA #5	IEUA CCWRF[3]	WRCR[4]	Subtotal (C)	EMWD Discharge (1)	Est. EMWD Arriving at Prado (2)	Elsinore Valley MWD (3)	Lee Lake WRP (4)	Subtotal (D) (2 + 3 + 4)	(B + C + D)	(A + B + C + D + 1 - 2)
1970-71	2,650	no record	--	2,650	17,860	2,520	2,270	--	22,650	18,620	3,190	--	--	--	--	--	21,810	--	--	--	--	--	44,460	47,110
1971-72	2,830	no record	--	2,830	16,020	2,230	2,400	--	20,650	19,010	3,230	6,740	--	--	--	--	28,980	--	--	--	--	--	49,630	52,460
1972-73	2,810	450	--	3,260	18,670	2,530	2,260	--	23,460	19,060	3,340	10,380	--	--	--	--	32,780	--	--	--	--	--	56,240	59,500
1973-74	2,770	600	--	3,370	17,680	2,530	2,320	--	22,530	19,560	3,510	11,440	2,320	--	--	--	36,830	--	--	--	--	--	59,360	62,730
1974-75	2,540	570	--	3,110	16,750	1,980	2,320	--	21,050	19,340	4,020	14,960	2,280	--	--	--	40,600	--	--	--	--	--	61,650	64,760
1975-76	2,450	620	--	3,070	17,250	2,540	2,240	--	22,030	19,580	4,700	15,450	2,950	--	--	--	42,680	--	--	--	--	--	64,710	67,780
1976-77	3,170	580	--	3,750	17,650	3,260	2,330	--	23,240	18,770	5,010	14,640	3,380	--	--	--	41,800	--	--	--	--	--	65,040	68,790
1977-78	3,280	620	--	3,900	18,590	3,810	2,380	--	24,780	20,310	5,200	14,650	4,060	--	--	--	44,220	--	--	--	--	--	69,000	72,900
1978-79	3,740	670	--	4,410	19,040	3,850	3,050	--	25,940	21,070	5,390	15,040	5,070	--	--	--	46,570	--	--	--	--	--	72,510	76,920
1979-80	4,190	690	--	4,880	20,360	4,190	2,990	--	27,540	22,910	5,360	14,410	5,520	--	--	--	48,200	--	--	--	--	--	75,740	80,620
1980-81	4,410	690	--	5,100	20,550	3,930	3,370	--	27,850	24,180	5,590	17,270	5,260	--	--	--	52,300	--	--	--	--	--	80,150	85,250
1981-82	4,420	700	--	5,120	23,340	3,780	3,470	--	30,590	25,640	5,410	19,580	5,360	--	--	--	55,990	--	--	--	--	--	86,580	91,700
1982-83	4,530	710	--	5,240	24,160	3,600	3,620	--	31,380	25,020	5,860	20,790	4,290	--	--	--	55,960	--	--	--	--	--	87,340	92,580
1983-84	5,150	800	--	5,950	22,080	3,700	3,830	--	29,610	26,090	6,200	20,950	3,950	--	--	--	57,190	--	--	--	--	--	86,800	92,750
1984-85	4,990	840	--	5,830	23,270	3,830	4,070	--	31,170	27,750	6,250	25,160	4,280	--	--	--	63,440	--	--	--	--	--	94,610	100,440
1985-86	5,200	820	--	6,020	24,720	4,010	4,720	--	33,450	28,820	5,900	28,240	2,660	--	--	--	65,620	--	--	--	--	--	99,070	105,090
1986-87	5,780	880	800	7,460	26,810	4,170	5,350	--	36,330	30,340	6,170	27,160	5,000	--	--	--	68,670	--	--	--	--	--	105,000	112,460
1987-88	6,060	940	1,850	8,850	27,880	5,240	6,040	--	39,160	34,660	6,050	31,290	5,500	--	--	--	77,500	--	--	--	--	--	116,660	125,510
1988-89	5,250	1,030	2,260	8,540	27,640	5,550	6,280	--	39,470	35,490	8,080	35,510	6,180	--	--	--	85,260	--	--	--	--	--	124,730	133,270
1989-90	6,360	1,100	2,370	9,830	28,350	5,810	6,260	--	40,420	33,210	9,140	34,760	5,730	--	--	--	82,840	--	--	--	--	--	123,260	133,090
1990-91	6,690	1,120	2,490	10,300	27,570	5,670	6,290	--	39,530	32,180	9,110	36,840	6,100	--	--	--	84,230	--	--	--	--	--	123,760	134,060
1991-92	6,230	1,150	2,580	9,960	25,060	5,660	6,360	--	37,080	32,660	9,010	40,360	5,780	--	1,550	--	89,360	--	--	--	--	--	126,440	136,400
1992-93	6,880	1,180	2,580	10,640	25,550	6,210	6,460	--	38,220	34,100	9,600	41,510	5,640	--	4,720	--	95,570	--	--	--	--	--	133,790	144,430
1993-94	6,440	1,150	2,710	10,300	23,800	5,830	6,540	--	36,170	32,640	7,790	37,310	5,430	--	7,010	--	90,180	--	--	--	--	--	126,350	136,650
1994-95	6,720	1,180	2,560	10,460	26,330	5,500	6,820	--	38,650	33,950	7,340	39,680	5,360	--	8,690	--	95,020	--	--	--	--	--	133,670	144,130
1995-96	6,550	1,260	2,640	10,450	13,240	2,770	6,890	20,760	43,660	33,960	7,850	39,590	4,810	--	9,060	--	95,270	--	--	--	--	--	138,930	149,380
1996-97	6,510	1,280	2,780	10,570	--	--	7,160	42,800	49,960	34,240	5,040	39,940	4,790	--	9,750	--	93,760	--	--	--	--	--	143,720	154,290
1997-98	7,022	1,356	3,116	11,494	--	--	7,063	49,683	56,746	35,422	8,718	44,940	4,969	--	9,264	1,461	104,774	1,779	1,690	--	--	1,690	163,210	174,793
1998-99	7,379	1,367	3,128	11,874	--	--	6,524	47,587	54,111	34,844	11,629	43,354	5,345	--	9,534	4,594	109,299	--	--	3,049	--	3,049	166,459	178,333
1999-00	7,670	1,373	3,284	12,327	--	--	7,392	45,012	52,404	35,399	13,152	42,967	4,378	--	9,954	2,371	108,221	--	--	4,159	--	4,159	164,784	177,111
2000-01	7,379	1,377	3,345	12,101	--	--	8,346	49,407	57,753	35,663	13,100	43,863	4,401	--	11,615	2,210	110,852	--	--	4,245	--	4,245	172,850	184,951
2001-02	7,395	1,434	3,285	12,114	--	--	7,952	44,513	52,465	35,586	12,378	40,377	4,056	--	10,677	2,380	105,454	--	--	4,477	352	4,829	162,748	174,862
2002-03	7,499	1,593	3,480	12,572	217	4	8,042	45,570	53,833	36,298	12,027	45,838	4,343	--	10,837	2,409	111,752	2,312	2,024	5,012	444	7,480	173,065	185,925
2003-04	6,625	1,793	3,898	12,316	124	0	8,158	44,526	52,808	36,664	11,394	39,734	2,307	4,821	9,113	2,818	106,851	4,345	1,140	5,037	549	6,726	166,385	181,906
2004-05	7,632	2,051	3,899	13,582	4,406	183	7,815	42,025	54,429	38,123	12,558	40,644	--	8,777	8,637	3,521	112,260	15,195	13,746	7,025	653	21,424	188,113	203,144
2005-06	5,789	2,246	3,945	11,980	1,184	101	7,883	45,259	54,427	37,358	13,021	35,486	--	9,036	8,389	3,311	106,601	14,669	12,631	6,259	701	19,591	180,619	194,637
2006-07	4,991	2,555	4,056	11,602	10	0	7,654	44,011	51,675	36,355	11,727	31,829	--	12,534	6,851	4,376	103,672	13,105	11,092	4,792	691	16,575	171,922	185,537
2007-08	3,665	2,856	4,055	10,576	518	0	7,258	42,476	50,252	35,703	9,408	26,001	--	12,200	8,029	5,952	97,293	10,808	8,930	1,553	811	11,294	158,839	171,293
2008-09	2,386	2,894	3,993	9,273	263	0	6,724	40,310	47,297	33,636	9,062	23,854	--	9,711	8,920	6,374	91,557	6,669	4,653	518	948	6,119	144,973	156,262
2009-10	2,876	2,956	4,105	9,937	298	0	6,658	40,672	47,628	33,731	8,808	21,983	--	8,046	7,258	6,153	85,979	4,961	4,814	876	934	6,624	140,231	150,315
2010-11	3,271	3,050	4,196	10,517	1,292	0	6,710	39,333	47,335	33,487	9,275	18,177	--	7,279	5,987	6,486	80,691	5,680	5,418	4,464	622	10,504	138,530	149,309
2011-12	3,503	3,054	4,112	10,669	76	0	6,703	37,966	44,745	31,622	9,249	14,563	--	7,184	5,137	6,409	74,164	1,225	735	507	786	2,028	120,937	132,096

1. RIX = Rapid Infiltration and Extraction Facility for San Bernadino and Colton, including over-extraction of groundwater
2. Beginning in 1997-98, includes IEUA Plant #4 flows.
3. CCWRF = Carbon Canyon Water Reclamation Facility
4. WRCR = Western Riverside County Regional Wastewater Treatment Plant

The amounts shown in this table were determined from data provided by the agencies.

TABLE 3

HIGH SALINITY WATER EXPORTED
FROM THE SANTA ANA RIVER WATERSHED

Water Year	Inland Empire Utility Agency Non-Reclaimable Wastewater North System (acre-feet)	Santa Ana Watershed Project Authority Santa Ana Regional Interceptor (SARI)[1] SARI Flow[2] (acre-feet)	Average TDS (mg/L)	Total Flow (acre-feet)
1970-71	NA	---	---	---
1971-72	NA	---	---	---
1972-73	NA	---	---	---
1973-74	NA	---	---	---
1974-75	NA	---	---	---
1975-76	NA	---	---	---
1976-77	NA	---	---	---
1977-78	NA	---	---	---
1978-79	NA	---	---	---
1979-80	NA	---	---	---
1980-81	NA	---	---	---
1981-82	4,236	---	---	4,236
1982-83	4,651	---	---	4,651
1983-84	4,142	---	---	4,142
1984-85	2,346	---	---	2,346
1985-86	2,995	2,791 [3]	NA	5,786 [3]
1986-87	4,943	2,869 [3]	NA	7,813 [3]
1987-88	5,177	2,948 [3]	NA	8,125 [3]
1988-89	5,949	3,622 [3]	NA	9,572 [3]
1989-90	5,240	7,393	1,649	12,633
1990-91	2,847	7,340	1,906	10,187
1991-92	3,421	6,457	2,346	9,878
1992-93	3,774	5,277	2,516	9,051
1993-94	3,764	7,860	2,302	11,624
1994-95	4,131	8,656	1,903	12,787
1995-96	3,863	9,597	2,175	13,460
1996-97	4,191	10,225	2,292	14,417
1997-98	4,575	8,210	2,456	12,785
1998-99	3,666	4,305	2,611	7,971
1999-00	4,272	7,711	2,154	11,983
2000-01	5,075	8,205	2,504	13,280
2001-02	4,297	8,385	3,289	12,682
2002-03	3,926	9,331	3,482	13,257
2003-04	3,950	10,505	3,798	14,455
2004-05	4,220	10,971	3,460	15,191
2005-06	5,085	12,847	4,118	17,932
2006-07	4,609	13,168	4,120	17,777
2007-08	4,658	12,123	4,986	16,781
2008-09	4,284	12,993	5,037	17,277
2009-10	3,865	13,325	5,003	17,190
2010-11	3,443	13,282	5,066	16,725
2011-12	3,668	13,471	5,884	17,139

1. Santa Ana Regional Interceptor began operation in 1985-86.
2. IEUA Non-Reclaimable Wastewater from the South System goes into the SARI and is included in SARI Flow.
3. SARI flow and thus Total Flow for Water Year 1985-86 through 1988-89 are partial flows.

NA = Data Not Available

Chino Groundwater Basin Hydraulic Control

During most of the twentieth century much of the land overlying the Chino Basin was devoted to irrigated agriculture that obtained its water supply directly from the basin. In more recent times the agriculture is being replaced by urban development, but the agricultural water use left behind a legacy of high concentrations of nitrates and other salts in the groundwater, making it unsuitable for urban use unless treated. As agricultural pumping of groundwater in the lower part of the Basin was cut back, the California Regional Water Quality Control Board, Santa Ana Region ("RWQCB"), and OCWD both became concerned about the outlook for increased amounts of poor quality water rising in the Santa Ana River above Prado Dam.

Under historic anti-degradation water quality standards, the recharge of recycled water in the Chino Basin was impossible because the Basin lacked assimilative capacity. In order to allow for the use and recharge of recycled water, the RWQCB amended the Basin Plan for the Santa Ana Watershed to allow for the use of special "maximum benefit" standards. As a condition of approval of the use of the maximum benefit standards, the RWQCB's Water Quality Control Plan requires that the Chino Basin entities develop and implement a Hydraulic Control Program ("HCP") with the dual objectives of minimizing the loss of groundwater to the River and protecting the River against the salts by increasing pumping from wells low in the Basin. Much of the pumped groundwater is treated in desalination facilities, with the product water being served to municipalities and the brine stream being exported to the ocean via the SARI.

The Chino Basin Watermaster files an annual report with RWQCB on the program, water chemistry, hydrologic balance, piezometric groundwater surface elevations, and groundwater modeling.

Watermaster Service Expenses

In accordance with Paragraph 7(d) of the Judgment, the fees and expenses of each of the members of the Watermaster are borne by the parties by whom they were nominated. All other Watermaster service expenses are shared by the parties with OCWD paying 40% of the cost and WMWD, SBVMWD, and IEUA each paying 20% of the cost.

The Watermaster annually adopts a budget for the costs of services other than those provided by the USGS. Table 4 shows the budget and actual expenses incurred for such services during the 2011-12 fiscal year as well as the budget adopted for the 2012-13 fiscal year. A financial review was performed by OCWD and is reported in Appendix C.

TABLE 4

WATERMASTER SERVICE BUDGET AND EXPENSES

Budget Item	July 1, 2011 to June 30, 2012 Budget	July 1, 2011 to June 30, 2012 Expenses	July 1, 2012 to June 30, 2013 Budget
Support Services	$12,500.00	$5,740.00*	$12,500.00
Reproduction of Annual Report	1,500.00	0.00*	1,500.00
TOTAL	$14,000.00	$5,740.00*	$14,000.00

* A portion of the expenses for Fiscal Year 2011-12 were paid during Fiscal Year 2012-2013.

Stream flow measurements and water quality data required by the Watermaster are, for the most part, furnished by the USGS through a cooperative monitoring program which also includes some precipitation data to supplement data provided by the USGS and other agencies. The costs of the cooperative monitoring program for Water Year 2011-12, and each party's share of the costs, are set forth in Table 5.

TABLE 5

COSTS TO THE PARTIES AND USGS FOR MEASUREMENTS WHICH PROVIDE DATA USED BY THE SANTA ANA RIVER WATERMASTER

October 1, 2011 to September 30, 2012

	Total Cost	USGS Share	Parties' Share
USGS PRECIPITATION GAGING STATIONS			
Gilbert Street Gage at San Bernardino	$7,900	$0	$7,900
"E" Street Gage	7,900	0	7,900
Middle Fork Lytle Creek Gage	7,900	0	7,900
Ridge Top Gage near Devore	7,900	0	7,900
USGS FLOW AND WATER QUALITY GAGING STATIONS			
Santa Ana River at MWD Crossing (Riverside Narrows)			
Surface Water Gage	31,800	12,700	19,100
Water Quality Monitoring/TDS Sampling	13,150	5,250	7,900
Santa Ana River below Prado Dam			
Surface Water Gage	22,600	9,050	13,550
Continuous Temperature and Conductance	30,200	12,100	18,100
Water Quality Conductance Program	2,500	0	2,500
Extra Measurements	0	0	0
Temescal Creek above Main St., near Corona	22,600	9,050	13,550
Chino Creek at Schaefer	22,600	9,050	13,550
Cucamonga Creek at Mira Loma	22,600	9,050	13,550
TOTAL COST AND SHARES	$199,650	$66,250	$133,400
COST DISTRIBUTION AMONG PARTIES			
Inland Empire Utilities Agency	20%		$26,680
Orange County Water District	40%		$53,360
San Bernardino Valley Municipal Water District	20%		$26,680
Western Municipal Water District	20%		$26,680

CHAPTER II

BASE FLOW AT PRADO

This chapter deals with determinations of 1) the components of flow at Prado, which include Nontributary Flow, Arlington Desalter discharge, water discharged from San Jacinto Watershed, Storm Flow, and Base Flow and 2) the Adjusted Base Flow at Prado credited to IEUA and WMWD.

Flow at Prado

During Water Year 2011-12, the flow of the River as measured at the USGS gaging station below Prado Dam amounted to 121,123 acre-feet. No water was in storage at the beginning of the Water Year, and 5 acre-feet of water remained in storage at the end of the Water Year. Inflow to the reservoir included 93,068 acre-feet of Base Flow and 27,325 acre-feet of Storm Flow. There were no Nontributary flows. Water discharged from the San Jacinto Watershed was excluded from Base Flow, but was partially credited to the Cumulative Credit at Prado. Discharge from the San Jacinto Watershed calculated to have reached Prado Reservoir was 735 acre-feet. The monthly components of flow of the River at Prado Dam for Water Year 2011-12 are listed in Table 6 and are shown graphically on Plate 4. Historical Base and Storm Flows of the Santa Ana River below Prado during the period Water Years 1934-35 through 2011-12 are presented on Plate 5.

Nontributary Flow

Nontributary Flow includes water that originated outside the watershed, as well as other water that the Watermaster has determined should be excluded from Base Flow. During Water Year 2011-12 there was no nontributary water. Some flows from the San Jacinto Watershed were determined to have reached Prado Reservoir. In the past nontributary flows have included and may include in the future other water discharged to the River pursuant to the water exchanges or other such programs.

High Groundwater Mitigation Project

No High Groundwater Mitigation Project water was discharged to the River during Water Year 2011-12.

Releases to San Antonio Creek

During Water Year 2011-12, no State Water Project (SWP) water was released for OCWD from turnout OC-59.

TABLE 6

COMPONENTS OF FLOW AT PRADO DAM
WATER YEAR 2011-12
(acre-feet)

	USGS Measured Outflow	Storage Change (1)	Computed Inflow	San Jacinto Watershed Flow at Prado (2)	WMWD Transfer Water (3)	SBVMWD HGMP Water (4)	San Antonio Creek (4)	Arlington Desalter	Storm Flow	Base Flow
2011										
October	10,546	1	10,547	0	0	0	0	0	3,182	7,365
November	12,994	395	13,389	0	0	0	0	0	4,510	8,879
December	12,595	(393)	12,202	41	0	0	0	0	2,107	10,054
2012										
January	11,292	588	11,880	0	0	0	0	0	1,662	10,218
February	12,633	73	12,706	419	0	0	0	0	2,460	9,827
March	12,746	4,297	17,043	275	0	0	0	0	6,960	9,808
April	14,995	(146)	14,849	0	0	0	0	0	6,183	8,666
May	12,938	(4,811)	8,127	0	0	0	0	0	64	8,063
June	5,363	(3)	5,360	0	0	0	0	0	0	5,360
July	4,733	0	4,733	0	0	0	0	0	55	4,678
August	4,508	2	4,510	0	0	0	0	0	0	4,510
September	5,780	2	5,782	0	0	0	0	0	142	5,640
Total	121,123	5	121,128	735	0	0	0	0	27,325	93,068

(1) The monthly change in storage is included in the monthly components of flow.

(2) Discharge due to overflow of Lake Elsinore and/or discharge of wastewater by EMWD from the San Jacinto Watershed.

(3) WMWD Transfer Program water pumped from Colton and Riverside Basins and discharged to the Santa Ana River above the Riverside Narrows.

(4) HGMP water pumped from the Bunker Hill groundwater basin and discharged into the Santa Ana River, less 1% for evapotranspiration above Riverside Narrows and 2% evapotranspiration between Riverside Narrows and Prado Dam.

(4) State Water Project water released into San Antonio Creek from turnout OC-59 and calculated to have reached Prado Dam during the Water Year.

Arlington Desalter Discharge

Groundwater flowing from the Arlington Basin has historically been a component of the River flow. This groundwater has been degraded through agricultural and other uses. Two parties to the Judgment, WMWD and OCWD, as members of the Santa Ana Watershed Project Authority, constructed a groundwater cleanup project that is designed to reduce the poor quality underflow from the basin. This project is known as the Arlington Desalter and consists of five extraction wells and a treatment facility that reduces salinity. The capacity of the facility is approximately 6 million gallons per day (mgd). The facility began operation in July 1990, with OCWD buying the product water delivered through the River. Beginning in 2004, the City of Norco began purchasing a portion of the Arlington Desalter product water for direct potable use.

The Watermaster determined that the flow and TDS of the water delivered to OCWD via the River from this facility would be excluded from the computation of Base Flow and Adjusted Base at Prado. During Water Year 2011-12, no Arlington Desalter flows were discharged to the Arlington drain for OCWD.

WMWD-OCWD Transfer Program

In 2001, OCWD and WMWD entered into an agreement that provides for delivery of groundwater pumped primarily from the Colton and Riverside Basins via the Riverside Canal and the River. No WMWD-OCWD Transfer Program water deliveries were made to the River upstream of Riverside Narrows and Prado Dam during Water Year 2011-12.

San Jacinto Watershed Discharge

Prior to Water Year 1997-98, discharges from the San Jacinto Watershed reaching Prado Reservoir were due to discharges from Lake Elsinore, and had been accounted for as "Lake Elsinore Discharge." In 1998 EMWD completed its Reach 4 discharge pipeline to Wasson Canyon, which is tributary to Temescal Wash. The pipeline discharges tertiary-treated wastewater to Temescal Wash above Lee Lake when flows exceed EMWD's storage facility capacity. The collective discharges from Lake Elsinore and EMWD to Temescal Wash are referred to herein as San Jacinto Watershed discharges.

During Water Year 2011-12, EMWD discharged 1,225 acre-feet of treated wastewater to Temescal Wash, and 735 acre-feet of that discharge was estimated to have reached Prado Reservoir. The Watermaster previously determined that to the extent such discharges occur and are captured by OCWD, fifty percent of such captured water will be added as Cumulative Credit at Prado. OCWD captured 729 acre-feet of the San Jacinto Watershed discharge and 6 acre-feet flowed past OCWD's groundwater recharge facilities and was considered as lost to the ocean. Summaries of the EMWD Discharges, San Jacinto Watershed Discharge Calculations, and San Jacinto Watershed Discharges are contained in Appendix G. Page G-13 contains hydrographs of Discharge of Temescal Creek at Main Street in Corona, EMWD Discharge, and Elsinore Precipitation and illustrates the known and estimated components of flow of Temescal Creek.

Storm Flow

Portions of storm flows are retained behind Prado Dam for flow regulation and for water conservation purposes. The USACE owns and operates the Dam according to a flow release schedule which allows for water to be captured and subsequently released at rates which can be captured and recharged by OCWD. The Dam has a spillway elevation of 543 feet above mean sea level. On April 12, 1995, the USACE, the U.S. Fish and Wildlife Service, and OCWD reached an agreement to increase the seasonal water conservation pool from elevation 494 to elevation 505 feet after March 1 of each year in exchange for a $1 million contribution by OCWD to the U.S. Fish and Wildlife Service to be used to develop least Bell's vireo habitat by the removal of a non-native plant, *Arundo donax*. In 2006 the USACE and OCWD signed an agreement to increase the winter conservation pool elevation from elevation 494 to 498 in exchange for a $930,000 contribution from OCWD to habitat restoration in the watershed. Monthly and annual quantities of Storm Flow are shown in Table 6.

During Water Year 2011-12, the maximum volume of water stored in Prado Reservoir reached 6,232 acre-feet on April 16, 2012. The maximum daily mean flow released from Prado Dam to the Santa Ana River during the Water Year was 1,050 cfs on October 6, 2011.

Base Flow

The Base Flow is that portion of the total flow remaining after subtracting Storm Flow, Nontributary Flow, Exchange Water, and certain other flows determined by the Watermaster. Flows affecting the determination of Base Flow in Water Year 2011-12 included discharges from the San Jacinto Watershed. The general procedure used by the Watermaster to separate the Water Year 2011-12 flow components was the same as used for previous years and is fully described in the Fifth (1974-75) and the Twelfth (1981-82) Annual Reports. Table 6 shows the monthly and annual quantities of Base Flow.

Water Quality Adjustments

The flow-weighted average TDS for the total flow passing Prado Dam, including San Jacinto Watershed discharge, was found to be 598 mg/L. This determination was based on records from a continuous monitoring device operated by the USGS for EC of the River flow below Prado Dam. This record was supplemented by 23 grab samples for EC collected by the USGS and analyzed for TDS.

For Water Year 2011-12 a correlation between TDS and EC yields the following best fit equation:

$$TDS = EC \times 0.59876$$

(where the units of TDS and EC are mg/L and μs/cm, respectively)

Using the daily EC data, flow-weighted average daily concentrations for TDS were calculated using the above equation. The plot of TDS on Plate 6 shows the average daily TDS concentration of the River flow passing Prado Dam. A summary of daily TDS and EC of the River below Prado Dam is contained in Appendix H. At Prado Dam, the flow-weighted average annual TDS concentration of 598 mg/L represents the quality of the total flow including discharges from the San Jacinto Watershed. The Judgment requires that Base Flow shall be subject to adjustment based on the TDS of Base Flow and Storm Flow only. Hence, a determination of the TDS of Base Flow plus Storm Flow only, is detailed in the following paragraphs.

Adjustment for High Groundwater Mitigation Project Discharge

During Water Year 2011-12, SBVMWD did not discharge High Groundwater Mitigation Project water. Therefore, no water quality adjustment was necessary.

Adjustment for State Water Project Flow to San Antonio Creek

During Water Year 2011-12, no water was released from OC-59 to San Antonio Creek for OCWD. Therefore, no water quality adjustment was necessary.

Adjustment for Arlington Desalter Discharge

During Water Year 2011-12, no water was discharged from the Arlington Desalter to the Arlington drain for OCWD. Therefore, no water quality adjustment was necessary.

Adjustment for WMWD-OCWD Transfer Program Discharge

During Water Year 2011-12, no WMWD-OCWD Transfer Program water was delivered. Therefore, no water quality adjustment was necessary.

Adjustment for San Jacinto Watershed Discharge

Discharge from the San Jacinto Watershed during Water Year 2011-12 reaching Prado Reservoir was estimated to be 735 acre-feet. Using EMWD discharge data, the TDS data for the discharge, and monthly volume of the discharge estimated to have reached Prado reservoir, a flow-weighted average TDS of 701 mg/L was calculated. A summary of these calculations is contained in Appendix G.

Flow Component	Annual Flow (acre-feet)	Average TDS (mg/L)	Annual Flow X Average TDS
1. Measured Outflow	121,123	598	72,431,554
2. Less High Groundwater Mitigation Project	0	---	---
3. Less Nontributary Flow San Antonio Creek	0	---	---
4. Less Arlington Desalter	0	---	---
5. Less WMWD Transfer Program	0	---	---
6. Less San Jacinto Watershed Discharge	(735)	701	(515,235)
7. Measured Outflow less lines 2 through 6	120,388		71,916,319
Average TDS in Total Base and Storm Flow	71,916,319 ÷ 120,388 = 597 mg/L		

After adjusting for San Jacinto Watershed discharge, the flow-weighted average annual TDS of Storm Flow and Base Flow for Water Year 2011-12 is 597 mg/L, as shown above.

Adjusted Base Flow at Prado

The Judgment provides that the amount of Base Flow at Prado received during any year shall be subject to adjustment based on flow-weighted average annual TDS of the Base Flow and Storm Flow at Prado as follows:

If the Weighted Average TDS in Base Flow and Storm Flow at Prado is:	Then the Adjusted Base Flow shall be determined by the formula:
Greater than 800 mg/L	$Q - \frac{35}{42,000} Q(TDS-800)$
700 mg/L to 800 mg/L	Q
Less than 700 mg/L	$Q + \frac{35}{42,000} Q(700-TDS)$

Where: Q = Base Flow actually received.

The flow-weighted average annual TDS of 597 mg/L is less than 700 mg/L. Therefore, the Base Flow must be adjusted by the above equation for TDS less than 700 mg/L. Thus the Adjusted Base Flow is as follows:

$$(93,068 \text{ acre-feet}) + \frac{35}{42,000} (93,068 \text{ acre-feet}) (700 - 597) = 101,056 \text{ acre-feet}$$

Entitlement and Credit or Debit

Paragraph 5(c) of the Judgment states that "CBMWD (now IEUA) and WMWD shall be responsible for an average annual Adjusted Base Flow of 42,000 acre-feet at Prado. CBMWD (IEUA) and WMWD each year shall be responsible for not less than 37,000 acre-feet of Base Flow at Prado, plus one-third of any cumulative debit; provided, however, that for any year commencing on or after October 1, 1986, when there is no cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 30,000 acre-feet, said minimum shall be 34,000 acre-feet."

The Watermaster agreed that San Jacinto Watershed outflows were not envisioned during the formulation of the Judgment and because of the occurrence of San Jacinto Watershed flows at Prado, the Watermaster decided, as in previous years, to credit one-half of any such outflows recharging the groundwater basin in Orange County to IEUA and WMWD.

Of the 735 acre-feet of San Jacinto Watershed outflows reaching Prado Reservoir in Water Year 2011-12, 6 acre-feet flowed past OCWD's groundwater recharge facilities and was considered as lost to the ocean. Therefore, a net of 729 acre-feet of San Jacinto Watershed outflow recharged the Orange County groundwater basin in Water Year 2011-12. One-half of that amount has been considered a credit against the Upper Area Base Flow obligation at Prado Dam. Thus, an additional 365 acre-feet was added to the Cumulative Credit at Prado Dam.

While compiling the Thirty-Third Annual Watermaster Report, it came to the attention of the Watermaster that in previous reports one-half the San Jacinto Watershed discharge reaching Prado and recharging Orange County groundwater basin had been included in the Cumulative Adjusted Base Flow as well as in the Cumulative Credit. The Watermaster determined that the San Jacinto Watershed discharge should be included only in the Cumulative Credit and not in the Cumulative Adjusted Base Flow. Therefore, the Watermaster revised the Cumulative Adjusted Base Flow and has included Table 7 summarizing the historical Watermaster findings concerning flow at Prado that reflect the revision in the report following the findings of the Watermaster.

The findings of the Watermaster concerning flow at Prado for Water Year 2011-12 required under the Judgment are as follows:

1.	Measured Outflow at Prado	121,123 acre-feet
2.	Base Flow at Prado	93,068 acre-feet
3.	Annual Weighted TDS of Base and Storm Flow	597 mg/L
4.	Annual Adjusted Base Flow	101,056 acre-feet
5.	Cumulative Adjusted Base Flow	5,122,715 acre-feet
6.	Other Credits (Debits) [1]	365 acre-feet
7.	Cumulative Entitlement of OCWD	1,764,000 acre-feet
8.	Cumulative Credit [2]	3,398,480 acre-feet
9.	One-Third of Cumulative Debit	0 acre-feet
10.	Minimum Required Base Flow in 2012-13	34,000 acre-feet

1. Other Credits (Debits) are comprised of San Jacinto Watershed outflow.
2. Cumulative Credit includes 39,765 acre-feet of San Jacinto Watershed outflow.

TABLE 7
HISTORICAL WATERMASTER FINDINGS AT PRADO DAM
(acre-feet)

Water Year	Base Flow	Annual Adjusted Base Flow	Cumulative Adjusted Base Flow	Other Credits (Debits)[1]	Cumulative Entitlement of OCWD	Cumulative Credit[2]
1970-71	38,402	38,402	38,402	0	42,000	(3,598)
1971-72	40,416	40,416	78,818	0	84,000	(5,182)
1972-73	48,999	51,531	130,349	0	126,000	4,349
1973-74	43,106	45,513	175,862	0	168,000	7,862
1974-75	50,176	51,263	227,125	0	210,000	17,125
1975-76	45,627	48,098	275,223	0	252,000	23,223
1976-77	48,387	50,000	325,223	0	294,000	31,223
1977-78	58,501	73,955	399,178	0	336,000	63,178
1978-79	71,863	79,049	478,227	0	378,000	100,227
1979-80	82,509	106,505	584,732	0	420,000	164,732
1980-81	74,875	74,875	659,607	8,045	462,000	205,652
1981-82	81,548	89,431	749,038	0	504,000	253,083
1982-83	111,692	138,591	887,629	3,362	546,000	353,036
1983-84	109,231	115,876	1,003,505	4,602	588,000	431,514
1984-85	125,023	133,670	1,137,175	0	630,000	523,184
1985-86	127,215	141,315	1,278,490	0	672,000	622,499
1986-87	119,848	127,638	1,406,128	0	714,000	708,137
1987-88	124,104	136,308	1,542,436	0	756,000	802,445
1988-89	119,572	131,230	1,673,666	0	798,000	891,675
1989-90	119,149	127,986	1,801,652	0	840,000	977,661
1990-91	111,515	128,379	1,930,031	0	882,000	1,064,040
1991-92	106,948	124,862	2,054,893	0	924,000	1,146,902
1992-93	128,067	163,499	2,218,392	0	966,000	1,268,401
1993-94	111,186	119,432	2,337,824	0	1,008,000	1,345,833
1994-95	123,468	152,792	2,490,616	1,762	1,050,000	1,458,387
1995-96	131,861	152,299	2,642,915	0	1,092,000	1,568,686
1996-97	136,676	157,861	2,800,776	0	1,134,000	1,684,547
1997-98	154,021	193,553	2,994,329	0	1,176,000	1,836,100
1998-99	158,637	174,369	3,168,698	0	1,218,000	1,968,469
1999-00	148,269	169,644	3,338,342	0	1,260,000	2,096,113
2000-01	153,914	176,360	3,514,702	0	1,302,000	2,230,473
2001-02	145,981	159,728	3,674,430	0	1,344,000	2,348,201
2002-03	146,113	174,970	3,849,400	887	1,386,000	2,482,058
2003-04	143,510	166,472	4,015,872	247	1,428,000	2,606,777
2004-05	154,307	199,570	4,215,442	2,366	1,470,000	2,766,713
2005-06	147,736	170,266	4,385,708	3,562	1,512,000	2,898,541
2006-07	129,830	140,216	4,525,924	5,531	1,554,000	3,002,288
2007-08	116,483	136,382	4,662,306	4,165	1,596,000	3,100,835
2008-09	102,711	117,519	4,779,825	2,189	1,638,000	3,178,543
2009-10	103,099	125,179	4,905,004	1,489	1,680,000	3,263,211
2010-11	102,031	116,655	5,021,659	1,193	1,722,000	3,339,059
2011-12	93,068	101,056	5,122,715	365	1,764,000	3,398,480

1. Other Credits (Debits) are comprised of San Jacinto Watershed outflow.
2. Cumulative Credit includes 39,765 acre-feet of San Jacinto Watershed outflow.

CHAPTER III

BASE FLOW AT RIVERSIDE NARROWS

This chapter deals with determinations of 1) the components of flow at Riverside Narrows, which include Storm Flow and Base Flow and 2) the Adjusted Base Flow at Riverside Narrows credited to SBVMWD.

Flow at Riverside Narrows

The flow of the River at Riverside Narrows amounted to 45,049 acre-feet, measured at the USGS gaging station near the MWD Crossing. Separated into its components, Base Flow was 42,641 acre-feet and Storm Flow was 4,602 acre-feet. Included in Base Flow is 2,194 acre-feet of treated wastewater from Rubidoux Community Services District that now bypasses the USGS gaging station. The Storm and Base Flow components of the flow of the River at Riverside Narrows for each month in the Water Year 2011-12 are listed in Table 8 and shown graphically on Plate 7. The components of flow of the River at Riverside Narrows during the period 1934-35 through 2011-12 are presented on Plate 8.

Nontributary Flow

Nontributary Flow includes water that originated outside the watershed, as well as other water that the Watermaster has determined should be excluded from Base Flow. During Water Year 2011-12 no nontributary flow was delivered to the River upstream of Riverside Narrows and Prado Dam.

High Groundwater Mitigation Project

No High Groundwater Mitigation Project water was discharged to the River during Water Year 2011-12.

WMWD-OCWD Transfer Program

In 2001, OCWD and WMWD entered into an agreement that provides for delivery of groundwater pumped primarily from the Colton and Riverside Basins to OCWD via the Riverside Canal and the River. During Water Year 2011-12, no WMWD-OCWD Transfer Program water was delivered to the River.

TABLE 8

COMPONENTS OF FLOW AT RIVERSIDE NARROWS
WATER YEAR 2011-12
(acre-feet)

Month	USGS Measured Flow	Storm Flow	SBVMWD HGMP Water[1]	WMWD Transfer Program[2]	Rubidoux Waste-water	Base Flow[3]
2011						
October	3,826	486	0	0	189	3,529
November	4,929	1,059	0	0	183	4,053
December	4,215	191	0	0	185	4,209
2012						
January	4,429	274	0	0	186	4,341
February	4,155	191	0	0	173	4,137
March	5,824	1,414	0	0	185	4,595
April	4,296	805	0	0	180	3,671
May	2,773	10	0	0	183	2,946
June	2,444	0	0	0	177	2,621
July	2,265	12	0	0	177	2,430
August	2,467	89	0	0	192	2,570
September	3,426	71	0	0	184	3,539
Total	45,049	4,602	0	0	2,194	42,641

(1) HGMP water pumped from the Bunker Hill groundwater basin and discharged into the Santa Ana River less 1% for evapotranspiration above Riverside Narrows.

(2) WMWD Transfer Program water pumped from Colton and Riverside Basins and discharged to the Santa Ana River above the Riverside Narrows.

(3) Base Flow equals USGS measured flow minus storm flow, HGMP, and WMWD water plus Rubidoux Wastewater.

Base Flow

Based on the hydrograph shown on Plate 7 a separation was made between Storm Flow and the sum of Base Flow and Nontributary Flow utilizing in general the procedures reflected in the Work Papers of the engineers (as referenced in Paragraph 2 of the Engineering Appendix of the Judgment).

In April 1980, Rubidoux Community Services District made the first delivery of treated wastewater to the regional treatment plant at Riverside. Prior to that time, Rubidoux had discharged to the River upstream of the Riverside Narrows gaging station. Treated wastewater from Rubidoux during Water Year 2011-12, in the amount of 2,194 acre-feet, has been added to the Base Flow as measured at the gaging station. A summary of Rubidoux discharges is contained in Appendix I.

Water Quality Adjustments

The determination of water quality at the Riverside Narrows Gaging Station was made using periodic grab samples taken and analyzed for TDS by the USGS and the City of Riverside. Water quality data based on samples taken during storm flow periods were not used in the calculations. A summary of TDS and EC data of the River at Riverside Narrows is contained in Appendix J.

Adjustment for High Groundwater Mitigation Project Discharge

During Water Year 2011-12, there was no discharge of High Groundwater Mitigation Project water. Therefore, no water quality adjustment was required.

Adjustment for WMWD-OCWD Transfer Program Flows

During Water Year 2011-12, no WMWD-OCWD Transfer Program water was delivered to the River. Therefore, no water quality adjustment was required.

Adjustment for Treated Wastewater Discharges from the Rubidoux Community Services District

The flow-weighted quality of treated wastewater from Rubidoux was 799 mg/L. A monthly summary of discharges and quality is contained in Appendix I.

The Base Flow quality adjustments resulting from exclusion of the Nontributary Flow and inclusion of the Rubidoux treated wastewater are shown in the following table, and resulted in a Base Flow TDS of 664 mg/L.

Flow Component	Annual Flow (acre-feet)	Average TDS (mg/L)	Annual Flow x Average TDS
1. Base Flow plus Nontributary Flow	40,447	657	26,573,679
2. Less Nontributary Flow HGMP Pumped Water	0	---	---
3. Less WMWD Transfer Flow	0	---	---
4. Plus Rubidoux Treated Wastewater	2,194	799	1,753,006
5. Base Flow (line 1 less lines 2 and 3 plus line 4)	42,641		28,326,685
Average TDS of Base Flow	28,326,685 ÷ 42,641 = 664 mg/L		

Adjusted Base Flow at Riverside Narrows

The Judgment provides that the amount of Base Flow at Riverside Narrows credited during any year shall be subject to adjustment based on weighted average annual TDS in the Base Flow as follows:

If the Weighted Average TDS in Base Flow at Riverside Narrows is:	Then the Adjusted Base Flow shall be determined by the formula:
Greater than 700 mg/L	$Q - \frac{11}{15,250}Q(TDS-700)$
600 mg/L to 700 mg/L	Q
Less than 600 mg/L	$Q + \frac{11}{15,250}Q(600-TDS)$

Where: Q = Base Flow actually received.

From the previous subsection, the weighted average annual TDS in the Base Flow at Riverside Narrows for Water Year 2011-12 was 664 mg/L. Therefore, no adjustment is necessary, and the Adjusted Base Flow for Water Year 2011-12 is 42,641 acre-feet.

Entitlement and Credit or Debit

Paragraph 5(b) of the Judgment states that "SBVMWD shall be responsible for an average annual Adjusted Base Flow of 15,250 acre-feet at Riverside Narrows. SBVMWD each year shall be responsible for not less than 13,420 acre-feet of Base Flow plus one-third of any cumulative debit, provided, however, that for any year commencing on or after October 1, 1986, when there is no cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 10,000 acre-feet, said minimum shall be 12,420 acre-feet."

The findings of the Watermaster concerning flow at Riverside Narrows for Water Year 2011-12 required under the Judgment are as follows:

1.	Base Flow at Riverside Narrows	42,641 acre-feet
2.	Annual Weighted TDS of Base Flow	664 mg/L
3.	Annual Adjusted Base Flow	42,641 acre-feet
4.	Cumulative Adjusted Base Flow	1,889,524 acre-feet
5.	Cumulative Entitlement of IEUA and WMWD	640,500 acre-feet
6.	Cumulative Credit	1,249,024 acre-feet
7.	One-Third of Cumulative Debit	0 acre-feet
8.	Minimum Required Base Flow in 2012-13	12,420 acre-feet

CHAPTER IV

HISTORY AND SUMMARY OF THE JUDGMENT in the case of Orange County Water District v. City of Chino, et al. (Case No. 117628-County of Orange)

History of Litigation

The complaint in the case was filed by Orange County Water District on October 18, 1963, seeking an adjudication of water rights against substantially all water users in the area tributary to Prado Dam within the Santa Ana River Watershed, but excluding the area tributary to Lake Elsinore. Thirteen cross-complaints were filed in 1968, extending the adjudication to include substantially all water users in the area downstream from Prado Dam. With some 4,000 parties involved in the case (2,500 from the Upper Area and 1,500 from the Lower Area), it became obvious that every effort should be made to arrive at a settlement and physical solution in order to avoid enormous and unwieldy litigation.

Efforts to arrive at a settlement and physical solution were pursued by public officials, individuals, attorneys, and engineers. Attorneys for the parties organized in order to facilitate settlement discussions and, among other things, provided guidance for the formation and activities of an engineering committee to provide information on the physical facts.

An initial meeting of the engineers representing the parties was held on January 10, 1964. Agreement was reached that it would be beneficial to undertake jointly the compilation of basic data. Liaison was established with the Department of Water Resources, State of California, to expedite the acquisition of data. Engineers representing the parties were divided into subcommittees which were given the responsibility of investigating such things as the boundary of the Santa Ana River Watershed and its subareas, standardization of the terminology, the location and description of wells and diversion facilities, waste disposal and transfer of water between subareas.

In response to a request from the attorneys' committee at a meeting held April 17, 1964, on April 30, 1964, the joint engineering committee prepared a list of preliminary engineering studies directed toward settlement of the Santa Ana River water rights litigation. Special assignments were made to individual engineers on selected items requested by the attorneys' committee.

The attorneys and engineers for the defendants then commenced a series of meetings separate from the representatives of the plaintiffs in order to consolidate their positions and to determine a course of action. On October 7, 1964, engineers for the defendants presented the results of the studies made by the joint engineering committee. The defendants' attorneys requested that additional information be provided on the methods of measuring flow at Prado Dam, the historical supply and disposal of water passing Prado Dam, segregation of flow into components, and determination of the amount of supply which was usable by the downstream area. On December 11, 1964, the supplemental information was presented to the defendants' attorneys.

During 1965, engineers and attorneys for the defendants held numerous conferences and conducted additional studies in an attempt to determine their respective positions in the case. Early in 1966, the plaintiff and defendants exchanged drafts of possible principles for settlement. Commencing March 22 and ending April 13, 1966, four meetings were held by the engineers to discuss the draft of principles for settlement.

On February 25, 1968, the defendants submitted a request to the Court that the Order of Reference be issued requesting the California Department of Water Resources to determine the physical facts. On May 9, 1968, the plaintiffs' attorney submitted motions opposing the Order of Reference and requested that a preliminary injunction be issued. In the meantime, every effort was being made to come to an agreement on the Judgment. Commencing on February 28, 1968 and extending until May 14, 1968, six meetings were held to determine the scope of physical facts on which agreement could be reached so that if an Order of Reference were to be approved by the Court, the work under the proposed reference would not repeat the extensive basic data collection and compilation which had already been completed and on which engineers for both plaintiffs and defendants had reached substantial agreement. Such basic data were compiled and published in two volumes under date of May 14, 1968 entitled "Appendix A, Basic Data."

On May 21, 1968, an outline of a proposal for settlement of the case was prepared and a committee of attorneys and engineers for the parties commenced preparation of the settlement documents. On June 16, 1968, the Court held a hearing on the motions it had received requesting a preliminary injunction and an Order of Reference. The parties requested that the Court delay the preliminary hearings on these motions in view of the efforts toward settlement that were underway. The plaintiff, however, was concerned regarding the necessity of bringing the case to trial within the statutory limitation and, accordingly, on July 15, 1968, submitted a motion to set the complaint in the case for trial. On October 15, 1968, the trial was commenced and was adjourned after one-half day of testimony on behalf of the plaintiff. Thereafter, the parties filed with the Court the necessary Settlement Documents including a Stipulation for Judgment. The Court entered the Judgment on April 17, 1969, along with Stipulations and Orders dismissing all defendants and cross-defendants except for the four major public water districts overlying, in aggregate, substantially all of the major areas of water use in the watershed. The districts, the locations of which are shown on Plate 1, "Santa Ana River Watershed", are as follows:

(1) Orange County Water District (OCWD), representing all lower basin entities located within Orange County downstream of Prado Dam.

(2) Western Municipal Water District (WMWD), representing middle basin entities located within Riverside County on both sides of the Santa Ana River primarily upstream from Prado Dam.

(3) Inland Empire Utilities Agency (IEUA), formerly Chino Basin Municipal Water District (CBMWD), located in the San Bernardino County Chino Basin area, representing middle basin entities within its boundaries and located primarily upstream from Prado Dam.

(4) San Bernardino Valley Municipal Water District (SBVMWD), representing all entities within its boundaries, and embraced within the upper portion of the Riverside Basin area, the Colton Basin area (being an upstream portion of the middle basin) and the San Bernardino Basin area, being essentially the upper basin.

Summary of Judgment

Declaration of Rights. The Judgment sets forth a declaration of rights. Briefly stated, the Judgment provides that the water users in the Lower Area have rights, as against the water users in the Upper Area, to receive certain average and minimum annual amounts of non-storm flow ("Base Flow") at Prado Dam, together with the right to all storm flow reaching Prado Dam. The amount of the Lower Area entitlement is variable based on the quality of the water received by the Lower Area. Water users in the Upper Area have the right as against the water users in the Lower Area to divert, pump, extract, conserve, store and use all surface and groundwater supplies originating within the Upper Area, so long as the Lower Area receives the water to which it is entitled under the Judgment and there is compliance with all of its provisions.

Physical Solution. The Judgment also sets forth a comprehensive "physical solution" for satisfying the rights of the Lower Area. To understand the physical solution it is necessary to understand the following terms that are used in the Judgment:

Storm Flow – That portion of the total flow which originates from precipitation and runoff and which passes a point of measurement (either Riverside Narrows or Prado Dam) without having first percolated to groundwater storage in the zone of saturation, calculated in accordance with procedures referred to in the Judgment.

Base Flow - That portion of the total surface flow passing a point of measurement (either Riverside Narrows or Prado Dam) which remains after deduction of storm flow, nontributary flows, exchange water purchased by OCWD, and certain other flows as determined by the Watermaster.

Adjusted Base Flow - Actual Base Flow in each year adjusted for water quality pursuant to formulas specified in the Judgment. The adjustment of Base Flow for water quality is intended to provide an incentive to the Upper Area to maintain a better quality of water in the River. When the TDS is lower than a specified value at one of the measuring points, the water quantity obligation is lower. When the TDS is higher than a specified value, the water quantity obligation is higher. This is the first comprehensive adjudication in Southern California in which the quality of water is taken into consideration in the quantification of water rights.

Credits and Debits - Under the accounting procedures provided for in the Judgment, credits accrue to SBVMWD in any year when the Adjusted Base Flow exceeds 15,250 acre-feet at Riverside Narrows and jointly to IEUA and WMWD when the Adjusted Base Flow exceeds 42,000 acre-feet at Prado Dam. Debits accrue in any

year when the Adjusted Base Flows falls below those levels. Credits or debits accumulate year to year.

Obligation at Riverside Narrows. SBVMWD has an obligation to assure an average annual Adjusted Base Flow of 15,250 acre-feet at Riverside Narrows, subject to the following:

(1) A minimum Base Flow of 13,420 acre-feet plus one-third of any cumulative debit.

(2) After October 1, 1986, if no cumulative debit exists, the minimum Base Flow shall be 12,420 acre-feet.

(3) Prior to 1986, if the cumulative credits exceed 10,000 acre-feet, the minimum Base Flow shall be 12,420 acre-feet.

(4) All cumulative debits shall be removed by the discharge of a sufficient Base Flow at Riverside Narrows at least once in any ten consecutive years following October 1, 1976. Any cumulative credits shall remain on the books of account until used to offset any subsequent debits or until otherwise disposed of by SBVMWD.

(5) The Base Flow at Riverside Narrows shall be adjusted using weighted average annual TDS in such Base Flow in accordance with the formula set forth in the Judgment.

Obligation at Prado Dam. IEUA and WMWD have a joint obligation to assure an average annual Adjusted Base Flow of 42,000 acre-feet at Prado Dam, subject to the following:

(1) Minimum Base Flow at Prado shall not be less than 37,000 acre-feet plus one-third of any cumulative debit.

(2) After October 1, 1986, if no cumulative debit exists, the minimum Base Flow quantity shall be 34,000 acre-feet.

(3) Prior to 1986, if the cumulative credit exceeds 30,000 acre-feet, the minimum Base Flow shall be 34,000 acre-feet.

(4) Sufficient quantities of Base Flow shall be provided at Prado to discharge completely any cumulative debits at least once in any ten consecutive years following October 1, 1976. Any cumulative credits shall remain on the books of account until used to offset any debits, or until otherwise disposed of by IEUA and WMWD.

(5) The Base Flow at Prado during any year shall be adjusted using the weighted average annual TDS in the total flow at Prado (Base Flow plus Storm Flow) in accordance with the formula set forth in the Judgment.

Other Provisions. SBVMWD, IEUA and WMWD are enjoined from exporting water from the Lower Area to the Upper Area, directly or indirectly. OCWD is enjoined from exporting or "directly or indirectly causing water to flow" from the Upper Area to the Lower Area. Any inter-basin acquisition of water rights will have no effect on Lower Area entitlements. OCWD is prohibited from enforcing two prior judgments so long as the Upper Area Districts are in compliance with the physical solution. The composition of the Watermaster and the nomination and appointment process for members are described along with a definition of the Watermaster's duties and a formula for sharing its costs. The court retains continuing jurisdiction over the case. There are provisions for appointment of successor parties and rules for dealing with future actions that might conflict with the physical solution.

History of the Watermaster Committee Membership

The Santa Ana River Watermaster is a committee composed of five members nominated by the parties and appointed by the court. SBVMWD, IEUA (formerly CBMWD), and WMWD nominate one member each and OCWD nominates two. The Watermaster members annually elect a Chairman, Secretary, and Treasurer.

The original five members were appointed at the time of entry of the Judgment. They prepared a *pro forma* annual report for the 1969-70 Water Year. The first annual report required by the Judgment was prepared for the 1970-71 Water Year and reports have been prepared annually since then.

The membership of the Watermaster has changed over the years. The historical listing of members and officers shown in Table 9 reflects the signatories to each annual report.

TABLE 9
HISTORY OF THE WATERMASTER COMMITTEE MEMBERSHIP

Water Year	SBVMWD	IEUA	WMWD	OCWD	OCWD
1969-70	Clinton O. Henning	William J. Carroll	Albert A. Webb, Secretary	Max Bookman, Chairman	John M. Toups
1970-71 through 1973-74	James C. Hanson	William J. Carroll	Albert A. Webb, Secretary	Max Bookman, Chairman	John M. Toups
1974-75 through 1977-78	James C. Hanson	William J. Carroll	Donald L. Harriger	Max Bookman, Chairman	John M. Toups, Secretary
1978-79 through 1981-82	James C. Hanson	William J. Carroll	Donald L. Harriger	Max Bookman, Chairman	William R. Mills, Jr., Secretary
1982-83 through 1983-84	James C. Hanson	William J. Carroll	Donald L. Harriger	Harvey O. Banks, Chairman	William R. Mills, Jr., Secretary
1984-85 through 1988-89	Robert L. Reiter	William J. Carroll	Donald L. Harriger	Harvey O. Banks, Chairman	William R. Mills, Jr., Secretary
1989-90 through 1994-95	Robert L. Reiter, Secretary/Treasurer	William J. Carroll	Donald L. Harriger	Harvey O. Banks, Chairman	William R. Mills, Jr.
1995-96	Robert L. Reiter, Secretary/Treasurer	William J. Carroll, Chairman	Donald L. Harriger	Bill B. Dendy	William R. Mills, Jr.
1996-97	Robert L. Reiter, Secretary/Treasurer	William J. Carroll	Donald L. Harriger	Bill B. Dendy	William R. Mills, Jr., Chairman
1997-98	Robert L. Reiter, Secretary/Treasurer	Robb D. Quincey	Donald L. Harriger	Bill B. Dendy	William R. Mills, Jr., Chairman
1998-99 through 2000-01	Robert L. Reiter, Secretary/Treasurer	Richard W. Atwater	Donald L. Harriger	Bill B. Dendy	William R. Mills, Jr., Chairman
2001-02 through 2002-03	Robert L. Reiter, Secretary/Treasurer	Richard W. Atwater	Donald L. Harriger, Chairman	Bill B. Dendy	Virginia L. Grebbien
2003-04 through 2005-06	Robert L. Reiter, Chairman/Treasurer	Richard W. Atwater	John V. Rossi	Bill B. Dendy, Secretary	Virginia L. Grebbien
2006-07 through 2007-08	Samuel H. Fuller, Secretary/Treasurer	Richard W. Atwater	John V. Rossi	Bill B. Dendy, Chairman	Craig D. Miller
2008-09	Samuel H. Fuller, Secretary/Treasurer	Richard W. Atwater	John V. Rossi	Robert C. Wagner	Craig D. Miller, Chairman
2009-10	Samuel H. Fuller, Secretary/Treasurer	Thomas A. Love	John V. Rossi, Chairman	Michael R. Markus	Roy L. Herndon
2010-11	Samuel H. Fuller, Secretary/Treasurer	Thomas A. Love, Chairman	John V. Rossi	Michael R. Markus	Roy L. Herndon
2011-12	Samuel H. Fuller, Secretary/Treasurer	Thomas A. Love	John V. Rossi	Michael R. Markus	Roy L. Herndon, Chairman

Santa Ana River Watershed

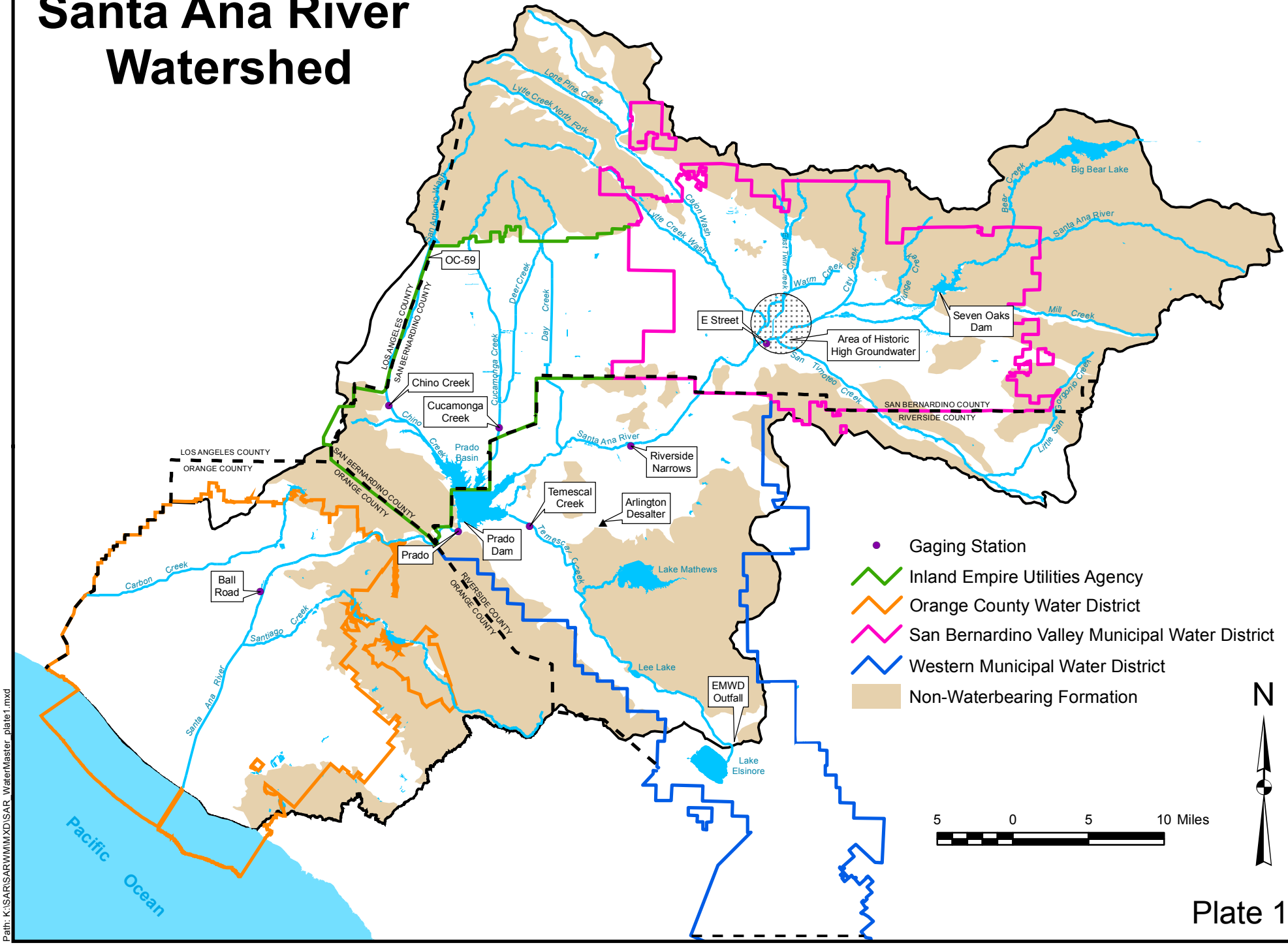


Plate 1

Path: K:\SAR\SARWMMXD\SAR_WaterMaster_plate1.mxd

Santa Ana River Watershed Wastewater Treatment Plants and Salt Export Pipelines

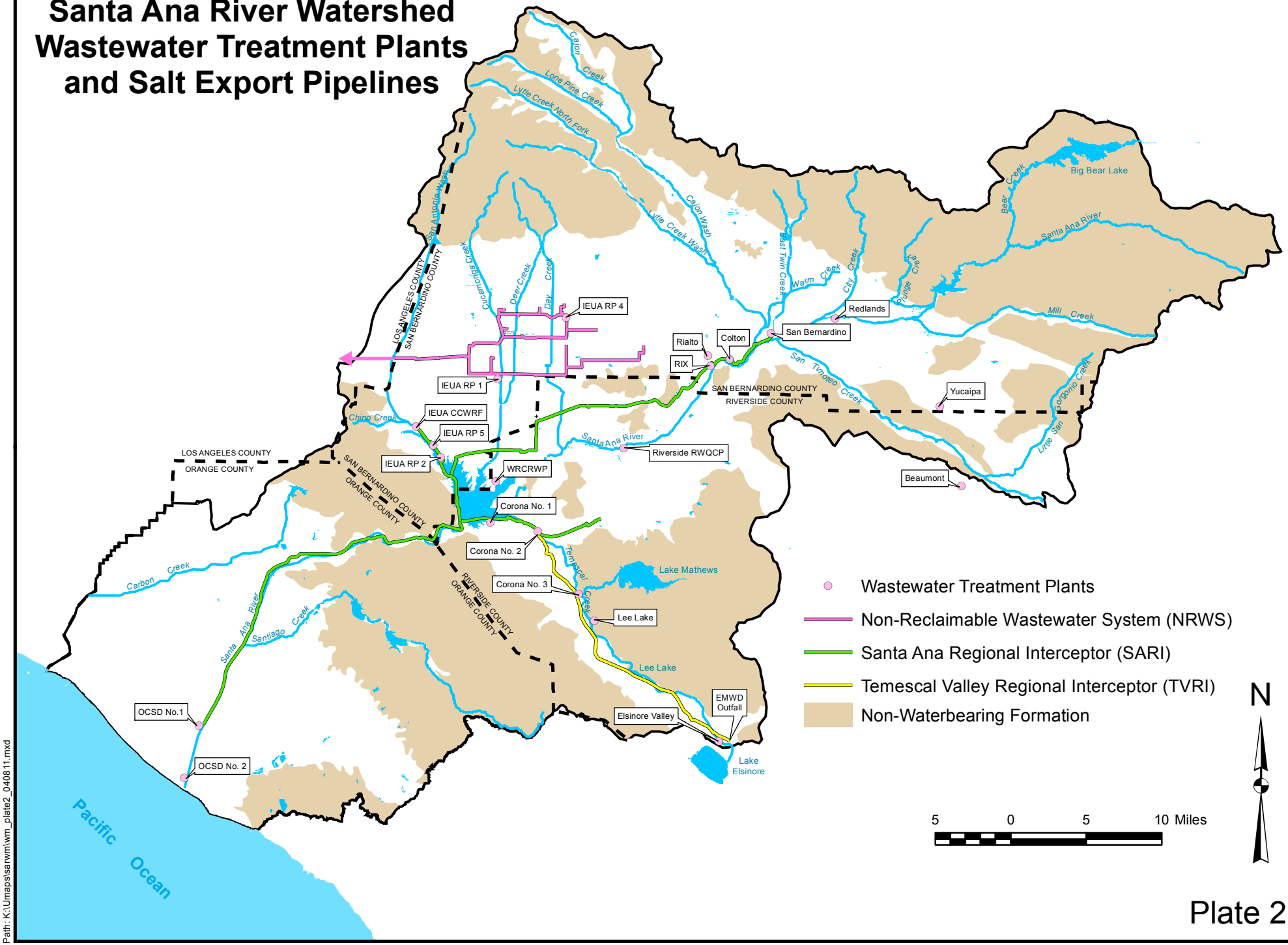


Plate 2

Path: K:\Umaps\sarwm\wm_plate2_040811.mxd

PRECIPITATION AT SAN BERNARDINO STARTING WITH 1934-35

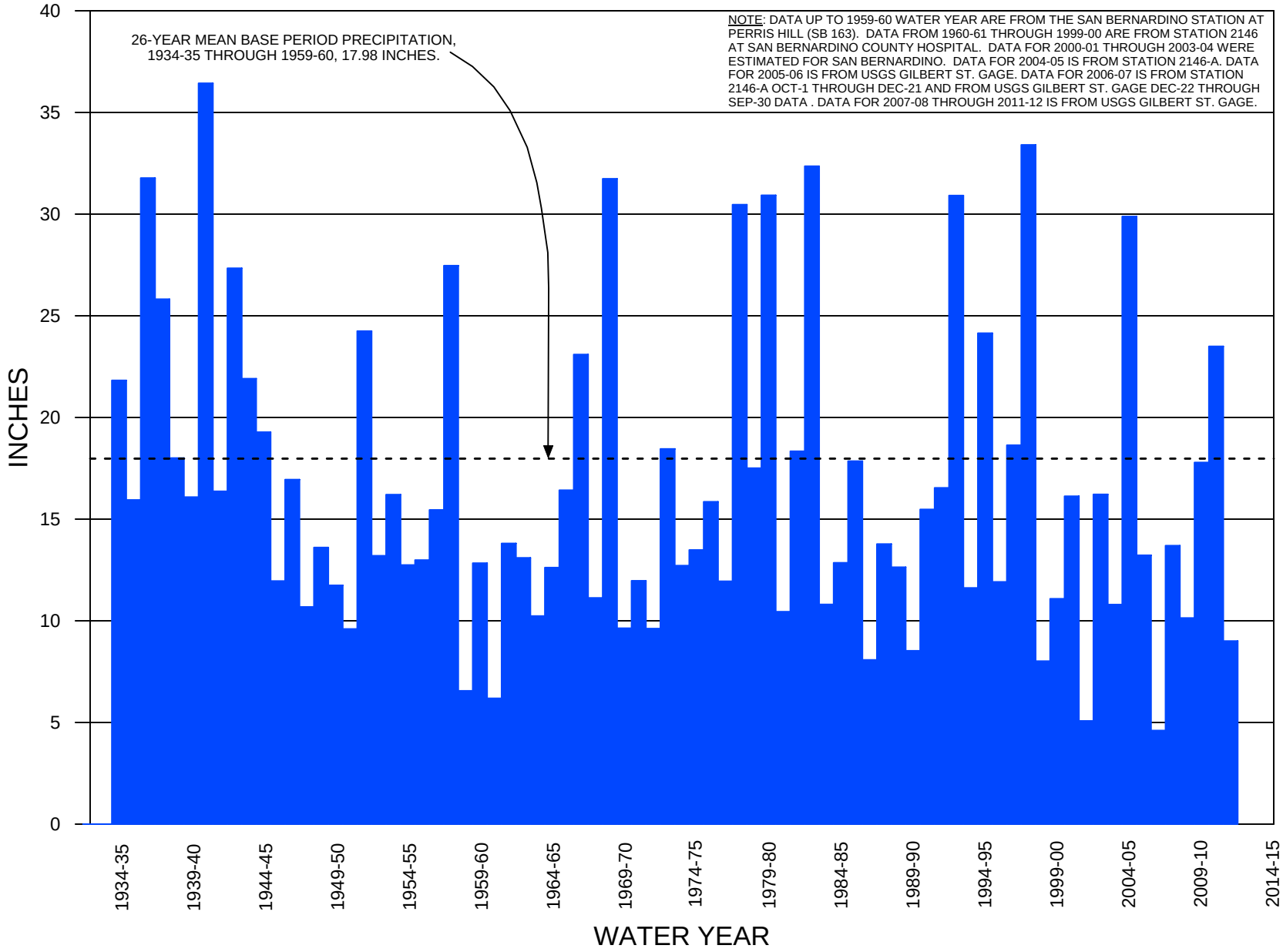
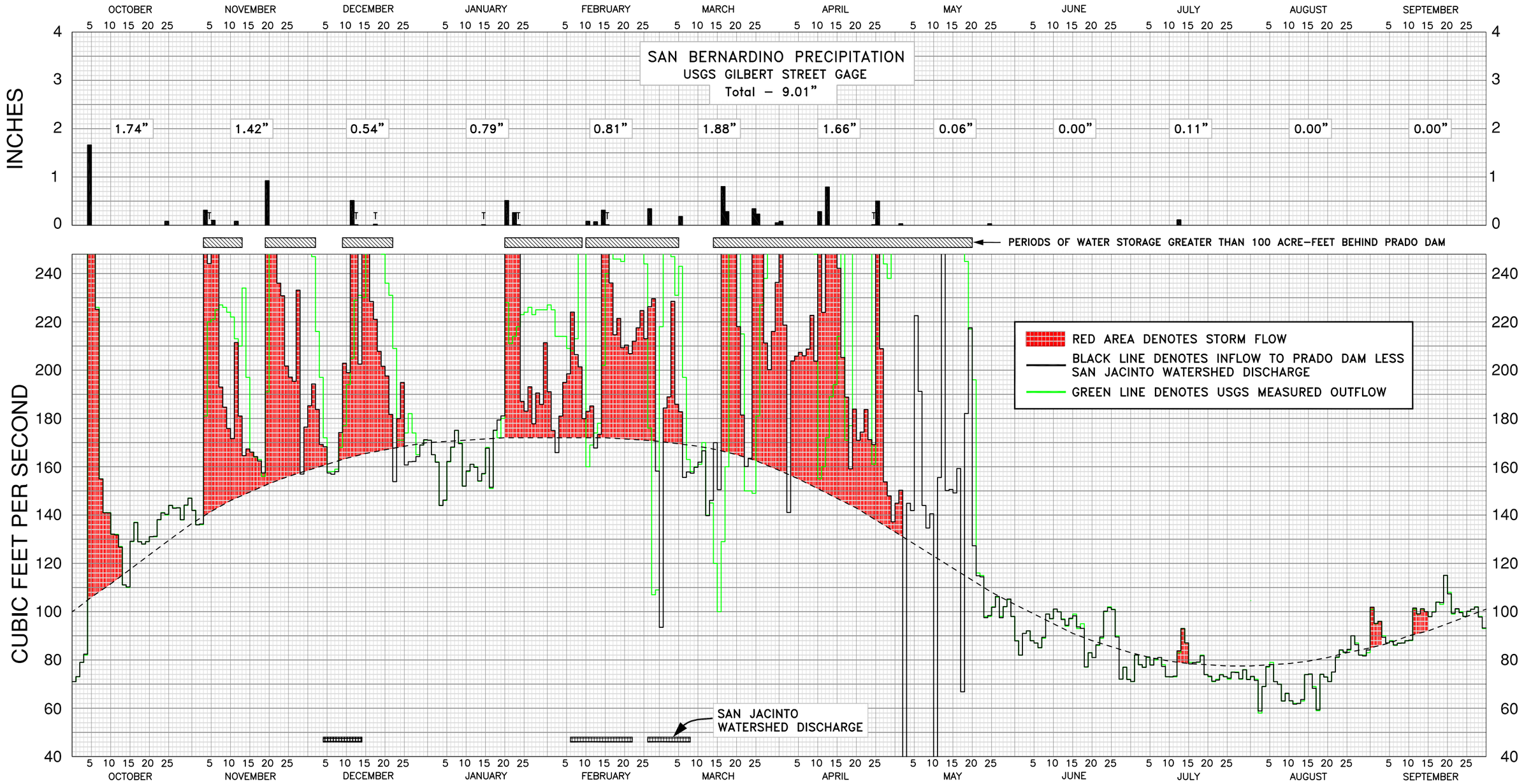


PLATE 3



DISCHARGE OF SANTA ANA RIVER AT PRADO DAM & SAN BERNARDINO PRECIPITATION
WATER YEAR 2011-12

Plate 4

DISCHARGE OF SANTA ANA RIVER AT PRADO STARTING WITH 1934-35

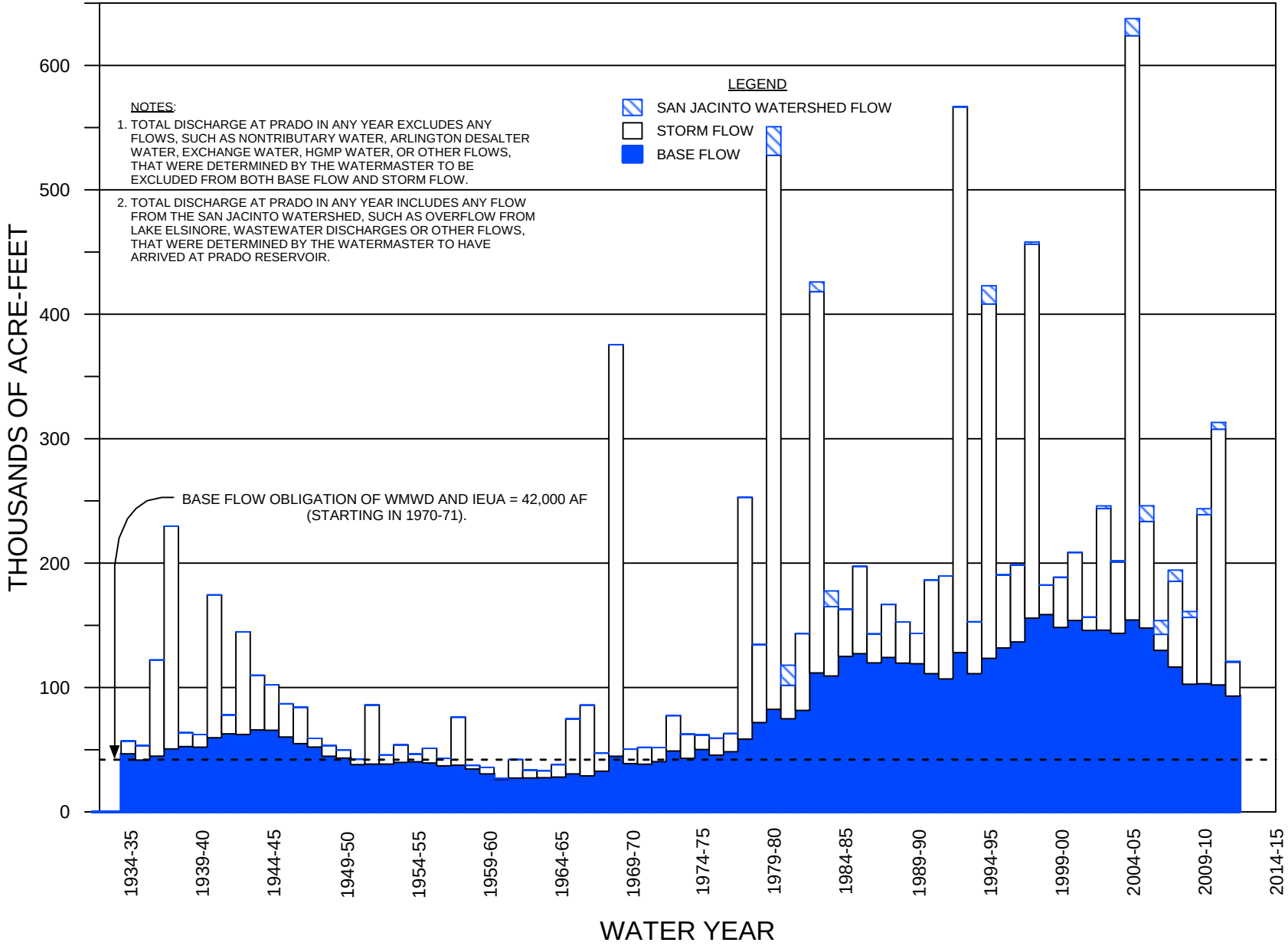
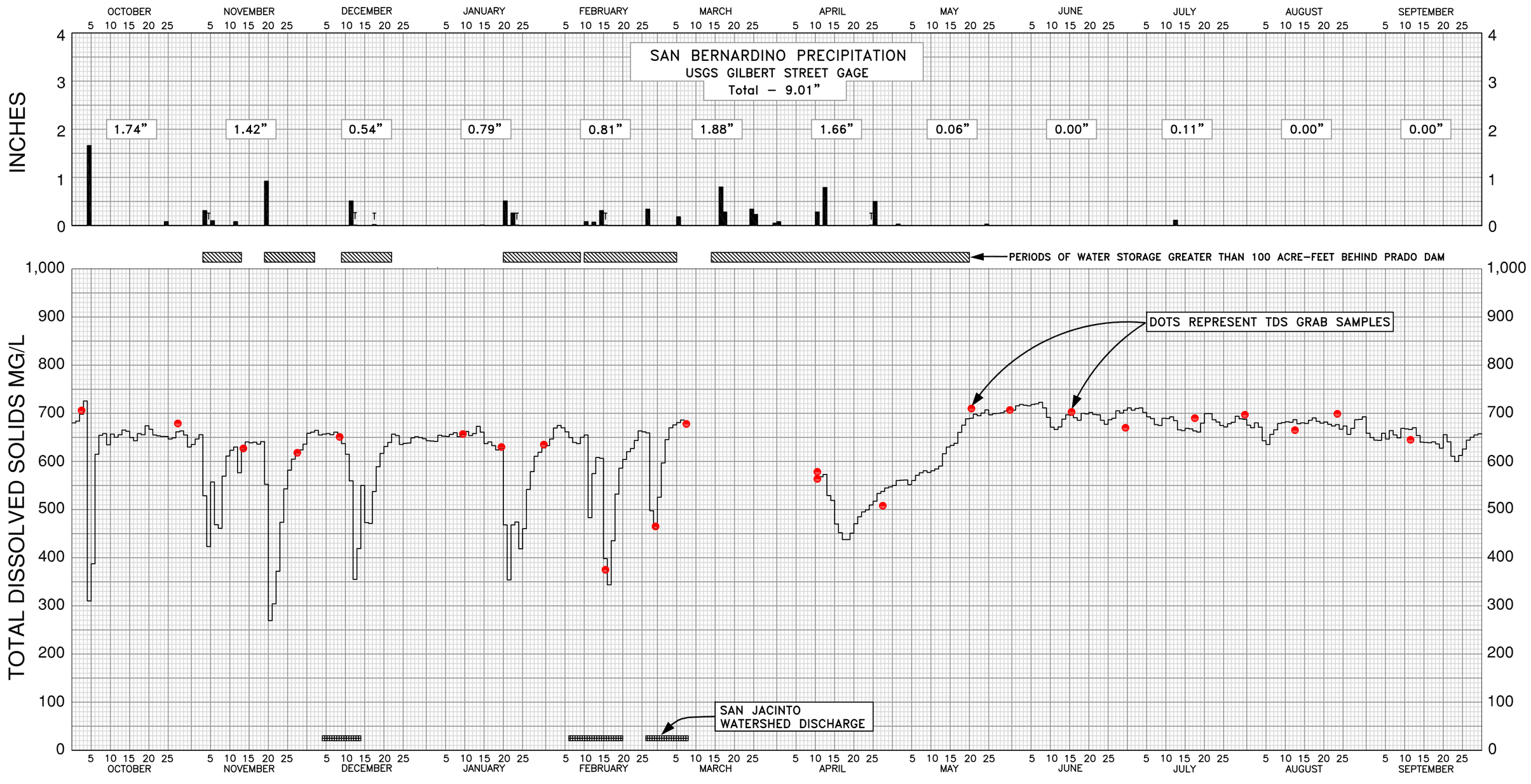
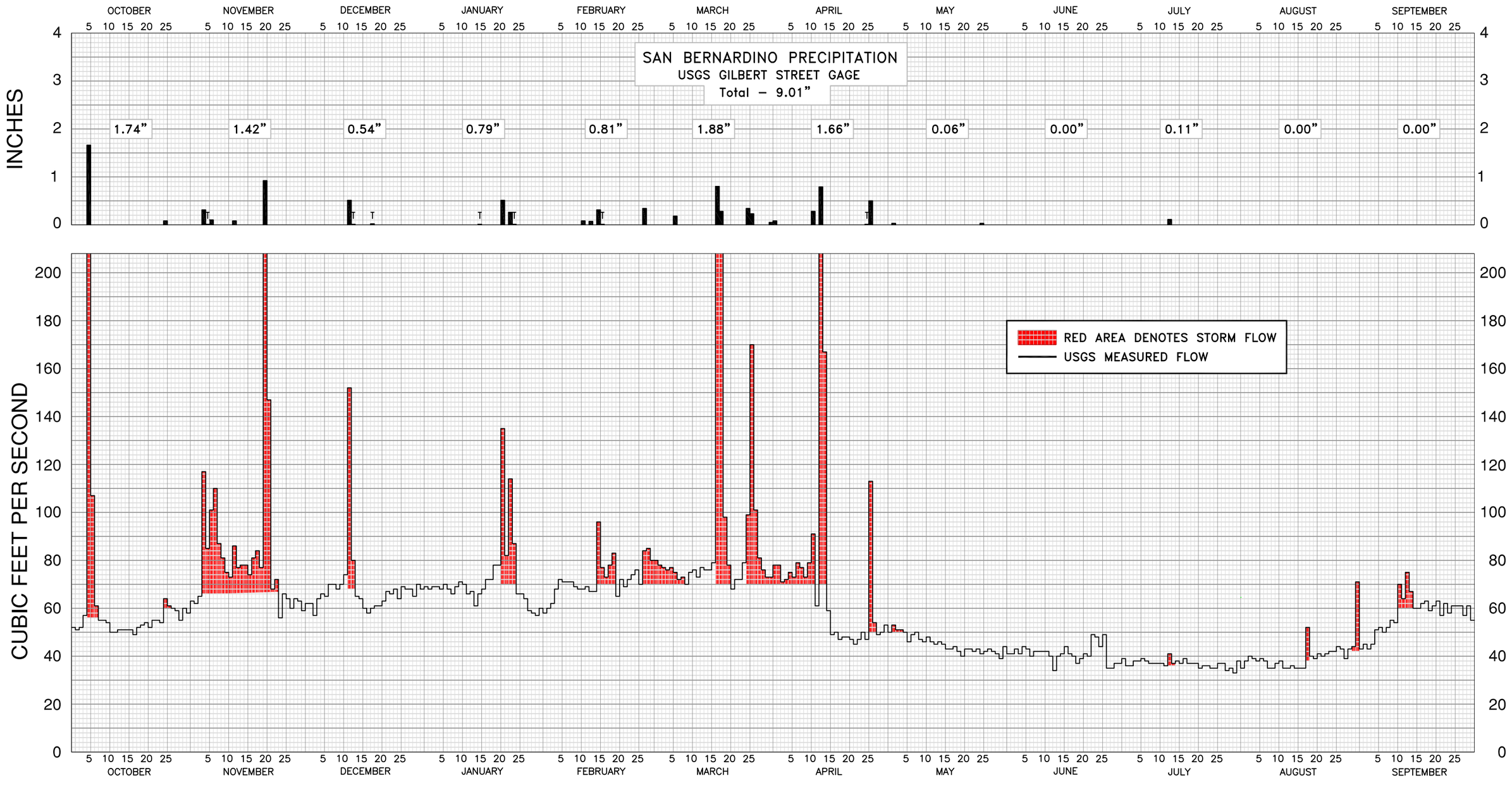


PLATE 5



DISSOLVED SOLIDS IN SANTA ANA RIVER BELOW PRADO DAM
WATER YEAR 2011-12

Plate 6



DISCHARGE OF SANTA ANA RIVER AT RIVERSIDE NARROWS & SAN BERNARDINO PRECIPITATION
WATER YEAR 2011-12

Plate 7

DISCHARGE OF SANTA ANA RIVER AT RIVERSIDE NARROWS STARTING WITH 1934-35

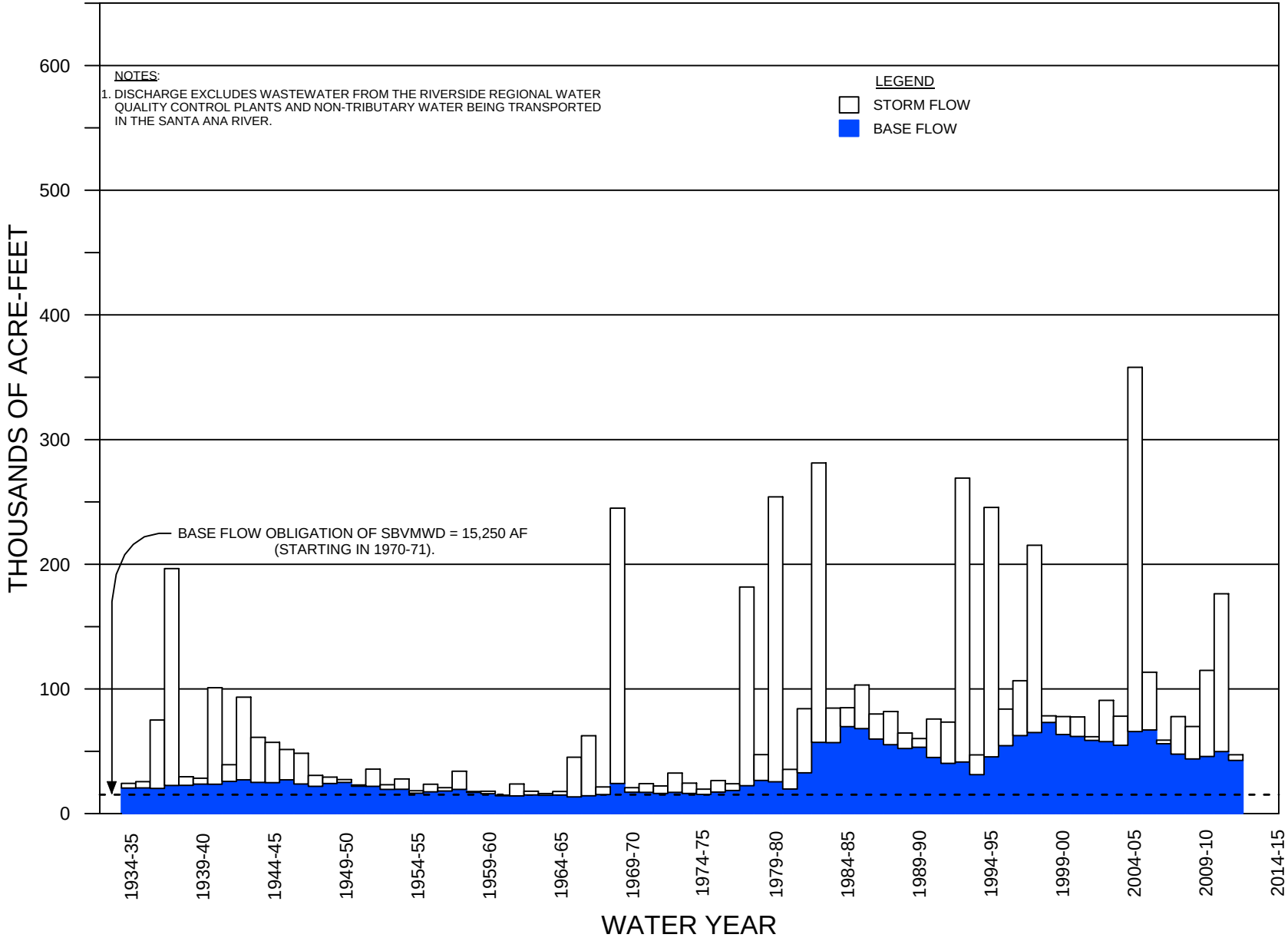


PLATE 8

SANTA ANA RIVER WATERMASTER

FOR

ORANGE COUNTY WATER DISTRICT

v. CITY OF CHINO et al.

CASE NO. 117628 - COUNTY OF ORANGE

BASIC DATA

FOR THE

FORTY-SECOND ANNUAL REPORT

OF THE

SANTA ANA RIVER WATERMASTER

FOR WATER YEAR

OCTOBER 1, 2011 - SEPTEMBER 30, 2012

APRIL 30, 2013

APPENDIX A

USGS FLOW MEASUREMENTS AND WATER QUALITY RECORDS FOR THE SANTA ANA RIVER BELOW PRADO DAM AND AT MWD CROSSING; USGS FLOW MEASUREMENTS FOR THE SANTA ANA RIVER AT E STREET, AND OF TEMESCAL CREEK ABOVE MAIN STREET (AT CORONA), CUCAMONGA CREEK (NEAR MIRA LOMA) AND CHINO CREEK AT SCHAEFER AVENUE (NEAR CHINO)

WATER YEAR 2011-12

11074000 Santa Ana River below Prado Dam, CA

Santa Ana River Basin

LOCATION.--Lat 33°53′00″, long 117°38′40″ referenced to North American Datum of 1927, Riverside County, CA, Hydrologic Unit 18070203, in La Sierra Grant, on left bank of outlet channel, 2,500 ft downstream from axis of Prado Dam, and 4.5 mi west of Corona.

DRAINAGE AREA.--2,258 mi² of which 768 mi² probably is noncontributing, above Lake Elsinore.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 1930 to November 1939 (irrigation seasons only), March 1940 to current year. Published as "at Santa Fe Railroad Bridge, near Prado" May 1930 to November 1931, as "at Atchison, Topeka, and Santa Fe Railroad Bridge, near Prado" May 1932 to November 1939, and as "below Prado Dam, near Prado" March 1940 to September 1950.

GAGE.--Water-stage recorder and concrete control August 1944 through Apr. 25, 2005, and since Nov. 14, 2005. Datum of gage is approximately 449 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to Mar. 18, 1940, at about same site at various datums. From Apr. 26, 2005, to Nov. 13, 2005, gage was located on right bank of a temporary bypass (diversion) channel, in use during the construction of an improved outlet channel from Prado Dam. Temporary gage was at a different datum. From Nov. 14, 2005 to Oct. 7, 2008, gage was located on right bank of reconstructed outlet channel. Since Oct. 7, 2008, gage is located on left bank of channel.

REMARKS.--Records fair. Flow regulated since 1940 by Prado Flood-Control Reservoir, capacity, 196,200 acre-ft. Natural streamflow affected by extensive ground-water withdrawals, diversion for irrigation, discharges of treated effluent, and return flow from irrigated areas. Releases of imported water are made to the basin by the California Water Project at times in some years, via San Antonio Creek from Rialto Pipeline below San Antonio Dam. During the current year, the California Water Project released 12,190 acre-ft to the basin. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,200 ft³/s, Jan. 15, 2005, gage height, 8.73 ft, site and datum then in use, from rating curve extended above 11,600 ft³/s; minimum daily, 2.4 ft³/s, July 29 to Aug. 3, Sept. 20, 1978 (result of gate closure).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 2, 1938, reached a discharge of 100,000 ft³/s, on basis of slope-area measurement of peak flow at site 2.5 mi downstream.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 11074000, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/11074000.2012.pdf

11074000 Santa Ana River below Prado Dam, CA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	71	142	258	171	227	218	318	280	88	71	73	101
2	73	136	247	165	225	279	321	280	82	82	72	95
3	79	136	216	162	214	262	323	280	91	78	58	96
4	82	181	197	144	214	247	324	276	92	77	69	90
5	495	220	172	146	214	231	326	273	88	81	77	87
6	1,050	221	158	162	209	243	327	273	87	78	79	88
7	226	225	158	168	208	197	327	273	85	80	71	86
8	155	227	159	175	213	163	329	271	89	81	70	87
9	141	226	168	170	249	158	332	269	99	78	63	87
10	141	224	177	152	264	160	248	267	97	73	66	88
11	132	222	194	158	160	161	155	262	101	73	63	88
12	132	213	205	161	169	170	160	253	100	73	62	101
13	127	210	229	160	174	140	172	250	97	83	62	99
14	111	234	231	154	178	145	189	255	94	93	63	101
15	110	197	230	157	202	120	194	265	97	87	74	100
16	129	166	266	168	240	100	214	268	99	79	74	98
17	137	164	268	151	249	129	278	268	93	79	69	100
18	129	163	261	175	246	160	171	264	95	79	59	104
19	128	156	255	172	246	273	177	245	77	82	74	103
20	129	191	248	180	245	340	273	217	83	74	73	115
21	131	337	236	228	259	329	269	196	81	73	71	108
22	131	277	231	211	276	215	259	116	86	71	75	99
23	138	279	209	214	289	150	255	115	89	72	81	101
24	141	275	171	218	290	150	253	98	100	74	84	100
25	140	268	171	223	273	149	161	98	102	73	83	98
26	144	259	174	224	244	181	214	102	101	72	84	100
27	143	254	182	226	176	227	249	106	90	75	90	101
28	143	249	174	223	107	238	244	98	72	75	87	102
29	138	249	165	225	109	279	238	102	77	72	82	98
30	144	250	169	225	---	302	260	105	72	76	82	93
31	147	---	171	225	---	310	---	98	---	72	83	---
Total	5,317	6,551	6,350	5,693	6,369	6,426	7,560	6,523	2,704	2,386	2,273	2,914
Mean	172	218	205	184	220	207	252	210	90.1	77.0	73.3	97.1
Max	1,050	337	268	228	290	340	332	280	102	93	90	115
Min	71	136	158	144	107	100	155	98	72	71	58	86
Ac-ft	10,550	12,990	12,600	11,290	12,630	12,750	15,000	12,940	5,360	4,730	4,510	5,780

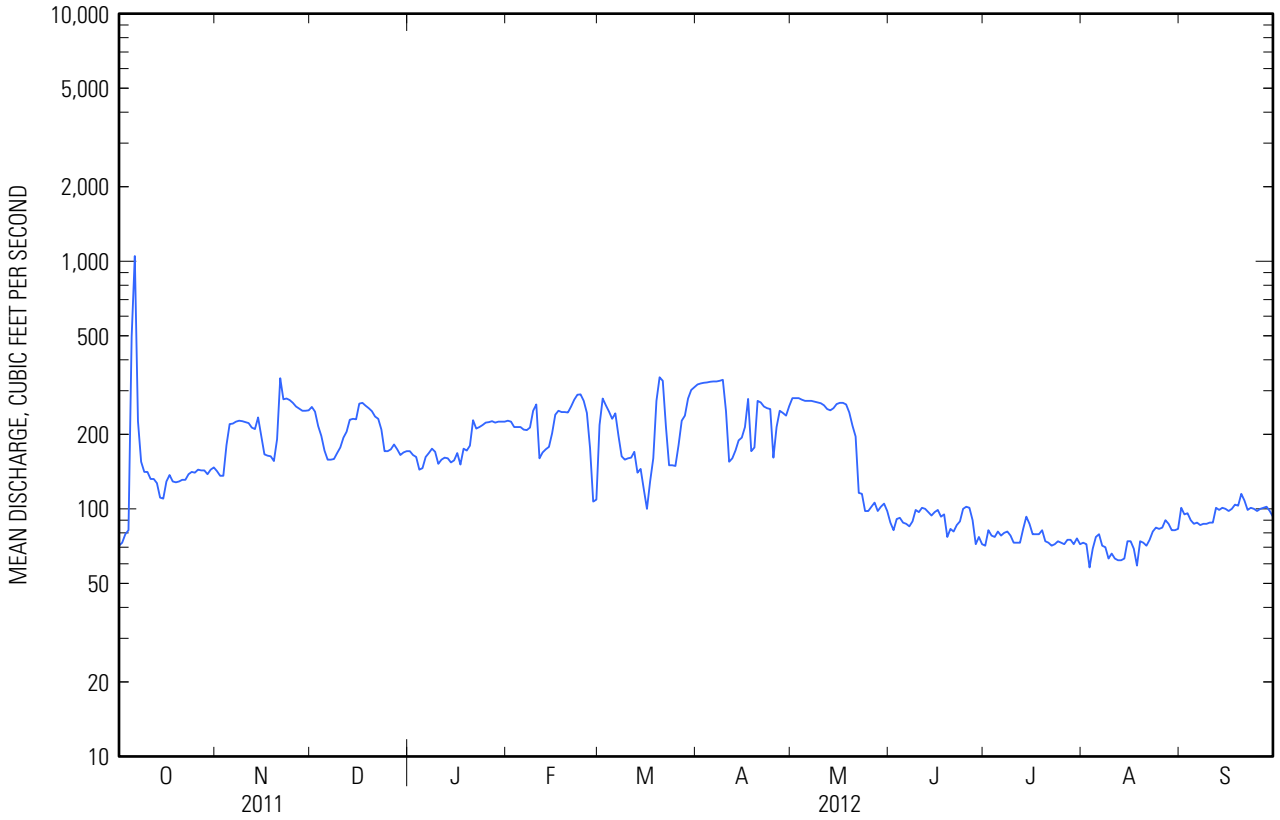
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	131	151	239	393	445	399	266	192	157	128	109	103
Max	910	322	1,300	3,543	2,733	2,556	1,101	915	736	446	402	372
(WY)	(2005)	(1997)	(2011)	(1993)	(1998)	(1980)	(1980)	(1998)	(1983)	(1998)	(2005)	(1997)
Min	22.4	33.5	39.5	49.2	49.8	54.3	43.3	35.2	29.0	17.7	14.8	16.2
(WY)	(1962)	(1963)	(1963)	(1963)	(1961)	(1961)	(1961)	(1961)	(1961)	(1960)	(1960)	(1960)

11074000 Santa Ana River below Prado Dam, CA—Continued

SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1941 - 2012	
Annual total	132,727		61,066			
Annual mean	364		167		225	
Highest annual mean					882	2005
Lowest annual mean					36.4	1961
Highest daily mean	4,810	Jan 1	1,050	Oct 6	11,400	Jan 14, 2005
Lowest daily mean	58	Sep 29	58	Aug 3	2.4	Jul 29, 1978
Annual seven-day minimum	71	Sep 28	64	Aug 8	3.0	Sep 24, 1973
Maximum peak flow			2,160	Oct 6	13,200	Jan 15, 2005
Maximum peak stage			5.90	Oct 6	8.73	Jan 15, 2005
Annual runoff (ac-ft)	263,300		121,100		162,900	
10 percent exceeds	443		270		387	
50 percent exceeds	226		158		140	
90 percent exceeds	128		75		41	



11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.
CHEMICAL DATA: Water years 1967 to current year.
BIOLOGICAL DATA: Water years 1975-81.
SEDIMENT DATA: Water years 1974-94, 1999 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1968 to current year.
WATER TEMPERATURE: October 1969 to current year.
CHLORIDE: October 1970 to September 1971.
SUSPENDED-SEDIMENT DISCHARGE: October 1973 to June 1982.

INSTRUMENTATION.--Water-quality monitor recording specific conductance and water temperature since October 1969.

REMARKS.--Specific conductance and water temperature records are affected by releases from Prado Dam. Interruptions in record at times due to malfunction of recording or sensing equipment. Sediment data and a portion of chemical data collected for the National Water-Quality Assessment (NAWQA) Program.
Specific conductance records rated good.
Water temperature records rated excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,830 microsiemens, Apr. 30, 1971; minimum recorded, 150 microsiemens, Jan. 5, 2008.
WATER TEMPERATURE: Maximum recorded, 36.0°C, Sept. 4, 1972, Sept. 8, 1984; minimum recorded, 2.5°C, Dec. 30, 1969.
SEDIMENT CONCENTRATION: Maximum daily mean, 2,870 mg/L, Mar. 5, 1978; minimum daily mean, 3 mg/L, Apr. 2, 1980, and several days during 1982.
SEDIMENT LOAD: Maximum daily, 18,900 tons, Mar. 5, 1978; minimum daily, 0.58 ton, Sept. 20, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,220 microsiemens, Oct. 4, June 3, June 8; minimum recorded, 218 microsiemens, Oct. 5.
WATER TEMPERATURE: Maximum recorded, 28.0°C, Aug. 12; minimum recorded, 9.7°C, Dec. 6.

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

[ft^3/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; --, no data]

Sample date-time	Temperature, air, °C (00020)	Discharge, instantaneous, ft^3/s (00061)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)	Temperature, water, °C (00010)	Dissolved solids dried at 180°C, water, filtered, mg/L (70300)
10-03-2011 1125	22.5	82	1,150	20.7	706
10-28-2011 1025	21.0	142	1,110	16.0	679
11-14-2011 1115	18.5	251	1,050	16.6	627
11-28-2011 1140	19.5	249	1,040	14.6	618
12-09-2011 1145	18.5	170	1,100	10.8	651
01-10-2012 1237	11.2	154	1,100	12.5	657
01-20-2012 1328	17.2	177	1,040	13.5	630
01-31-2012 1418	19.7	227	1,020	13.4	635
02-16-2012 1440	18.8	249	635	12.4	375
02-29-2012 1639	14.7	108	770	13.0	465
03-08-2012 1319	23.3	161	1,150	13.8	678
04-11-2012 1348	16.2	156	940	17.5	563
04-28-2012 1522	28.6	235	848	20.2	508
05-21-2012 1415	28.3	186	1,160	22.9	710
05-31-2012 1302	29.7	94	1,180	22.0	707
06-16-2012 1750	25.6	99	1,150	23.5	703
06-30-2012 1616	31.0	71	1,150	24.4	670
07-18-2012 1556	30.2	87	1,110	23.8	690
07-31-2012 1215	26.0	73	1,160	24.5	697
08-13-2012 1315	--	67	1,160	24.5	665
08-24-2012 1045	--	84	1,130	25.0	699
09-12-2012 1443	31.6	108	1,110	25.6	645

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 1 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Discharge, instantaneous, ft^3/s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)	Temperature, water, °C (00010)	Alkalinity, water, filtered, inflection-point, incremental titration method, field, mg/L as $CaCO_3$ (39086)
10-13-2011 1200	747	--	131	9.0	103	8.1	1,080	21.0	228
11-14-2011 1045	751	--	221	12.9	134	7.8	1,040	16.5	223
12-20-2011 1330	751	18.5	246	8.7	85	7.9	1,020	13.5	212
01-05-2012 1200	754	23.5	148	10.1	99	8.1	1,070	14.0	233
01-24-2012 1000	755	17.0	219	9.0	86	7.9	784	13.0	158
02-09-2012 1230	755	26.0	214	9.6	97	8.0	1,050	15.5	220
02-28-2012 1230	757	14.0	111	9.5	93	8.0	777	14.0	155
03-14-2012 1430	753	--	146	10.7	110	8.1	1,100	16.0	228
03-27-2012 1230	754	16.0	235	11.4	114	7.8	710	15.0	147
04-09-2012 1330	749	28.5	337	12.2	129	8.5	890	17.0	191
04-26-2012 1030	750	18.0	260	8.0	87	7.7	811	18.5	180
05-17-2012 1115	746	28.0	269	19.1	221	8.4	1,070	21.5	235
05-29-2012 1315	750	--	116	9.2	106	8.2	1,090	21.5	237
06-14-2012 1330	746	27.5	94	9.0	105	8.3	1,140	21.5	249
06-26-2012 1200	747	--	99	9.6	111	8.2	1,110	21.5	230
07-10-2012 1000	747	27.5	76	7.2	86	8.2	1,160	23.0	235
07-10-2012 1001	--	--	--	--	--	--	--	--	--
08-16-2012 1100	747	32.5	76	12.1	150	8.1	1,130	25.0	213
08-16-2012 1101	--	--	--	--	--	--	--	--	--
09-04-2012 1230	750	--	93	8.8	105	8.1	1,080	23.5	224
09-04-2012 1231	--	--	--	--	--	--	--	--	--

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 2 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Bicarbonate, water, filtered, inflection-point, incremental titration method, field, mg/L (00453)	Carbonate, water, filtered, inflection-point incremental titration method, field, mg/L (00452)	Chloride, water, filtered, mg/L (00940)	Sulfate, water, filtered, mg/L (00945)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Nitrite, water, filtered, mg/L as N (00613)	Orthophos-phate, water, filtered, mg/L as P (00671)	Phosphorus, water, unfiltered, mg/L as P (00665)
10-13-2011 1200	274	2	131	115	0.065	4.90	0.045	1.08	1.24
11-14-2011 1045	272	--	125	106	.131	4.15	.064	1.35	1.44
12-20-2011 1330	259	--	119	104	< .010	5.48	.073	1.07	1.19
01-05-2012 1200	281	2	130	110	.069	5.56	.025	1.06	1.16
01-24-2012 1000	192	--	88.4	84.5	.142	4.22	.048	.754	.82
02-09-2012 1230	269	--	128	105	.062	5.83	.034	1.29	1.24
02-28-2012 1230	189	--	94.1	75.2	.175	4.22	.037	.811	.92
03-14-2012 1430	278	--	141	110	< .010	4.99	.031	1.01	1.25
03-27-2012 1230	179	--	77.3	74.5	.046	2.95	.070	.532	.59
04-09-2012 1330	225	4	107	91.7	.026	2.26	.083	.765	.87
04-26-2012 1030	217	1	92.8	78.3	.230	1.88	.083	.982	1.03
05-17-2012 1115	280	4	136	103	.040	2.36	.066	1.13	1.32
05-29-2012 1315	285	2	140	117	.073	5.35	.070	.705	.96
06-14-2012 1330	295	4	142	121	.012	3.84	.048	.907	1.12
06-26-2012 1200	276	2	142	118	.020	3.77	.057	.800	1.04
07-10-2012 1000	281	3	147	128	.016	3.39	.033	.799	1.02
07-10-2012 1001	--	--	--	--	--	--	--	--	--
08-16-2012 1100	256	2	146	118	.012	2.57	.060	.623	.88
08-16-2012 1101	--	--	--	--	--	--	--	--	--
09-04-2012 1230	269	2	134	113	.073	4.66	.070	.671	.82
09-04-2012 1231	--	--	--	--	--	--	--	--	--

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 3 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Total nitrogen, water, unfiltered, analytically determined, mg/L (62855)	1-Naphthol, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49295)	2,4-D methyl ester, water, filtered, recoverable, µg/L (50470)	2,4-D, water, filtered, recoverable, µg/L (39732)	2,4-DB, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38746)	2,6-Diethylaniline, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82660)	2-Chloro-2',6'-diethylacetanilide, water, filtered, recoverable, µg/L (61618)	2-Chloro-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, µg/L (04040)	2-Chloro-6-ethylamino-4-amino-s-triazine, water, filtered, recoverable, µg/L (04038)
10-13-2011 1200	6.26	< .0360	--	--	--	< .0060	< .010	E .016	--
11-14-2011 1045	4.75	< .0360	--	--	--	< .0060	< .010	< .009	--
12-20-2011 1330	6.59	< .0360	--	--	--	< .0060	< .010	E .012	--
01-05-2012 1200	6.45	< .0360	--	--	--	< .0060	< .010	E .015	--
01-24-2012 1000	5.15	< .0360	--	--	--	< .0060	< .010	E .013	--
02-09-2012 1230	6.20	< .0360	--	--	--	< .0060	< .010	E .018	--
02-28-2012 1230	5.19	< .0360	--	--	--	< .0060	< .010	< .006	--
03-14-2012 1430	6.00	< .0360	--	--	--	< .0060	< .010	E .017	--
03-27-2012 1230	3.61	< .0360	--	--	--	< .0060	< .010	< .006	--
04-09-2012 1330	3.45	< .0360	--	--	--	< .0060	< .010	E .014	--
04-26-2012 1030	2.82	< .0360	--	--	--	< .0060	< .010	E .008	--
05-17-2012 1115	4.11	< .0360	--	--	--	< .0060	< .010	E .010	--
05-29-2012 1315	6.45	< .0360	--	--	--	< .0060	< .010	E .009	--
06-14-2012 1330	4.65	< .0360	--	--	--	< .0060	< .010	E .011	--
06-26-2012 1200	4.96	< .0360	--	--	--	< .0060	< .010	E .010	--
07-10-2012 1000	4.68	< .0360	--	--	--	< .0060	< .010	< .013	--
07-10-2012 1001	--	--	< .200	< .06	< .02	--	--	< .06	< .08
08-16-2012 1100	3.64	< .0360	--	--	--	< .0060	< .010	E .010	--
08-16-2012 1101	--	--	< .200	< .06	< .02	--	--	< .06	< .08
09-04-2012 1230	5.56	< .0360	--	--	--	< .0060	< .010	< .011	--
09-04-2012 1231	--	--	< .200	< .06	< .02	--	--	< .06	< .08

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 4 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	2-Ethyl-6-methyl-aniline, water, filtered, recoverable, µg/L (61620)	2-Hydroxy-4-isopropyl-amino-6-ethylamino-s-triazine, water, filtered, recoverable, µg/L (50355)	3,4-Dichloro-aniline, water, filtered, recoverable, µg/L (61625)	3,5-Dichloro-aniline, water, filtered, recoverable, µg/L (61627)	3-Hydroxy carbofuran, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49308)	4-Chloro-2-methyl-phenol, water, filtered, recoverable, µg/L (61633)	Acetochlor, water, filtered, recoverable, µg/L (49260)	Acifluorfen, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49315)	Alachlor, water, filtered, recoverable, µg/L (46342)
10-13-2011 1200	< .010	--	E .0126	< .006	--	< .0080	< .010	--	< .011
11-14-2011 1045	< .010	--	E .0094	< .006	--	< .0080	< .010	--	< .008
12-20-2011 1330	< .010	--	< .0060	< .006	--	< .0080	< .010	--	< .008
01-05-2012 1200	< .010	--	E .0140	< .006	--	< .0080	< .010	--	< .008
01-24-2012 1000	< .010	--	E .0398	< .006	--	< .0080	< .010	--	< .008
02-09-2012 1230	< .010	--	E .0136	< .006	--	< .0080	< .010	--	< .008
02-28-2012 1230	< .010	--	E .0185	< .006	--	< .0080	< .010	--	< .008
03-14-2012 1430	< .010	--	E .0121	< .006	--	< .0080	< .010	--	< .008
03-27-2012 1230	< .010	--	E .0387	< .006	--	< .0080	< .010	--	< .008
04-09-2012 1330	< .010	--	E .0132	< .006	--	< .0080	< .010	--	< .008
04-26-2012 1030	< .010	--	E .0243	< .006	--	< .0080	< .010	--	< .008
05-17-2012 1115	< .010	--	E .0157	< .006	--	< .0080	< .010	--	< .008
05-29-2012 1315	< .010	--	E .0099	< .006	--	< .0080	< .010	--	< .008
06-14-2012 1330	< .010	--	E .0121	< .006	--	< .0080	< .010	--	< .008
06-26-2012 1200	< .010	--	E .0107	< .006	--	< .0080	< .010	--	< .008
07-10-2012 1000	< .010	--	E .0107	< .006	--	< .0080	< .010	--	< .008
07-10-2012 1001	--	< .060	--	--	< .060	--	--	< .080	--
08-16-2012 1100	< .010	--	E .0115	< .006	--	< .0080	< .010	--	< .008
08-16-2012 1101	--	< .060	--	--	< .060	--	--	< .080	--
09-04-2012 1230	< .010	--	E .0112	< .006	--	< .0080	< .010	--	< .008
09-04-2012 1231	--	< .060	--	--	< .060	--	--	< .080	--

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 5 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Aldicarb sulfone, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49313)	Aldicarb sulfoxide, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49314)	Aldicarb, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49312)	alpha-Endosulfan, water, filtered, recoverable, µg/L (34362)	Atrazine, water, filtered, recoverable, µg/L (39632)	Azinphos-methyl oxygen analog, water, filtered, recoverable, µg/L (61635)	Azinphos-methyl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82686)	Bendiocarb, water, filtered, recoverable, µg/L (50299)	Benfluralin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82673)
10-13-2011 1200	--	--	--	< .006	< .008	< .042	< .120	--	< .014
11-14-2011 1045	--	--	--	< .006	< .008	< .042	< .120	--	< .014
12-20-2011 1330	--	--	--	< .006	.016	< .042	< .120	--	< .014
01-05-2012 1200	--	--	--	< .006	.014	< .042	< .120	--	< .014
01-24-2012 1000	--	--	--	< .006	.009	< .042	< .120	--	< .014
02-09-2012 1230	--	--	--	< .006	< .010	< .042	< .120	--	< .014
02-28-2012 1230	--	--	--	< .006	.007	< .042	< .120	--	< .014
03-14-2012 1430	--	--	--	< .006	< .009	< .042	< .120	--	< .014
03-27-2012 1230	--	--	--	< .006	.012	< .042	< .120	--	< .014
04-09-2012 1330	--	--	--	< .006	.010	< .042	< .120	--	< .014
04-26-2012 1030	--	--	--	< .006	< .008	< .042	< .120	--	< .014
05-17-2012 1115	--	--	--	< .006	< .008	< .042	< .120	--	< .014
05-29-2012 1315	--	--	--	< .006	.006	< .042	< .120	--	< .014
06-14-2012 1330	--	--	--	< .006	< .008	< .042	< .120	--	< .014
06-26-2012 1200	--	--	--	< .006	< .008	< .042	< .120	--	< .014
07-10-2012 1000	--	--	--	< .006	< .008	< .042	< .120	--	< .014
07-10-2012 1001	< .08	< .080	< .12	--	< .080	--	--	< .04	--
08-16-2012 1100	--	--	--	< .006	< .008	< .042	< .120	--	< .014
08-16-2012 1101	< .08	< .080	< .12	--	< .080	--	--	< .04	--
09-04-2012 1230	--	--	--	< .006	.007	< .042	< .120	--	< .014
09-04-2012 1231	< .08	< .080	< .12	--	< .080	--	--	< .04	--

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 6 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Benomyl, water, filtered, recoverable, µg/L (50300)	Bensulfuron-methyl, water, filtered, recoverable, µg/L (61693)	Bentazon, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38711)	Bromacil, water, filtered, recoverable, µg/L (04029)	Bromoxynil, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49311)	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49310)	Carbaryl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82680)	Carbofuran, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49309)	Carbofuran, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82674)
10-13-2011 1200	--	--	--	--	--	--	E .012	--	< .060
11-14-2011 1045	--	--	--	--	--	--	< .060	--	< .060
12-20-2011 1330	--	--	--	--	--	--	E .023	--	< .060
01-05-2012 1200	--	--	--	--	--	--	< .060	--	< .060
01-24-2012 1000	--	--	--	--	--	--	< .060	--	< .060
02-09-2012 1230	--	--	--	--	--	--	< .060	--	< .060
02-28-2012 1230	--	--	--	--	--	--	E .016	--	< .060
03-14-2012 1430	--	--	--	--	--	--	< .060	--	< .060
03-27-2012 1230	--	--	--	--	--	--	E .021	--	< .060
04-09-2012 1330	--	--	--	--	--	--	< .060	--	< .060
04-26-2012 1030	--	--	--	--	--	--	E .017	--	< .060
05-17-2012 1115	--	--	--	--	--	--	< .060	--	< .060
05-29-2012 1315	--	--	--	--	--	--	E .029	--	< .060
06-14-2012 1330	--	--	--	--	--	--	< .060	--	< .060
06-26-2012 1200	--	--	--	--	--	--	E .009	--	< .060
07-10-2012 1000	--	--	--	--	--	--	< .060	--	< .060
07-10-2012 1001	< .060	< .06	< .06	< .06	< .12	< .04	--	< .040	--
08-16-2012 1100	--	--	--	--	--	--	< .060	--	< .060
08-16-2012 1101	< .060	< .06	< .06	< .06	< .12	< .04	--	< .040	--
09-04-2012 1230	--	--	--	--	--	--	< .060	--	< .060
09-04-2012 1231	E .015	< .06	< .06	< .06	< .12	< .04	--	< .040	--

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 7 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Chlor-amben methyl ester, water, filtered, recover-able, µg/L (61188)	Chlori-muron-ethyl, water, filtered, recover-able, µg/L (50306)	Chlorpyrifos oxygen analog, water, filtered, recoverable, µg/L (61636)	Chlor-pyrifos, water, filtered, recover-able, µg/L (38933)	cis-Permethrin, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (82687)	cis-Propicon-azole, water, filtered, recover-able, µg/L (79846)	Clopyralid, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (49305)	Cyanazine, water, filtered, recover-able, µg/L (04041)	Cycloate, water, filtered, recover-able, µg/L (04031)
10-13-2011 1200	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
11-14-2011 1045	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
12-20-2011 1330	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
01-05-2012 1200	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
01-24-2012 1000	--	--	< .08	< .0036	< .010	E .011	--	< .022	--
02-09-2012 1230	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
02-28-2012 1230	--	--	< .08	< .0036	< .010	E .018	--	< .022	--
03-14-2012 1430	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
03-27-2012 1230	--	--	< .08	< .0036	< .010	E .016	--	< .022	--
04-09-2012 1330	--	--	< .08	< .0036	< .010	E .009	--	< .022	--
04-26-2012 1030	--	--	< .08	< .0036	< .010	E .007	--	< .022	--
05-17-2012 1115	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
05-29-2012 1315	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
06-14-2012 1330	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
06-26-2012 1200	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
07-10-2012 1000	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
07-10-2012 1001	< .20	< .080	--	--	--	--	< .14	--	< .04
08-16-2012 1100	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
08-16-2012 1101	< .20	< .080	--	--	--	--	< .14	--	< .04
09-04-2012 1230	--	--	< .08	< .0036	< .010	< .008	--	< .022	--
09-04-2012 1231	< .20	< .080	--	--	--	--	< .14	--	< .04

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 8 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Cyfluthrin, water, filtered, recoverable, µg/L (61585)	Cypermethrin, water, filtered, recoverable, µg/L (61586)	Dacthal monoacid, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49304)	DCPA, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82682)	Desulfinylfipronil amide, water, filtered, recoverable, µg/L (62169)	Desulfinylfipronil, water, filtered, recoverable, µg/L (62170)	Diazinon, water, filtered, recoverable, µg/L (39572)	Dicamba, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38442)	Dichlorprop, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49302)
10-13-2011 1200	< .016	< .020	--	0.0043	E .005	0.009	< .0060	--	--
11-14-2011 1045	< .016	< .020	--	.0023	E .006	.006	< .0060	--	--
12-20-2011 1330	< .016	< .020	--	.0033	< .029	.007	< .0060	--	--
01-05-2012 1200	< .016	< .020	--	.0033	< .029	.006	< .0060	--	--
01-24-2012 1000	< .016	< .020	--	.0087	< .029	.010	< .0060	--	--
02-09-2012 1230	< .016	< .020	--	.0084	E .005	.008	< .0060	--	--
02-28-2012 1230	< .016	< .020	--	.0114	< .029	.012	< .0060	--	--
03-14-2012 1430	< .016	< .020	--	.0041	E .002	.009	< .0060	--	--
03-27-2012 1230	< .016	< .020	--	.0465	E .002	.011	< .0060	--	--
04-09-2012 1330	< .016	< .020	--	.0092	E .002	.008	< .0060	--	--
04-26-2012 1030	< .016	< .020	--	.0118	< .029	.010	< .0060	--	--
05-17-2012 1115	< .016	< .020	--	.0032	< .029	.006	< .0060	--	--
05-29-2012 1315	< .016	< .020	--	.0023	< .029	.005	< .0060	--	--
06-14-2012 1330	< .016	< .020	--	.0027	< .029	.007	< .0060	--	--
06-26-2012 1200	< .016	< .020	--	.0023	< .029	.010	< .0060	--	--
07-10-2012 1000	< .016	< .020	--	.0019	E .003	E .009	< .0060	--	--
07-10-2012 1001	--	--	< .04	--	--	--	--	< .06	< .04
08-16-2012 1100	< .016	< .020	--	.0013	< .029	.008	< .0060	--	--
08-16-2012 1101	--	--	< .04	--	--	--	--	< .06	< .04
09-04-2012 1230	< .016	< .020	--	.0022	< .029	.007	< .0060	--	--
09-04-2012 1231	--	--	< .04	--	--	--	--	< .06	< .04

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 9 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Dichlorvos, water, filtered, recoverable, µg/L (38775)	Dicrotophos, water, filtered, recoverable, µg/L (38454)	Dieldrin, water, filtered, recoverable, µg/L (39381)	Dimethoate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82662)	Dinoseb, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49301)	Diphenamid, water, filtered, recoverable, µg/L (04033)	Disulfoton sulfone, water, filtered, recoverable, µg/L (61640)	Disulfoton, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82677)	Diuron, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49300)
10-13-2011 1200	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
11-14-2011 1045	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
12-20-2011 1330	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
01-05-2012 1200	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
01-24-2012 1000	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
02-09-2012 1230	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
02-28-2012 1230	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
03-14-2012 1430	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
03-27-2012 1230	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
04-09-2012 1330	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
04-26-2012 1030	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
05-17-2012 1115	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
05-29-2012 1315	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
06-14-2012 1330	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
06-26-2012 1200	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
07-10-2012 1000	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
07-10-2012 1001	--	--	--	--	< .04	< .04	--	--	.06
08-16-2012 1100	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
08-16-2012 1101	--	--	--	--	< .04	< .04	--	--	.02
09-04-2012 1230	< .04	< .08	< .008	< .0100	--	--	< .014	< .040	--
09-04-2012 1231	--	--	--	--	< .04	< .04	--	--	.03

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 10 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Endosulfan sulfate, water, filtered, recoverable, µg/L (61590)	EPTC, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82668)	Ethion monoxon, water, filtered, recoverable, µg/L (61644)	Ethion, water, filtered, recoverable, µg/L (82346)	Ethoprop, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82672)	Fenamiphos sulfone, water, filtered, recoverable, µg/L (61645)	Fenamiphos sulfoxide, water, filtered, recoverable, µg/L (61646)	Fenamiphos, water, filtered, recoverable, µg/L (61591)	Fenuron, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49297)
10-13-2011 1200	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
11-14-2011 1045	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
12-20-2011 1330	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
01-05-2012 1200	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
01-24-2012 1000	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
02-09-2012 1230	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
02-28-2012 1230	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
03-14-2012 1430	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
03-27-2012 1230	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
04-09-2012 1330	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
04-26-2012 1030	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
05-17-2012 1115	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
05-29-2012 1315	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
06-14-2012 1330	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
06-26-2012 1200	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
07-10-2012 1000	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
07-10-2012 1001	--	--	--	--	--	--	--	--	< .06
08-16-2012 1100	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
08-16-2012 1101	--	--	--	--	--	--	--	--	< .06
09-04-2012 1230	< .016	< .0056	< .021	< .010	< .016	< .054	< .08	< .030	--
09-04-2012 1231	--	--	--	--	--	--	--	--	< .06

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 11 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Fipronil sulfide, water, filtered, recoverable, µg/L (62167)	Fipronil sulfone, water, filtered, recoverable, µg/L (62168)	Fipronil, water, filtered, recoverable, µg/L (62166)	Flumetsulam, water, filtered, recoverable, µg/L (61694)	Fluometuron, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38811)	Fonofos, water, filtered, recoverable, µg/L (04095)	Hexazinone, water, filtered, recoverable, µg/L (04025)	Imazaquin, water, filtered, recoverable, µg/L (50356)	Imazethapyr, water, filtered, recoverable, µg/L (50407)
10-13-2011 1200	0.006	0.007	E .008	--	--	< .0048	0.015	--	--
11-14-2011 1045	.005	.007	E .009	--	--	< .0048	.008	--	--
12-20-2011 1330	< .012	< .024	E .008	--	--	< .0048	< .012	--	--
01-05-2012 1200	< .012	< .024	< .018	--	--	< .0048	< .012	--	--
01-24-2012 1000	.003	.011	E .017	--	--	< .0048	.035	--	--
02-09-2012 1230	.006	.008	E .008	--	--	< .0048	.015	--	--
02-28-2012 1230	.003	< .024	E .024	--	--	< .0048	.020	--	--
03-14-2012 1430	.008	< .024	< .018	--	--	< .0048	.027	--	--
03-27-2012 1230	.006	.015	E .022	--	--	< .0048	.083	--	--
04-09-2012 1330	.005	E .005	E .005	--	--	< .0048	.018	--	--
04-26-2012 1030	.001	< .024	E .012	--	--	< .0048	.039	--	--
05-17-2012 1115	.002	< .024	< .018	--	--	< .0048	.016	--	--
05-29-2012 1315	.003	< .024	< .018	--	--	< .0048	< .012	--	--
06-14-2012 1330	.004	< .024	< .018	--	--	< .0048	.018	--	--
06-26-2012 1200	< .012	< .024	E .005	--	--	< .0048	.013	--	--
07-10-2012 1000	.006	< .024	E .004	--	--	< .0048	E .019	--	--
07-10-2012 1001	--	--	--	< .08	.01	--	--	< .10	< .08
08-16-2012 1100	.006	< .024	< .018	--	--	< .0048	< .012	--	--
08-16-2012 1101	--	--	--	< .08	.01	--	--	< .10	< .08
09-04-2012 1230	.004	< .024	E .004	--	--	< .0048	< .012	--	--
09-04-2012 1231	--	--	--	< .08	.01	--	--	< .10	< .08

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 12 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Imi-dacloprid, water, filtered, recover-able, µg/L (61695)	Iprodione, water, filtered, recover-able, µg/L (61593)	Isofen-phos, water, filtered, recover-able, µg/L (61594)	lambda-Cyhalo-thrin, water, filtered, recover-able, µg/L (61595)	Linuron, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (38478)	Malaoxon, water, filtered, recover-able, µg/L (61652)	Malathion, water, filtered, recover-able, µg/L (39532)	MCPA, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (38482)	MCPB, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (38487)
10-13-2011 1200	--	< .014	< .008	< .010	--	< .022	< .016	--	--
11-14-2011 1045	--	< .014	< .008	< .010	--	< .022	< .016	--	--
12-20-2011 1330	--	< .014	< .008	< .010	--	< .022	< .016	--	--
01-05-2012 1200	--	< .014	< .008	< .010	--	< .022	< .016	--	--
01-24-2012 1000	--	< .014	< .008	< .010	--	< .022	< .016	--	--
02-09-2012 1230	--	< .014	< .008	< .010	--	< .022	< .016	--	--
02-28-2012 1230	--	< .014	< .008	< .010	--	< .022	< .024	--	--
03-14-2012 1430	--	< .014	< .008	< .010	--	< .022	< .016	--	--
03-27-2012 1230	--	< .014	< .008	< .010	--	< .022	< .017	--	--
04-09-2012 1330	--	< .014	< .008	< .010	--	< .022	< .016	--	--
04-26-2012 1030	--	< .014	< .008	< .010	--	< .022	< .016	--	--
05-17-2012 1115	--	< .014	< .008	< .010	--	< .022	< .016	--	--
05-29-2012 1315	--	< .014	< .008	< .010	--	< .022	< .016	--	--
06-14-2012 1330	--	< .014	< .008	< .010	--	< .022	< .016	--	--
06-26-2012 1200	--	< .014	< .008	< .010	--	< .022	< .016	--	--
07-10-2012 1000	--	< .014	< .008	< .010	--	< .022	< .016	--	--
07-10-2012 1001	--	--	--	--	--	--	--	< .04	< .20
08-16-2012 1100	--	< .014	< .008	< .010	--	< .022	< .016	--	--
08-16-2012 1101	E .517	--	--	--	< .04	--	--	< .04	< .20
09-04-2012 1230	--	< .014	< .008	< .010	--	< .022	< .016	--	--
09-04-2012 1231	< .080	--	--	--	< .04	--	--	< .04	< .20

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 13 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Metalaxyl, water, filtered, recoverable, µg/L (50359)	Metalaxyl, water, filtered, recoverable, µg/L (61596)	Methidathion, water, filtered, recoverable, µg/L (61598)	Methiocarb, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38501)	Methomyl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49296)	Methyl paraoxon, water, filtered, recoverable, µg/L (61664)	Methyl parathion, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82667)	Metolachlor, water, filtered, recoverable, µg/L (39415)	Metribuzin, water, filtered, recoverable, µg/L (82630)
10-13-2011 1200	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
11-14-2011 1045	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
12-20-2011 1330	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
01-05-2012 1200	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
01-24-2012 1000	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
02-09-2012 1230	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
02-28-2012 1230	--	< .014	< .012	--	--	< .014	< .022	< .020	< .012
03-14-2012 1430	--	< .014	< .012	--	--	< .014	< .008	.009	< .012
03-27-2012 1230	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
04-09-2012 1330	--	< .105	< .012	--	--	< .014	< .008	< .020	< .012
04-26-2012 1030	--	< .087	< .012	--	--	< .014	< .008	< .020	< .012
05-17-2012 1115	--	.112	< .012	--	--	< .014	< .008	< .020	< .012
05-29-2012 1315	--	.103	< .012	--	--	< .014	< .008	< .020	< .012
06-14-2012 1330	--	< .089	< .012	--	--	< .014	< .008	< .020	< .012
06-26-2012 1200	--	< .108	< .012	--	--	< .014	< .008	< .020	< .012
07-10-2012 1000	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
07-10-2012 1001	< .04	--	--	< .040	< .120	--	--	--	--
08-16-2012 1100	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
08-16-2012 1101	< .04	--	--	< .040	< .120	--	--	--	--
09-04-2012 1230	--	< .014	< .012	--	--	< .014	< .008	< .020	< .012
09-04-2012 1231	< .04	--	--	< .040	< .120	--	--	--	--

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 14 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Metsulfuron-methyl, water, filtered, recoverable, µg/L (61697)	Molinate, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82671)	Myclobutanil, water, filtered, recoverable, µg/L (61599)	N-(4-Chlorophenyl)-N'-methylurea, water, filtered, recoverable, µg/L (61692)	Neburon, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49294)	Nicosulfuron, water, filtered, recoverable, µg/L (50364)	Norflurazon, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49293)	Oryzalin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49292)	Oxamyl, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38866)
10-13-2011 1200	--	< .0040	< .010	--	--	--	--	--	--
11-14-2011 1045	--	< .0040	< .010	--	--	--	--	--	--
12-20-2011 1330	--	< .0040	< .010	--	--	--	--	--	--
01-05-2012 1200	--	< .0040	< .010	--	--	--	--	--	--
01-24-2012 1000	--	< .0040	< .010	--	--	--	--	--	--
02-09-2012 1230	--	< .0040	< .010	--	--	--	--	--	--
02-28-2012 1230	--	< .0040	< .010	--	--	--	--	--	--
03-14-2012 1430	--	< .0040	.014	--	--	--	--	--	--
03-27-2012 1230	--	< .0040	< .010	--	--	--	--	--	--
04-09-2012 1330	--	< .0040	< .010	--	--	--	--	--	--
04-26-2012 1030	--	< .0040	< .010	--	--	--	--	--	--
05-17-2012 1115	--	< .0040	< .010	--	--	--	--	--	--
05-29-2012 1315	--	< .0040	< .010	--	--	--	--	--	--
06-14-2012 1330	--	< .0040	< .010	--	--	--	--	--	--
06-26-2012 1200	--	< .0040	< .010	--	--	--	--	--	--
07-10-2012 1000	--	< .0040	< .010	--	--	--	--	--	--
07-10-2012 1001	< .14	--	--	< .10	< .02	< .32	< .04	< .04	< .12
08-16-2012 1100	--	< .0040	< .010	--	--	--	--	--	--
08-16-2012 1101	< .14	--	--	< .10	< .02	< .32	< .04	< .04	< .12
09-04-2012 1230	--	< .0040	< .010	--	--	--	--	--	--
09-04-2012 1231	< .14	--	--	< .10	< .02	< .32	< .04	< .04	< .12

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 15 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Oxy-fluorfen, water, filtered, recover-able, µg/L (61600)	Pendi-methalin, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82683)	Phorate oxygen analog, water, filtered, recover-able, µg/L (61666)	Phorate, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (82664)	Phosmet oxygen analog, water, filtered, recover-able, µg/L (61668)	Phosmet, water, filtered, recover-able, µg/L (61601)	Picloram, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (49291)	Prometon, water, filtered, recover-able, µg/L (04037)	Prometryn, water, filtered, recover-able, µg/L (04036)
10-13-2011 1200	< .010	< .012	< .027	< .020	< .0511	< .080	--	0.030	< .010
11-14-2011 1045	< .010	< .012	< .027	< .020	< .0511	< .080	--	.008	< .010
12-20-2011 1330	< .010	< .012	< .027	< .020	< .0511	< .080	--	.013	< .010
01-05-2012 1200	< .010	< .012	< .027	< .020	< .0511	< .080	--	.007	< .010
01-24-2012 1000	< .010	< .012	< .027	< .020	< .0511	< .080	--	< .012	< .010
02-09-2012 1230	< .010	< .012	< .027	< .020	< .0511	< .080	--	.017	< .010
02-28-2012 1230	< .010	.019	< .027	< .020	< .0511	< .080	--	.018	< .010
03-14-2012 1430	< .010	< .012	< .027	< .020	< .0511	< .080	--	.018	< .010
03-27-2012 1230	< .010	< .012	< .027	< .020	< .0511	< .080	--	.015	< .010
04-09-2012 1330	< .010	< .012	< .027	< .020	< .0511	< .080	--	.012	< .010
04-26-2012 1030	< .010	< .012	< .027	< .020	< .0511	< .080	--	.013	< .010
05-17-2012 1115	< .010	< .012	< .027	< .020	< .0511	< .080	--	.033	< .010
05-29-2012 1315	< .010	< .012	< .027	< .020	< .0511	< .080	--	.008	< .010
06-14-2012 1330	< .010	< .012	< .027	< .020	< .0511	< .080	--	.014	< .010
06-26-2012 1200	< .010	< .012	< .027	< .020	< .0511	< .080	--	.025	< .010
07-10-2012 1000	< .010	< .012	< .027	< .020	< .0511	< .080	--	.031	< .010
07-10-2012 1001	--	--	--	--	--	--	< .10	--	--
08-16-2012 1100	< .010	< .012	< .027	< .020	< .0511	< .080	--	.019	< .010
08-16-2012 1101	--	--	--	--	--	--	< .10	--	--
09-04-2012 1230	< .010	< .012	< .027	< .020	< .0511	< .080	--	.007	< .010
09-04-2012 1231	--	--	--	--	--	--	E .72	--	--

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 16 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Propanil, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82679)	Propargite, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82685)	Propham, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (49236)	Propiconazole, water, filtered, recoverable, µg/L (50471)	Propoxur, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (38538)	Propyzamide, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82676)	Siduron, water, filtered, recoverable, µg/L (38548)	Simazine, water, filtered, recoverable, µg/L (04035)	Sulfometuron-methyl, water, filtered, recoverable, µg/L (50337)
10-13-2011 1200	< .010	< .020	--	--	--	< .0036	--	0.022	--
11-14-2011 1045	< .010	< .020	--	--	--	< .0036	--	.043	--
12-20-2011 1330	< .010	< .020	--	--	--	< .0036	--	.038	--
01-05-2012 1200	< .010	< .020	--	--	--	< .0036	--	.029	--
01-24-2012 1000	< .010	< .020	--	--	--	< .0036	--	.034	--
02-09-2012 1230	< .010	< .020	--	--	--	< .0036	--	.138	--
02-28-2012 1230	< .010	< .020	--	--	--	< .0036	--	.056	--
03-14-2012 1430	< .010	< .020	--	--	--	< .0036	--	.030	--
03-27-2012 1230	< .010	< .020	--	--	--	< .0036	--	.092	--
04-09-2012 1330	< .010	< .020	--	--	--	< .0036	--	.030	--
04-26-2012 1030	< .032	< .020	--	--	--	< .0036	--	.029	--
05-17-2012 1115	< .010	< .020	--	--	--	< .0036	--	.024	--
05-29-2012 1315	< .010	< .020	--	--	--	< .0036	--	.023	--
06-14-2012 1330	< .010	< .020	--	--	--	< .0036	--	.030	--
06-26-2012 1200	< .010	< .020	--	--	--	< .0036	--	.043	--
07-10-2012 1000	< .010	< .020	--	--	--	< .0036	--	.026	--
07-10-2012 1001	--	--	< .040	< .038	< .060	--	< .04	--	< .060
08-16-2012 1100	< .010	< .020	--	--	--	< .0036	--	.018	--
08-16-2012 1101	--	--	< .040	< .038	< .060	--	< .04	--	E .004
09-04-2012 1230	< .010	< .020	--	--	--	< .0036	--	.021	--
09-04-2012 1231	--	--	< .040	< .038	< .060	--	< .04	--	< .060

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 17 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Tebuthiuron, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82670)	Tefluthrin, water, filtered, recoverable, µg/L (61606)	Terbacil, water, filtered, recoverable, µg/L (04032)	Terbufos oxygen analog sulfone, water, filtered, recoverable, µg/L (61674)	Terbufos, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82675)	Terbuthylazine, water, filtered, recoverable, µg/L (04022)	Thiobencarb, water, filtered (0.7 micron glass fiber filter), recoverable, µg/L (82681)	trans-Propiconazole, water, filtered, recoverable, µg/L (79847)	Tribuphos, water, filtered, recoverable, µg/L (61610)
10-13-2011 1200	< .028	< .014	--	< .045	< .018	0.010	< .016	< .018	< .018
11-14-2011 1045	< .028	< .014	--	< .045	< .018	.008	< .016	< .018	< .018
12-20-2011 1330	< .028	< .014	--	< .045	< .018	< .008	< .016	< .018	< .018
01-05-2012 1200	< .028	< .014	--	< .045	< .018	.008	< .016	< .018	< .018
01-24-2012 1000	< .028	< .014	--	< .045	< .018	< .008	< .016	E .012	< .018
02-09-2012 1230	< .028	< .014	--	< .045	< .018	.008	< .016	< .018	< .018
02-28-2012 1230	< .028	< .014	--	< .045	< .018	< .008	< .016	E .017	< .018
03-14-2012 1430	< .028	< .014	--	< .045	< .018	.009	< .016	< .018	< .018
03-27-2012 1230	< .028	< .014	--	< .045	< .018	< .008	< .016	E .019	< .018
04-09-2012 1330	< .028	< .014	--	< .045	< .018	< .008	< .016	E .017	< .018
04-26-2012 1030	< .028	< .014	--	< .045	< .018	.006	< .016	E .014	< .018
05-17-2012 1115	< .028	< .014	--	< .045	< .018	< .008	< .016	< .018	< .018
05-29-2012 1315	< .028	< .014	--	< .045	< .018	< .008	< .016	< .018	< .018
06-14-2012 1330	< .028	< .014	--	< .045	< .018	.018	< .016	< .018	< .018
06-26-2012 1200	< .028	< .014	--	< .045	< .018	.013	< .016	< .018	< .018
07-10-2012 1000	< .028	< .014	--	< .045	< .018	.014	< .016	< .018	< .018
07-10-2012 1001	< .060	--	< .046	--	--	--	--	--	--
08-16-2012 1100	< .028	< .014	--	< .045	< .018	.018	< .016	< .018	< .018
08-16-2012 1101	< .060	--	< .046	--	--	--	--	--	--
09-04-2012 1230	< .028	< .014	--	< .045	< .018	.023	< .016	< .018	< .018
09-04-2012 1231	< .060	--	< .046	--	--	--	--	--	--

11074000 Santa Ana River below Prado Dam, CA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
Part 18 of 18

[%, percent; $CaCO_3$, calcium carbonate; N, nitrogen; P, phosphorus; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Sample date-time	Triclopyr, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (49235)	Trifluralin, water, filtered (0.7 micron glass fiber filter), recover-able, µg/L (82661)	2,4-D plus 2,4-D methyl ester, sum on a molar basis, micrograms per liter as 2,4-D (66496)	Caffeine, water, filtered, recover-able, µg/L (50305)
10-13-2011 1200	--	< .018	--	--
11-14-2011 1045	--	< .018	--	--
12-20-2011 1330	--	< .018	--	--
01-05-2012 1200	--	< .018	--	--
01-24-2012 1000	--	< .018	--	--
02-09-2012 1230	--	< .018	--	--
02-28-2012 1230	--	< .018	--	--
03-14-2012 1430	--	< .018	--	--
03-27-2012 1230	--	< .018	--	--
04-09-2012 1330	--	< .018	--	--
04-26-2012 1030	--	< .018	--	--
05-17-2012 1115	--	< .018	--	--
05-29-2012 1315	--	< .018	--	--
06-14-2012 1330	--	< .018	--	--
06-26-2012 1200	--	< .018	--	--
07-10-2012 1000	--	< .018	--	--
07-10-2012 1001	< .08	--	< .06	< .080
08-16-2012 1100	--	< .018	--	--
08-16-2012 1101	< .08	--	< .06	< .080
09-04-2012 1230	--	< .018	--	--
09-04-2012 1231	< .08	--	< .06	< .080

11074000 Santa Ana River below Prado Dam, CA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		October			November			December			January	
1	1,180	1,120	1,130	1,080	1,040	1,060	1,110	1,070	1,100	1,090	1,060	1,070
2	1,180	1,110	1,130	1,100	1,060	1,080	1,120	1,100	1,100	1,090	1,060	1,070
3	1,200	1,130	1,170	1,110	1,070	1,100	1,120	1,100	1,110	1,100	1,060	1,070
4	1,220	1,160	1,220	1,100	657	1,040	1,110	1,080	1,090	1,130	1,060	1,090
5	1,160	218	1,080	826	645	676	1,110	1,080	1,100	1,100	1,080	1,090
6	978	508	752	992	826	925	1,120	1,090	1,100	1,100	1,080	1,090
7	1,080	977	1,030	985	705	739	1,100	1,080	1,100	1,100	1,090	1,090
8	1,120	1,070	1,090	855	719	753	1,110	1,100	1,100	1,110	1,100	1,100
9	1,120	1,080	1,100	1,000	855	954	1,100	1,080	1,090	1,110	1,080	1,090
10	1,090	1,040	1,060	1,040	1,000	1,020	1,090	1,020	1,060	1,160	1,090	1,090
11	1,120	1,070	1,100	1,050	1,030	1,040	1,040	1,010	1,030	1,110	1,090	1,100
12	1,100	1,080	1,090	1,070	1,000	1,060	1,020	571	1,000	1,100	1,080	1,090
13	1,110	1,080	1,100	1,010	932	958	620	569	590	1,120	1,080	1,100
14	1,130	1,090	1,100	1,070	1,010	1,040	807	608	690	1,130	1,120	1,120
15	1,130	1,090	1,100	1,080	1,060	1,070	975	807	927	1,120	1,080	1,100
16	1,110	1,060	1,080	1,070	1,060	1,070	979	666	769	1,090	1,040	1,060
17	1,100	1,050	1,070	1,080	1,060	1,070	848	690	784	1,080	1,060	1,070
18	1,110	1,080	1,100	1,070	1,050	1,060	946	848	895	1,060	1,050	1,060
19	1,120	1,070	1,090	1,080	1,060	1,070	1,010	946	979	1,050	1,040	1,040
20	1,170	1,090	1,120	1,060	367	1,030	1,050	1,010	1,030	1,060	1,040	1,040
21	1,140	1,090	1,110	498	308	473	1,070	1,050	1,050	1,060	515	1,020
22	1,110	1,070	1,100	543	490	505	1,080	1,060	1,070	669	545	583
23	1,110	1,070	1,090	723	543	622	1,110	1,080	1,100	886	669	754
24	1,100	1,070	1,090	853	723	785	1,110	1,070	1,090	902	683	794
25	1,110	1,070	1,090	937	853	910	1,070	1,050	1,060	713	682	699
26	1,090	1,060	1,080	994	937	971	1,090	1,050	1,060	850	694	770
27	1,110	1,060	1,080	1,030	994	1,010	1,090	1,050	1,060	938	850	899
28	1,110	1,100	1,100	1,040	1,020	1,030	1,110	1,070	1,080	993	935	967
29	1,120	1,100	1,110	1,060	1,040	1,040	1,110	1,070	1,090	1,040	991	1,020
30	1,110	1,060	1,090	1,070	1,060	1,060	1,100	1,080	1,080	1,040	1,020	1,030
31	1,070	1,040	1,050	---	---	---	1,100	1,070	1,080	1,110	1,030	1,050
Max	1,220	1,160	1,220	1,110	1,070	1,100	1,120	1,100	1,110	1,160	1,120	1,120
Min	978	218	752	498	308	473	620	569	590	669	515	583

11074000 Santa Ana River below Prado Dam, CA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

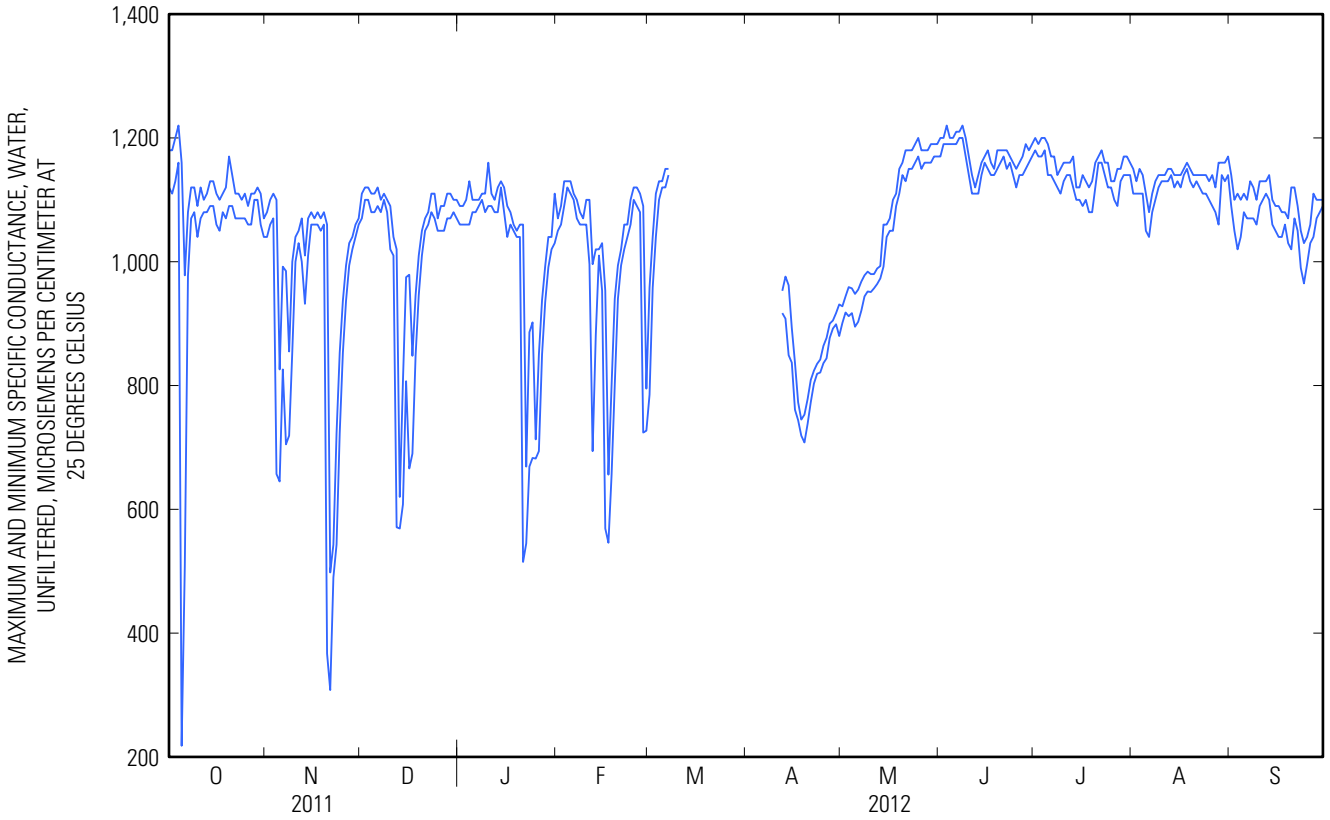
Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		February			March			April			May	
1	1,070	1,050	1,060	958	785	855	---	---	---	928	901	918
2	1,090	1,060	1,080	1,040	958	987	---	---	---	944	918	939
3	1,130	1,090	1,120	1,110	1,040	1,070	---	---	---	959	912	939
4	1,130	1,120	1,130	1,130	1,100	1,110	---	---	---	957	917	936
5	1,130	1,110	1,120	1,130	1,120	1,130	---	---	---	948	895	924
6	1,110	1,100	1,100	1,150	1,120	1,130	---	---	---	955	903	944
7	1,100	1,070	1,080	1,150	1,140	1,150	---	---	---	968	921	959
8	1,080	1,060	1,070	---	---	---	---	---	---	978	944	962
9	1,070	1,060	1,060	---	---	---	---	---	---	984	952	972
10	1,100	1,060	1,090	---	---	---	---	---	---	980	951	964
11	1,100	996	1,100	---	---	---	---	---	---	980	957	969
12	996	694	821	---	---	---	953	917	950	989	964	974
13	1,020	882	962	---	---	---	976	908	961	993	973	986
14	1,020	1,010	1,020	---	---	---	962	849	877	1,060	992	1,040
15	1,030	953	1,020	---	---	---	893	837	872	1,060	1,040	1,050
16	953	569	660	---	---	---	837	761	784	1,070	1,050	1,060
17	656	546	562	---	---	---	773	744	755	1,100	1,050	1,060
18	801	656	715	---	---	---	745	719	730	1,110	1,090	1,100
19	940	801	887	---	---	---	753	708	717	1,150	1,110	1,130
20	994	940	980	---	---	---	778	738	751	1,160	1,140	1,150
21	1,020	994	1,010	---	---	---	809	773	780	1,180	1,130	1,140
22	1,060	1,020	1,030	---	---	---	824	803	809	1,180	1,150	1,160
23	1,060	1,040	1,040	---	---	---	835	819	825	1,180	1,150	1,160
24	1,100	1,060	1,070	---	---	---	842	821	833	1,190	1,160	1,160
25	1,120	1,100	1,110	---	---	---	864	836	855	1,200	1,170	1,180
26	1,120	1,090	1,100	---	---	---	877	844	860	1,180	1,150	1,160
27	1,110	1,080	1,100	---	---	---	900	877	891	1,180	1,160	1,170
28	1,090	724	764	---	---	---	905	892	897	1,180	1,160	1,170
29	795	727	770	---	---	---	917	899	911	1,190	1,160	1,170
30	---	---	---	---	---	---	931	880	915	1,190	1,170	1,180
31	---	---	---	---	---	---	---	---	---	1,190	1,170	1,190
Max	1,130	1,120	1,130	---	---	---	---	---	---	1,200	1,170	1,190
Min	656	546	562	---	---	---	---	---	---	928	895	918

11074000 Santa Ana River below Prado Dam, CA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		June			July			August			September	
1	1,200	1,170	1,180	1,200	1,180	1,190	1,150	1,110	1,130	1,140	1,090	1,090
2	1,200	1,190	1,190	1,190	1,170	1,180	1,130	1,110	1,120	1,100	1,050	1,090
3	1,220	1,190	1,200	1,200	1,170	1,180	1,150	1,110	1,140	1,110	1,020	1,090
4	1,200	1,190	1,200	1,200	1,180	1,190	1,140	1,110	1,120	1,100	1,040	1,090
5	1,200	1,190	1,190	1,190	1,140	1,180	1,110	1,050	1,070	1,110	1,080	1,100
6	1,210	1,190	1,200	1,170	1,140	1,160	1,080	1,040	1,070	1,100	1,070	1,080
7	1,210	1,200	1,200	1,170	1,130	1,150	1,110	1,080	1,100	1,130	1,070	1,110
8	1,220	1,200	1,210	1,140	1,120	1,130	1,130	1,100	1,110	1,120	1,070	1,100
9	1,200	1,170	1,190	1,150	1,110	1,130	1,140	1,120	1,140	1,100	1,060	1,090
10	1,170	1,140	1,150	1,160	1,130	1,150	1,140	1,130	1,140	1,130	1,090	1,120
11	1,140	1,110	1,120	1,160	1,140	1,150	1,140	1,130	1,140	1,130	1,100	1,120
12	1,120	1,110	1,110	1,160	1,140	1,160	1,150	1,130	1,140	1,130	1,110	1,110
13	1,140	1,110	1,120	1,170	1,120	1,150	1,150	1,140	1,150	1,140	1,100	1,120
14	1,160	1,140	1,140	1,120	1,100	1,110	1,140	1,120	1,130	1,100	1,060	1,100
15	1,170	1,160	1,160	1,120	1,100	1,110	1,140	1,130	1,140	1,090	1,050	1,070
16	1,180	1,150	1,160	1,140	1,090	1,120	1,140	1,120	1,130	1,090	1,040	1,080
17	1,160	1,140	1,160	1,130	1,100	1,110	1,150	1,140	1,140	1,080	1,040	1,070
18	1,150	1,140	1,140	1,120	1,080	1,110	1,160	1,150	1,150	1,080	1,060	1,070
19	1,180	1,150	1,170	1,130	1,080	1,110	1,150	1,130	1,140	1,070	1,030	1,070
20	1,180	1,160	1,170	1,160	1,120	1,140	1,140	1,120	1,140	1,120	1,020	1,030
21	1,180	1,170	1,170	1,170	1,160	1,170	1,140	1,130	1,140	1,120	1,070	1,100
22	1,180	1,150	1,160	1,180	1,160	1,170	1,140	1,120	1,130	1,090	1,050	1,070
23	1,170	1,160	1,160	1,160	1,140	1,150	1,140	1,110	1,120	1,050	990	1,020
24	1,160	1,140	1,140	1,160	1,120	1,140	1,140	1,110	1,130	1,030	965	1,010
25	1,150	1,120	1,130	1,130	1,120	1,130	1,130	1,100	1,110	1,040	996	1,030
26	1,160	1,140	1,150	1,130	1,100	1,120	1,140	1,090	1,130	1,060	1,030	1,040
27	1,170	1,140	1,150	1,150	1,090	1,150	1,120	1,080	1,100	1,110	1,040	1,080
28	1,190	1,150	1,180	1,150	1,130	1,140	1,160	1,060	1,130	1,100	1,070	1,090
29	1,180	1,160	1,170	1,170	1,140	1,160	1,160	1,140	1,150	1,100	1,080	1,100
30	1,190	1,170	1,180	1,170	1,140	1,150	1,160	1,130	1,140	1,100	1,090	1,100
31	---	---	---	1,160	1,140	1,150	1,170	1,140	1,160	---	---	---
Max	1,220	1,200	1,210	1,200	1,180	1,190	1,170	1,150	1,160	1,140	1,110	1,120
Min	1,120	1,110	1,110	1,120	1,080	1,110	1,080	1,040	1,070	1,030	965	1,010

11074000 Santa Ana River below Prado Dam, CA—Continued



11074000 Santa Ana River below Prado Dam, CA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		October			November			December			January	
1	22.5	21.1	21.9	18.7	16.9	18.1	14.5	13.5	14.2	15.2	12.8	14.3
2	22.3	21.1	22.0	18.3	16.2	16.9	13.5	13.0	13.3	15.0	12.5	14.1
3	21.9	20.5	21.0	16.8	15.0	16.1	13.4	11.9	12.6	15.5	13.2	14.5
4	20.5	19.5	20.0	17.2	16.2	16.9	11.9	10.5	10.9	15.9	13.4	14.7
5	19.7	17.8	18.5	16.2	14.3	15.1	11.8	10.7	11.0	15.8	13.8	15.1
6	19.0	16.7	17.6	15.0	14.2	14.6	11.1	9.7	10.3	15.7	13.3	14.5
7	19.3	16.6	18.3	14.5	13.2	14.3	11.6	10.0	10.6	14.9	12.4	13.8
8	19.7	17.1	18.8	14.4	13.0	13.7	11.9	10.5	11.0	13.8	11.8	13.0
9	20.2	17.8	19.5	14.4	13.2	13.9	12.4	10.9	11.3	14.3	11.8	12.9
10	20.4	18.2	19.8	14.8	13.9	14.5	13.4	11.9	12.2	14.2	12.4	13.6
11	21.0	18.4	19.9	15.6	14.6	15.3	13.8	12.2	12.6	14.2	12.4	13.3
12	22.6	19.8	20.8	16.0	15.3	15.8	13.9	12.7	13.3	14.9	13.2	14.1
13	22.5	20.5	21.9	16.2	15.7	15.9	12.7	11.3	11.8	14.4	12.2	13.4
14	22.0	20.1	21.4	16.9	15.9	16.4	12.2	11.1	11.7	13.4	10.7	11.9
15	22.0	20.1	21.3	18.1	16.9	17.3	12.5	11.8	12.1	13.2	10.6	11.5
16	21.8	20.1	21.2	17.8	16.1	17.1	12.0	11.0	11.4	14.0	12.8	13.2
17	21.8	20.1	21.4	17.4	15.9	16.9	11.4	10.9	11.3	14.1	13.0	13.8
18	21.5	20.1	21.2	17.4	16.3	16.6	12.2	11.3	11.8	13.8	11.4	12.9
19	21.2	19.9	20.8	16.3	15.4	15.8	13.2	12.2	12.8	14.1	11.6	12.9
20	20.8	19.6	20.3	16.2	14.5	15.2	13.6	12.9	13.2	14.9	12.3	13.3
21	20.9	19.5	20.1	14.5	13.8	14.1	13.3	12.2	12.9	15.0	13.9	14.4
22	20.9	18.7	20.0	14.3	13.4	14.0	12.7	11.3	12.5	13.9	12.9	13.6
23	21.0	19.4	20.6	14.2	13.6	14.0	11.3	10.1	10.6	13.2	12.8	12.9
24	20.8	19.8	20.4	14.5	13.9	14.3	12.1	10.2	11.0	13.6	13.1	13.3
25	20.1	19.2	19.4	14.7	13.9	14.3	12.5	11.3	11.8	14.1	13.2	13.6
26	19.9	18.5	19.2	14.6	14.0	14.4	12.8	11.2	11.8	14.8	13.8	14.2
27	19.4	16.9	18.2	14.7	14.0	14.5	12.5	11.0	11.7	14.6	14.1	14.3
28	18.4	16.0	17.6	15.0	14.3	14.6	13.3	11.2	12.2	14.1	13.3	13.5
29	18.3	16.2	17.6	14.9	14.5	14.7	14.1	11.3	12.6	13.6	12.7	13.2
30	18.8	16.5	17.9	15.1	14.3	14.7	14.5	12.3	13.6	13.5	12.7	13.1
31	18.8	17.1	18.4	---	---	---	15.0	12.3	13.8	13.8	12.8	13.2
Max	22.6	21.1	22.0	18.7	16.9	18.1	15.0	13.5	14.2	15.9	14.1	15.1
Min	18.3	16.0	17.6	14.2	13.0	13.7	11.1	9.7	10.3	13.2	10.6	11.5

11074000 Santa Ana River below Prado Dam, CA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

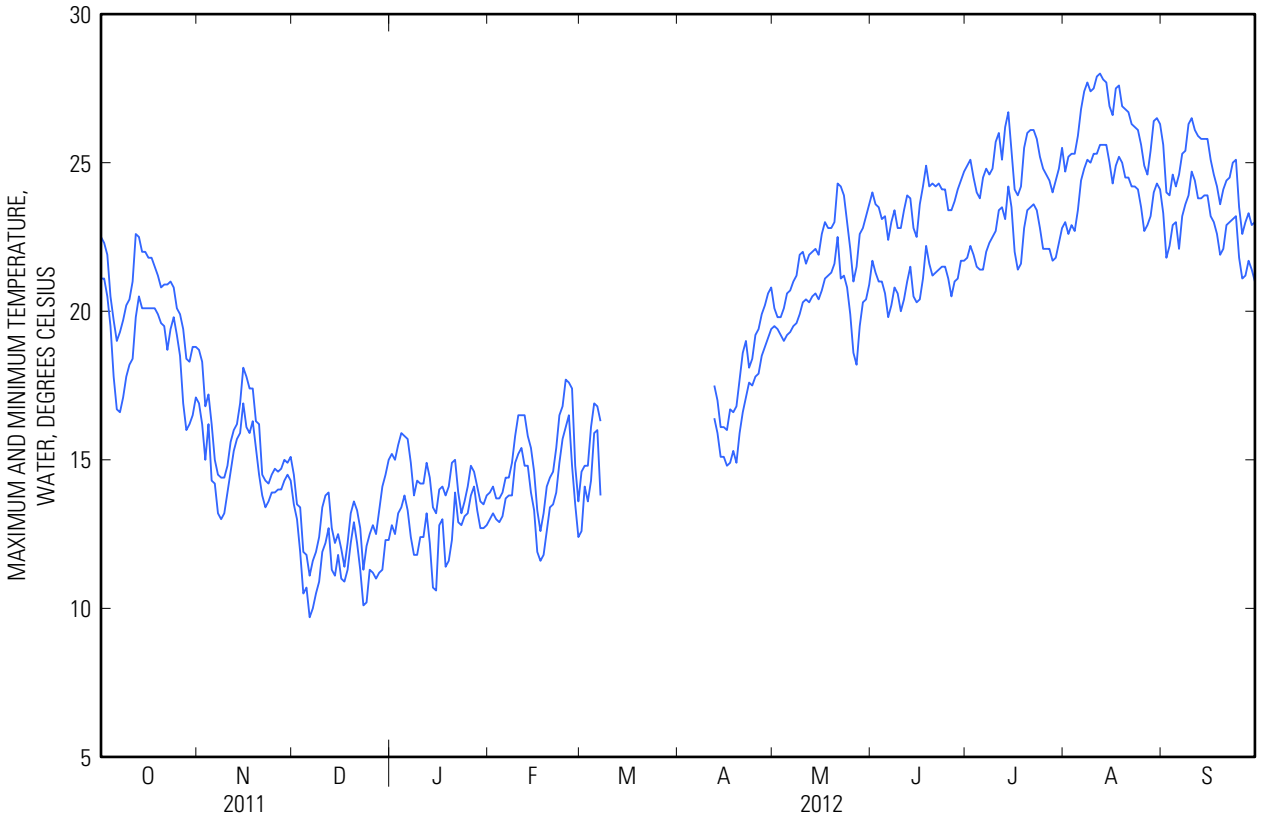
Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		February			March			April			May	
1	13.9	13.0	13.5	14.6	12.6	13.5	---	---	---	20.1	19.5	19.8
2	14.1	13.2	13.7	14.8	14.1	14.4	---	---	---	19.8	19.4	19.5
3	13.7	13.0	13.5	14.8	13.6	14.2	---	---	---	19.8	19.2	19.4
4	13.7	12.9	13.4	16.1	14.3	15.1	---	---	---	20.1	19.0	19.6
5	13.9	13.1	13.7	16.9	15.9	16.4	---	---	---	20.6	19.2	19.8
6	14.4	13.7	13.9	16.8	16.0	16.4	---	---	---	20.7	19.3	20.0
7	14.4	13.8	14.1	16.3	13.8	14.9	---	---	---	21.0	19.5	20.1
8	14.9	13.8	14.6	---	---	---	---	---	---	21.2	19.6	20.3
9	15.8	14.9	15.2	---	---	---	---	---	---	21.9	19.9	20.8
10	16.5	15.2	15.6	---	---	---	---	---	---	22.0	20.3	21.1
11	16.5	15.4	15.9	---	---	---	---	---	---	21.6	20.4	21.0
12	16.5	14.8	15.5	---	---	---	17.5	16.4	17.1	21.9	20.3	21.0
13	15.8	14.8	15.2	---	---	---	17.0	15.9	16.6	22.0	20.5	21.1
14	15.4	13.9	14.9	---	---	---	16.1	15.1	15.7	22.1	20.6	21.2
15	14.6	13.3	13.9	---	---	---	16.1	15.1	15.7	21.9	20.4	21.2
16	13.3	11.9	12.3	---	---	---	16.0	14.8	15.5	22.6	20.7	21.4
17	12.6	11.6	12.1	---	---	---	16.7	14.9	15.6	23.0	21.1	22.0
18	13.2	11.8	12.5	---	---	---	16.6	15.3	15.9	22.8	21.2	22.0
19	14.1	12.6	13.3	---	---	---	16.8	14.9	16.2	22.8	21.3	22.0
20	14.4	13.4	13.8	---	---	---	17.7	15.9	16.8	23.0	21.6	22.4
21	14.6	13.5	14.1	---	---	---	18.6	16.6	17.4	24.3	22.5	22.8
22	15.4	13.9	14.7	---	---	---	19.0	17.1	17.9	24.2	21.1	23.0
23	16.5	14.9	15.6	---	---	---	18.1	17.6	17.9	23.9	21.2	22.7
24	16.8	15.7	16.2	---	---	---	18.4	17.5	18.2	23.0	20.8	22.0
25	17.7	16.1	17.3	---	---	---	19.2	17.8	18.3	22.1	19.9	21.1
26	17.6	16.5	17.1	---	---	---	19.4	17.9	18.8	21.0	18.6	20.1
27	17.4	14.8	16.0	---	---	---	19.9	18.5	19.2	21.5	18.2	19.6
28	14.8	13.5	14.4	---	---	---	20.2	18.8	19.6	22.6	19.5	21.0
29	13.6	12.4	13.2	---	---	---	20.6	19.1	19.8	22.8	20.3	21.8
30	---	---	---	---	---	---	20.8	19.4	20.1	23.2	20.4	21.9
31	---	---	---	---	---	---	---	---	---	23.6	20.9	22.3
Max	17.7	16.5	17.3	---	---	---	---	---	---	24.3	22.5	23.0
Min	12.6	11.6	12.1	---	---	---	---	---	---	19.8	18.2	19.4

11074000 Santa Ana River below Prado Dam, CA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		June			July			August			September	
1	24.0	21.7	23.0	24.9	21.8	23.6	24.7	23.0	23.9	25.6	23.3	24.3
2	23.6	21.3	22.7	25.1	22.2	23.8	25.2	22.6	23.9	24.0	21.8	23.1
3	23.5	21.0	22.4	24.5	21.9	23.5	25.3	22.9	24.2	23.9	22.2	23.5
4	23.1	21.0	22.3	24.0	21.5	23.2	25.3	22.7	24.0	24.6	22.9	24.0
5	23.2	20.6	22.0	23.8	21.4	22.9	25.9	23.4	24.5	24.2	23.0	23.5
6	22.4	19.8	21.5	24.5	21.4	22.9	26.8	24.4	25.6	24.6	22.1	23.3
7	23.0	20.2	21.6	24.8	22.0	23.5	27.4	24.8	26.2	25.3	23.2	24.3
8	23.4	20.8	22.2	24.6	22.3	23.7	27.7	25.1	26.6	25.4	23.6	24.7
9	22.8	20.6	22.1	24.8	22.5	23.7	27.4	25.0	26.6	26.3	23.9	24.9
10	22.8	20.0	21.6	25.7	22.7	24.3	27.5	25.3	26.6	26.5	24.7	25.7
11	23.4	20.4	21.8	26.0	23.4	24.8	27.9	25.3	26.9	26.1	24.4	25.4
12	23.9	21.0	22.4	25.1	23.5	23.7	28.0	25.6	27.0	25.9	23.8	25.0
13	23.8	21.5	22.8	26.2	23.1	24.2	27.8	25.6	27.0	25.8	23.8	25.0
14	22.8	20.5	22.0	26.7	24.2	25.6	27.7	25.6	26.8	25.8	23.9	25.3
15	22.5	20.3	21.6	25.4	23.5	24.6	26.9	25.0	26.3	25.8	23.9	25.1
16	23.6	20.4	21.6	24.1	22.0	23.2	26.6	24.3	26.0	25.1	23.2	24.3
17	24.2	21.1	22.6	23.9	21.4	22.7	27.5	24.9	26.2	24.6	23.0	24.0
18	24.9	22.2	23.5	24.2	21.6	23.1	27.6	25.2	26.5	24.2	22.6	23.7
19	24.2	21.6	23.2	25.5	22.8	23.9	26.9	25.0	26.2	23.6	21.9	23.2
20	24.3	21.2	22.9	26.0	23.4	24.7	26.8	24.5	25.9	24.1	22.1	23.6
21	24.2	21.3	22.9	26.1	23.5	25.0	26.7	24.5	25.7	24.4	22.9	24.1
22	24.3	21.4	22.9	26.1	23.6	25.0	26.3	24.2	25.4	24.5	23.0	24.1
23	24.1	21.5	23.0	25.8	23.4	24.8	26.2	24.2	25.3	25.0	23.1	24.4
24	24.1	21.5	23.0	25.2	22.8	24.3	26.1	24.1	25.2	25.1	23.2	23.8
25	23.4	21.1	22.6	24.8	22.1	23.8	25.6	23.5	24.7	23.5	21.8	22.7
26	23.4	20.5	22.2	24.6	22.1	23.5	24.9	22.7	24.1	22.6	21.1	22.1
27	23.7	21.0	22.5	24.4	22.1	23.4	24.6	22.9	24.3	23.0	21.2	22.4
28	24.1	21.1	22.8	24.0	21.7	23.1	25.4	23.2	24.4	23.3	21.7	22.7
29	24.4	21.7	23.3	24.4	21.8	23.4	26.4	24.0	25.2	22.9	21.4	22.3
30	24.7	21.7	23.4	24.8	22.3	23.6	26.5	24.3	25.6	23.0	21.0	22.2
31	---	---	---	25.5	22.8	24.2	26.3	24.1	25.5	---	---	---
Max	24.9	22.2	23.5	26.7	24.2	25.6	28.0	25.6	27.0	26.5	24.7	25.7
Min	22.4	19.8	21.5	23.8	21.4	22.7	24.6	22.6	23.9	22.6	21.0	22.1

11074000 Santa Ana River below Prado Dam, CA—Continued



11074000 Santa Ana River below Prado Dam, CA—Continued

SUSPENDED SEDIMENT DISCHARGE
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

[ft^3/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius]

Sample date-time	Discharge, instantaneous, ft^3/s (00061)	Temperature, water, °C (00010)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
10-13-2011 1200	131	21.0	59	21
11-14-2011 1045	221	16.5	34	20
12-20-2011 1330	246	13.5	28	19
01-05-2012 1200	148	14.0	41	16
01-24-2012 1000	219	13.0	31	18
02-09-2012 1230	214	15.5	27	16
02-28-2012 1230	111	14.0	29	8.7
03-14-2012 1430	146	16.0	61	24
03-27-2012 1230	235	15.0	11	7.0
04-09-2012 1330	337	17.0	4	3.6
04-26-2012 1030	260	18.5	4	2.8
05-17-2012 1115	269	21.5	18	13
05-29-2012 1315	116	21.5	80	25
06-14-2012 1330	94	21.5	77	20
06-26-2012 1200	99	21.5	67	18
07-10-2012 1000	76	23.0	82	17
08-16-2012 1100	76	25.0	119	24
09-04-2012 1230	93	23.5	80	20

CROSS SECTION ANALYSES
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

[%, percent; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; µS/cm, microsiemens per centimeter]

Sample date-time	Barometric pressure, mm Hg (00025)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)	Temperature, water, °C (00010)
07-10-2012 1111	747	6.9	82	8.1	1,170	23.0

Note: Instantaneous discharge at the mean time of cross-sectional measurements: July 10, 76 ft^3/s.

11066460 Santa Ana River at Metropolitan Water District Crossing, near Arlington, CA

Santa Ana River Basin

LOCATION.--Lat 33°58′07″, long 117°26′51″ referenced to North American Datum of 1927, in NE ¼ SW ¼ sec.30, T.2 S., R.5 W., Riverside County, CA, Hydrologic Unit 18070203, near center of Metropolitan Water District pipeline crossing, 0.8 mi downstream from Union Pacific Railroad Bridge, 1.1 mi upstream from bridge on Van Buren Boulevard, and 3.3 mi north of Arlington.

DRAINAGE AREA.--852 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--March 1970 to current year.

REVISED RECORDS.--WDR CA-83-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 685 ft above NGVD of 1929, from topographic map. Prior to Apr. 15, 1985, water-stage recorder at site 300 ft upstream on left bank at different datum. From Apr. 15 to Sept. 30, 1985, water-stage recorder near right bank (atop pier 9 of Metropolitan Water District pipeline crossing), at same site and datum. From Oct. 1, 1985, to June 16, 1993, water-stage recorder and crest-stage gage on right bank at same site and datum. From June 17, 1993, to Sept. 30, 2003, water-stage recorder and crest-stage gage on left bank at same site and datum. From Oct. 1, 2003 to Oct. 17, 2005, water-stage recorder in reach-in shelter on pipeline catwalk, near pier #13 at same site and datum. Since Oct. 18, 2005, water-stage recorder is situated in reach-in shelter on upper deck platform, near pier #13 at same site and datum.

REMARKS.--Records poor. Flow partly regulated by Big Bear Lake (station 11049000) and, since November 1999, by Seven Oaks Flood-Control Reservoir, capacity, 145,600 acre-ft. Natural streamflow affected by ground-water withdrawals, diversions for irrigation, return flows from irrigated areas, and discharges of treated effluent. The records at this station are equivalent to those collected at "Santa Ana River at Riverside Narrows, near Arlington" minus the flow at "Riverside Water-Quality Control Plant at Riverside Narrows, near Arlington". See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,100 ft^3/s, Dec. 21, 2010, gage height, 16.83 ft, from rating curve extended above 21,900 ft^3/s on basis of area-velocity studies; maximum gage height, 20.23 ft, site and datum then in use, Mar. 4, 1978; minimum daily, 15 ft^3/s, Sept. 7, 8, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1927, 100,000 ft^3/s, Mar. 2, 1938, on basis of slope-area measurement, at site 1.1 mi downstream. Flood of Jan. 22, 1862, 320,000 ft^3/s, on basis of slope-conveyance study, at site 8.2 mi upstream. Stage at that site was 5 ft higher than that of Mar. 2, 1938.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 17	1730	*1,870	*8.25

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 11066460, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/11066460.2012.pdf

11066460 Santa Ana River at Metropolitan Water District Crossing, near Arlington, CA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	52	63	62	69	58	80	78	50	41	39	35	43
2	51	62	62	68	60	78	78	53	41	36	38	45
3	52	65	57	69	62	77	71	51	43	36	40	43
4	57	117	64	69	68	76	72	51	41	38	39	45
5	240	85	66	68	72	77	75	50	44	38	38	51
6	107	101	65	70	71	75	73	46	43	39	39	52
7	61	110	70	68	71	72	79	49	40	38	38	50
8	55	87	70	66	71	73	77	50	42	37	35	52
9	55	81	68	69	69	70	73	47	42	37	35	55
10	54	75	70	71	68	75	79	46	42	37	37	54
11	50	73	74	70	68	76	91	48	42	37	38	70
12	50	86	152	66	69	73	61	46	40	36	35	64
13	51	77	80	67	67	77	236	45	34	41	35	75
14	51	78	65	61	67	76	167	46	40	37	36	67
15	51	78	64	66	96	76	59	45	41	38	35	60
16	51	74	60	68	77	79	49	43	44	37	35	60
17	49	81	58	72	73	351	50	43	41	39	35	62
18	52	84	60	72	78	235	47	44	40	37	52	63
19	53	77	61	78	83	98	48	42	37	37	40	59
20	54	212	61	78	65	78	48	40	39	37	39	61
21	52	147	63	135	72	68	47	43	41	35	41	63
22	55	68	67	82	69	72	45	43	40	36	40	57
23	55	72	66	114	72	72	47	42	49	36	41	62
24	54	56	68	87	74	79	50	43	48	35	42	58
25	64	66	64	66	76	99	47	41	44	35	42	61
26	61	64	69	66	70	170	113	42	49	37	44	61
27	60	60	68	64	84	101	54	43	35	37	43	61
28	59	64	68	59	85	81	49	42	35	34	39	57
29	55	63	65	58	80	76	50	41	37	35	43	61
30	60	59	70	57	---	73	53	39	37	33	44	55
31	58	---	68	60	---	73	---	44	---	38	71	---
Total	1,929	2,485	2,125	2,233	2,095	2,936	2,166	1,398	1,232	1,142	1,244	1,727
Mean	62.2	82.8	68.5	72.0	72.2	94.7	72.2	45.1	41.1	36.8	40.1	57.6
Max	240	212	152	135	96	351	236	53	49	41	71	75
Min	49	56	57	57	58	68	45	39	34	33	35	43
Ac-ft	3,830	4,930	4,210	4,430	4,160	5,820	4,300	2,770	2,440	2,270	2,470	3,430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1999, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	59.5	78.3	103	238	293	326	148	121	79.2	52.9	52.5	53.8
Max	194	259	292	1,839	1,411	1,806	604	666	351	145	233	129
(WY)	(1988)	(1984)	(1984)	(1993)	(1980)	(1995)	(1983)	(1983)	(1983)	(1983)	(1983)	(1976)
Min	20.5	21.2	23.3	24.7	23.1	23.7	23.1	22.3	20.2	16.8	17.9	18.0
(WY)	(1974)	(1975)	(1974)	(1972)	(1972)	(1972)	(1971)	(1972)	(1981)	(1981)	(1981)	(1974)

11066460 Santa Ana River at Metropolitan Water District Crossing, near Arlington, CA—Continued

SUMMARY STATISTICS

	Water Years 1970 - 199		
Annual mean	134		
Highest annual mean	416		1983
Lowest annual mean	29.0		1975
Highest daily mean	11,500	Mar 2	1983
Lowest daily mean	15	Sep 7	1980
Annual seven-day minimum	16	Jul 1	1981
Maximum peak flow	31,300	Feb 24	1998
Maximum peak stage	20.23	Mar 4	1978
Annual runoff (ac-ft)	97,140		
10 percent exceeds	209		
50 percent exceeds	63		
90 percent exceeds	23		

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2012, BY WATER YEAR (WY)

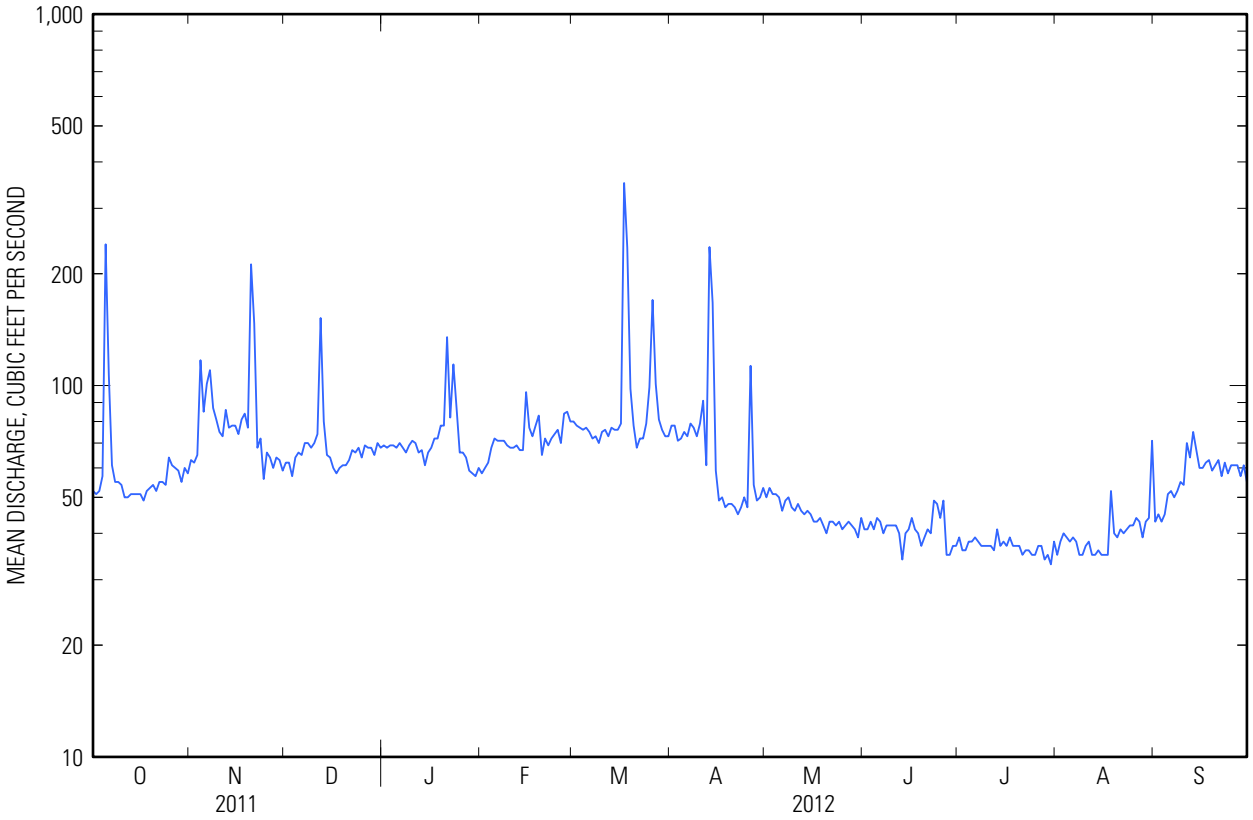
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	111	95.2	266	347	248	166	160	102	78.6	68.9	73.6	66.0
Max	498	141	1,730	2,350	755	498	500	314	192	137	201	86.6
(WY)	(2005)	(2003)	(2011)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)
Min	51.0	51.5	68.5	72.0	72.2	74.8	56.2	45.1	41.1	36.8	40.1	39.3
(WY)	(2010)	(2010)	(2012)	(2012)	(2012)	(2009)	(2009)	(2012)	(2012)	(2012)	(2012)	(2009)

SUMMARY STATISTICS

[e, Estimated]

	Calendar Year 2011		Water Year 2012		Water Years 2000 - 2012	
Annual total	36,206		22,712			
Annual mean	99.2		62.1		148	
Highest annual mean					491	2005
Lowest annual mean					62.1	2012
Highest daily mean	2,050	Mar 1	351	Mar 17	e22,000	Jan 11, 2005
Lowest daily mean	36	Aug 22	33	Jul 30	33	Jul 30, 2012
Annual seven-day minimum	38	Aug 21	35	Jul 24	35	Jul 24, 2012
Maximum peak flow			1,870	Mar 17	49,100	Dec 21, 2010
Maximum peak stage			8.25	Mar 17	16.83	Dec 21, 2010
Annual runoff (ac-ft)	71,810		45,050		107,400	
10 percent exceeds	125		79		150	
50 percent exceeds	68		59		79	
90 percent exceeds	46		37		52	

11066460 Santa Ana River at Metropolitan Water District Crossing, near Arlington, CA—Continued



11066460 Santa Ana River at Metropolitan Water District Crossing, near Arlington, CA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970 to current year.
CHEMICAL DATA: Water years 1970 to current year.
SPECIFIC CONDUCTANCE: Water years 1970-78, 1999-2000.
WATER TEMPERATURE: Water years 1999-2000.
SEDIMENT DATA: Water years 1999-2000.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

[ft^3/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; --, no data]

Sample date-time	Temperature, air, °C (00020)	Discharge, instantaneous, ft^3/s (00061)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)	Temperature, water, °C (00010)	Dissolved solids dried at 180°C, water, filtered, mg/L (70300)
10-26-2011 1115	19.3	64	1,000	20.3	629
12-09-2011 1300	22.8	71	961	19.2	609
01-05-2012 1300	25.5	64	992	20.4	598
01-23-2012 1245	10.8	86	947	15.9	565
02-15-2012 1145	15.0	62	980	15.5	596
02-24-2012 1245	29.1	78	972	23.2	612
03-22-2012 1230	25.0	71	970	22.9	600
03-26-2012 1130	--	188	609	15.7	365
04-11-2012 1200	14.2	133	800	18.0	492
05-23-2012 1645	26.6	41	981	28.5	610
05-30-2012 1400	25.8	44	955	30.6	604
06-15-2012 1045	23.4	41	951	20.1	602
06-26-2012 1045	27.8	62	905	24.5	560
07-16-2012 1045	21.7	38	990	25.0	613
07-27-2012 1015	21.0	37	981	23.7	614
08-16-2012 1450	35.8	32	1,070	31.6	660
08-27-2012 1205	37.4	44	982	28.2	618
09-07-2012 1210	32.2	46	985	27.3	615
09-20-2012 1055	27.7	60	958	24.7	597

11059300 Santa Ana River at E Street, near San Bernardino, CA

Santa Ana River Basin

LOCATION.--Lat 34°03′54″, long 117°17′58″ referenced to North American Datum of 1927, San Bernardino County, CA, Hydrologic Unit 18070203, in San Bernardino Grant, on left bank, 0.4 mi downstream from E Street Bridge, 0.4 mi upstream from Warm Creek, 1.2 mi downstream from San Timoteo Creek, 2.8 mi south of San Bernardino, and 26 mi downstream from Big Bear Lake.

DRAINAGE AREA.--541 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--March 1939 to September 1954, October 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 940 ft above NGVD of 1929, from topographic map. Prior to Nov. 10, 1950, on right bank 0.4 mi upstream at datum 24.50 ft higher. Nov. 11, 1950, to September 1954, on both banks 0.4 mi upstream at datum 24.50 ft higher. October 1966 to September 1976, on right bank 0.4 mi upstream at datum 14.50 ft higher. October 1976 to September 1977, gage was removed for channel construction. October 1977 to Jan. 28, 1981, on right bank, 0.5 mi upstream at elevation 10 ft higher.

REMARKS.--Records poor. Flow partly regulated by Big Bear Lake (station 11049000) and, since November 1999, by Seven Oaks Flood-Control Reservoir, capacity, 145,600 acre-ft. Natural flow of stream affected by ground-water withdrawals and diversion for domestic use and irrigation upstream from station. Effluent from sewage reclamation plant 1.0 mi upstream caused sustained flow past gage from 1967 to Mar. 21, 1996. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,700 ft^3/s, Jan. 11, 2005, gage height, 9.04 ft, current site and datum, from rating curve extended above 5,930 ft^3/s on basis of critical-depth computations; maximum gage height, 11.9 ft, Feb. 25, 1969, site and datum then in use; no flow for many days many years prior to 1967 and since Mar. 21, 1996.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and (or) maximum (*), from rating curve extended as explained above:

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 5	1700	*2,300	*5.10
Nov 20	1945	2,180	5.05
Mar 17	1445	1,110	5.05
Mar 18	1830	1,230	4.30
Mar 25	2045	1,110	4.22
Apr 13	1730	2,240	4.88

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 11059300, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/11059300.2012.pdf

11059300 Santa Ana River at E Street, near San Bernardino, CA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	e0.00	0.00	e0.50	e4.5	e3.0	0.37	e14	e0.00	0.01	0.00	0.00	0.00
2	e0.00	0.00	2.7	e4.0	e3.8	1.7	e17	e1.2	0.01	0.00	0.00	0.00
3	e0.00	0.00	0.90	e4.5	e6.2	1.9	e9.6	6.6	0.00	0.00	0.00	0.00
4	e0.00	31	0.79	e4.5	e9.2	e1.4	0.10	4.9	0.00	0.00	0.00	0.00
5	201	15	2.0	e3.4	e11	e2.2	0.00	0.39	0.00	0.00	0.00	0.00
6	14	43	0.81	e6.2	e6.7	3.6	e0.00	0.02	0.01	0.00	0.00	0.00
7	0.33	23	1.1	e3.4	e3.9	3.7	e0.00	0.03	0.00	0.00	0.00	0.00
8	0.00	3.6	6.9	e0.65	e1.9	0.63	e0.00	0.02	0.01	0.00	0.00	0.00
9	0.00	4.1	6.0	e3.7	0.07	0.35	e0.00	0.03	0.00	0.00	0.00	0.00
10	0.00	3.3	6.2	e2.8	0.26	0.57	0.00	0.02	0.00	0.00	0.00	4.3
11	0.00	1.9	7.7	e1.4	e0.22	1.00	3.8	0.01	0.02	0.00	0.00	3.6
12	0.00	2.7	51	1.1	e0.20	1.0	e3.0	0.02	0.01	0.00	0.00	1.5
13	0.00	3.0	10	0.26	e0.17	1.5	e252	0.03	0.00	11	0.00	4.4
14	0.00	3.4	e6.2	0.39	e0.10	1.2	130	0.02	0.00	0.00	0.00	2.7
15	0.00	2.8	e4.0	0.70	e23	2.4	17	0.00	0.00	0.00	0.00	0.00
16	0.00	2.3	2.7	0.74	13	e2.0	9.2	0.01	0.00	0.00	0.00	0.00
17	0.00	2.2	7.0	0.66	1.8	218	3.1	0.02	0.01	0.00	5.5	0.00
18	0.00	2.3	e8.7	0.90	0.81	249	5.2	0.00	0.00	0.00	8.7	0.00
19	0.00	2.3	e7.7	0.97	0.52	79	0.39	0.00	0.00	0.00	1.1	0.00
20	0.00	212	e4.1	1.1	0.76	42	0.09	0.02	0.00	0.00	1.1	0.00
21	0.00	123	e5.0	28	0.37	e30	0.10	0.02	0.00	0.00	1.0	0.00
22	0.00	17	e8.7	4.0	0.45	e24	0.08	0.01	0.00	0.00	2.7	0.00
23	0.00	3.6	e8.7	14	0.40	29	0.00	0.00	0.00	0.00	1.1	0.00
24	0.00	e1.7	e11	e4.1	0.25	31	0.01	0.00	0.01	0.00	1.2	0.00
25	0.00	e4.0	e6.8	e2.8	0.24	112	0.01	0.01	0.00	0.00	0.04	0.00
26	0.00	e1.5	e9.0	e1.4	0.00	69	54	0.00	0.00	0.00	0.08	0.00
27	0.00	e0.90	e3.4	0.20	19	e38	e0.25	0.00	0.01	0.00	0.00	0.00
28	0.00	e0.70	e2.3	0.06	16	e31	e0.10	0.02	0.01	0.00	0.00	0.00
29	0.00	e0.50	e1.8	e0.10	5.8	e23	0.05	0.01	0.00	0.00	2.6	0.00
30	0.00	e0.50	e4.5	e0.13	---	e19	0.03	0.00	0.00	0.00	14	0.00
31	0.00	---	e3.4	e2.5	---	e13	---	0.02	---	0.00	22	---
Total	215.33	511.30	201.60	103.16	129.12	1,032.52	519.11	13.43	0.11	11.00	61.12	16.50
Mean	6.95	17.0	6.50	3.33	4.45	33.3	17.3	0.43	0.00	0.35	1.97	0.55
Max	201	212	51	28	23	249	252	6.6	0.02	11	22	4.4
Min	0.00	0.00	0.50	0.06	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00
Ac-ft	427	1,010	400	205	256	2,050	1,030	27	0.2	22	121	33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1954, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	.88	3.47	20.9	23.7	20.6	37.4	27.2	11.3	2.39	.93	.87	.63
Max	3.35	21.3	117	109	72.2	183	237	145	31.2	9.87	8.37	6.32
(WY)	(1942)	(1945)	(1946)	(1943)	(1945)	(1943)	(1941)	(1941)	(1941)	(1940)	(1940)	(1939)
Min	.000	.007	.000	1.90	2.41	1.70	1.14	.14	.000	.000	.000	.000
(WY)	(1951)	(1952)	(1951)	(1948)	(1942)	(1951)	(1951)	(1942)	(1950)	(1950)	(1942)	(1948)

11059300 Santa Ana River at E Street, near San Bernardino, CA—Continued

SUMMARY STATISTICS

	Water Years 1939 - 1954	
Annual mean	12.7	
Highest annual mean	56.6	1941
Lowest annual mean	.78	1951
Highest daily mean	2,350	Jan 23, 1943
Lowest daily mean	.00	Jun 19, 1940
Annual seven-day minimum	.00	Sep 10, 1940
Maximum peak flow	7,600	Jan 23, 1943
Maximum peak stage	6.50	Jan 23, 1943
Annual runoff (ac-ft)	9,190	
10 percent exceeds	16	
50 percent exceeds	1.0	
90 percent exceeds	.00	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1995, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	33.9	43.3	77.4	158	232	253	132	103	63.9	40.8	36.8	34.6
Max	117	191	469	1,327	2,096	1,279	742	707	339	162	160	75.0
(WY)	(1984)	(1984)	(1967)	(1993)	(1980)	(1980)	(1980)	(1983)	(1983)	(1969)	(1983)	(1983)
Min	12.4	13.2	14.8	13.2	11.6	10.6	12.5	9.35	13.0	9.08	9.97	9.93
(WY)	(1968)	(1972)	(1970)	(1972)	(1968)	(1972)	(1972)	(1967)	(1971)	(1967)	(1967)	(1967)

SUMMARY STATISTICS

	Water Years 1967 - 1995	
Annual mean	100	
Highest annual mean	441	1980
Lowest annual mean	17.2	1968
Highest daily mean	14,800	Feb 25, 1969
Lowest daily mean	6.4	Jul 13, 1967
Annual seven-day minimum	8.1	Sep 16, 1967
Maximum peak flow	28,000	Feb 25, 1969
Maximum peak stage	11.90	Feb 25, 1969
Annual runoff (ac-ft)	72,490	
10 percent exceeds	165	
50 percent exceeds	35	
90 percent exceeds	14	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	17.5	31.2	29.8	101	253	48.0	55.4	110	31.2	9.13	18.4	22.6
Max	38.1	56.2	42.6	230	729	114	190	430	116	20.9	66.1	75.8
(WY)	(1996)	(1997)	(1998)	(1997)	(1998)	(1998)	(1998)	(1998)	(1998)	(1999)	(1998)	(1998)
Min	4.97	11.0	16.5	22.2	7.57	0.10	0.00	0.00	0.00	0.00	0.00	0.00
(WY)	(1998)	(1998)	(1999)	(1999)	(1997)	(1997)	(1997)	(1996)	(1996)	(1996)	(1996)	(1996)

11059300 Santa Ana River at E Street, near San Bernardino, CA—Continued

SUMMARY STATISTICS

	Water Years 1996 - 1999	
Annual mean	59.4	
Highest annual mean	152	1998
Lowest annual mean	15.9	1999
Highest daily mean	5,050	Feb 24, 1998
Lowest daily mean	0.00	Mar 22, 1996
Annual seven-day minimum	0.00	Mar 22, 1996
Maximum peak flow	21,100	Feb 23, 1998
Maximum peak stage	7.70	Feb 23, 1998
Annual runoff (ac-ft)	43,010	
10 percent exceeds	138	
50 percent exceeds	7.5	
90 percent exceeds	0.00	

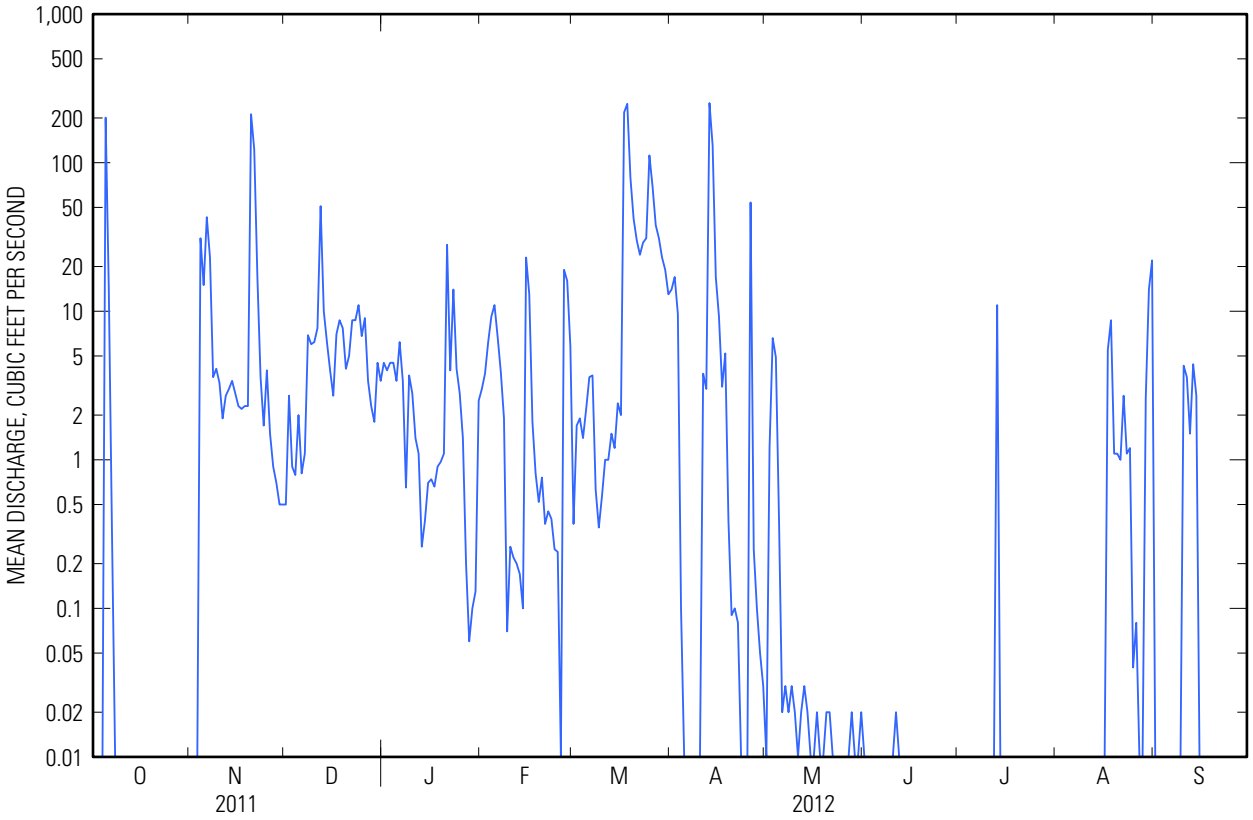
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	20.7	12.6	89.5	132	98.4	71.2	69.1	30.1	8.91	6.81	8.37	4.20
Max	200	39.7	764	1,185	376	398	351	247	112	52.9	102	40.6
(WY)	(2005)	(2003)	(2011)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)
Min	0.00	0.67	1.16	0.00	0.82	4.10	0.04	0.00	0.00	0.00	0.00	0.00
(WY)	(2003)	(2001)	(2001)	(2003)	(2002)	(2008)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 2000 - 2012	
Annual total	16,749.57		2,814.30			
Annual mean	45.9		7.69		45.9	
Highest annual mean					265	2005
Lowest annual mean					1.70	2002
Highest daily mean	2,300	Mar 1	252	Apr 13	12,500	Jan 11, 2005
Lowest daily mean	0.00	May 27	0.00	Oct 1	0.00	May 14, 2000
Annual seven-day minimum	0.00	May 27	0.00	Oct 8	0.00	Sep 11, 2000
Maximum peak flow			2,300	Oct 5	35,700	Jan 11, 2005
Maximum peak stage			5.10	Oct 5	9.04	Jan 11, 2005
Annual runoff (ac-ft)	33,220		5,580		33,240	
10 percent exceeds	81		14		60	
50 percent exceeds	2.6		0.10		1.1	
90 percent exceeds	0.00		0.00		0.00	

11059300 Santa Ana River at E Street, near San Bernardino, CA—Continued



11059300 Santa Ana River at E Street, near San Bernardino, CA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968-72, 1983-86, 1988 to current year.
CHEMICAL ANALYSES: Water years 1969 (partial-record station), 1970-72.
SPECIFIC CONDUCTANCE: Water years 1968-72.
WATER TEMPERATURE: Water years 1968, 1983.
SEDIMENT DATA: Water years 1983-86, 1988 to current year.

PERIOD OF DAILY RECORD.--October 1982 to September 1983.
WATER TEMPERATURE: November 1982 to September 1983.
SUSPENDED-SEDIMENT DISCHARGE: October 1982 to September 1983.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 1 of 2

[ft³/s, cubic feet per second; mg/L, milligrams per liter; mm, millimeters; °C, degrees Celsius; A, average]

Sample date-time	Discharge, instantaneous, ft³/s (00061)	Temperature, water, °C (00010)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)	Suspended sediment, fall diameter (deionized water), percent smaller than 0.002 mm (70337)	Suspended sediment, fall diameter (deionized water), percent smaller than 0.004 mm (70338)	Suspended sediment, fall diameter (deionized water), percent smaller than 0.008 mm (70339)	Suspended sediment, fall diameter (deionized water), percent smaller than 0.016 mm (70340)	Suspended sediment, fall diameter (deionized water), percent smaller than 0.031 mm (70341)
11-04-2011 1405	3.2	14.0	2,240	19	--	--	--	--	--
11-04-2011 1406	3.2	14.0	A 2,120	A 18	--	--	--	--	--
11-04-2011 1407	3.2	14.0	2,000	17	--	--	--	--	--
11-21-2011 1005	137	11.7	1,410	522	35	52	65	69	74
11-21-2011 1006	137	11.7	A 1,400	A 520	A 35	A 52	A 64	A 69	A 73
11-21-2011 1007	137	11.7	1,400	518	35	52	63	69	72
12-12-2011 1446	48	10.3	1,060	136	--	--	--	--	--
12-12-2011 1447	48	10.3	A 931	A 120	--	--	--	--	--
12-12-2011 1448	48	10.3	804	103	--	--	--	--	--
01-11-2012 1131	1.6	13.3	185	.81	--	--	--	--	--
01-11-2012 1132	1.6	13.3	A 187	A .82	--	--	--	--	--
01-11-2012 1133	1.6	13.3	189	.83	--	--	--	--	--
02-08-2012 1136	.96	19.0	342	.89	--	--	--	--	--
02-08-2012 1137	.96	19.0	A 360	A .93	--	--	--	--	--
02-08-2012 1138	.96	19.0	377	.98	--	--	--	--	--
02-16-2012 0832	7.7	8.1	1,020	21	--	--	--	--	--
02-16-2012 0833	7.7	8.1	A 1,100	A 23	--	--	--	--	--
02-16-2012 0834	7.7	8.1	1,180	25	--	--	--	--	--
03-17-2012 1457	670	12.3	4,290	7,760	11	16	20	32	42
03-17-2012 1458	670	12.3	A 4,020	A 7,270	A 12	A 19	A 23	A 35	A 46
03-17-2012 1459	670	12.3	3,760	6,800	14	22	25	39	51
04-11-2012 1012	4.2	15.6	541	6.1	--	--	--	--	--
04-11-2012 1013	4.2	15.6	A 527	A 5.9	--	--	--	--	--
04-11-2012 1014	4.2	15.6	513	5.7	--	--	--	--	--
08-20-2012 1120	5.0	31.1	5,290	72	42	53	75	93	99
08-20-2012 1121	5.0	31.1	A 5,280	A 72	A 41	A 52	A 75	A 93	A 98
08-20-2012 1122	5.0	31.1	5,260	72	39	50	74	92	98

11059300 Santa Ana River at E Street, near San Bernardino, CA—Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 2 of 2

[ft³/s, cubic feet per second; mg/L, milligrams per liter; mm, millimeters; °C, degrees Celsius; A, average]

Sample date-time	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment, sieve diameter, percent smaller than 0.125 mm (70332)	Suspended sediment, sieve diameter, percent smaller than 0.25 mm (70333)	Suspended sediment, sieve diameter, percent smaller than 0.5 mm (70334)	Suspended sediment, sieve diameter, percent smaller than 1 mm (70335)	Suspended sediment, sieve diameter, percent smaller than 2 mm (70336)
11-04-2011 1405	33	40	68	97	97	100
11-04-2011 1406	A 35	A 42	A 70	A 96	A 96	A 100
11-04-2011 1407	37	44	73	96	96	100
11-21-2011 1005	77	83	96	100	--	--
11-21-2011 1006	A 76	A 82	A 96	A 100	--	--
11-21-2011 1007	76	82	97	100	--	--
12-12-2011 1446	37	48	84	100	--	--
12-12-2011 1447	A 42	A 55	A 87	A 100	--	--
12-12-2011 1448	47	61	90	100	--	--
01-11-2012 1131	91	93	98	100	--	--
01-11-2012 1132	A 89	A 91	A 96	A 100	--	--
01-11-2012 1133	87	88	94	100	--	--
02-08-2012 1136	97	98	99	100	--	--
02-08-2012 1137	A 94	A 95	A 99	A 100	--	--
02-08-2012 1138	91	93	98	100	--	--
02-16-2012 0832	69	76	95	100	--	--
02-16-2012 0833	A 64	A 71	A 92	A 100	--	--
02-16-2012 0834	59	66	90	100	--	--
03-17-2012 1457	51	63	80	93	99	100
03-17-2012 1458	A 56	A 69	A 87	A 97	A 100	--
03-17-2012 1459	62	75	93	100	--	--
04-11-2012 1012	62	70	92	100	--	--
04-11-2012 1013	A 63	A 71	A 93	A 100	--	--
04-11-2012 1014	63	72	93	100	--	--
08-20-2012 1120	99	100	--	--	--	--
08-20-2012 1121	A 99	A 100	--	--	--	--
08-20-2012 1122	99	100	--	--	--	--

Water-Data Report 2012

11072100 Temescal Creek above Main Street, at Corona, CA

Santa Ana River Basin

LOCATION.--Lat 33°53′21″, long 117°33′43″ referenced to North American Datum of 1927, Riverside County, CA, Hydrologic Unit 18070203, in La Sierra Grant, on right bank, 500 ft upstream from Main Street Bridge in Corona, and 1.5 mi upstream from topographic boundary of Prado Flood-Control Basin.

DRAINAGE AREA.--224 mi², excludes 768 mi² above Lake Elsinore.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1980 to July 1983, February 1984 to current year.

GAGE.--Water-stage recorder and concrete-lined flood-control channel. Elevation of gage is 600 ft above NGVD of 1929, from topographic map. December 1967 to September 1974, water-stage recorder at site 1.2 mi downstream at different datum (published as station 11072200, "Temescal Creek at Corona"). October 1980 to July 1983 at site 500 ft downstream at different datum.

REMARKS.--Records fair above 500 ft³/s and poor below. Flow regulated by several small storage reservoirs. Many diversions upstream from station for irrigation. Water discharged to channel from Arlington Desalter at times since September 1990; records for water years 1981 to 1990 and 1991 to current year are not equivalent. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,290 ft³/s, Dec. 22, 2010, gage height, 7.27 ft, from rating curve extended above 305 ft³/s, on basis of step-backwater analysis; minimum daily, 0.27 ft³/s, Sept. 25, 1981. For 2012 Water Year, period 10/1½011 to 10/10/2012, maximum discharge, 859 ft³/s, Mar. 17, 2012, gage height, 4.54 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 8,850 ft³/s, Feb. 25, 1969, gage height, 8.17 ft, from floodmark, at old site (station 11072200) 1.2 mi downstream on basis of slope-area measurement of peak flow.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 11072100, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/11072100.2012.pdf

11072100 Temescal Creek above Main Street, at Corona, CA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	3.0	8.6	5.1	5.3	3.0	31	9.3	3.6	11	1.9	2.1	1.4
2	2.7	8.0	3.6	5.9	4.0	35	6.7	6.1	13	2.4	2.3	1.7
3	3.0	8.0	4.0	7.5	5.4	32	7.0	3.4	14	2.2	2.1	2.4
4	3.9	60	3.5	8.3	4.6	24	6.2	3.0	9.8	2.7	2.3	1.8
5	93	3.9	5.2	8.5	4.0	19	4.8	3.0	11	2.6	2.7	2.2
6	6.0	59	6.2	7.9	4.2	18	3.4	2.2	10	2.4	2.3	2.3
7	3.2	25	6.2	7.2	6.0	15	3.5	2.5	7.9	2.1	2.0	1.8
8	2.3	10	6.3	6.3	15	9.3	3.1	3.4	5.7	2.0	2.4	2.0
9	2.6	5.5	6.6	6.4	24	6.4	3.1	3.0	2.6	2.0	2.4	1.8
10	2.5	3.7	7.7	5.8	27	7.3	3.5	4.0	2.7	2.1	2.5	1.9
11	2.2	2.7	8.2	5.2	25	8.2	33	3.8	2.4	2.7	2.4	2.2
12	2.3	21	76	4.7	21	8.6	10	4.0	2.2	3.4	2.3	1.8
13	3.3	5.7	9.9	5.4	18	9.2	111	8.3	2.7	12	2.7	1.9
14	2.8	4.3	8.1	5.2	15	9.8	19	7.1	2.6	2.1	2.0	2.2
15	2.9	3.3	8.6	6.2	74	10	6.7	6.0	2.4	2.0	1.9	1.8
16	4.3	3.2	6.8	9.8	19	11	5.0	8.7	2.3	2.2	4.5	2.3
17	3.6	3.4	5.5	7.2	10	131	4.0	7.7	2.0	2.2	1.7	2.4
18	4.1	4.2	5.8	6.7	7.9	74	4.0	8.5	2.3	2.4	1.6	2.7
19	4.7	3.9	6.1	7.5	8.0	18	3.9	9.0	2.3	1.9	1.6	2.7
20	5.0	96	6.9	8.4	6.8	10	2.8	11	2.3	2.1	1.8	2.9
21	5.0	15	6.0	34	5.8	9.0	2.5	11	2.3	2.1	2.0	3.5
22	5.3	5.9	5.8	5.4	5.2	8.5	2.1	12	2.3	2.3	1.5	4.5
23	5.7	4.3	5.5	112	4.6	8.5	2.3	13	2.3	2.0	1.4	4.3
24	7.1	3.2	6.2	10	4.8	8.2	1.8	11	3.1	2.4	1.5	3.9
25	8.9	2.7	7.4	6.2	4.6	48	2.1	12	1.9	2.0	1.4	5.7
26	7.0	3.3	5.3	4.3	5.0	29	35	13	2.5	1.9	1.5	4.4
27	6.5	3.2	4.7	3.5	23	10	3.2	12	2.3	2.2	1.3	4.6
28	7.2	3.5	5.2	3.5	26	7.3	3.7	11	1.7	2.0	1.2	5.2
29	8.0	4.1	6.3	3.9	27	6.8	3.3	11	1.7	2.5	1.5	6.1
30	12	4.7	6.7	3.4	---	6.3	3.3	12	1.9	2.6	1.6	5.5
31	7.0	---	5.9	3.0	---	6.5	---	9.3	---	2.2	1.7	---
Total	237.1	389.3	261.3	324.6	407.9	634.9	309.3	235.6	133.2	79.6	62.2	89.9
Mean	7.65	13.0	8.43	10.5	14.1	20.5	10.3	7.60	4.44	2.57	2.01	3.00
Max	93	96	76	112	74	131	111	13	14	12	4.5	6.1
Min	2.2	2.7	3.5	3.0	3.0	6.3	1.8	2.2	1.7	1.9	1.2	1.4
Ac-ft	470	772	518	644	809	1,260	613	467	264	158	123	178

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1990, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	7.62	15.1	23.8	23.0	14.5	40.9	13.1	12.0	9.35	7.15	6.45	6.99
Max	16.1	55.9	126	116	25.5	237	39.3	43.7	30.0	10.9	13.4	11.3
(WY)	(1986)	(1981)	(1981)	(1981)	(1981)	(1983)	(1983)	(1983)	(1983)	(1985)	(1990)	(1985)
Min	2.36	4.67	2.53	7.01	7.42	6.26	4.02	3.77	1.12	1.20	1.79	1.09
(WY)	(1985)	(1987)	(1982)	(1989)	(1982)	(1990)	(1989)	(1982)	(1982)	(1982)	(1982)	(1981)

11072100 Temescal Creek above Main Street, at Corona, CA—Continued

SUMMARY STATISTICS

	Water Years 1981 - 1990	
Annual mean	12.4	
Highest annual mean	33.7	1981
Lowest annual mean	6.10	1987
Highest daily mean	1,720	Mar 1, 1983
Lowest daily mean	.27	Sep 25, 1981
Annual seven-day minimum	.56	Sep 23, 1981
Maximum peak flow	4,720	Mar 1, 1983
Maximum peak stage	11.67	Mar 1, 1983
Annual runoff (ac-ft)	8,990	
10 percent exceeds	27	
50 percent exceeds	6.1	
90 percent exceeds	2.7	

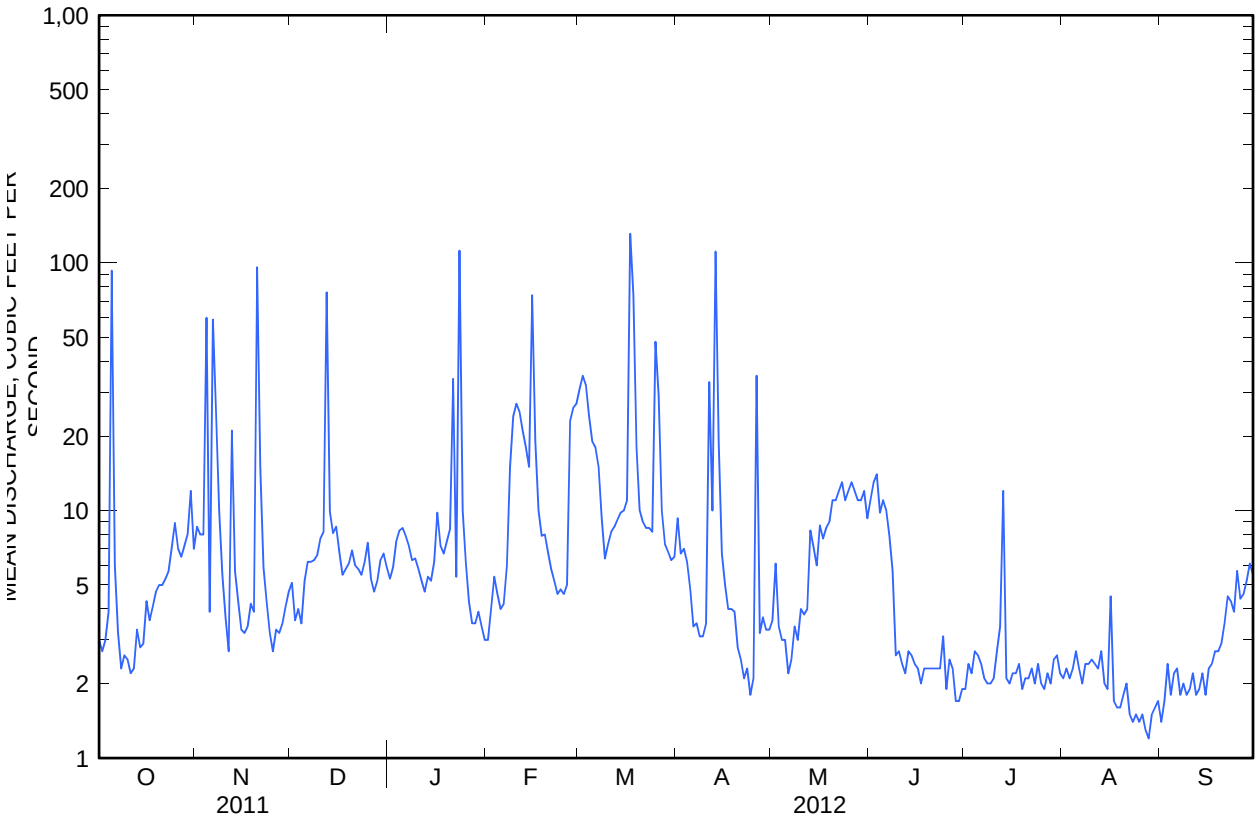
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	14.2	17.4	30.4	59.6	90.9	61.6	36.5	20.0	12.0	10.3	9.80	10.4
Max	52.5	58.2	222	335	400	349	190	100	34.3	24.9	20.7	30.4
(WY)	(2005)	(2006)	(2011)	(2005)	(2005)	(1995)	(1995)	(1995)	(1995)	(1993)	(2005)	(2005)
Min	4.22	4.66	8.43	10.5	10.5	5.19	2.89	3.24	3.25	2.57	2.01	2.38
(WY)	(2009)	(2010)	(2012)	(2012)	(2002)	(2001)	(1991)	(1992)	(2003)	(2012)	(2012)	(2010)

SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1991 - 2012	
Annual total	10,268.6		3,164.9			
Annual mean	28.1		8.65		30.8	
Highest annual mean					104	2005
Lowest annual mean					8.65	2012
Highest daily mean	427	Feb 26	131	Mar 17	2,870	Dec 22, 2010
Lowest daily mean	2.2	Oct 11	1.2	Aug 28	0.34	Jul 3, 1992
Annual seven-day minimum	2.6	Oct 8	1.4	Aug 22	0.89	Jan 13, 1992
Maximum peak flow			859	Mar 17	5,290	Dec 22, 2010
Maximum peak stage			4.45	Mar 17	7.27	Dec 22, 2010
Annual runoff (ac-ft)	20,370		6,280		22,300	
10 percent exceeds	75		15		62	
50 percent exceeds	8.5		4.6		12	
90 percent exceeds	3.2		2.0		3.4	

11072100 Temescal Creek above Main Street, at Corona, CA—Continued



Water-Data Report 2012

11073495 Cucamonga Creek near Mira Loma, CA

Santa Ana River Basin

LOCATION.--Lat 33°58′58″, long 117°35′55″ referenced to North American Datum of 1927, in SW ¼ NE ¼ sec.22, T.2 S., R.7 W., San Bernardino County, CA, Hydrologic Unit 18070203, on right bank, 300 ft upstream from Merrill Avenue Bridge, and 4.6 mi west of Mira Loma.

DRAINAGE AREA.--75.8 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--January 1968 to July 1977, December 1978 to current year.
CHEMICAL DATA: Water years 1999-2000.
SPECIFIC CONDUCTANCE: Water years 1999-2000.
WATER TEMPERATURE: Water years 1999-2000.
SEDIMENT DATA: Water years 1999-2000.

GAGE.--Water-stage recorder, crest-stage gage, and concrete-lined flood-control channel. Elevation of gage is 660 ft above NGVD of 1929, from topographic map. Prior to July 1977 at site 100 ft downstream at different datum.

REMARKS.--Records fair above 100 ft^3/s and poor below. Channel is a trapezoidal concrete floodway; records for low and medium flows prior to July 31, 1977, are not equivalent (channel concrete lined since July 31, 1977). Inland Empire Utilities Agency Tertiary Plant No. 1 began discharging effluent 3.3 mi upstream from station on May 8, 1985. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,300 ft^3/s, Oct. 20, 2004, gage height, 6.58 ft, from rating curve extended above 617 ft^3/s on basis of step-backwater computations; maximum gage height, 7.85 ft, Feb. 27, 1983. Prior to operation of Plant No. 1, no flow for most of some years. Minimum daily since 1985, 1.3 ft^3/s, May 28, 2010.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 11073495, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/11073495.2012.pdf

11073495 Cucamonga Creek near Mira Loma, CA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	40	16	24	21	11	19	45	16	6.5	7.4	6.3	14
2	31	17	17	21	15	22	27	19	5.8	4.9	3.2	26
3	29	29	18	19	15	17	19	14	9.1	3.8	5.5	25
4	44	130	21	17	15	18	14	13	5.8	6.8	16	15
5	461	66	20	19	16	14	16	13	5.0	9.1	20	12
6	61	117	21	15	17	12	13	17	3.9	6.9	12	13
7	46	51	16	15	27	16	13	12	4.1	15	8.6	10
8	45	34	15	26	30	12	16	9.5	5.7	16	3.4	14
9	40	40	21	25	31	12	15	7.4	6.6	9.0	4.3	13
10	35	41	43	20	19	19	16	8.3	9.6	5.9	6.8	11
11	25	30	44	21	67	24	76	12	8.1	5.7	8.4	11
12	39	37	129	24	31	20	28	18	12	7.5	7.3	8.9
13	21	25	35	9.1	40	17	370	30	9.0	13	12	16
14	15	29	34	9.7	43	23	56	20	4.8	16	13	15
15	20	24	205	16	153	38	46	17	9.2	28	7.1	18
16	40	23	34	19	43	40	39	11	5.4	16	6.7	20
17	32	26	33	19	43	426	32	12	9.5	9.5	5.9	16
18	35	21	37	22	43	124	27	13	6.8	10	9.6	18
19	36	30	36	33	34	43	16	15	7.2	10	8.2	20
20	31	252	36	40	31	39	12	23	8.5	3.9	6.4	22
21	24	45	33	143	37	40	15	12	8.4	4.0	8.8	16
22	26	38	30	43	27	42	23	12	11	7.6	11	20
23	29	26	25	118	20	41	25	15	13	5.9	11	24
24	24	32	31	44	24	43	20	15	20	7.7	11	19
25	26	21	34	44	25	234	25	20	15	6.7	13	13
26	25	27	26	38	30	206	78	16	11	7.7	16	17
27	17	34	27	28	78	37	27	21	13	8.4	22	13
28	16	29	18	32	42	31	23	15	9.7	11	9.5	8.7
29	15	25	23	43	23	32	25	15	8.1	8.0	8.3	9.3
30	29	19	20	28	---	34	19	12	6.0	10	8.2	12
31	21	---	30	18	---	36	---	11	---	6.0	10	---
Total	1,378	1,334	1,136	989.8	1,030	1,731	1,176	464.2	257.8	287.4	299.5	469.9
Mean	44.5	44.5	36.6	31.9	35.5	55.8	39.2	15.0	8.59	9.27	9.66	15.7
Max	461	252	205	143	153	426	370	30	20	28	22	26
Min	15	16	15	9.1	11	12	12	7.4	3.9	3.8	3.2	8.7
Ac-ft	2,730	2,650	2,250	1,960	2,040	3,430	2,330	921	511	570	594	932

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1977, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	.021	1.15	1.55	18.2	4.65	1.91	1.35	.065	.001	.000	.000	.11
Max	.19	6.07	7.91	149	30.7	7.94	13.1	.54	.007	.000	.000	1.03
(WY)	(1972)	(1971)	(1972)	(1969)	(1969)	(1969)	(1969)	(1977)	(1969)	(1968)	(1968)	(1976)
Min	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	(1969)	(1969)	(1970)	(1975)	(1972)	(1972)	(1968)	(1968)	(1968)	(1968)	(1968)	(1968)

11073495 Cucamonga Creek near Mira Loma, CA—Continued

SUMMARY STATISTICS

	Water Years 1968 - 1977	
Annual mean	2.73	
Highest annual mean	16.8	1969
Lowest annual mean	.16	1976
Highest daily mean	2,600	Jan 25, 1969
Lowest daily mean	.00	Feb 1, 1968
Annual seven-day minimum	.00	Feb 1, 1968
Maximum peak flow	9,100	Jan 25, 1969
Maximum peak stage	7.08	Jan 25, 1969
Annual runoff (ac-ft)	1,980	
10 percent exceeds	.10	
50 percent exceeds	.00	
90 percent exceeds	.00	

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 1984, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	3.49	11.3	7.69	34.1	65.0	46.3	12.1	3.43	.48	.37	1.47	1.08
Max	11.1	27.9	24.7	149	216	205	63.4	19.8	2.30	1.22	6.99	3.45
(WY)	(1984)	(1983)	(1984)	(1983)	(1980)	(1983)	(1983)	(1983)	(1983)	(1983)	(1983)	(1983)
Min	.091	.002	.006	1.67	1.29	2.44	.056	.063	.008	.019	.009	.011
(WY)	(1981)	(1980)	(1980)	(1984)	(1984)	(1984)	(1981)	(1979)	(1979)	(1981)	(1979)	(1979)

SUMMARY STATISTICS

	Water Years 1979 - 1984	
Annual mean	17.5	
Highest annual mean	53.4	1983
Lowest annual mean	1.51	1981
Highest daily mean	2,530	Mar 1, 1983
Lowest daily mean	.00	Feb 6, 1979
Annual seven-day minimum	.00	Feb 6, 1979
Maximum peak flow	16,100	Feb 27, 1983
Maximum peak stage	7.85	Feb 27, 1983
Annual runoff (ac-ft)	12,700	
10 percent exceeds	10	
50 percent exceeds	.13	
90 percent exceeds	.01	

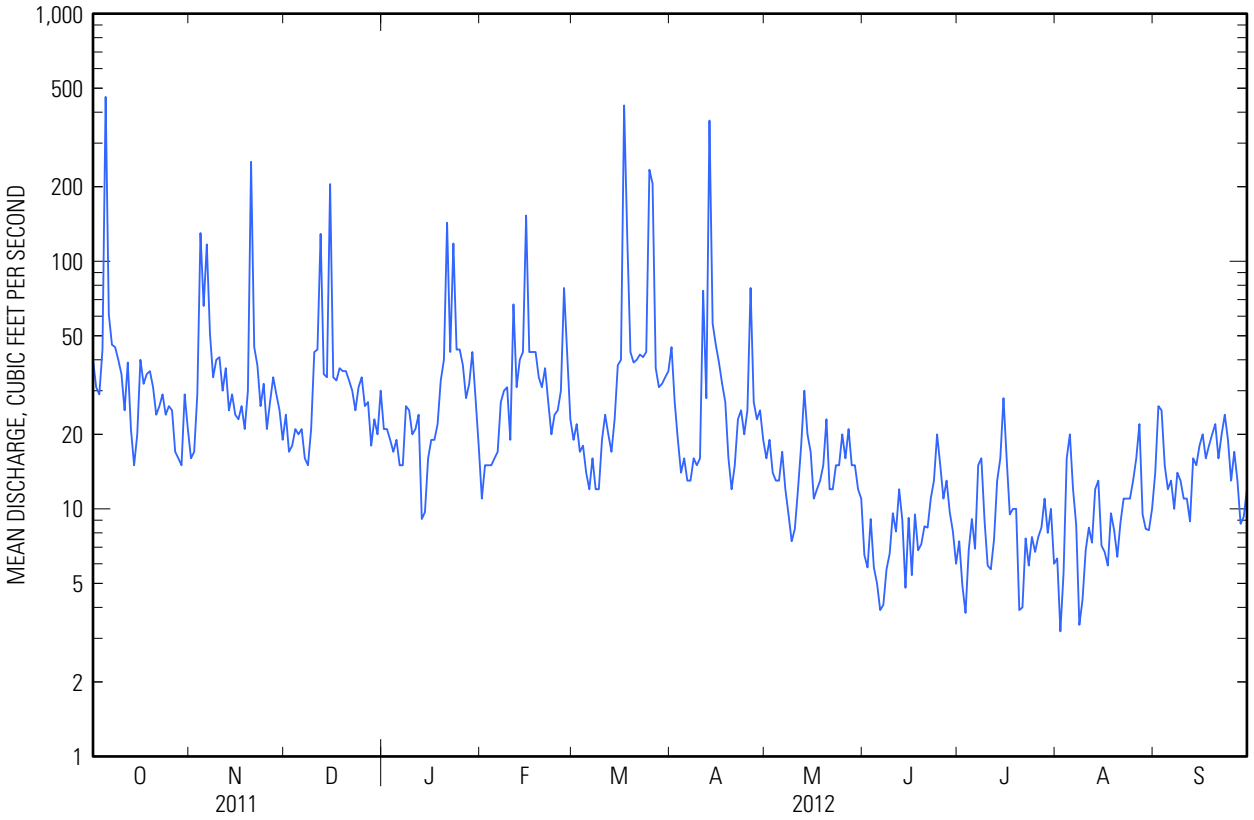
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	45.4	44.7	65.9	91.2	108	67.5	47.9	36.4	33.8	31.7	31.6	35.0
Max	223	102	327	442	350	198	114	69.4	57.1	53.4	51.8	52.0
(WY)	(2005)	(2003)	(2011)	(2005)	(2005)	(1995)	(2006)	(2003)	(1992)	(2004)	(1992)	(1986)
Min	20.4	23.4	21.0	26.1	34.9	25.3	20.5	11.2	7.23	5.41	9.66	15.7
(WY)	(1987)	(1989)	(1987)	(1989)	(1989)	(1988)	(1987)	(2010)	(2010)	(2010)	(2012)	(2012)

11073495 Cucamonga Creek near Mira Loma, CA—Continued

SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1986 - 2012	
Annual total	14,863.7		10,553.6			
Annual mean	40.7		28.8		53.0	
Highest annual mean					137	2005
Lowest annual mean					26.6	1987
Highest daily mean	884	Feb 26	461	Oct 5	5,200	Jan 9, 2005
Lowest daily mean	5.4	May 6	3.2	Aug 2	1.3	May 28, 2010
Annual seven-day minimum	7.5	Aug 23	5.6	Jun 2	3.5	Jul 24, 2010
Maximum peak flow			5,190	Apr 13	17,300	Oct 20, 2004
Maximum peak stage			4.25	Apr 13	6.58	Oct 20, 2004
Annual runoff (ac-ft)	29,480		20,930		38,380	
10 percent exceeds	61		43		62	
50 percent exceeds	27		19		36	
90 percent exceeds	12		7.4		19	



11073360 Chino Creek at Schaefer Avenue, near Chino, CA

Santa Ana River Basin

LOCATION.--Lat 34°00′14″, long 117°43′34″ referenced to North American Datum of 1927, San Bernardino County, CA, Hydrologic Unit 18070203, in Santa Ana del Chino Grant, on right bank, 300 ft downstream from old Schaefer Avenue Bridge, 0.8 mi downstream from San Antonio Creek, and 1.5 mi southwest of Chino.

DRAINAGE AREA.--48.9 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1969 to current year.
CHEMICAL DATA: Water year 1998.
SEDIMENT DATA: Water year 1998.

REVISED RECORDS.--WDR CA-84-1: 1983 (instantaneous maximum discharge). WDR CA-95-1: 1992, 1993.

GAGE.--Water-stage recorder and concrete-lined flood-control channel. Concrete dikes formed low-water control from October 1975 to Apr. 16, 1991. Elevation of gage is 685 ft above NGVD of 1929, from topographic map.

REMARKS.--Records rated good. Since 1997, due to construction in area of gage, Schaefer Avenue no longer extends to the Chino Creek crossing. The Schaefer Avenue Bridge, however, remains. Flow mostly regulated by San Antonio Flood-Control Reservoir, capacity, 7,700 acre-ft. Natural streamflow affected by extensive ground-water withdrawals, diversions for power, domestic use, irrigation, and return flow from irrigated areas. Releases of imported water are made to the basin by the California Water Project at times in some years, via San Antonio Creek from Rialto Pipeline below San Antonio Dam, at a site approximately 11 mi upstream. During the current year, there were no reported releases from the California Water Project into the basin. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft^3/s, Feb. 27, 1983, gage height, 10.32 ft, from rating curve extended above 560 ft^3/s, on basis of slope-conveyance study; no flow May 21, June 30, July 1, Oct. 30, Nov. 3, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 25, 1969, reached a stage of 9.23 ft, present datum, discharge, 9,200 ft^3/s, on basis of contracted-opening measurement at site 6.1 mi downstream.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 11073360, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/11073360.2012.pdf

11073360 Chino Creek at Schaefer Avenue, near Chino, CA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.99	1.0	0.85	0.67	0.58	0.76	4.8	0.70	0.93	0.60	0.77	0.37
2	0.86	0.96	0.79	0.77	0.60	0.78	0.84	0.70	0.82	0.64	0.77	0.35
3	1.00	0.86	0.76	0.75	0.60	0.74	0.89	0.68	0.71	0.61	0.64	0.41
4	0.93	41	0.65	0.58	0.58	0.77	0.89	0.67	0.92	0.74	0.58	0.47
5	267	1.2	0.69	0.60	0.59	0.81	0.90	0.79	0.72	0.59	0.60	0.33
6	1.4	89	0.70	0.60	0.60	0.89	0.87	0.65	0.72	0.76	0.62	0.33
7	0.81	2.6	0.67	0.65	0.61	0.70	0.90	0.68	0.70	0.61	0.66	0.35
8	0.70	0.97	0.68	0.65	0.66	0.74	0.92	0.69	0.76	0.59	0.92	0.34
9	0.65	0.83	0.66	0.61	0.71	0.79	0.90	0.69	0.76	0.69	0.75	0.43
10	0.71	0.81	0.60	0.62	0.68	0.81	0.92	0.69	0.72	0.74	0.63	0.36
11	0.73	0.94	0.58	0.63	23	0.73	65	0.75	0.77	1.00	0.57	0.35
12	0.73	8.9	47	0.65	1.6	0.74	1.7	0.79	0.76	0.66	0.53	0.40
13	0.74	0.99	0.73	0.63	0.74	0.72	179	0.83	0.72	0.95	0.52	0.41
14	0.74	1.1	0.56	0.64	0.73	0.63	2.3	0.77	1.2	0.68	0.69	0.52
15	0.72	1.2	2.5	0.64	80	0.76	1.7	0.75	2.3	0.59	0.66	0.46
16	0.71	1.2	0.58	0.67	1.3	0.63	1.2	0.73	2.0	0.63	0.67	0.37
17	0.70	1.3	0.54	0.74	0.82	205	0.99	0.84	1.8	0.92	0.70	0.39
18	1.0	1.2	0.50	0.85	1.3	26	0.98	0.74	0.84	0.81	0.66	0.41
19	0.81	1.3	0.49	0.65	0.75	1.2	1.0	0.74	0.56	0.86	0.67	0.35
20	0.88	120	0.57	0.65	0.71	0.80	1.00	0.72	0.56	0.94	0.75	0.35
21	0.78	2.8	0.61	100	0.75	e0.75	1.0	0.78	0.60	0.83	0.59	0.37
22	0.92	1.4	0.61	0.65	0.82	e0.77	0.90	0.72	0.62	0.86	0.42	0.35
23	0.92	1.2	0.60	75	0.86	0.74	1.2	0.71	0.62	0.67	0.42	0.32
24	0.86	1.1	0.50	0.85	0.86	0.78	1.00	0.70	0.59	0.84	0.47	0.35
25	1.0	1.0	0.50	0.64	0.80	62	0.89	0.68	0.56	0.81	0.46	0.33
26	0.95	1.1	0.52	0.63	0.75	75	28	0.64	0.59	0.86	0.51	0.33
27	0.92	1.00	0.53	0.61	19	1.1	1.1	0.65	0.63	0.80	0.52	0.34
28	0.84	1.0	0.56	0.60	0.99	0.89	0.96	0.70	0.60	0.76	0.57	0.48
29	0.83	0.82	0.61	0.59	0.76	0.90	0.88	0.81	0.72	0.68	0.50	0.36
30	0.86	0.81	0.69	0.61	---	0.87	0.85	0.78	0.63	0.71	0.62	0.31
31	0.94	---	0.60	0.59	---	1.5	---	0.91	---	0.76	0.45	---
Total	292.63	289.59	67.43	194.02	142.75	390.30	304.48	22.68	25.43	23.19	18.89	11.29
Mean	9.44	9.65	2.18	6.26	4.92	12.6	10.1	0.73	0.85	0.75	0.61	0.38
Max	267	120	47	100	80	205	179	0.91	2.3	1.0	0.92	0.52
Min	0.65	0.81	0.49	0.58	0.58	0.63	0.84	0.64	0.56	0.59	0.42	0.31
Ac-ft	580	574	134	385	283	774	604	45	50	46	37	22

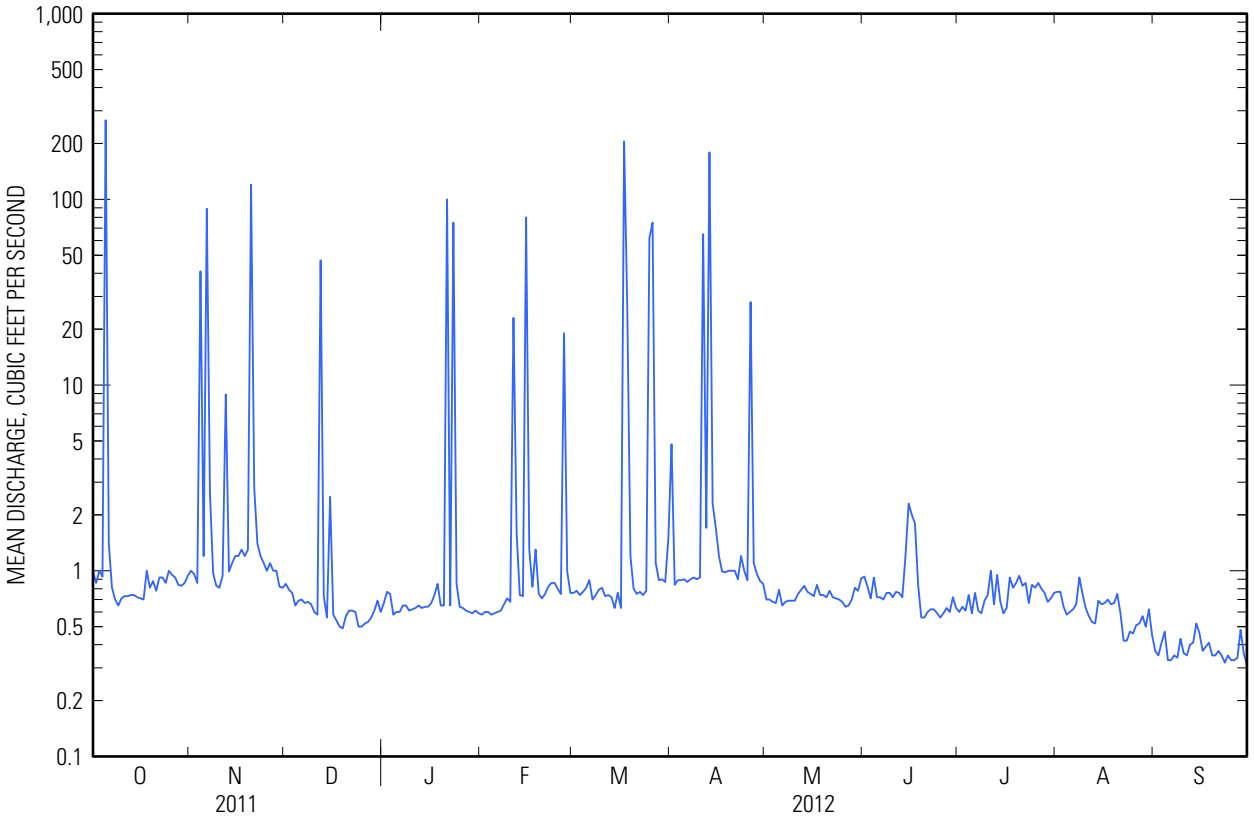
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	16.1	15.2	25.3	34.4	37.7	25.2	9.27	11.3	15.3	17.5	15.1	13.1
Max	126	113	189	221	193	257	68.6	104	184	176	191	198
(WY)	(1979)	(1976)	(1976)	(2005)	(1980)	(1978)	(1974)	(1997)	(1976)	(1974)	(1974)	(1997)
Min	0.06	0.23	0.53	0.55	0.33	0.30	0.14	0.22	0.06	0.07	0.14	0.13
(WY)	(1978)	(1978)	(1970)	(1972)	(1972)	(1972)	(1977)	(1973)	(1977)	(1977)	(1976)	(1977)

11073360 Chino Creek at Schaefer Avenue, near Chino, CA—Continued

SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1970 - 2012	
Annual total	7,545.62		1,782.68			
Annual mean	20.7		4.87		19.6	
Highest annual mean					92.4	1974
Lowest annual mean					2.81	2007
Highest daily mean	327	Feb 26	267	Oct 5	2,060	Mar 1, 1978
Lowest daily mean	0.49	Dec 19	0.31	Sep 30	0.00	May 21, 1977
Annual seven-day minimum	0.55	Dec 22	0.34	Sep 21	0.02	Oct 28, 1977
Maximum peak flow			2,630	Apr 13	12,700	Feb 27, 1983
Maximum peak stage			6.64	Apr 13	10.32	Feb 27, 1983
Annual runoff (ac-ft)	14,970		3,540		14,170	
10 percent exceeds	66		1.2		63	
50 percent exceeds	1.0		0.74		1.3	
90 percent exceeds	0.72		0.50		0.44	



APPENDIX B

DAILY PRECIPITATION DATA
FOR SAN BERNARDINO

WATER YEAR 2011-12

TABLE B-1

DAILY PRECIPITATION
USGS GILBERT STREET PRECIPITATION GAGE AT SAN BERNARDINO
NEAR FORMER COUNTY HOSPITAL SITE
(inches)

	2011			2012								
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0	0	0	0	0.08	0	0	0	0	0
2	0	0	0	0	0	0	0	0.03	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0.31	0	0	0	0	0	0	0	0	0	0
5	1.66	0.01	0	0	0	0	0	0	0	0	0	0
6	0	0.10	0	0	0	0.18	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0.08	0	0.28	0	0	0	0	0
12	0	0.08	0.51	0	0	0	0	0	0	0	0	0
13	0	0	0.01	0	0.07	0	0.79	0	0	0.11	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0.01	0.31	0	0	0	0	0	0	0
16	0	0	0	0	0.01	0	0	0	0	0	0	0
17	0	0	0	0	0	0.80	0	0	0	0	0	0
18	0	0	0.02	0	0	0.28	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0.92	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0.51	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0.26	0	0	0	0	0	0	0	0
24	0	0	0	0.01	0	0	0	0	0	0	0	0
25	0.08	0	0	0	0	0.34	0.01	0.03	0	0	0	0
26	0	0	0	0	0	0.23	0.50	0	0	0	0	0
27	0	0	0	0	0.34	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0		0	0	0	0	0	0	0
31	0		0	0		0.05		0		0	0	
Total	1.74	1.42	0.54	0.79	0.81	1.88	1.66	0.06	0.00	0.11	0.00	0.00

Total Rainfall = 9.01 Inches

APPENDIX C

SANTA ANA RIVER WATERMASTER
FINANCIAL STATEMENTS WITH REPORT
ON EXAMINATION BY
ORANGE COUNTY WATER DISTRICT CONTROLLER

WATER YEAR 2011-12

SINCE 1933
Celebrating 80 Years

ORANGE COUNTY WATER DISTRICT
ORANGE COUNTY'S GROUNDWATER AUTHORITY

April 16, 2013

Santa Ana River Watermaster
C/O SBVMWD
P.O. Box 5906
San Bernardino, CA 92412-5906

Subject: Review of Fiscal Year 2011-12 Financial Transactions

Gentlemen:

I have reviewed the transactions and prepared the attached Statement of Assets and Liabilities comprised of cash transactions for the Santa Ana River Watermaster, and the related Statement of Revenue, Expenses and Changes in Fund Balance for the year ended June 30, 2012. This review includes examining supporting documentation that supports the amounts and disclosures in the financial statements. We have reviewed minutes of meetings, annual budgets as well as Bank of America Checking and Savings Accounts' transactions and statements, and have concluded that all transactions were properly recorded.

Best Regards,

ORANGE COUNTY WATER DISTRICT

Vishav Sharma
Finance Manager

CC: R. Fick

SANTA ANA RIVER WATERMASTER

FINANCIAL STATEMENTS

JUNE 30, 2012

SANTA ANA RIVER WATERMASTER

STATEMENT OF ASSETS AND LIABILITIES ARISING FROM CASH TRANSACTIONS

JUNE 30, 2012

ASSETS

Cash in Bank Account	$ 21,299

LIABILITIES AND NET ASSETS

Total Net Assets	$ 21,299

SANTA ANA RIVER WATERMASTER

STATEMENT OF REVENUE AND EXPENSES ARISING FROM CASH TRANSACTIONS

FOR THE PERIOD JULY 1, 2011 - JUNE 30, 2012

	Actual	Budget	Variance - Favorable (Unfavorable)	
REVENUE COLLECTED:				
Water District Contributions				
Orange County Water District	$ 5,600	$ 5,600	0	
Inland Empire Utilities Agency	2,800	2,800	0	
Western Municipal Water District	2,800	2,800	0	
San Bernardino Valley Municipal Water District	2,800	2,800	0	
TOTAL REVENUE COLLECTED	$ 14,000	$ 14,000	$ -	
EXPENSES PAID:				
Professional Engineering Services	$ 5,740	$ 12,500	6,760	(A)
Administrative Expenses:				
Auditing Services				
Reproduction of Annual Report		1,500	1,500	(A)
Bank service charges				
	$ 5,740	$ 14,000	$ 8,260	
CHANGE IN NET ASSETS	$ 8,260			
NET ASSETS - BEGINNING OF THE YEAR	$ 13,039			
NET ASSETS - END OF THE YEAR	$ 21,299			

(A) Expenses represent 2011-12 year of payments WMWD.

APPENDIX D

SAN BERNARDINO
HIGH GROUNDWATER MITIGATION PROJECT
WATER DISCHARGED TO THE SANTA ANA RIVER
ABOVE RIVERSIDE NARROWS

WATER YEAR 2011-12

There was no discharge of HGMP water to Santa Ana River in the Bunker Hill area during the 2011-12 water year.

APPENDIX E

WATER QUALITY AND DISCHARGE OF WATER RELEASED BY MWDSC TO SAN ANTONIO CREEK NEAR UPLAND (CONNECTION OC-59)

WATER YEAR 2011-12

There was no water released by MWDSC to San Antonio Creek near Upland from connection OC-59 to for Orange County Water District during the 2011-12 water year.

APPENDIX F

WATER QUALITY AND DISCHARGE FROM THE ARLINGTON DESALTER TO THE ARLINGTON VALLEY DRAIN

WATER YEAR 2011-12

There was no discharge of Arlington Desalter water to the Arlington Valley Drain for Orange County Water District during the 2011-12 water year.

APPENDIX G

WATER QUALITY AND DISCHARGE FROM THE SAN JACINTO WATERSHED

WATER YEAR 2011-12

TABLE G-1
SAN JACINTO WATERSHED DISCHARGE CALCULATIONS
WATER YEAR 2011-12
NOVEMBER 2011

Day	[1] Temescal Creek Flow (cfs)	[2] Arlington Desalter Flow (cfs)	[3]=[1]-[2] Temescal Creek Flow - Arlington Desalter (cfs)	[4] Temescal Creek Base Flow (cfs)	[5] EMWD Wastewater Discharge (cfs)	[6] Scalped Storm Flow (cfs)	[7]=[3]-[4]-[6] San Jacinto Water Reaching Prado (cfs)
1	9	0	9	8.6	0	0	0
2	8	0	8	8.0	0	0	0
3	8	0	8	8.0	0	0	0
4	60	0	60	8.0	0	52	0
5	4	0	4	3.9	0	0	0
6	59	0	59	8.0	0	51	0
7	25	0	25	8.0	0	17	0
8	10	0	10	7.0	1	3	0
9	6	0	6	5.5	0	0	0
10	4	0	4	3.7	0	0	0
11	3	0	3	2.7	0	0	0
12	21	0	21	3.0	0	18	0
13	6	0	6	2.7	0	3	0
14	4	0	4	3.3	0	1	0
15	3	0	3	3.3	0	0	0
16	3	0	3	3.2	0	0	0
17	3	0	3	3.4	0	0	0
18	4	0	4	4.2	0	0	0
19	4	0	4	3.9	0	0	0
20	96	0	96	4.0	0	92	0
21	15	0	15	4.0	0	11	0
22	6	0	6	3.9	0	2	0
23	4	0	4	4.3	0	0	0
24	3	0	3	3.2	0	0	0
25	3	0	3	2.7	0	0	0
26	3	0	3	3.3	0	0	0
27	3	0	3	3.2	0	0	0
28	4	0	4	3.5	0	0	0
29	4	0	4	4.1	0	0	0
30	5	0	5	4.7	3	0	0
Total (cfs)	389	0	389	139	5	250	0
(acre-feet)	772	0	772	276	9	496	0

1. USGS measured flow of Temescal Creek above Main St. at Corona.
2. Discharge of the Arlington Desalter to the Arlington Valley Channel.
3. Temescal Creek flow minus the Arlington Desalter contribution.
4. Estimated Base flow of Temescal Creek.
5. Eastern Municipal Water District wasterwater discharge to Temescal Creek at Wasson Canyon.
6. Temescal Creek flow attributed to storm events.
7. Flow in Temescal Creek at Corona attributed to EMWD discharge of wastewater to Temescal Creek.

TABLE G-1
SAN JACINTO WATERSHED DISCHARGE CALCULATIONS
WATER YEAR 2011-12
DECEMBER 2011

Day	[1] Temescal Creek Flow (cfs)	[2] Arlington Desalter Flow (cfs)	[3]=[1]-[2] Temescal Creek Flow - Arlington Desalter (cfs)	[4] Temescal Creek Base Flow (cfs)	[5] EMWD Wastewater Discharge (cfs)	[6] Scalped Storm Flow (cfs)	[7]=[3]-[4]-[6] San Jacinto Water Reaching Prado (cfs)
1	5	0	5	5	7	0	0
2	4	0	4	4	7	0	0
3	4	0	4	4	6	0	0
4	4	0	4	4	8	0	0
5	5	0	5	4	7	0	1
6	6	0	6	4	9	0	2
7	6	0	6	4	6	0	2
8	6	0	6	5	8	0	2
9	7	0	7	5	7	0	2
10	8	0	8	5	0	0	3
11	8	0	8	5	0	0	3
12	76	0	76	5	0	68	3
13	10	0	10	5	0	3	2
14	8	0	8	6	0	2	1
15	9	0	9	6	0	3	0
16	7	0	7	6	0	1	0
17	6	0	6	6	0	0	0
18	6	0	6	6	0	0	0
19	6	0	6	6	0	0	0
20	7	0	7	7	0	0	0
21	6	0	6	6	0	0	0
22	6	0	6	6	0	0	0
23	6	0	6	6	0	0	0
24	6	0	6	6	0	0	0
25	7	0	7	7	0	0	0
26	5	0	5	5	0	0	0
27	5	0	5	5	0	0	0
28	5	0	5	5	0	0	0
29	6	0	6	6	0	0	0
30	7	0	7	7	0	0	0
31	6	0	6	6	0	0	0
Total (cfs)	261	0	261	164	64	77	21
(acre-feet)	518	0	518	325	127	153	42

1. USGS measured flow of Temescal Creek above Main St. at Corona.
2. Discharge of the Arlington Desalter to the Arlington Valley Channel.
3. Temescal Creek flow minus the Arlington Desalter contribution.
4. Estimated Base flow of Temescal Creek.
5. Eastern Municipal Water District wasterwater discharge to Temescal Creek at Wasson Canyon.
6. Temescal Creek flow attributed to storm events.
7. Flow in Temescal Creek at Corona attributed to EMWD discharge of wastewater to Temescal Creek.

TABLE G-1
SAN JACINTO WATERSHED DISCHARGE CALCULATIONS
WATER YEAR 2011-12
JANUARY 2012

Day	[1] Temescal Creek Flow (cfs)	[2] Arlington Desalter Flow (cfs)	[3]=[1]-[2] Temescal Creek Flow - Arlington Desalter (cfs)	[4] Temescal Creek Base Flow (cfs)	[5] EMWD Wastewater Discharge (cfs)	[6] Scalped Storm Flow (cfs)	[7]=[3]-[4]-[6] San Jacinto Water Reaching Prado (cfs)
1	5	0	5	5	0	0	0
2	6	0	6	6	0	0	0
3	8	0	8	8	0	0	0
4	8	0	8	8	0	0	0
5	9	0	9	9	0	0	0
6	8	0	8	8	0	0	0
7	7	0	7	7	0	0	0
8	6	0	6	6	0	0	0
9	6	0	6	6	0	0	0
10	6	0	6	6	0	0	0
11	5	0	5	5	0	0	0
12	5	0	5	5	0	0	0
13	5	0	5	5	0	0	0
14	5	0	5	5	0	0	0
15	6	0	6	6	0	0	0
16	10	0	10	6	0	4	0
17	7	0	7	7	0	0	0
18	7	0	7	7	0	0	0
19	8	0	8	8	0	0	0
20	8	0	8	8	0	0	0
21	34	0	34	8	0	26	0
22	5	0	5	5	0	0	0
23	112	0	112	8	0	104	0
24	10	0	10	8	0	2	0
25	6	0	6	6	0	0	0
26	4	0	4	4	0	0	0
27	4	0	4	4	0	0	0
28	4	0	4	4	0	0	0
29	4	0	4	4	0	0	0
30	3	0	3	3	0	0	0
31	3	0	3	3	0	0	0
Total (cfs)	325	0	325	189	0	136	0
(acre-feet)	644	0	644	374	0	270	0

1. USGS measured flow of Temescal Creek above Main St. at Corona.
2. Discharge of the Arlington Desalter to the Arlington Valley Channel.
3. Temescal Creek flow minus the Arlington Desalter contribution.
4. Estimated Base flow of Temescal Creek.
5. Eastern Municipal Water District wasterwater discharge to Temescal Creek at Wasson Canyon.
6. Temescal Creek flow attributed to storm events.
7. Flow in Temescal Creek at Corona attributed to EMWD discharge of wastewater to Temescal Creek.

TABLE G-1
SAN JACINTO WATERSHED DISCHARGE CALCULATIONS
WATER YEAR 2011-12
FEBRUARY 2012

Day	[1] Temescal Creek Flow (cfs)	[2] Arlington Desalter Flow (cfs)	[3]=[1]-[2] Temescal Creek Flow - Arlington Desalter (cfs)	[4] Temescal Creek Base Flow (cfs)	[5] EMWD Wastewater Discharge (cfs)	[6] Scalped Storm Flow (cfs)	[7]=[3]-[4]-[6] San Jacinto Water Reaching Prado (cfs)
1	3	0	3	3	0	0	0
2	4	0	4	4	16	0	0
3	5	0	5	5	16	0	0
4	5	0	5	5	44	0	0
5	4	0	4	4	48	0	0
6	4	0	4	4	51	0	0
7	6	0	6	4	40	0	2
8	15	0	15	4	35	0	11
9	24	0	24	4	26	0	20
10	27	0	27	4	0	0	23
11	25	0	25	4	0	0	21
12	21	0	21	4	0	0	17
13	18	0	18	4	0	0	14
14	15	0	15	4	0	0	11
15	74	0	74	4	0	60	10
16	19	0	19	4	0	6	9
17	10	0	10	4	0	0	6
18	8	0	8	4	0	0	4
19	8	0	8	4	0	0	4
20	7	0	7	4	0	0	3
21	6	0	6	4	0	0	2
22	5	0	5	4	0	0	1
23	5	0	5	5	22	0	0
24	5	0	5	5	22	0	0
25	5	0	5	5	49	0	0
26	5	0	5	5	43	0	0
27	23	0	23	5	44	5	14
28	26	0	26	5	33	3	18
29	27	0	27	5	58	0	22
Total (cfs)	408	0	408	123	549	74	211
(acre-feet)	809	0	809	244	1,089	146	419

1. USGS measured flow of Temescal Creek above Main St. at Corona.
2. Discharge of the Arlington Desalter to the Arlington Valley Channel.
3. Temescal Creek flow minus the Arlington Desalter contribution.
4. Estimated Base flow of Temescal Creek.
5. Eastern Municipal Water District wasterwater discharge to Temescal Creek at Wasson Canyon.
6. Temescal Creek flow attributed to storm events.
7. Flow in Temescal Creek at Corona attributed to EMWD discharge of wastewater to Temescal Creek.

TABLE G-1
SAN JACINTO WATERSHED DISCHARGE CALCULATIONS
WATER YEAR 2011-12
MARCH 2012

Day	[1] Temescal Creek Flow (cfs)	[2] Arlington Desalter Flow (cfs)	[3]=[1]-[2] Temescal Creek Flow - Arlington Desalter (cfs)	[4] Temescal Creek Base Flow (cfs)	[5] EMWD Wastewater Discharge (cfs)	[6] Scalped Storm Flow (cfs)	[7]=[3]-[4]-[6] San Jacinto Water Reaching Prado (cfs)
1	31	0	31	5	0	0	26
2	35	0	35	5	0	0	30
3	32	0	32	6	0	0	27
4	24	0	24	6	0	0	19
5	19	0	19	6	0	0	14
6	18	0	18	6	0	0	12
7	15	0	15	6	0	0	9
8	9	0	9	6	0	0	3
9	6	0	6	6	0	0	0
10	7	0	7	7	0	0	0
11	8	0	8	8	0	0	0
12	9	0	9	9	0	0	0
13	9	0	9	9	0	0	0
14	10	0	10	10	0	0	0
15	10	0	10	10	0	0	0
16	11	0	11	11	0	0	0
17	131	0	131	11	0	120	0
18	74	0	74	11	0	63	0
19	18	0	18	11	0	7	0
20	10	0	10	10	0	0	0
21	9	0	9	9	0	0	0
22	9	0	9	9	0	0	0
23	9	0	9	9	0	0	0
24	8	0	8	8	0	0	0
25	48	0.0	48.0	8.0	0	40	0
26	29	0	29	8.0	0	21	0
27	10	0	10	8	0	2	0
28	7	0	7	7	0	0	0
29	7	0.0	6.8	6.8	0	0	0
30	6	0.0	6.3	6.3	0	0	0
31	7	0	7	7	0	0	0
Total (cfs)	635	0	635	243	0	253	139
(acre-feet)	1,259	0	1,259	482	0	502	275

1. USGS measured flow of Temescal Creek above Main St. at Corona.
2. Discharge of the Arlington Desalter to the Arlington Valley Channel.
3. Temescal Creek flow minus the Arlington Desalter contribution.
4. Estimated Base flow of Temescal Creek.
5. Eastern Municipal Water District wasterwater discharge to Temescal Creek at Wasson Canyon.
6. Temescal Creek flow attributed to storm events.
7. Flow in Temescal Creek at Corona attributed to EMWD discharge of wastewater to Temescal Creek.

TABLE G-2
SUMMARY OF SAN JACINTO WATERSHED DISCHARGE
WATER YEAR 2011-12
NOVEMBER 2011

Day	EMWD Discharge to Temescal Creek (cfs)[1]	San Jacinto Watershed Outflow Reaching Prado (cfs)[2]	Santa Ana River Flow Lost to the Ocean (cfs)[3]	San Jacinto Outflow Recharged by OCWD (cfs)[4]
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	8	0
5	0	0	0	0
6	0	0	17	0
7	0	0	0	0
8	1	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	3	0	0	0
Total	5	0	25	0

(1) Eastern Municipal Water District (EMWD) effluent discharge to Temescal Creek at Wasson Canyon.

(2) The amount of EMWD discharge determined to have reached Prado reservoir by scalping the flow of Temescal Creek at the Main St. gauging station in Corona.

(3) Flow of the Santa Ana River at Ball Road has historically been lost to the ocean. OCWD Forebay Operations currently sink 20 cfs between Ball Road and Orangewood Avenue. Therefore, the Ball Road figure minus 20 cfs was used for "Santa Ana River Flow Lost to the Ocean".

(4) When the Santa Ana River flow lost to the ocean is greater than the San Jacinto watershed outflow reaching Prado Dam, it is assumed that no San Jacinto watershed outflow could be recharged by OCWD. When San Jacinto watershed outflow reaching Prado Dam was greater than the Santa Ana River flow lost to the ocean, San Jacinto watershed outflow recharged by OCWD was calculated as the difference between the two.

TABLE G-2
SUMMARY OF SAN JACINTO WATERSHED DISCHARGE
WATER YEAR 2007-08
DECEMBER 2011

Day	EMWD Discharge to Temescal Creek (cfs)[1]	San Jacinto Watershed Outflow Reaching Prado (cfs)[2]	Santa Ana River Flow Lost to the Ocean (cfs)[3]	San Jacinto Outflow Recharged by OCWD (cfs)[4]
1	7	0	0	0
2	7	0	0	0
3	6	0	0	0
4	8	0	0	0
5	7	1	0	1
6	9	2	0	2
7	6	2	0	2
8	8	2	0	2
9	7	2	0	2
10	0	3	0	3
11	0	3	0	3
12	0	3	51	0
13	0	2	0	2
14	0	1	0	1
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
Total	64	21	51	18

(1) Eastern Municipal Water District (EMWD) effluent discharge to Temescal Creek at Wasson Canyon.

(2) The amount of EMWD discharge determined to have reached Prado reservoir by scalping the flow of Temescal Creek at the Main St. gauging station in Corona.

(3) Flow of the Santa Ana River at Ball Road has historically been lost to the ocean. OCWD Forebay Operations currently sink 20 cfs between Ball Road and Orangewood Avenue. Therefore, the Ball Road figure minus 20 cfs was used for "Santa Ana River Flow Lost to the Ocean".

(4) When the Santa Ana River flow lost to the ocean is greater than the San Jacinto watershed outflow reaching Prado Dam, it is assumed that no San Jacinto watershed outflow could be recharged by OCWD. When San Jacinto watershed outflow reaching Prado Dam was greater than the Santa Ana River flow lost to the ocean, San Jacinto watershed outflow recharged by OCWD was calculated as the difference between the two.

TABLE G-2
SUMMARY OF SAN JACINTO WATERSHED DISCHARGE
WATER YEAR 2011-12
JANUARY 2012

Day	EMWD Discharge to Temescal Creek (cfs)[1]	San Jacinto Watershed Outflow Reaching Prado (cfs)[2]	Santa Ana River Flow Lost to the Ocean (cfs)[3]	San Jacinto Outflow Recharged by OCWD (cfs)[4]
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	50	0
22	0	0	0	0
23	0	0	31	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
Total	0	0	81	0

(1) Eastern Municipal Water District (EMWD) effluent discharge to Temescal Creek at Wasson Canyon.

(2) The amount of EMWD discharge determined to have reached Prado reservoir by scalping the flow of Temescal Creek at the Main St. gauging station in Corona.

(3) Flow of the Santa Ana River at Ball Road has historically been lost to the ocean. OCWD Forebay Operations currently sink 20 cfs between Ball Road and Orangewood Avenue. Therefore, the Ball Road figure minus 20 cfs was used for "Santa Ana River Flow Lost to the Ocean".

(4) When the Santa Ana River flow lost to the ocean is greater than the San Jacinto watershed outflow reaching Prado Dam, it is assumed that no San Jacinto watershed outflow could be recharged by OCWD. When San Jacinto watershed outflow reaching Prado Dam was greater than the Santa Ana River flow lost to the ocean, San Jacinto watershed outflow recharged by OCWD was calculated as the difference between the two.

TABLE G-2
SUMMARY OF SAN JACINTO WATERSHED DISCHARGE
WATER YEAR 2011-12
FEBRUARY 2012

Day	EMWD Discharge to Temescal Creek (cfs)[1]	San Jacinto Watershed Outflow Reaching Prado (cfs)[2]	Santa Ana River Flow Lost to the Ocean (cfs)[3]	San Jacinto Outflow Recharged by OCWD (cfs)[4]
1	0	0	0	0
2	16	0	0	0
3	16	0	0	0
4	44	0	0	0
5	48	0	0	0
6	51	0	0	0
7	40	2	0	2
8	35	11	0	11
9	26	20	0	20
10	0	23	0	23
11	0	21	0	21
12	0	17	0	17
13	0	14	0	14
14	0	11	0	11
15	0	10	0	10
16	0	9	0	9
17	0	6	0	6
18	0	4	0	4
19	0	4	0	4
20	0	3	0	3
21	0	2	0	2
22	0	1	0	1
23	22	0	0	0
24	22	0	0	0
25	49	0	0	0
26	43	0	0	0
27	44	14	0	14
28	33	18	0	18
29	58	22	0	22
Total	549	211	0	211

(1) Eastern Municipal Water District (EMWD) effluent discharge to Temescal Creek at Wasson Canyon.

(2) The amount of EMWD discharge determined to have reached Prado reservoir by scalping the flow of Temescal Creek at the Main St. gauging station in Corona.

(3) Flow of the Santa Ana River at Ball Road has historically been lost to the ocean. OCWD Forebay Operations currently sink 20 cfs between Ball Road and Orangewood Avenue. Therefore, the Ball Road figure minus 20 cfs was used for "Santa Ana River Flow Lost to the Ocean".

(4) When the Santa Ana River flow lost to the ocean is greater than the San Jacinto watershed outflow reaching Prado Dam, it is assumed that no San Jacinto watershed outflow could be recharged by OCWD. When San Jacinto watershed outflow reaching Prado Dam was greater than the Santa Ana River flow lost to the ocean, San Jacinto watershed outflow recharged by OCWD was calculated as the difference between the two.

TABLE G-2
SUMMARY OF SAN JACINTO WATERSHED DISCHARGE
WATER YEAR 2011-12
MARCH 2012

Day	EMWD Discharge to Temescal Creek (cfs)[1]	San Jacinto Watershed Outflow Reaching Prado (cfs)[2]	Santa Ana River Flow Lost to the Ocean (cfs)[3]	San Jacinto Outflow Recharged by OCWD (cfs)[4]
1	0	26	0	26
2	0	30	0	30
3	0	27	0	27
4	0	19	0	19
5	0	14	0	14
6	0	12	0	12
7	0	9	0	9
8	0	3	0	3
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	27	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	4	0
26	0	0	25	0
27	0	0	0	0
28	0	0	0	0
29	0	0	0	0
30	0	0	0	0
31	0	0	0	0
Total	0	139	56	139

(1) Eastern Municipal Water District (EMWD) effluent discharge to Temescal Creek at Wasson Canyon.

(2) The amount of EMWD discharge determined to have reached Prado reservoir by scalping the flow of Temescal Creek at the Main St. gauging station in Corona.

(3) Flow of the Santa Ana River at Ball Road has historically been lost to the ocean. OCWD Forebay Operations currently sink 20 cfs between Ball Road and Orangewood Avenue. Therefore, the Ball Road figure minus 20 cfs was used for "Santa Ana River Flow Lost to the Ocean".

(4) When the Santa Ana River flow lost to the ocean is greater than the San Jacinto watershed outflow reaching Prado Dam, it is assumed that no San Jacinto watershed outflow could be recharged by OCWD. When San Jacinto watershed outflow reaching Prado Dam was greater than the Santa Ana River flow lost to the ocean, San Jacinto watershed outflow recharged by OCWD was calculated as the difference between the two.

TABLE G-3
SUMMARY OF SAN JACINTO WATERSHED DISCHARGE
WATER YEAR 2011-12

MONTHLY TOTALS

Month	EMWD Discharge to Temescal Creek (cfs)[1]	San Jacinto Watershed Outflow Reaching Prado (cfs)[2]	Santa Ana River Flow Lost to the Ocean (cfs)[3]	San Jacinto Outflow Recharged By OCWD (cfs)[4]
2011				
October	0	0	857	0
November	5	0	25	0
December	64	20	51	18
2012				
January	0	0	81	0
February	549	211	0	211
March	0	139	56	139
April	0	0	51	0
May	0	0	0	0
June	0	0	0	0
July	0	0	0	0
August	0	0	0	0
September	0	0	0	0
Total (cfs)	618	370	1,119	368
(acre-feet)	1,225	735	2,220	729

(1) Eastern Municipal Water District (EMWD) effluent discharge to Temescal Creek at Wasson Canyon.

(2) The amount of EMWD discharge determined to have reached Prado reservoir by scalping the flow of Temescal Creek at the Main St. gauging station in Corona.

(3) Flow of the Santa Ana River at Ball Road has historically been lost to the ocean. OCWD Forebay Operations currently sink 20 cfs between Ball Road and Orangewood Avenue. Therefore, the Ball Road figure minus 20 cfs was used for "Santa Ana River Flow Lost to the Ocean".

(4) When the Santa Ana River flow lost to the ocean is greater than the San Jacinto watershed outflow reaching Prado Dam, it is assumed that no San Jacinto watershed outflow could be recharged by OCWD. When San Jacinto watershed outflow reaching Prado Dam was greater than the Santa Ana River flow lost to the ocean, San Jacinto watershed outflow recharged by OCWD was calculated as the difference between the two.

TABLE G-4
SUMMARY OF FLOW-WEIGHTED AVERAGE TDS
OF SAN JACINTO WATERSHED DISCHARGE
CALCULATED TO REACH PRADO RESERVOIR
WATER YEAR 2011-12

Month	EMWD Discharge to Temescal Creek[1] (acre-feet)	EMWD Disharge TDS[2] (mg/L)	95% of EMWD Discharge[3] (acre-feet)	Flow at Prado x TDS
2011				
October	0	---	0	0
November	9	650	9	5,844
December	127	560	121	71,333
2012				
January	0	---	0	0
February	1,089	678	1,035	738,315
March	0	---	0	0
April	0	---	0	0
May	0	---	0	0
June	0	---	0	0
July	0	---	0	0
August	0	---	0	0
September	0	---	0	0
Total	1,225		1,164	815,491
			Flow-weighted TDS at Discharge [4] =	666 mg/L
			Flow-weighted TDS of Discharge with 5% Evaporation [5] =	701 mg/L

(1) Actual EMWD discharge to Temescal Creek at Wasson Canyon.
(2) Water quality data for EMWD Surface Water Discharge at Wasson Canyon.
(3) EMWD discharge with 5% evaporation prior to arriving at Prado reservoir.
(4) Water quality for EMWD discharge at Wasson Canyon =
(Sum of Monthly Discharge Volume X Discharge TDS)/Total Discharge Volume.
(5) Water quality for EMWD discharge arriving at Prado reservoir =
(Sum of Monthly Discharge Volume X Discharge TDS)/95% of Total Discharge Volume.

DISCHARGE OF TEMESCAL CREEK AT MAIN STREET IN CORONA, EMWD DISCHARGE, AND ELSINORE PRECIPITATION

WATER YEAR 2011-12

APPENDIX H

WATER QUALITY AND DISCHARGE OF THE SANTA ANA RIVER BELOW PRADO DAM

WATER YEAR 2011-12

TABLE H-1

WATER QUALITY SAMPLES BELOW PRADO DAM
WATER YEAR 2011-12

Date	EC (microsiemens/cm)	TDS (mg/L)	Source
10/03/11	1,150	706	USGS
10/11/11	1,130	684	OCWD
10/28/11	1,110	679	USGS
11/08/11	720	472	OCWD
11/14/11	1,050	627	USGS
11/28/11	1,040	618	USGS
12/09/11	1,100	651	USGS
12/13/11	609	378	OCWD
01/10/12	1,100	657	USGS
01/10/12	1,070	690	OCWD
01/20/12	1,040	630	USGS
01/31/12	1,020	635	USGS
02/14/12	1,020	608	OCWD
02/16/12	635	375	USGS
02/29/12	770	465	USGS
03/06/12	1,160	694	OCWD
03/08/12	1,150	678	USGS
04/03/12	761	512	OCWD
04/11/12	940	563	USGS
04/11/12	940	578	USGS
04/28/12	848	508	USGS
05/01/12	877	520	OCWD
05/21/12	1,160	710	USGS
05/31/12	1,180	707	USGS
06/05/12	1,180	796	OCWD
06/16/12	1,150	703	USGS
06/30/12	1,150	670	USGS
07/10/12	1,200	702	OCWD
07/18/12	1,110	690	USGS
07/31/12	1,160	697	USGS
08/07/12	1,150	692	OCWD
08/13/12	1,160	665	USGS
08/14/12	1,150	684	OCWD
08/21/12	1,080	664	OCWD
08/24/12	1,130	699	USGS
08/28/12	1,110	672	OCWD
09/11/12	1,120	668	OCWD
09/12/12	1,110	645	USGS

TABLE H-2

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

OCTOBER 2011

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	71	1135	680	48,251
2	73	1141	683	49,872
3	79	1165	698	55,107
4	82	1211	725	59,458
5	495	517	310	153,231
6	1050	646	387	406,137
7	226	1026	614	138,837
8	155	1092	654	101,346
9	141	1098	657	92,698
10	141	1059	634	89,406
11	132	1096	656	86,623
12	132	1085	650	85,754
13	127	1094	655	83,190
14	111	1110	665	73,773
15	110	1106	662	72,845
16	129	1084	649	83,728
17	137	1073	642	88,018
18	129	1098	657	84,809
19	128	1094	655	83,845
20	129	1125	674	86,895
21	131	1113	666	87,300
22	131	1093	654	85,732
23	138	1090	653	90,065
24	141	1088	651	91,854
25	140	1088	651	91,203
26	144	1079	646	93,032
27	143	1083	648	92,729
28	143	1104	661	94,527
29	138	1107	663	91,470
30	144	1093	654	94,239
31	147	1051	629	92,506
Total	5,317			3,028,477

Monthly Flow Weighted TDS = 570 mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

NOVEMBER 2011

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	142	1060	635	90,125
2	136	1079	646	87,864
3	136	1094	655	89,085
4	181	882	528	95,587
5	220	706	423	92,999
6	221	930	557	123,062
7	225	782	468	105,351
8	227	769	460	104,521
9	226	950	569	128,553
10	224	1020	611	136,804
11	222	1040	623	138,241
12	213	1051	629	134,039
13	210	962	576	120,961
14	234	1041	623	145,853
15	197	1069	640	126,094
16	166	1066	638	105,954
17	164	1068	639	104,873
18	163	1061	635	103,551
19	156	1070	641	99,944
20	191	922	552	105,442
21	337	449	269	90,600
22	277	507	304	84,089
23	279	620	371	103,573
24	275	790	473	130,080
25	268	906	542	145,383
26	259	971	581	150,581
27	254	1009	604	153,453
28	249	1031	617	153,712
29	249	1041	623	155,203
30	250	1061	635	158,820
Total	6,551			3,564,397

Monthly Flow Weighted TDS = 544 mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

DECEMBER 2011

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	258	1099	658	169,773
2	247	1103	660	163,126
3	216	1109	664	143,429
4	197	1093	654	128,925
5	172	1096	656	112,873
6	158	1098	657	103,875
7	158	1094	655	103,496
8	159	1103	660	105,008
9	168	1093	654	109,946
10	177	1063	636	112,657
11	194	1026	614	119,179
12	205	934	559	114,644
13	229	592	354	81,172
14	231	699	419	96,681
15	230	918	550	126,421
16	266	789	472	125,663
17	268	786	471	126,127
18	261	897	537	140,179
19	255	983	589	150,087
20	248	1029	616	152,798
21	236	1053	630	148,796
22	231	1067	639	147,580
23	209	1096	656	137,154
24	171	1091	653	111,705
25	171	1060	635	108,531
26	174	1064	637	110,851
27	182	1065	638	116,057
28	174	1083	648	112,831
29	165	1087	651	107,390
30	169	1084	649	109,690
31	171	1080	647	110,578
Total	6,350			3,807,219

Monthly Flow Weighted TDS = 600 mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

JANUARY 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	171	1073	642	109,862
2	165	1072	642	105,908
3	162	1071	641	103,885
4	144	1092	654	94,153
5	146	1089	652	95,199
6	162	1088	651	105,534
7	168	1095	656	110,147
8	175	1101	659	115,365
9	170	1087	651	110,644
10	152	1095	656	99,657
11	158	1105	662	104,537
12	161	1091	653	105,172
13	160	1098	657	105,190
14	154	1123	672	103,550
15	157	1103	660	103,687
16	168	1063	636	106,928
17	151	1069	640	96,651
18	175	1056	632	110,650
19	172	1041	623	107,209
20	180	1047	627	112,842
21	228	781	468	106,619
22	211	590	353	74,539
23	214	781	468	100,073
24	218	791	474	103,248
25	223	698	418	93,199
26	224	768	460	103,005
27	226	904	541	122,328
28	223	966	578	128,983
29	225	1019	610	137,280
30	225	1033	619	139,166
31	225	1048	627	141,187
Total	5,693			3,356,398

Monthly Flow Weighted TDS = 590 mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

FEBRUARY 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	227	1056	632	143,529
2	225	1079	646	145,363
3	214	1117	669	143,126
4	214	1126	674	144,279
5	214	1118	669	143,254
6	209	1104	661	138,155
7	208	1084	649	135,003
8	213	1067	639	136,080
9	249	1063	636	158,483
10	264	1085	650	171,508
11	160	1093	654	104,711
12	169	806	483	81,559
13	174	959	574	99,912
14	178	1015	608	108,177
15	202	1012	606	122,400
16	240	664	398	95,418
17	249	573	343	85,429
18	246	726	435	106,936
19	246	888	532	130,797
20	245	978	586	143,468
21	259	1008	604	156,319
22	276	1035	620	171,041
23	289	1046	626	181,000
24	290	1074	643	186,489
25	273	1107	663	180,951
26	244	1104	661	161,291
27	176	1100	659	115,919
28	107	830	497	53,176
29	109	767	459	50,058
Total	6,369			3,793,828

Monthly Flow Weighted TDS = 596 mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

MARCH 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	218	877	525	114,474
2	279	996	596	166,385
3	262	1077	645	168,954
4	247	1118	669	165,344
5	231	1128	675	156,017
6	243	1136	680	165,286
7	197	1145	686	135,059
8	163	--- (2)	---	---
9	158	--- (2)	---	---
10	160	--- (2)	---	---
11	161	--- (2)	---	---
12	170	--- (2)	---	---
13	140	--- (2)	---	---
14	145	--- (2)	---	---
15	120	--- (2)	---	---
16	100	--- (2)	---	---
17	129	--- (2)	---	---
18	160	--- (2)	---	---
19	273	--- (2)	---	---
20	340	--- (2)	---	---
21	329	--- (2)	---	---
22	215	--- (2)	---	---
23	150	--- (2)	---	---
24	150	--- (2)	---	---
25	149	--- (2)	---	---
26	181	--- (2)	---	---
27	227	--- (2)	---	---
28	238	--- (2)	---	---
29	279	--- (2)	---	---
30	302	--- (2)	---	---
31	310	--- (2)	---	---
Total	6,426			1,071,517

Monthly Flow Weighted TDS(3) = 639 mg/L

1. TDS = EC x 0.598756 2. EC data missing 3/8/2012 - 3/31/2012

3. Flow data for period of missing EC is excluded in the Monthly Flow-weighted TDS calculation.

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

APRIL 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	318	--- (2)	---	---
2	321	--- (2)	---	---
3	323	--- (2)	---	---
4	324	--- (2)	---	---
5	326	--- (2)	---	---
6	327	--- (2)	---	---
7	327	--- (2)	---	---
8	329	--- (2)	---	---
9	332	--- (2)	---	---
10	248	--- (2)	---	---
11	155	--- (2)	---	---
12	160	949	568	90,915
13	172	957	573	98,558
14	189	884	529	100,038
15	194	867	519	100,710
16	214	785	470	100,585
17	278	755	452	125,673
18	171	731	438	74,845
19	177	731	438	77,471
20	273	753	451	123,086
21	269	786	471	126,597
22	259	810	485	125,613
23	255	827	495	126,269
24	253	834	499	126,339
25	161	851	510	82,036
26	214	864	517	110,708
27	249	891	533	132,840
28	244	898	538	131,195
29	238	910	545	129,679
30	260	914	547	142,288
Total	7,560			2,125,444

Monthly Flow Weighted TDS(3) = 502 mg/L

1. TDS = EC x 0.598756 2. EC data missing 4/1/2012 - 4/11/2012

3. Flow data for period of missing EC is excluded in the Monthly Flow-weighted TDS calculation.

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

MAY 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	280	919	550	154,072
2	280	936	560	156,922
3	280	937	561	157,090
4	276	938	562	155,011
5	273	922	552	150,711
6	273	936	560	152,999
7	273	954	571	155,941
8	271	963	577	156,259
9	269	970	581	156,234
10	267	964	577	154,113
11	262	970	581	152,168
12	253	976	584	147,850
13	250	986	590	147,593
14	255	1029	616	157,111
15	265	1052	630	166,921
16	268	1058	633	169,774
17	268	1065	638	170,897
18	264	1103	660	174,353
19	245	1128	675	165,472
20	217	1150	689	149,420
21	196	1152	690	135,194
22	116	1166	698	80,985
23	115	1161	695	79,943
24	98	1170	701	68,653
25	98	1181	707	69,299
26	102	1164	697	71,089
27	106	1168	699	74,131
28	98	1169	700	68,595
29	102	1171	701	71,517
30	105	1177	705	73,997
31	98	1187	711	69,651
Total	6,523			4,013,965

Monthly Flow Weighted TDS = 615 mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

JUNE 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	88	1180	707	62,175
2	82	1195	716	58,672
3	91	1200	719	65,384
4	92	1197	717	65,937
5	88	1195	716	62,965
6	87	1200	719	62,510
7	85	1202	720	61,175
8	89	1207	723	64,320
9	99	1188	711	70,421
10	97	1155	692	67,082
11	101	1121	671	67,792
12	100	1113	666	66,642
13	97	1122	672	65,165
14	94	1149	688	64,669
15	97	1164	697	67,604
16	99	1162	696	68,880
17	93	1154	691	64,260
18	95	1145	686	65,130
19	77	1169	700	53,896
20	83	1167	699	57,996
21	81	1172	702	56,841
22	86	1165	698	59,989
23	89	1164	697	62,029
24	100	1145	686	68,558
25	102	1131	677	69,074
26	101	1147	687	69,364
27	90	1152	690	62,079
28	72	1178	705	50,784
29	77	1170	701	53,942
30	72	1180	707	50,870
Total	2,704			1,886,206

Monthly Flow Weighted TDS = 698 mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

JULY 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	71	1188	711	50,504
2	82	1180	707	57,936
3	78	1186	710	55,390
4	77	1188	711	54,772
5	81	1172	702	56,841
6	78	1157	693	54,035
7	80	1151	689	55,133
8	81	1130	677	54,804
9	78	1127	675	52,634
10	73	1152	690	50,353
11	73	1151	689	50,309
12	73	1157	693	50,572
13	83	1144	685	56,853
14	93	1112	666	61,921
15	87	1109	664	57,770
16	79	1117	669	52,836
17	79	1115	668	52,741
18	79	1108	663	52,410
19	82	1104	661	54,204
20	74	1135	680	50,290
21	73	1168	699	51,052
22	71	1168	699	49,654
23	72	1147	687	49,448
24	74	1139	682	50,467
25	73	1127	675	49,260
26	72	1122	672	48,370
27	75	1133	678	50,879
28	75	1138	681	51,104
29	72	1159	694	49,965
30	76	1150	689	52,331
31	72	1148	687	49,491
Total	2,386			1,634,330

Monthly Flow Weighted TDS = 685 mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

AUGUST 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	73	1128	675	49,304
2	72	1119	670	48,241
3	58	1136	680	39,451
4	69	1121	671	46,313
5	77	1074	643	49,516
6	79	1061	635	50,187
7	71	1096	656	46,593
8	70	1112	666	46,607
9	63	1134	679	42,776
10	66	1137	681	44,932
11	63	1140	683	43,003
12	62	1138	681	42,246
13	62	1147	687	42,580
14	63	1133	678	42,739
15	74	1136	680	50,334
16	74	1134	679	50,245
17	69	1145	686	47,305
18	59	1153	690	40,732
19	74	1141	683	50,555
20	73	1135	680	49,610
21	71	1139	682	48,421
22	75	1131	677	50,790
23	81	1125	674	54,562
24	84	1130	677	56,834
25	83	1114	667	55,362
26	84	1125	674	56,582
27	90	1096	656	59,061
28	87	1117	669	58,187
29	82	1147	687	56,315
30	82	1148	687	56,365
31	83	1157	693	57,499
Total	2,273			1,533,246
		Monthly Flow Weighted TDS =	675	mg/L

1. TDS = EC x 0.598756

TABLE H-2 (continued)

SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2011-12

SEPTEMBER 2012

Day	Prado Outflow (cfs)	Daily Mean EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	101	1100	659	66,522
2	95	1085	650	61,717
3	96	1076	644	61,849
4	90	1075	644	57,930
5	87	1100	659	57,301
6	88	1080	647	56,906
7	86	1109	664	57,106
8	87	1094	655	56,988
9	87	1084	649	56,468
10	88	1117	669	58,855
11	88	1115	668	58,750
12	101	1113	666	67,308
13	99	1119	670	66,331
14	101	1092	654	66,038
15	100	1069	640	64,007
16	98	1068	639	62,668
17	100	1067	639	63,887
18	104	1070	641	66,630
19	103	1063	636	65,557
20	115	1048	627	72,162
21	108	1095	656	70,809
22	99	1070	641	63,426
23	101	1020	611	61,684
24	100	1002	600	59,995
25	98	1023	613	60,028
26	100	1045	626	62,570
27	101	1076	644	65,070
28	102	1086	650	66,325
29	98	1094	655	64,194
30	93	1098	657	61,141
Total	2,914			1,880,223

Monthly Flow Weighted TDS = 645 mg/L

1. TDS = EC x 0.598756

TABLE H-3

ANNUAL SUMMARY OF FLOW WEIGHTED TDS BELOW PRADO DAM

WATER YEAR 2011-12

Month	Monthly Flow (1) (cfs-days)	Monthly Weighted TDS (1) (mg/L)	Monthly Flow x TDS
2011			
October	5,317	570	3,028,477
November	6,551	544	3,564,397
December	6,350	600	3,807,219
2012			
January	5,693	590	3,356,398
February	6,369	596	3,793,828
March	1,677	639	1,071,517
April	4,230	502	2,125,444
May	6,523	615	4,013,965
June	2,704	698	1,886,206
July	2,386	685	1,634,330
August	2,273	675	1,533,246
September	2,914	645	1,880,223
Total	52,987 (1)		31,695,252
	Yearly Flow-weighted TDS (1) =	598	

1. Prado Outflow Total and Flow Weighted TDS exclude days when EC data was missing.

APPENDIX I

WATER QUALITY AND FLOW OF WASTEWATER FROM RUBIDOUX COMMUNITY SERVICES DISTRICT DISCHARGED BELOW THE RIVERSIDE NARROWS GAGING STATION

WATER YEAR 2011-12

PREPARED BY

JOHN V. ROSSI

TABLE I-1

QUANTITY AND QUALITY OF WASTEWATER FROM RUBIDOUX
DISCHARGED BELOW THE
RIVERSIDE NARROWS GAGING STATION

WATER YEAR 2011-12

MONTH	Discharge (acre -feet)	TDS (mg/L)	Discharge xTDS
2011			
October	189	804	151,956
November	183	780	142,740
December	185	756	139,860
2012			
January	186	796	148,056
February	173	800	138,400
March	185	788	145,780
April	180	812	146,160
May	183	824	150,792
June	177	840	148,680
July	177	804	142,308
August	192	780	149,760
September	184	812	149,408
Total	2,194		1,753,900

Flow weighted TDS = $\frac{1,753,900}{2,194}$ = 799 mg/L

APPENDIX J

WATER QUALITY AND DISCHARGE OF THE SANTA ANA RIVER AT RIVERSIDE NARROWS

WATER YEAR 2011-12

PREPARED BY

JOHN V. ROSSI

TABLE J-1

WATER QUALITY SAMPLES AT RIVERSIDE NARROWS
WATER YEAR 2011-12

	Date Sampled	EC (microsiemens/cm)	TDS (mg/L)	Source of Data		Ratio	Average
2011	10/05/11	1140	719	C of R	*	0.63	
	10/12/11	1099	690	C of R		0.63	
	10/19/11	1155	739	C of R		0.64	
	10/26/11	1136	693	C of R		0.61	
	10/26/11	1000	629	USGS		0.63	688
	11/02/11	1119	706	C of R		0.63	
	11/09/11	1013	632	C of R		0.62	
	11/16/11	1073	669	C of R		0.62	
	11/23/11	957	591	C of R		0.62	
	11/29/11	1046	660	C of R		0.63	652
	12/06/11	1060	676	C of R		0.64	
	12/09/11	961	609	USGS		0.63	
	12/13/11	866	531	C of R	*	0.61	
	12/20/11	1045	666	C of R		0.64	
	12/27/11	1034	653	C of R		0.63	651
2012	01/03/12	1061	662	C of R		0.62	
	01/05/12	992	598	USGS		0.60	
	01/10/12	1055	694	C of R		0.66	
	01/17/12	1078	687	C of R		0.64	
	01/23/12	947	565	USGS	*	0.60	
	01/24/12	940	579	C of R		0.62	644

* Data not used in determining monthly averages; storm flow
C of R City of Riverside
USGS U.S. Geological Survey

TABLE J-1

WATER QUALITY SAMPLES AT RIVERSIDE NARROWS
WATER YEAR 2011-12

Date Sampled	EC (microsiemens/cm)	TDS (mg/L)	Source of Data		Ratio	Average
02/01/12	1108	697	C of R		0.63	
02/07/12	1066	665	C of R		0.62	
02/14/12	1070	736	C of R		0.69	
02/15/12	980	596	USGS		0.61	
02/21/12	1083	654	C of R		0.60	
02/24/12	972	612	USGS		0.63	
02/28/12	967	620	C of R		0.64	654
03/06/12	1089	649	C of R	*	0.60	
03/12/12	1081	672	C of R		0.62	
03/22/12	1022	628	C of R		0.61	
03/22/12	970	600	USGS		0.62	
03/26/12	609	365	USGS	*	0.60	
03/27/12	948	597	C of R		0.63	624
04/03/12	1042	668	C of R		0.64	
04/10/12	1062	720	C of R		0.68	
04/11/12	800	492	USGS	*	0.62	
04/18/12	1066	660	C of R		0.62	683
05/01/12	1076	688	C of R		0.64	
05/09/12	989	608	C of R		0.61	
05/15/12	1086	736	C of R		0.68	
05/23/12	981	610	USGS		0.62	
05/24/12	1117	706	C of R		0.63	
05/30/12	955	604	USGS		0.63	659

* Data not used in determining monthly averages; storm flow
C of R City of Riverside
USGS U.S. Geological Survey

TABLE J-1

WATER QUALITY SAMPLES AT RIVERSIDE NARROWS
WATER YEAR 2011-12

Date Sampled	EC (microsiemens/cm)	TDS (mg/L)	Source of Data	Ratio	Average
06/05/12	1104	694	C of R	0.63	
06/11/12	1129	706	C of R	0.63	
06/15/12	951	602	USGS	0.63	
06/18/12	1139	700	C of R	0.61	
06/26/12	1053	665	C of R	0.63	
06/26/12	905	560	USGS	0.62	655
07/02/12	1141	689	C of R	0.60	
07/10/12	1161	756	C of R	0.65	
07/16/12	990	613	USGS	0.62	
07/17/12	1138	710	C of R	0.62	
07/26/12	1146	725	C of R	0.63	
07/27/12	981	614	USGS	0.63	685
08/07/12	1162	758	C of R	0.65	
08/14/12	1148	748	C of R	0.65	
08/16/12	1070	660	USGS	0.62	
08/21/12	1086	702	C of R	0.65	
08/27/12	982	618	USGS	0.63	
08/28/12	1096	725	C of R	0.66	702
09/04/12	1070	673	C of R	0.63	
09/07/12	985	615	USGS	0.62	
09/11/12	937	580	C of R	0.62	
09/19/12	1048	656	C of R	0.63	
09/20/12	958	597	USGS	0.62	
09/26/12	1040	628	C of R	0.60	625

* Data not used in determining monthly averages; storm flow
C of R City of Riverside
USGS U.S. Geological Survey

TABLE J-2

ANNUAL SUMMARY OF FLOW WEIGHTED TDS AT RIVERSIDE NARROWS
WATER YEAR 2011-12

	Month	Stream Flow [1] (acre-feet)	Monthly Average TDS [2] (mg/L)	Monthly Flow x TDS
2011	October	3,340	688	2,297,920
	November	3,870	652	2,523,240
	December	4,024	651	2,619,624
2012	January	4,155	644	2,675,820
	February	3,964	654	2,592,456
	March	4,410	624	2,751,840
	April	3,491	683	2,384,353
	May	2,763	659	1,820,817
	June	2,444	655	1,600,820
	July	2,253	685	1,543,305
	August	2,378	702	1,669,356
	September	3,355	625	2,096,875
	Total	40,447		26,576,426

$$\text{Flow-weighted TDS} = \frac{26{,}576{,}426}{40{,}447} = 657 \text{ mg/L}$$

(1) USGS measured flow minus storm flow.
(2) TDS based on water quality data from Table J-1.

APPENDIX K

WMWD TRANSFER PROGRAM WATER DISCHARGED TO THE SANTA ANA RIVER ABOVE RIVERSIDE NARROWS

WATER YEAR 2011-12

There was no discharge of WMWD Transfer Program water to the Santa Ana River above Riverside Narrows during the 2011-12 water year.