SANTA ANA RIVER WATERMASTER

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

WATERMASTER
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April 30, 2016

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

Re: Watermaster Report for Water Year October 1, 2014 - September 30, 2015

Ladies and Gentlemen:

We have the honor of submitting herewith the Forty-Fifth 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 2014-15 are as follows:

		At Prado	
1	Measured Outflow at Prado	107,600	acre-feet
2	Base Flow at Prado	64,048	acre-feet
3	Annual Weighted TDS in Base and Storm Flows	522	mg/L
4	Annual Adjusted Base Flow	73,548	acre-feet
5	Cumulative Adjusted Base Flow	5,356,214	acre-feet
6	Other Credits (Debits)	0	acre-feet
7	Cumulative Entitlement of OCWD	1,890,000	acre-feet
8	Cumulative Credit	3,506,222	acre-feet
9	One-Third of Cumulative Debit	0	acre-feet
10	Minimum Required Base Flow in 2014-15	34,000	acre-feet

At Riverside Narrows

1	Base Flow at Riverside Narrows	28,302 acre-feet
2	Annual Weighted TDS in Base Flow	630 mg/L
3	Annual Adjusted Base Flow	28,302 acre-feet
4	Cumulative Adjusted Base Flow	1,986,546 acre-feet
5	Cumulative Entitlement of IEUA and WMWD	686,250 acre-feet
6	Cumulative Credit	1,300,296 acre-feet
7	One-Third of Cumulative Debit	0 acre-feet
8	Minimum Required Base Flow in 2014-15	12,420 acre-feet

Based on these findings, the Watermaster concludes that there was full compliance with the provisions of the Stipulated Judgment in 2014-15.

At the end of the 2014-15 Water Year, Inland Empire Utilities Agency (formerly Chino Basin Municipal Water District) and Western Municipal Water District have a cumulative credit 3,506,222 acre-feet to their Base Flow obligation at Prado Dam. San Bernardino Valley Municipal Water District has a cumulative credit of 1,300,296 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:

P. Joseph Grindstaff

Michael R. Markus

Douglas D. Headrick

John V. Rossi

Roy L. Herndon

SANTA ANA RIVER WATERMASTER

FOR

ORANGE COUNTY WATER DISTRICT

v. CITY OF CHINO, et al.

CASE NO. 117628 - COUNTY OF ORANGE

FORTY- FIFTH
ANNUAL REPORT
OF THE
SANTA ANA RIVER WATERMASTER

FOR WATER YEAR
OCTOBER 1, 2014 - SEPTEMBER 30, 2015

APRIL 30, 2016

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CHAPTER I

WATERMASTER ACTIVITIES AND WATER CONDITIONS

Introduction

This Forty-Fifth Annual Report of the Santa Ana River Watermaster covers Water Year 2014-15. 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 2014-15 the Watermaster consisted of P. Joseph Grindstaff, Douglas D. Headrick, Roy L. Herndon, Michael R. Markus, and John V. Rossi. Mr. Herndon served as Chairman and Mr. Headrick served as Secretary/Treasurer. 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 2014-15 the United States Geological Survey (USGS) provided discharge and water quality data for the River at two gaging stations, "Santa Ana River Below Prado Dam" (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), and are based on continuous recordings. The water quality data at Prado consist of daily maximum and minimum and median values for electrical conductivity (EC), measured as specific conductance and expressed in microsiemens per centimeter (μs/cm) based on a continuous recording, and 42 measured values (3-4 per month) for total dissolved solids (TDS), expressed in milligrams per liter (mg/L). The water quality data at Riverside Narrows consist of 25 measured values (generally twice-monthly) 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, Temescal Creek above Main Street in Corona, Cucamonga Creek near Mira Loma, Chino Creek at Schaefer Avenue, Lytle Creek at Colton, Warm Creek near san Bernardino, and San Timoteo Creek near Loma Linda (see Appendix A). Based on a determination by the Watermaster in Water Year 2011-12, the USGS was requested to establish a new gaging station at the spillway at Lee Lake. The expenses associated with the installation and measurements at this gage were added to the Watermaster costs paid by the Parties. Beginning in Water Year 2012-13, the new Temescal Creek at Corona Lake "Lee Lake" (near Corona) gage provided useful data (also included in Appendix A) to assist in the determination of the amount of water discharged from the San Jacinto Watershed that arrived at Prado. At times the USGS must estimate daily mean discharges due to damaged or malfunctioning recording equipment.

The Water Year 2014-15 daily mean discharge records at Prado are rated "fair" by the USGS. 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, 733 cfs on December 14, 2014 and 40 cfs on October 5, 2014. The maximum and minimum daily flow-weighted median EC values reported by the USGS at Prado were 1,350 μs/cm on June 8, 2015 and 335 μs/cm on December 13, 2014, respectively. The corresponding calculated TDS concentrations were 820 and 204 mg/L. There were interruptions in the records at times due to malfunction of recording or sensing equipment. EC records were rated "excellent" except for October 10-22, January 16-20, March 1-12, March 14-17, March 24 to April 4, April 19-28, May 17-22, July 18 to August 11, and September 24-30, which are "good"; October 1, March 13, March 18, April 5-11, April 29 to May 5, May 23-26, August 12-18,

which are “fair”; and October 2-3, April 12-15, May 6-14, and May 27 to Jun 9, which are rated “poor” by the USGS.

The Water Year 2014-15 daily mean discharge record at Riverside Narrows was rated “poor” by the USGS. The maximum and minimum daily mean discharge values during the year were 1,670 cfs on September 15, 2015 and 24 cfs on November 23, 2014, respectively. The maximum and minimum EC values reported by the USGS were 1,050 μs/cm on May 14, 2015 and 347 μs/cm on February 23, 2015, respectively. The corresponding measured TDS concentrations were 646 mg/L and 218 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 Water Year 2003-04 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. Because of the Watermaster’s finding of suitability of the Gilbert Street Gage, in Water Year 2011-12 the Parties determined that funding of the other precipitation gages was no longer a necessary Watermaster expense.

For Water Year 2014-15, the total precipitation recorded at the Gilbert Street gage was 11.09 inches, or 62% 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 from 1934-35 through 2014-15.

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 2014-15 there were no sources of Nontributary Flow in the River at Riverside Narrows or at Prado.

The determinations of the Watermaster for Water Year 2014-15 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 2014-15 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 respective Districts.

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[6]	33.41	462,646	456,316	155,711	392	195,677	1,838,224
1998-99	8.02	184,998	182,310	158,637	581	174,369	1,970,593
1999-00	11.09	207,850	188,538	148,269	527	169,644	2,098,237
2000-01	16.13	222,559	208,535	153,914	525	176,360	2,232,597
2001-02	5.08	174,968	156,596	145,981	587	159,728	2,350,325
2002-03	16.22	256,157	245,947	146,113	463	174,970	2,484,182
2003-04[7]	10.80	214,102	201,967	143,510	502	167,190	2,609,619
2004-05	29.89	638,513	637,568	154,307	348	199,570	2,769,555
2005-06	13.23	247,593	246,101	147,736	517	170,266	2,901,383
2006-07	4.61	156,147	153,823	129,830	604	140,216	3,005,130
2007-08	13.70	199,690	194,309	116,483	495	136,382	3,103,677
2008-09	10.14	162,698	161,026	102,711	527	117,519	3,181,385
2009-10	17.79	243,776	243,690	103,099	443	125,179	3,266,053
2010-11[7]	23.50	324,892	313,018	102,031	522	117,166	3,342,412
2011-12	9.01	121,123	121,123	93,068	597	101,056	3,401,833
2012-13	9.53	100,003	99,735	81,452	621	86,814	3,446,890
2013-14	12.42	86,486	86,486	63,536	582	69,784	3,474,674
2014-15	11.09	107,600	107,600	64,048	522	73,548	3,506,222

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[8]	13.70	78,619	74,554	46,776	674	46,776	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
2012-13	9.53	41,337	41,337	36,407	662	36,407	1,270,181
2013-14	12.42	42,766	42,766	32,313	646	32,313	1,287,244
2014-15	11.09	41,958	41,958	28,302	630	28,302	1,300,296

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 and Adjusted Base flow for Water Year 1997-98 were returned to their originally published values to correct an error in the adjustment to account for San Jacinto Watershed flows arriving at Prado. This correction is also reflected in the Cumulative Credit for this and subsequent years.

(7) A correction was made for Water Years 2003-04 and 2010-11 in the calculation of Weighted TDS based on an adjustment to account for OC-59 water that arrived at Prado. This correction is reflected in the Weighted TDS and Adjusted Base Flow for these years. This correction is also reflected in the Cumulative Credit for these and subsequent years.

(8) 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 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) in Orange County and Inland Empire Brine Line (IEBL) in San Bernardino and Riverside Counties 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/IEBL first went into service in Water Year 1985-86. The NRWS went into service prior to 1970, but records of NRWS flow data are only available beginning with Water Year 1981-82.

The locations of the SARI/IEBL 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 5,500 acres of *Arundo* in the watershed.

TABLE 2

TREATED WASTEWATER EFFLUENT DISCHARGED ABOVE PRADO

(acre-feet)

	Wastewater discharges upstream from Colton that generally do not flow continuously to Santa Ana River above E Street				Wastewater discharges to Santa Ana River and its tributaries that have hydraulic continuity to the Santa Ana River above Riverside Narrows					Wastewater discharges to the Santa Ana River between Riverside Narrows and Prado Dam								Wastewater discharges to Temescal Creek or its tributaries which have hydraulic continuity to the Santa Ana River					Total Discharge to surface flow of the Ana River	Total Waste Water Discharged in the Watershed
Water Year	Redlands	Beaumont	Yucaipa	Subtotal (A)	San Bernardino	Colton	Rialto	RIX[1]	Subtotal (B)	Riverside	Corona[2]	IEUA RP 1[3]	IEUA RP 2	IEUA RP 5	IEUA CCWRF[4]	WRCRW[5]	Subtotal (C)	EMWD Discharge (1)	Est. EMWD Arriving at Prado (2)	Temescal Valley[6] WRP (3)	Elsinore Valley MWD (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	0	0	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	0	0	7,063	49,683	56,746	35,422	8,718	44,940	4,969	--	9,264	1,461	104,774	1,779	1690	--	--	1,690	163,210	174,793
1998-99	7,379	1,367	3,128	11,874	0	0	6,524	47,587	54,111	34,844	11,629	43,354	5,345	--	9,534	4,594	109,300	--	--	--	3,049	3,049	166,460	178,334
1999-00	7,670	1,373	3,284	12,327	0	0	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	0	0	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	0	0	7,952	44,513	52,465	35,586	12,378	40,377	4,056	--	10,677	2,380	105,454	--	--	352	4,477	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	444	5,012	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	549	5,037	6,726	166,386	181,907
2004-05	7,632	2,051	3,899	13,583	4,406	183	7,815	42,025	54,428	38,123	12,558	40,644	--	8,777	8,637	3,521	112,260	15,195	13,746	653	7,025	21,424	188,112	203,144
2005-06	5,789	2,246	3,945	11,981	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	701	6,259	19,591	180,618	194,637
2006-07	4,991	2,555	4,056	11,601	10	0	7,654	44,011	51,676	36,355	11,727	31,829	--	12,534	6,851	4,376	103,672	13,105	11,092	691	4,792	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	811	1,553	11,294	158,839	171,293
2008-09	2,386	2,894	3,993	9,273	263	0	6,724	40,311	47,299	33,636	9,062	23,854	--	9,711	8,920	6,374	91,557	6,669	4,653	948	518	6,119	144,975	156,264
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	85,978	4,961	4,814	934	876	6,624	140,231	150,315
2010-11	3,271	3,050	4,196	10,516	1,292	0	6,710	39,333	47,335	33,487	9,275	18,177	--	7,279	5,987	6,486	80,690	5,680	5,418	622	4,464	10,504	138,529	149,308
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	2,027	120,936	132,096
2012-13	3,652	3,139	4,191	10,982	44	0	6,611	35,390	42,045	31,996	9,406	10,647	--	5,388	5,015	6,994	69,446	2,727	502	502	650	1,654	113,144	126,351
2013-14	3,549	3,345	4,133	11,028	145	0	6,527	33,271	39,943	30,302	8,662	9,898	--	3,188	3,606	6,402	62,058	0	0	533	623	1,156	103,157	114,184
2014-15	3,149	3,428	2,920	9,497	0	0	6,285	31,668	37,954	29,673	9,611	11,589	--	3,957	4,124	6,690	65,644	0	0	605	626	1,231	104,828	114,325

1. RIX = Rapid Infiltration and Extraction Facility for San Bernadino and Colton, including over-extraction of groundwater
2. A portion of the Corona discharge goes to ponds, which are considered tributary to the Santa Ana River.
3. Beginning in 1997-98, includes IEUA Plant #4 flows.
4. CCWRF = Carbon Canyon Water Reclamation Facility
5. WRCRW = Western Riverside County Regional Wastewater Treatment Plant
6. Lee Lake WTP name changed to Temescal Valley WRP in WY 2014-15

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	Santa Ana Watershed Project Authority Santa Ana Regional Interceptor (SARI)[1]		
	North System (acre-feet)	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
2012-13	3,862	12,061	5,626	15,923
2013-14	4,190	12,185	5,350	16,375
2014-15	4,063	12,056	5,460	16,119

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 Total Flow for 1985-86 through 1988-89 is partial flow.

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 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/IEBL.

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

Santa Ana River Watermaster Action Team

The parties IEUA, OCWD, SBVMWD and WMWD invited EMWD and other water agencies within the Santa Ana River Watershed to work together as the Santa Ana River Watermaster Action Team to explore concepts that may have watershed area-wide benefits and may involve projects that could be eligible for funding through the State of California grant processes. The cooperating agencies contracted a consultant and participated in collaborative discussions on numerous occasions. The current preferred concepts include reuse of water, conjunctive use, habitat enhancement and water conservation. The Santa Ana River Watermaster Action Team agencies are continuing to work together to better define the concepts and develop implementation procedures that may qualify for grant funding.

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 2014-15 fiscal year as well as the budget adopted for the 2015-16 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, 2014 to June 30, 2015 Budget	July 1, 2014 to June 30, 2015 Expenses	July 1, 2015 to June 30, 2016 Budget
Support Services	$15,000.00	$29,256.94*	$15,000.00
Reproduction of Annual Report	1,000.00	$1,404.58*	1,000.00
TOTAL	$16,000.00	$30,661.52*	$16,000.00

* The expenses for Fiscal Year 2013 -14 were paid during Fiscal Year 2014-15.

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 2014-15, 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, 2014 to September 30, 2015

	Total Cost	USGS Share	Parties' Share
USGS PRECIPITATION GAGING STATIONS			
Gilbert Street Gage at San Bernardino	$8,000	$0	$8,000
Middle Fork Lytle Creek Precipitation Gage	$8,000	$8,000	$0
USGS FLOW AND WATER QUALITY GAGING STATIONS			
Santa Ana River at MWD Crossing (Riverside			
Surface Water Gage)	$28,950	$9,700	$19,250
Water Quality Monitoring/TDS Sampling	$11,950	$4,000	$7,950
Santa Ana River below Prado Dam			
Surface Water Gage	$22,800	$22,800	$0
FY14 Credit	($20,400)	($6,850)	($13,550)
Water Quality	$16,550	$5,550	$11,000
TDS Sampling	$10,950	$3,700	$7,250
Water Quality Conductance Program	$2,550	$0	$2,550
Temescal Creek above Main St., near Corona	$20,600	$6,900	$13,700
Chino Creek at Schaefer	$20,600	$6,900	$13,700
Cucamonga Creek at Mira Loma	$20,600	$6,900	$13,700
Temescal Creek at Corona Lake	$15,350	$0	$15,350
TOTAL COST AND SHARES	$166,500	$67,600	$98,900
COST DISTRIBUTION AMONG PARTIES			
Inland Empire Utilities Agency	20%		$19,780
Orange County Water District	40%		$39,560
San Bernardino Valley Municipal Water District	20%		$19,780
Western Municipal Water District	20%		$19,780

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 2014-15, the flow of the River as measured at the USGS gaging station below Prado Dam amounted to 107,600 acre-feet. There was no water in storage at the beginning of the Water Year, and 1,900 acre-feet remained in storage at the end of the Water Year. Inflow to the reservoir included 64,048 acre-feet of Base Flow and 45,452 acre-feet of Storm Flow. There was no San Jacinto Watershed water that reached Prado. The monthly components of flow of the River at Prado Dam for Water Year 2014-15 are listed in Table 6 and are shown graphically on Plate 4. Historical Base and Storm Flows of the River below Prado during Water Years 1934-35 through 2014-15 are presented on Plate 5.

Nontributary Flow

Nontributary Flow includes water that originated outside the watershed and other water that the Watermaster has determined should be excluded from Base Flow. During Water Year 2014-15 there was no nontributary water. There were no flows from the San Jacinto Watershed that were determined to have reached Prado. In the past, nontributary flows have included and may include in the future other water discharged to the River pursuant to water exchange or other such programs.

High Groundwater Mitigation Project

No High Groundwater Mitigation Project water was discharged to the River during Water Year 2014-15.

Releases to San Antonio Creek

During Water Year 2014-15, there was no State Water Project (SWP) water released for OCWD from turnout OC-59 to the Santa Ana River.

TABLE 6

COMPONENTS OF FLOW AT PRADO DAM
WATER YEAR 2014-15
(acre-feet)

	USGS Measured Outflow	Storage Change (1)	Computed Inflow	San Jacinto Watershed Flow at Prado (2)	WMWD Transfer Water (3)	San Antonio Creek (4)	Storm Flow	Base Flow
2014								
October	4,078	16	4,094	0	0	0	14	4,080
November	6,978	(13)	6,965	0	0	0	1,334	5,631
December	24,241	5,643	29,884	0	0	0	22,484	7,400
2015								
January	16,746	(5,355)	11,391	0	0	0	3,357	8,034
February	8,292	1,550	9,842	0	0	0	2,818	7,024
March	11,843	(1,840)	10,003	0	0	0	3,449	6,554
April	6,060	1	6,061	0	0	0	833	5,228
May	7,770	(1)	7,769	0	0	0	2,532	5,237
June	4,028	(1)	4,027	0	0	0	85	3,942
July	6,177	98	6,275	0	0	0	2,975	3,300
August	3,917	(98)	3,819	0	0	0	388	3,431
September	7,470	1,900	9,370	0	0	0	5,183	4,187
Total	107,600	1,900	109,500	0	0	0	45,452	64,048

(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-OCWD Transfer Program water pumped from the Bunker Hill, Riverside, and Colton basins and discharged to the Santa Ana River above the Riverside Narrows delivered this Water Year.

(4) State Water Project water released into San Antonio Creek from turnout OC-59 for OCWD and calculated to have reached Prado this 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. 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 2014-15, 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. During Water Year 2014-15, no WMWD-OCWD Transfer Program water deliveries were made to the River upstream of Riverside Narrows and Prado Dam.

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 2014-15, there was no water discharged to Temescal Wash by EMWD.

Storm Flow

Portions of storm flows are retained behind Prado Dam for flow regulation and for water conservation purposes. The United States Army Corps of Engineers (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 United States Fish and Wildlife Service (USFWS), 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 USFWS 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 2014-15, the maximum volume of water stored in Prado Reservoir reached 10,299 acre-feet on December 14, 2014. The maximum daily mean flow released from Prado Dam to the River during the Water Year was 733 cfs on December 14, 2014.

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 2014-15 did not include discharges from the San Jacinto Watershed. The general procedure used by the Watermaster to separate the Water Year 2014-15 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 was found to be 522 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 forty-two (42) grab samples for EC collected by the USGS and analyzed for TDS.

For Water Year 2014-15 a correlation between TDS and EC yields the following best fit equation:

$$TDS = EC \times 0.607633$$

(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 522 mg/L represents the quality of the total flow including discharge from the San Jacinto Watershed and OC-59. 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 2014-15, 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 2014-15 there were no releases from OC-59 to San Antonio Creek for OCWD. Therefore, no water quality adjustment was necessary.

Adjustment for Arlington Desalter Discharge

During Water Year 2014-15, 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 2014-15, no WMWD-OCWD Transfer Program water was delivered. Therefore, no water quality adjustment was necessary.

Adjustment for San Jacinto Watershed Discharge

There was no discharge from the San Jacinto Watershed during Water Year 2014-15 reaching Prado Reservoir. Therefore, no water quality adjustment was necessary.

Flow Component	Annual Flow (acre-feet)	Average TDS (mg/L)	Annual Flow X Average TDS
1. Measured Outflow	107,600	522	56,167,200
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	0	---	---
7. Measured Outflow less lines 2 through 6	107,600		56,167,200
Average TDS in Total Base and Storm Flow	56,167,200 ÷ 107,600 = 522 mg/L		

The flow-weighted average annual TDS of Storm Flow and Base Flow for Water Year 2014-15 is 522 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 522 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:

$$(64{,}048 \text{ acre-feet}) + \frac{35}{42{,}000} \times (64{,}048 \text{ acre-feet}) \times (700 - 522) = 73{,}548 \text{ acre-feet}$$

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.

The findings of the Watermaster concerning flow at Prado for Water Year 2014-15 required under the Judgment are as follows:

1.	Measured Outflow at Prado	107,600 acre-feet
2.	Base Flow at Prado	64,048 acre-feet
3.	Annual Weighted TDS of Base and Storm Flow	522 mg/L
4.	Annual Adjusted Base Flow	73,548 acre-feet
5.	Cumulative Adjusted Base Flow	5,356,214 acre-feet
6.	Other Credits (Debits) [1]	0 acre-feet
7.	Cumulative Entitlement of OCWD	1,890,000 acre-feet
8.	Cumulative Credit	3,506,222 acre-feet
9.	One-Third of Cumulative Debit	0 acre-feet
10.	Minimum Required Base Flow in 2014-15	34,000 acre-feet

1. Other Credits (Debits) are comprised of San Jacinto Watershed outflow.
2. Cumulative Credit includes 40,008 acre-feet of San Jacinto Watershed cumulative 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[3]	155,711	195,677	2,996,453	0	1,176,000	1,838,224
1998-99	158,637	174,369	3,170,822	0	1,218,000	1,970,593
1999-00	148,269	169,644	3,340,466	0	1,260,000	2,098,237
2000-01	153,914	176,360	3,516,826	0	1,302,000	2,232,597
2001-02	145,981	159,728	3,676,554	0	1,344,000	2,350,325
2002-03	146,113	174,970	3,851,524	887	1,386,000	2,484,182
2003-04[4]	143,510	167,190	4,018,714	247	1,428,000	2,609,619
2004-05	154,307	199,570	4,218,284	2,366	1,470,000	2,769,555
2005-06	147,736	170,266	4,388,550	3,562	1,512,000	2,901,383
2006-07	129,830	140,216	4,528,766	5,531	1,554,000	3,005,130
2007-08	116,483	136,382	4,665,148	4,165	1,596,000	3,103,677
2008-09	102,711	117,519	4,782,667	2,189	1,638,000	3,181,385
2009-10	103,099	125,179	4,907,846	1,489	1,680,000	3,266,053
2010-11[4]	102,031	117,166	5,025,012	1,193	1,722,000	3,342,412
2011-12	93,068	101,056	5,126,068	365	1,764,000	3,401,833
2012-13	81,452	86,814	5,212,882	243	1,806,000	3,446,890
2013-14	63,536	69,784	5,282,666	0	1,848,000	3,474,674
2014-15	64,048	73,548	5,356,214	0	1,890,000	3,506,222

TABLE 7 (Continued)

(1) Other Credits (Debits) are comprised of San Jacinto Watershed outflow which is the sum of discharge from Lake Elsinore and wastewater discharged by EMWD.

(2) Cumulative Credit includes 40,008 acre-feet of San Jacinto Watershed cumulative outflow.

(3) The Base Flow and Adjusted Base Flow for Water Year 1997-98 were returned to their originally published values to correct an error in the adjustment to account for San Jacinto Watershed flow arriving at Prado. This correction is also reflected in the Cumulative Credit for this and subsequent years.

(4) A correction was made for Water Years 2003-04 and 2010-11 in the calculation of Weighted TDS based on an adjustment to account for OC-59 water that arrived at Prado. This correction is reflected in the Weighted TDS and Adjusted Base Flow for these years. This correction is also reflected in the Cumulative Credit for these and subsequent years.

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 was to 41,958 acre-feet, measured at the USGS gaging station near the MWD Crossing. Separated into its components, Base Flow was 28,302 acre-feet and Storm Flow was 15,874 acre-feet. Included in Base Flow is 2,218 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 2014-15 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 2014-15 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 2014-15 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 2014-15.

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 2014-15, no WMWD-OCWD Transfer Program water was delivered to the River.

TABLE 8

COMPONENTS OF FLOW AT RIVERSIDE NARROWS
WATER YEAR 2014-15
(acre-feet)

	Month	USGS Measured Flow	Storm Flow	SBVMWD HGMP Water (1)	WMWD Transfer Program (2)	Rubidoux Waste-water	Base Flow (3)
2014	October	2,081	0	0	0	194	2,275
	November	2,229	275	0	0	184	2,138
	December	10,635	8,146	0	0	187	2,676
2015	January	3,316	597	0	0	187	2,906
	February	3,640	1,285	0	0	169	2,524
	March	1,974	83	0	0	187	2,078
	April	2,272	192	0	0	178	2,258
	May	2,534	375	0	0	187	2,346
	June	1,919	0	0	0	184	2,103
	July	3,302	1,366	0	0	184	2,120
	August	2,248	18	0	0	193	2,423
	September	5,808	3,537	0	0	184	2,455
Total		41,958	15,874	0	0	2,218	28,302

(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-OCWD Transfer Program water pumped from the Bunker Hill, Riverside, and Colton basins and discharged to the Santa Ana River above the Riverside Narrows.

(3) Base Flow equals USGS measured flow, minus storm flow, minus HGMP, and minus WMWD-OCWD Transfer 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 2014-15, in the amount of 2,218 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. A summary of TDS and EC data of the River at Riverside Narrows is contained in Appendix J.

In October 2013, the City of Riverside changed the TDS and EC location for sampling. The new sampling location is further upstream and is not representative of stream flow at the Riverside Narrows. Therefore, no samples from the City of Riverside are used in the water quality adjustments during Water Year 2014-15.

Adjustment for High Groundwater Mitigation Project Discharge

During Water Year 2014-15, 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 2014-15, 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 794 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 630 mg/L.

Flow Component	Annual Flow (acre-feet)	Average TDS (mg/L)	Annual Flow x Average TDS
1. Base Flow plus Nontributary Flow	26,084	616	16,067,744
2. Less Nontributary Flow HGMP Pumped Water	0	---	---
3. Less WMWD Transfer Flow	0	---	---
4. Plus Rubidoux Treated Wastewater	2,218	794	1,761,092
5. Base Flow (line 1 less lines 2 and 3 plus line 4)	28,302		17,828,836
Average TDS of Base Flow	17,828,836 ÷ 28,302= 630 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 2014-15 was 630 mg/L. Therefore, no adjustment is necessary, and the Adjusted Base Flow for Water Year 2014-15 is 28,302 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 2014-15 required under the Judgment are as follows:

1.	Base Flow at Riverside Narrows	28,302 acre-feet
2.	Annual Weighted TDS of Base Flow	630 mg/L
3.	Annual Adjusted Base Flow	28,302 acre-feet
4.	Cumulative Adjusted Base Flow	1,986,546 acre-feet
5.	Cumulative Entitlement of IEUA and WMWD	686,250 acre-feet
6.	Cumulative Credit	1,300,296 acre-feet
7.	One-Third of Cumulative Debit	0 acre-feet
8.	Minimum Required Base Flow in 2014-15	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

TABLE 9 (Continued)
HISTORY OF THE WATERMASTER COMMITTEE MEMBERSHIP

Water Year	SBVMWD	IEUA	WMWD	OCWD	OCWD
2011-12	Samuel H. Fuller, Secretary/Treasurer	Thomas A. Love	John V. Rossi	Michael R. Markus	Roy L. Herndon, Chairman
2012-13 through 2014-15	Douglas D. Headrick Secretary/Treasurer	P. Joseph Grindstaff	John V. Rossi	Michael R. Markus	Roy L. Herndon, Chairman

Santa Ana River Watershed

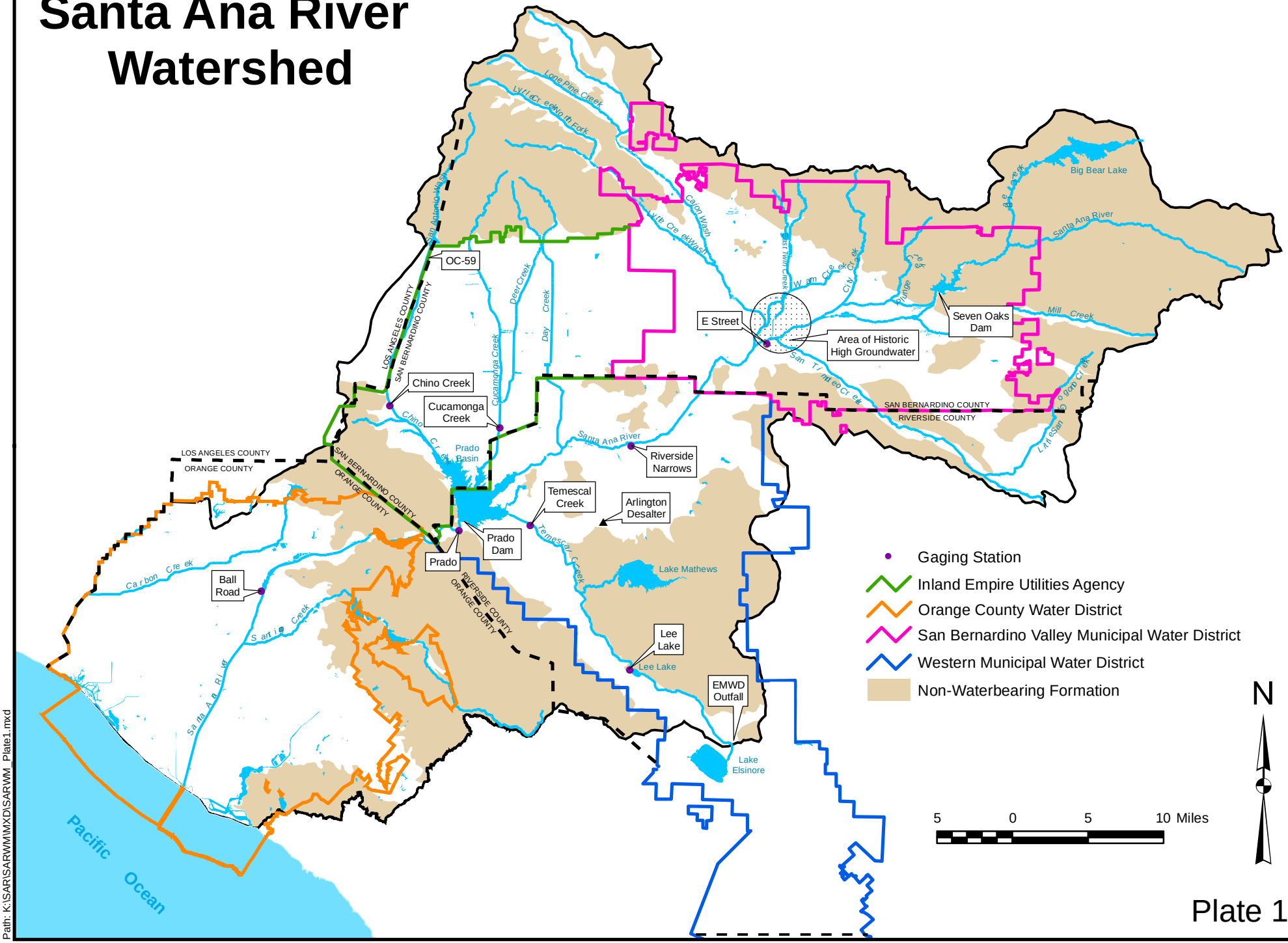

Plate 1

Path: K:\SAR\SARWM\MXD\SARWM_Plate1.mxd

Santa Ana River Watershed Wastewater Treatment Plants and Salt Export Pipelines

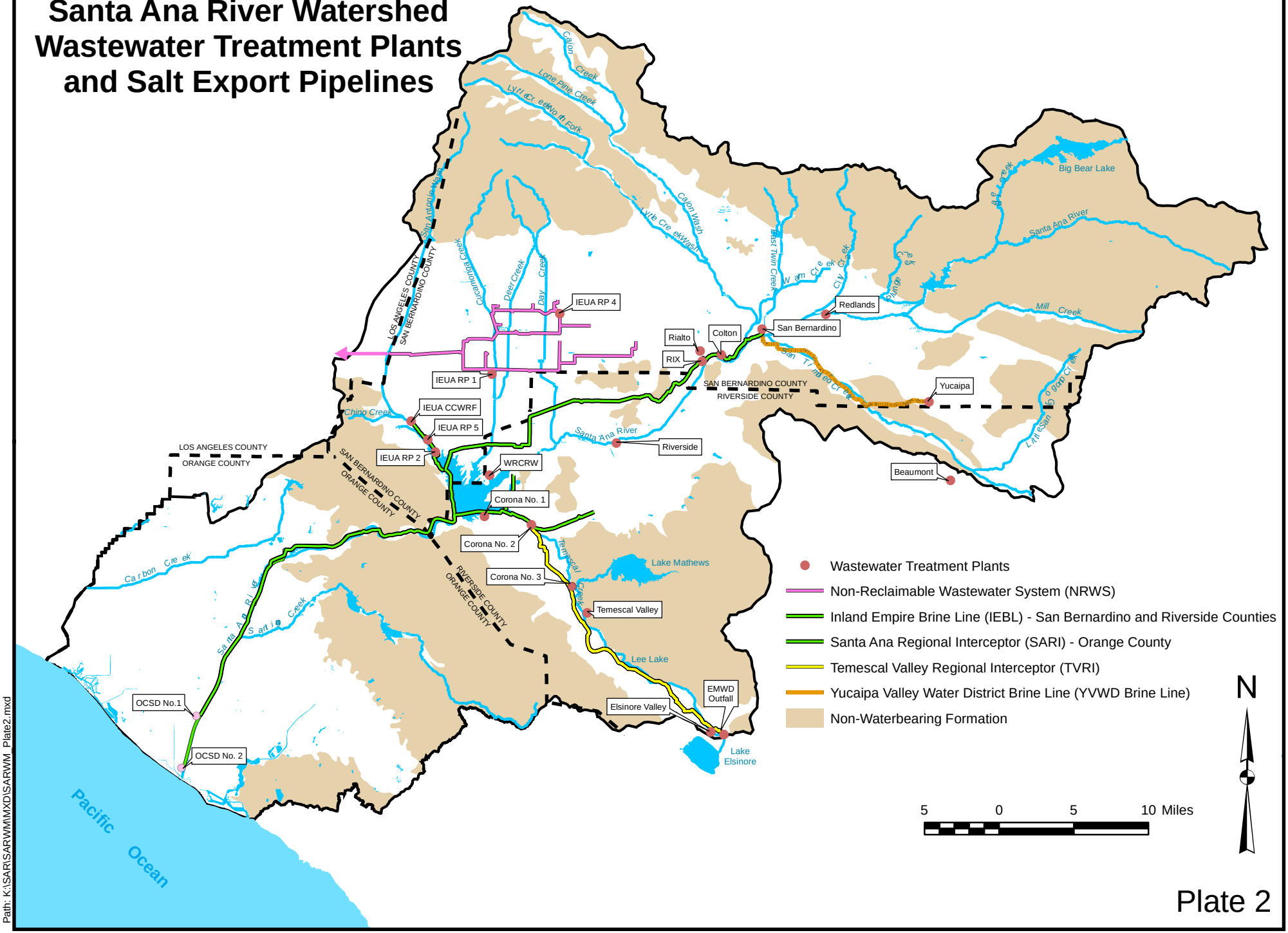

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Plate 2

PRECIPITATION AT SAN BERNARDINO STARTING WITH 1934-35

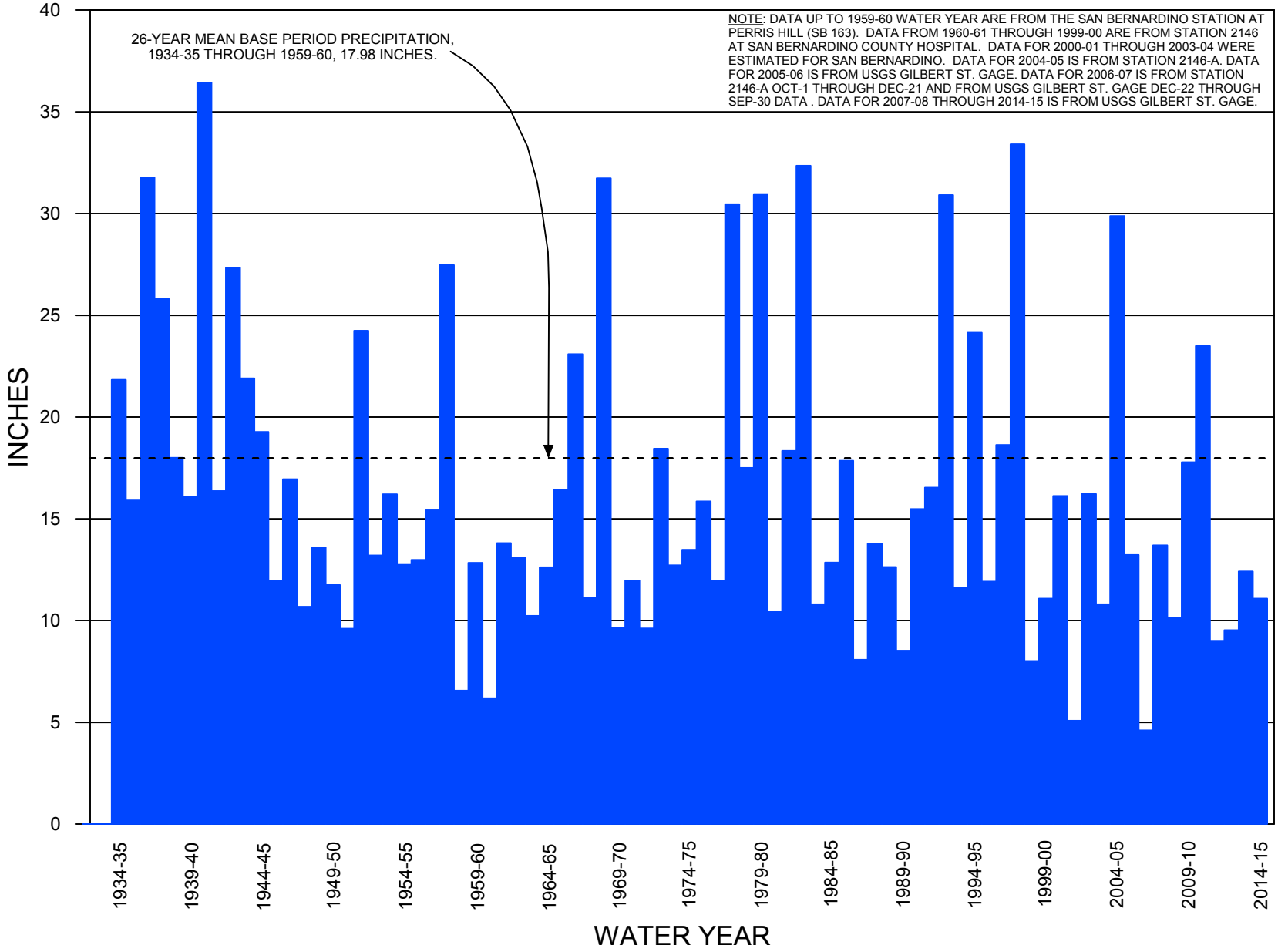


PLATE 3

2014-15 SAN BERNARDINO PRECIPITATION
USGS GILBERT STREET GAGE
TOTAL - 11.09"

INCHES

0.01" 0.62" 4.58" 0.59" 1.38" 0.29" 0.07" 0.75" 0.00" 0.99" 0.00" 1.81"

PERIODS OF WATER STORAGE GREATER THAN 100 ACRE-FEET BEHIND PRADO DAM

CUBIC FEET PER SECOND

STORM FLOW
INFLOW TO PRADO DAM LESS NONTRIBUTARY FLOWS REACHING PRADO
USGS MEASURED OUTFLOW

October November December January February March April May June July August September

DISCHARGE OF THE SANTA ANA RIVER AT PRADO DAM & SAN BERNARDINO PRECIPITATION
WATER YEAR 2014-15

Plate 4

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

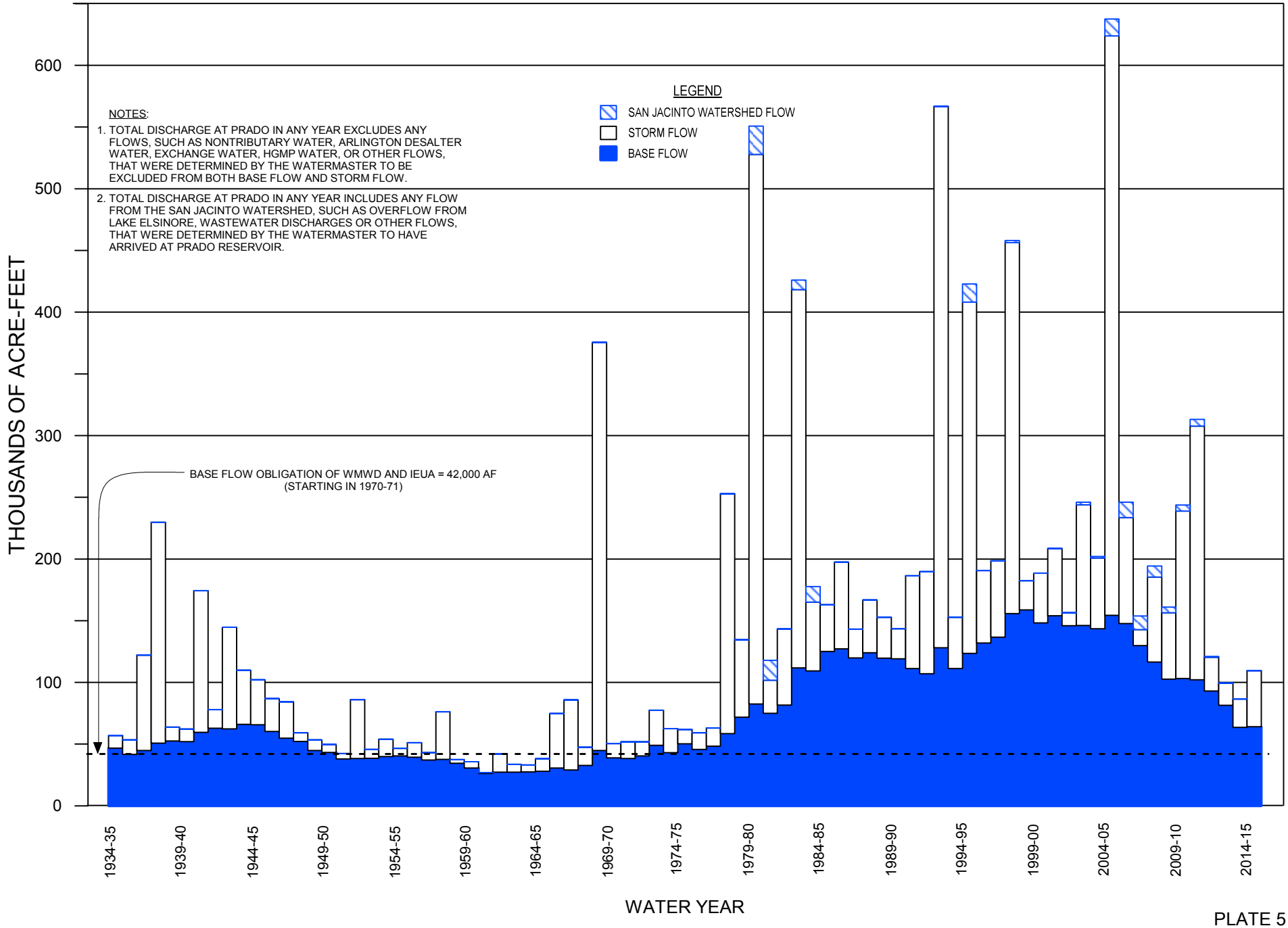
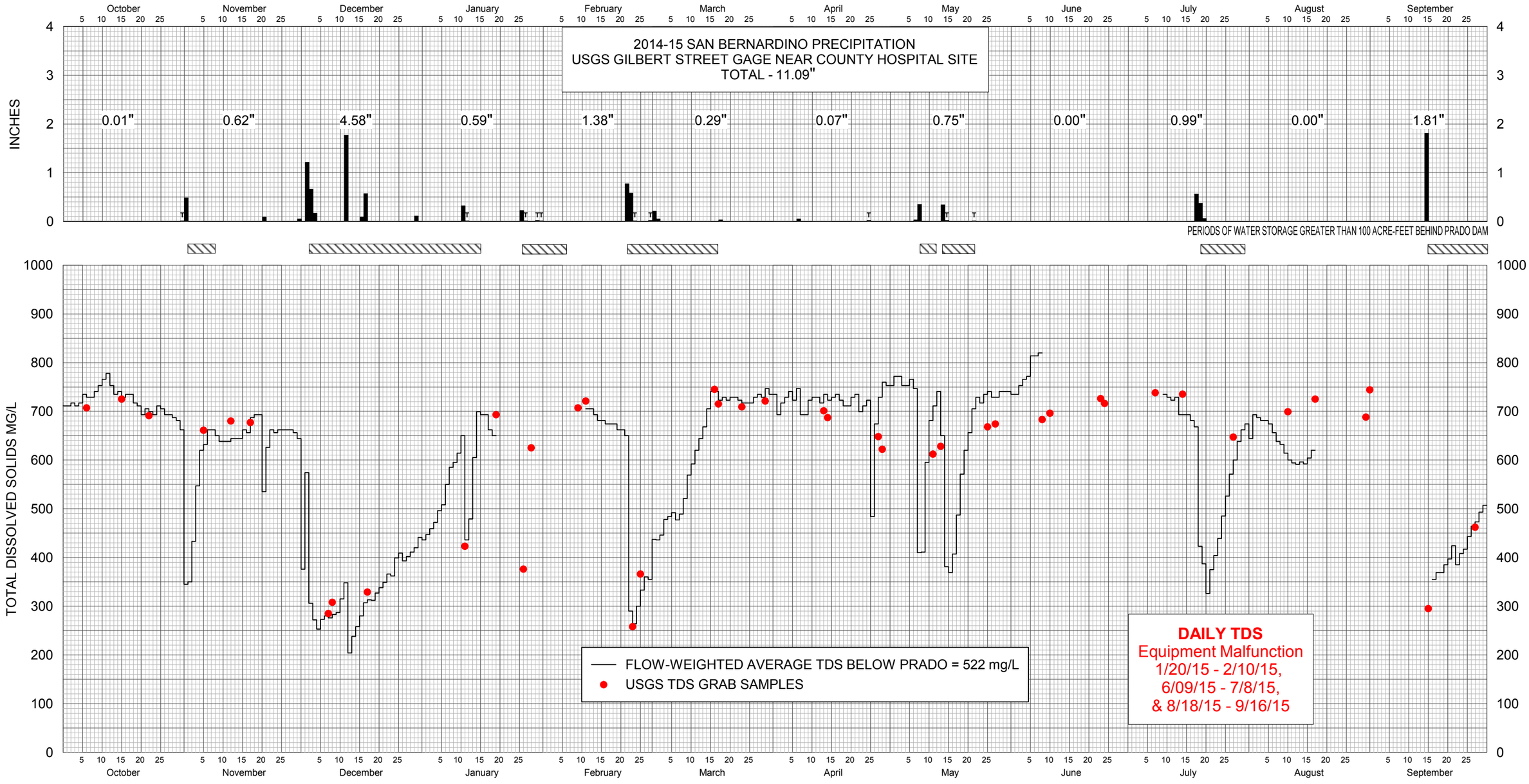
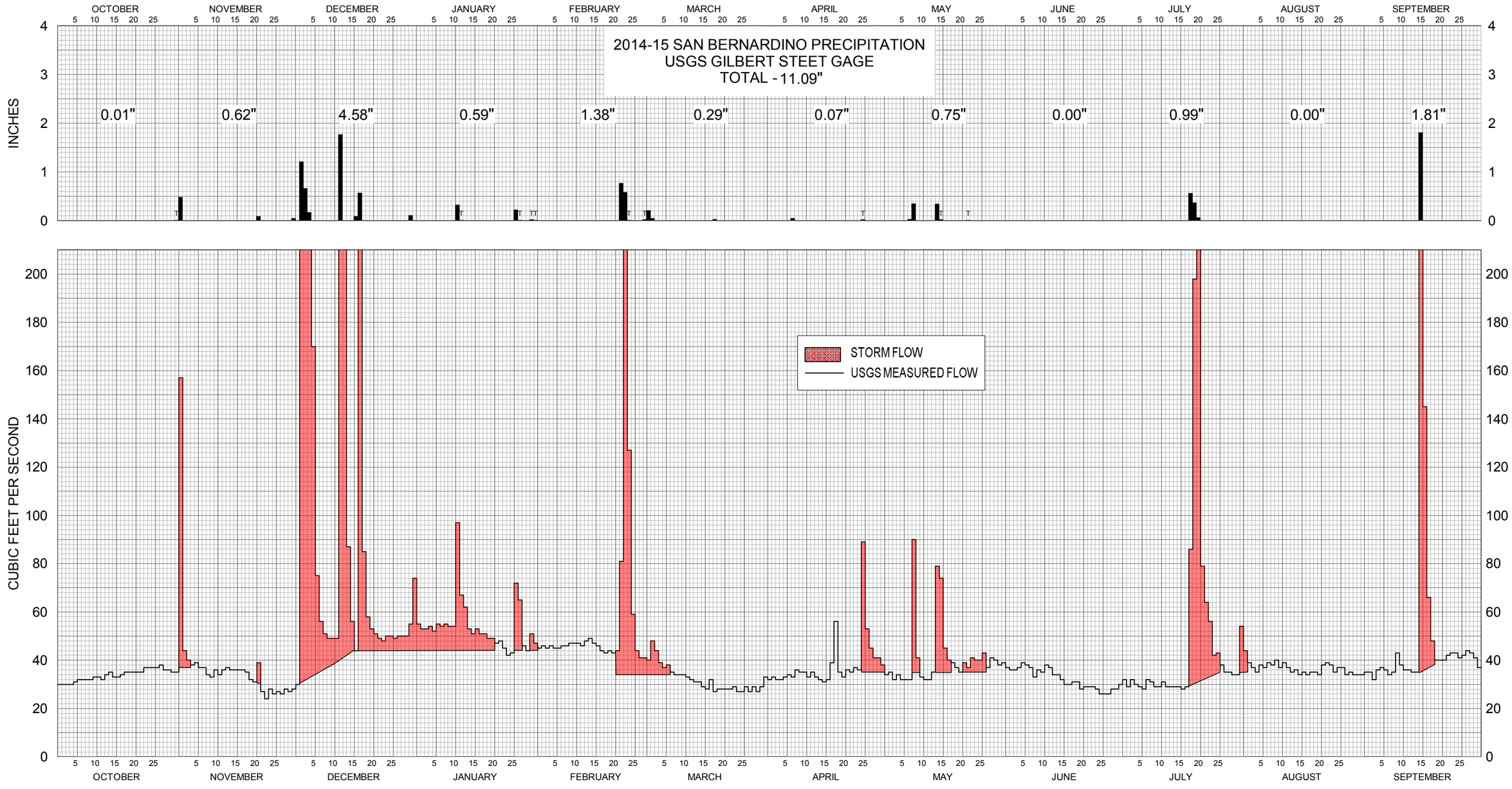


PLATE 5



DISSOLVED SOLIDS IN SANTA ANA RIVER BELOW PRADO DAM
WATER YEAR 2014-15

Plate 6



DISCHARGE OF SANTA ANA RIVER AT RIVERSIDE NARROWS & SAN BERNARDINO PRECIPITATION
WATER YEAR 2014-15

Plate 7

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

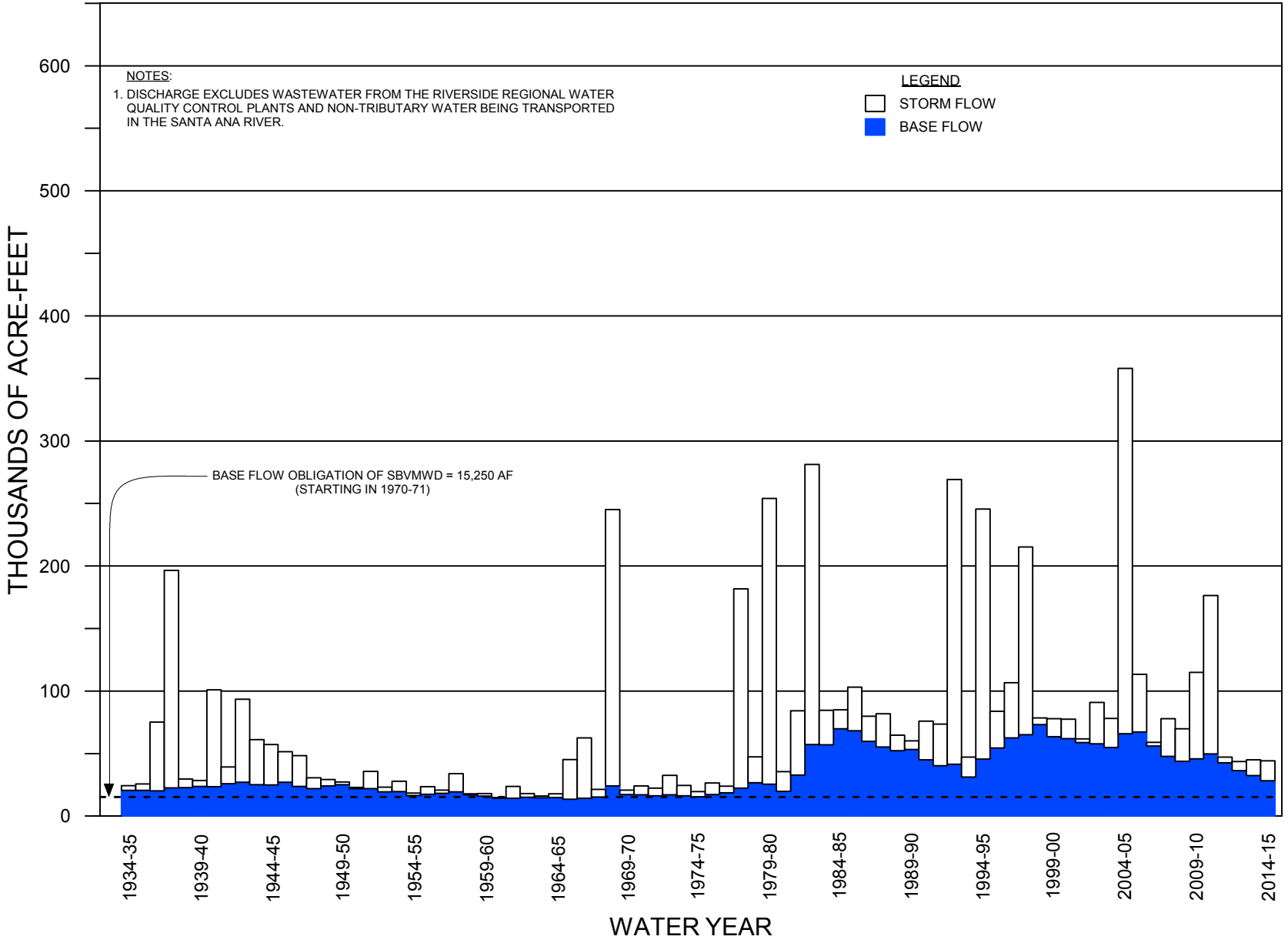


PLATE 8

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- FIFTH ANNUAL REPORT

OF THE

SANTA ANA RIVER WATERMASTER

FOR WATER YEAR

OCTOBER 1, 2014 - SEPTEMBER 30, 2015

April 30, 2016

APPENDIX A

USGS FLOW MEASUREMENTS OF THE SANTA ANA RIVER FLOWS BELOW PRADO, AT MWD CROSSING, AND WATER QUALITY RECORDS FOR THE SANTA ANA RIVER AT PRADO DAM AND AT MWD CROSSING; USGS FLOW MEASUREMENTS AT E STREET, OF TEMESCAL CREEK ABOVE MAIN STREET (AT CORONA), TEMESCAL CREEK AT CORONA LAKE “LEE LAKE” (NEAR CORONA), CUCAMONGA CREEK (NEAR MIRA LOMA), CHINO CREEK AT SCHAEFER AVENUE (NEAR CHINO),LYTLE CREEK, WARM CREEK, AND SAN TIMOTEO CREEK NEAR LOMA LINDA

WATER YEAR 2014-15

USGS Water-Year Summary 2015

11074000 Santa Ana River below Prado Dam, CA

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, no California Water Project releases were made. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

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.

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).

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web
(USGS Water Data for the Nation), accessed [January 19, 2016],
at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?dd_parm_cds=002_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11074000&agency_cd=USGS

Water-Data Report 2015

11074000 Santa Ana River below Prado Dam, CA -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2014	2014	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015
1	66	134	325	358	156	172	95	84	85	74	98	57
2	66	158	205	350	178	176	97	80	76	64	82	60
3	58	157	191	343	187	225	78	81	74	55	79	63
4	50	176	304	333	179	266	86	88	80	54	71	64
5	40	181	411	406	179	301	100	85	71	52	65	66
6	47	170	426	438	159	300	95	83	66	54	66	66
7	46	155	413	423	139	301	95	84	80	54	68	65
8	44	135	448	430	143	301	120	157	85	56	68	65
9	44	119	461	425	155	301	127	188	72	54	68	92
10	45	133	458	401	137	300	92	180	81	52	73	136
11	43	108	284	380	129	297	93	171	71	53	67	106
12	53	107	279	401	127	299	96	167	69	53	63	91
13	68	100	722	383	124	305	97	125	65	55	61	87
14	65	97	733	399	128	288	91	104	69	51	59	86
15	63	97	722	358	124	268	86	80	76	54	54	86
16	70	100	532	172	123	272	76	72	68	52	50	125
17	66	94	373	157	125	185	76	74	68	51	52	176
18	64	77	317	157	126	123	80	188	71	53	53	193
19	71	77	310	159	124	113	88	264	56	132	55	191
20	76	81	305	163	119	115	81	255	56	174	61	190
21	82	129	305	156	125	106	61	225	58	187	59	138
22	78	108	305	145	139	109	78	173	60	183	58	130
23	90	102	338	136	208	114	100	121	58	178	59	155
24	88	100	395	137	182	110	103	114	55	174	63	177
25	77	88	393	144	165	103	114	106	58	171	59	182
26	81	101	388	138	165	92	304	113	56	171	63	181
27	87	102	382	170	167	89	159	99	55	168	69	183
28	82	107	378	247	169	86	103	91	61	161	61	e185
29	86	101	378	226		83	92	93	67	157	50	e186
30	76	124	376	153		84	92	86	64	146	57	184
31	84		365	155		87		86		121	64	
Total	2,056	3,518	12,220	8,443	4,181	5,971	3,055	3,917	2,031	3,114	1,975	3,766
Mean	66.3	117	394	272	149	193	102	126	67.7	100	63.7	126
Max	90	181	733	438	208	305	304	264	85	187	98	193
Min	40	77	191	136	119	83	61	72	55	51	50	57
Ac-ft	4,078	6,978	24,240	16,750	8,293	11,840	6,060	7,769	4,028	6,177	3,917	7,470

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	129	150	240	386	434	393	260	188	153	126	107	102
Max	910	322	1,300	3,543	2,733	2,556	1,101	915	736	446	403	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)

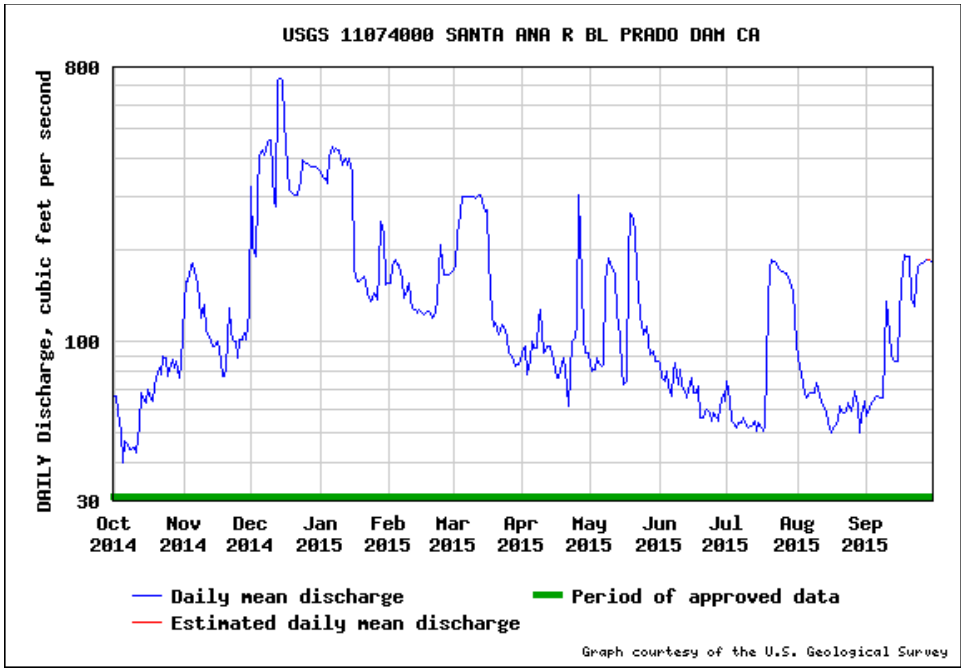
Water-Data Report 2015

11074000 Santa Ana River below Prado Dam, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 1941 - 2015	
Annual total	54,250			
Annual mean	148.6		221.3	
Highest annual mean			882.0	2005
Lowest annual mean			36.4	1961
Highest daily mean	733.0	Dec 14	11,400	Jan 16, 2005
Lowest daily mean	40.0	Oct 05	2.40	Jul 29, 1978
Annual 7-day minimum	44.1	Oct 05	3.0	Sep 24, 1973
Maximum peak flow			13,200[a]	Jan 15, 2005
Maximum peak stage			8.73	Jan 15, 2005
Annual runoff (cfsm)	0.066		0.098	
Annual runoff (inches)	0.894		1.33	
10 percent exceeds	320.2		382.0	
50 percent exceeds	103.0		138.0	
90 percent exceeds	56.6		42.0	

[a] Discharge affected by Regulation or Diversion



USGS Water-Year Summary 2015

11074000 Santa Ana River below Prado Dam, CA

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.

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 excellent except for Oct. 10-22, Jan. 16-20, Feb. 30 to Mar. 12, Mar. 14-17, Mar. 24 to Apr. 4, Apr. 19-28, May 17-22, Jul. 18 to Aug. 11 and Sep. 24-30, which are good; Oct. 1, Mar. 13, Mar. 18, Apr. 5-11, Apr. 29 to May 5, May 23-26, Aug. 12-18, which are fair; and Oct. 2-3, Apr. 12-15, May 6-14, and May 27 to Jun. 9, which are poor. Temperature records excellent for 2015WY.

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.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [March 17, 2016], at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?dd_parm_cds=004_00095&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11074000&agency_cd=USGS

Water-Data Report 2015

11074000 Santa Ana River below Prado Dam, CA -- Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
YEAR 2014-10-01 to 2015-09-30
DAILY VALUES

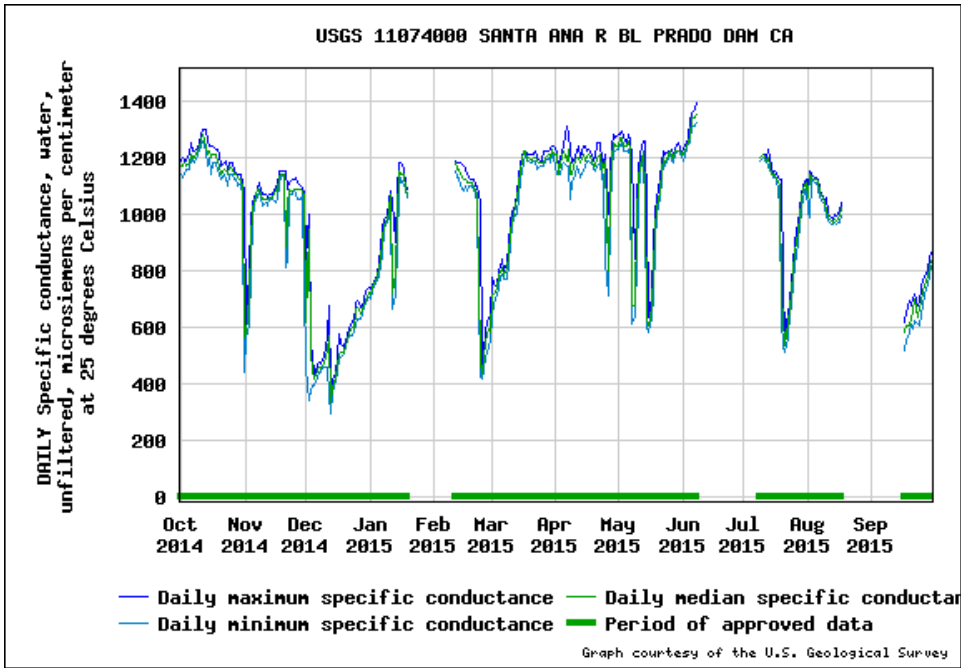
Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	October			November			December			January			February		
1	1,190	1,140	1,170	1,080	441	567	835	456	619	737	702	718	---	---	---
2	1,200	1,130	1,170	606	567	576	1,000	342	944	750	732	736	---	---	---
3	1,190	1,140	1,180	800	606	713	527	376	504	766	749	756	---	---	---
4	1,190	1,160	1,170	976	800	901	512	396	447	784	763	776	---	---	---
5	1,210	1,160	1,180	1,040	975	1,020	424	394	416	838	780	817	---	---	---
6	1,250	1,200	1,210	1,060	1,040	1,040	464	423	449	871	815	836	---	---	---
7	1,220	1,190	1,200	1,090	1,060	1,090	478	443	461	953	860	905	---	---	---
8	1,220	1,180	1,200	1,110	1,080	1,090	471	443	454	983	945	962	---	---	---
9	1,230	1,210	1,220	1,080	1,050	1,070	481	457	465	989	970	980	---	---	---
10	1,250	1,220	1,240	1,070	1,030	1,050	497	462	473	1,050	988	1,010	---	---	---
11	1,280	1,240	1,260	1,070	1,040	1,050	572	462	518	1,080	1,040	1,070	1,190	1,150	1,180
12	1,300	1,260	1,280	1,060	1,030	1,050	677	357	572	1,040	662	718	1,180	1,130	1,160
13	1,300	1,220	1,240	1,070	1,050	1,060	375	293	335	901	718	788	1,180	1,130	1,160
14	1,250	1,170	1,210	1,070	1,050	1,060	415	368	391	1,080	901	996	1,180	1,100	1,140
15	1,240	1,200	1,220	1,070	1,050	1,060	444	410	425	1,180	1,080	1,150	1,170	1,080	1,120
16	1,240	1,140	1,200	1,100	1,040	1,090	495	442	461	1,180	1,130	1,140	1,160	1,100	1,120
17	1,240	1,180	1,210	1,100	1,060	1,080	574	487	505	1,160	1,100	1,140	1,140	1,080	1,110
18	1,230	1,180	1,210	1,150	1,100	1,130	540	493	515	1,100	1,090	1,090	1,130	1,100	1,110
19	1,230	1,150	1,180	1,150	1,140	1,140	528	504	513	1,090	1,060	1,070	1,120	1,100	1,110
20	1,210	1,140	1,170	1,150	1,130	1,140	553	528	538	---	---	---	1,120	1,080	1,090
21	1,170	1,120	1,140	1,150	811	881	573	551	556	---	---	---	1,100	1,080	1,090
22	1,180	1,140	1,160	1,090	843	1,030	597	566	574	---	---	---	1,100	1,030	1,070
23	1,190	1,120	1,150	1,110	1,070	1,090	625	572	602	---	---	---	1,040	426	478
24	1,150	1,100	1,140	1,120	1,070	1,080	613	581	595	---	---	---	450	421	435
25	1,180	1,140	1,170	1,120	1,080	1,090	686	605	657	---	---	---	509	449	493
26	1,180	1,140	1,160	1,130	1,070	1,090	696	629	673	---	---	---	596	493	548
27	1,150	1,120	1,140	1,110	1,050	1,090	668	627	647	---	---	---	634	530	592
28	1,140	1,120	1,140	1,100	1,050	1,090	678	646	662	---	---	---	641	554	584
29	1,140	1,100	1,130	1,090	1,070	1,080	692	672	676	---	---	---			
30	1,140	1,110	1,120	1,080	753	1,060	729	687	692	---	---	---			
31	1,110	1,060	1,090				742	705	725	---	---	---			
Max	1300	1260	1280	1150	1140	1140	1000	705	944						
Min	1110	1060	1090	606	441	567	375	293	335						

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	March			April			May			June		
1	775	641	719	1,220	1,140	1,210	1,280	1,230	1,240	1,220	1,200	1,210
2	752	685	718	1,160	1,140	1,140	1,280	1,240	1,270	1,230	1,190	1,210
3	745	715	734	1,190	1,140	1,180	1,290	1,250	1,270	1,250	1,230	1,240
4	802	736	786	1,220	1,170	1,200	1,270	1,220	1,240	1,270	1,250	1,260
5	813	783	796	1,240	1,180	1,220	1,250	1,220	1,240	1,330	1,250	1,270
6	843	790	809	1,310	1,170	1,190	1,280	1,230	1,260	1,360	1,310	1,340
7	799	769	785	1,280	1,170	1,230	1,260	1,200	1,230	1,370	1,310	1,340
8	822	772	804	1,220	1,050	1,140	1,200	611	675	1,390	1,320	1,350
9	902	818	857	1,180	1,110	1,140	839	641	676	---	---	---
10	963	902	937	1,200	1,140	1,190	1,060	839	980	---	---	---
11	1,010	963	975	1,220	1,170	1,200	1,160	1,060	1,120	---	---	---
12	1,030	1,000	1,020	1,240	1,150	1,200	1,210	1,150	1,170	---	---	---
13	1,080	1,000	1,060	1,200	1,130	1,180	1,260	1,200	1,220	---	---	---
14	1,120	1,060	1,100	1,240	1,150	1,210	1,260	1,010	1,070	---	---	---
15	1,180	1,120	1,160	1,240	1,170	1,190	1,020	601	627	---	---	---
16	1,220	1,180	1,220	1,220	1,190	1,200	634	585	608	---	---	---
17	1,220	1,210	1,220	1,230	1,190	1,210	708	634	670	---	---	---
18	1,210	1,190	1,190	1,210	1,180	1,190	893	708	802	---	---	---
19	1,210	1,190	1,200	1,190	1,160	1,170	1,000	893	939	---	---	---
20	1,210	1,180	1,190	1,200	1,150	1,170	1,060	1,000	1,020	---	---	---
21	1,210	1,190	1,200	1,250	1,170	1,200	1,120	1,060	1,080	---	---	---
22	1,220	1,190	1,200	1,250	1,180	1,210	1,180	1,120	1,160	---	---	---
23	1,200	1,160	1,190	1,180	1,120	1,150	1,220	1,180	1,200	---	---	---
24	1,190	1,170	1,180	1,180	1,140	1,170	1,210	1,170	1,180	---	---	---
25	1,190	1,170	1,180	1,210	831	1,190	1,220	1,200	1,210	---	---	---
26	1,220	1,170	1,180	1,000	712	797	1,220	1,210	1,220	---	---	---
27	1,220	1,190	1,200	1,160	1,000	1,110	1,230	1,190	1,200	---	---	---
28	1,220	1,200	1,210	1,240	1,160	1,200	1,210	1,180	1,200	---	---	---
29	1,230	1,180	1,200	1,280	1,220	1,250	1,230	1,210	1,220	---	---	---
30	1,240	1,210	1,230	1,270	1,220	1,240	1,250	1,220	1,220	---	---	---
31	1,240	1,200	1,210				1,230	1,210	1,220			
Max	1240	1210	1230	1310	1220	1250	1290	1250	1270			
Min	745	641	718	1000	712	797	634	585	608			

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median
	July			August			September		
1	---	---	---	1,100	1,000	1,060	---	---	---
2	---	---	---	1,150	987	1,140	---	---	---
3	---	---	---	1,140	1,120	1,130	---	---	---
4	---	---	---	1,130	1,110	1,120	---	---	---
5	---	---	---	1,130	1,110	1,120	---	---	---
6	---	---	---	1,120	1,090	1,110	---	---	---
7	---	---	---	1,090	1,060	1,080	---	---	---
8	---	---	---	1,060	1,040	1,050	---	---	---
9	1,200	1,190	1,200	1,050	1,030	1,040	---	---	---
10	1,210	1,200	1,210	1,060	988	1,010	---	---	---
11	1,210	1,190	1,200	1,000	977	988	---	---	---
12	1,200	1,180	1,190	986	967	977	---	---	---
13	1,230	1,170	1,200	977	964	972	---	---	---
14	1,170	1,140	1,140	1,000	972	981	---	---	---
15	1,140	1,130	1,140	993	964	975	---	---	---
16	1,150	1,130	1,140	1,010	969	994	---	---	---
17	1,140	1,120	1,120	1,040	992	1,020	616	517	584
18	1,120	1,030	1,100	---	---	---	652	553	607
19	1,120	629	696	---	---	---	692	577	608
20	745	525	637	---	---	---	676	612	634
21	567	510	537	---	---	---	698	592	654
22	654	567	617	---	---	---	718	622	698
23	681	650	665	---	---	---	677	615	633
24	764	673	722	---	---	---	695	608	672
25	819	764	798	---	---	---	734	644	687
26	899	819	865	---	---	---	768	685	729
27	968	899	939	---	---	---	789	743	764
28	1,010	961	988	---	---	---	808	749	778
29	1,070	1,010	1,050	---	---	---	844	784	812
30	1,100	1,060	1,090	---	---	---	862	816	834
31	1,120	1,100	1,110	---	---	---			
Max									
Min									

Water-Data Report 2015

11074000 Santa Ana River below Prado Dam, CA -- Continued



USGS Water-Year Summary 2015

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

LOCATION - Lat 33°58'07", long 117°26'51" referenced to North American Datum of 1927, in NE 1/4 SW 1/4 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 mi².

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 OUTSIDE PERIOD OF RECORD - Maximum discharge since at least 1927, 100,000 ft³/s, Mar. 2, 1938, on basis of slope-area measurement, at site 1.1 mi downstream. Flood of Jan. 22, 1862, 320,000 ft³/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.

EXTREMES FOR PERIOD OF RECORD - Maximum discharge, 49,100 ft³/s, Dec. 21, 2010, gage height, 16.83 ft, from rating curve extended above 21,900 ft³/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 ft³/s, Sept. 7, 8, 1980.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [January 19, 2016], at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?dd_parm_cds=002_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11066460&agency_cd=USGS

Water-Data Report 2015

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

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2014	2014	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015
1	30	157	30	55	45	40	32	34	37	32	44	35
2	30	44	413	53	46	48	33	35	36	29	39	35
3	30	40	501	53	45	44	32	32	36	32	37	32
4	30	38	1,140	54	46	39	32	34	37	30	35	36
5	31	39	170	52	45	37	33	32	39	29	38	37
6	32	37	75	55	45	38	34	32	38	28	37	36
7	32	37	56	54	46	35	33	32	37	32	39	34
8	32	34	51	55	46	34	36	90	33	31	38	35
9	32	33	49	54	47	34	35	41	36	29	40	43
10	33	36	49	54	47	34	35	33	35	29	37	38
11	33	34	49	97	47	33	33	32	38	31	39	36
12	32	36	1,020	67	46	32	35	32	37	29	37	36
13	34	37	388	62	48	31	33	35	34	29	35	35
14	35	36	87	53	49	31	32	79	34	29	36	35
15	33	36	56	51	47	29	31	74	32	29	34	1,670
16	33	36	44	53	46	28	32	45	30	28	35	145
17	34	36	412	51	44	32	39	40	30	29	34	66
18	35	35	85	51	43	27	56	39	31	86	35	48
19	35	32	58	49	44	28	35	37	31	198	35	40
20	35	31	53	49	43	28	33	35	28	362	34	40
21	35	39	51	47	44	28	36	39	29	79	38	40
22	35	27	49	48	81	28	35	37	29	64	39	42
23	37	24	48	45	483	29	37	41	29	56	38	43
24	37	28	50	42	127	27	36	40	28	42	35	43
25	37	26	50	43	59	27	89	40	26	43	37	41
26	37	27	49	72	44	29	53	43	26	38	37	42
27	38	26	50	65	41	27	45	37	26	35	34	44
28	36	28	50	46	41	29	41	41	28	35	35	43
29	36	27	50	44		27	41	40	28	34	34	41
30	35	28	55	51		29	38	38	30	34	34	37
31	35		74	47		33		39		54	34	
Total	1,049	1,124	5,362	1,671	1,835	995	1,145	1,278	968	1,665	1,133	2,928
Mean	33.8	37.5	173	53.9	65.5	32.1	38.2	41.2	32.3	53.7	36.5	97.6
Max	38	157	1140	97	483	48	89	90	39	362	44	1670
Min	30	24	30	42	41	27	31	32	26	28	34	32
Ac-ft	2,081	2,229	10,640	3,316	3,640	1,974	2,271	2,535	1,920	3,302	2,247	5,808

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	98.3	90.7	238	291	218	147	140	90.5	70.8	63.5	68.1	65.1
Max	498	141	1,729	2,350	756	498	501	314	192	137	201	97.6
(WY)	(2005)	(2003)	(2011)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2015)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Min	33.8	37.5	46.1	37.0	65.5	32.1	38.2	41.2	32.2	30.0	32.3	34.3
(WY)	(2015)	(2015)	(2014)	(2014)	(2015)	(2015)	(2015)	(2015)	(2014)	(2014)	(2013)	(2013)

Water-Data Report 2015

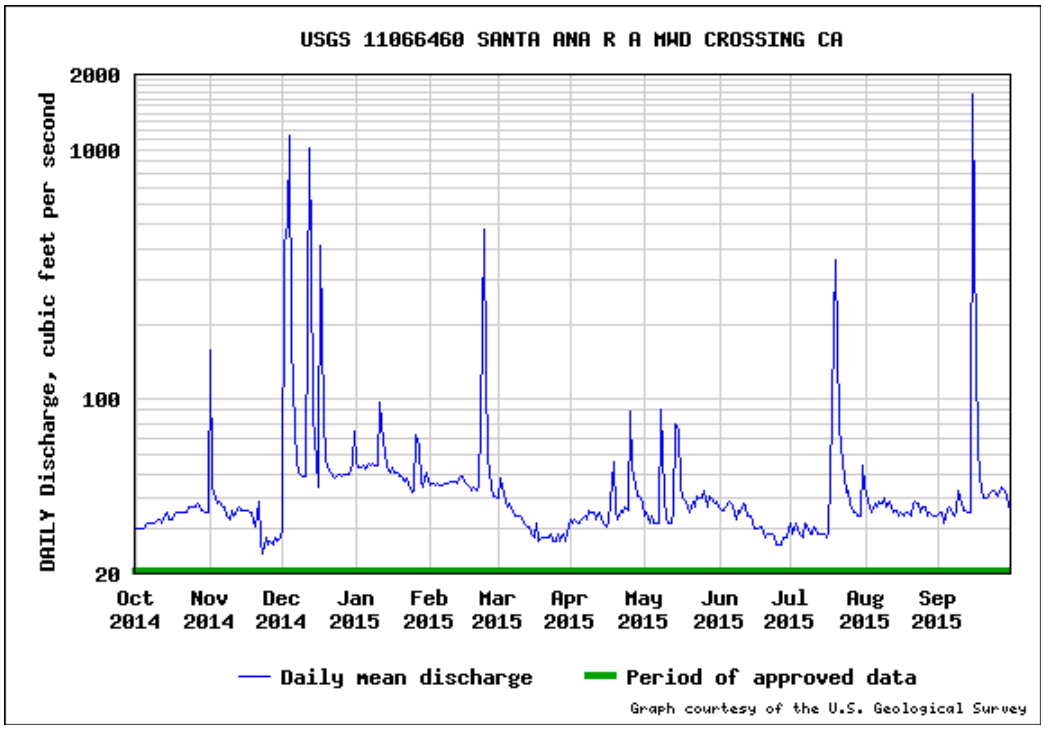
11066460 Santa Ana River at Metropolitan Water District Crossing, near Arlington, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 2000 - 2015	
Annual total	21,150			
Annual mean	58.0		131.4	
Highest annual mean			491.0	2005
Lowest annual mean			57.1	2013
Highest daily mean	1,670	Sep 15	22,000	Jan 11, 2005
Lowest daily mean	24.0	Nov 23	21.0	Aug 24, 2013
Annual 7-day minimum	26.6	Nov 22	23.1	Aug 22, 2013
Maximum peak flow			49,100[a,b]	Dec 21, 2010
Maximum peak stage			16.83	Dec 21, 2010
Annual runoff (cfsm)	0.068		0.154	
Annual runoff (inches)	0.923		2.09	
10 percent exceeds	56.0		127.0	
50 percent exceeds	37.0		74.0	
90 percent exceeds	29.0		40.0	

[a] Discharge affected to unknown degree by Regulation or Diversion

[b] All or part of the record affected by Urbanization, Mining, Agricultural changes, Channelization, or other



Water-Data Report 2015

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

LOCATION - Lat 33°58'07", long 117°26'51" referenced to North American Datum of 1927, in NE 1/4 SW 1/4 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.

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.

SAR@MWDXing Water Quality				
	EC (um/cm)	TDS (mg/L)		TDS/EC Ratio
Date			**Source**	
10/6/2014	968	636	USGS	0.66
10/23/2014	1030	643	USGS	0.62
11/6/2014	1040	633	USGS	0.61
11/18/2014	996	620	USGS	0.62
11/21/2014	539	326	USGS	0.60
12/3/2014	369	242	USGS	0.66
12/18/2014	886	544	USGS	0.61
1/13/2015	989	621	USGS	0.63
1/27/2015	846	582	USGS	0.69
2/11/2015	974	590	USGS	0.61
2/23/2015	347	218	USGS	0.63
3/18/2015	987	616	USGS	0.62
3/30/2015	1010	633	USGS	0.63
4/15/2015	958	621	USGS	0.65
4/28/2015	1030	638	USGS	0.62
5/14/2015	1050	646	USGS	0.62
5/28/2015	1020	616	USGS	0.60
6/11/2015	1030	627	USGS	0.61
6/24/2015	1020	631	USGS	0.62
7/8/2015	1040	659	USGS	0.63
7/20/2015	420	265	USGS	0.63
8/18/2015	957	593	USGS	0.62
8/28/2015	970	623	USGS	0.64
9/16/2015	813	506	USGS	0.62
9/28/2015	1040	635	USGS	0.61
Average	**893**	**559**		**0.63**

USGS Water-Year Summary 2015

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

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 mi².

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 ft³/s, Jan. 11, 2005, gage height, 9.04 ft, current site and datum, from rating curve extended above 5,930 ft³/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.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web
(USGS Water Data for the Nation), accessed [February 17, 2016],
at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?
dd_parm_cds=003_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11059300&agency_cd=USGS

Water-Data Report 2015

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

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2014	2014	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015
1	0.00	20	8.6	6.7	4.1	10	2.3	1.6	0.00	0.00	1.0	0.00
2	0.00	0.11	422	6.2	4.1	11	2.2	1.4	0.03	0.18	0.22	0.00
3	0.00	0.00	373	6.1	3.7	12	2.2	1.2	0.00	0.45	0.66	0.00
4	0.00	0.00	861	6.2	4.0	6.0	2.2	1.2	0.00	0.10	0.16	0.00
5	0.00	0.00	64	6.3	5.0	5.7	2.5	1.2	0.00	0.00	0.06	0.00
6	0.00	0.00	10	5.6	3.6	4.9	3.4	0.96	0.00	0.00	0.23	0.29
7	0.00	0.00	4.2	5.3	2.5	7.4	2.6	0.85	0.01	0.00	0.07	0.08
8	0.00	0.00	2.1	5.4	3.2	8.8	4.1	10	0.00	0.00	0.00	0.00
9	0.00	0.00	1.2	3.6	2.7	8.8	3.0	e6.4	0.00	0.00	0.12	0.06
10	0.00	0.00	0.26	e5.2	4.0	10	2.5	e6.0	0.00	0.00	0.37	3.9
11	0.00	0.00	0.01	e7.3	4.0	8.2	2.2	e4.6	0.00	0.01	0.35	0.15
12	0.00	0.00	708	e8.4	4.4	8.3	2.3	e5.3	0.15	0.08	0.09	0.00
13	0.00	0.00	108	e17	4.0	4.4	2.1	e3.9	0.09	0.20	0.42	0.00
14	0.00	0.00	9.9	3.1	1.5	3.6	2.0	e6.0	0.03	0.19	0.24	0.00
15	0.00	0.00	2.2	4.8	2.2	4.0	2.0	e14	0.00	0.00	0.00	495
16	0.00	0.00	4.7	4.8	2.0	3.7	2.0	e6.0	0.03	0.33	0.17	24
17	0.00	0.00	362	3.6	2.8	3.5	2.0	e6.0	0.16	0.04	0.00	2.0
18	0.00	0.00	38	3.2	3.0	e3.7	2.1	e5.3	0.11	50	0.00	1.7
19	0.00	0.05	15	3.9	2.9	e12	2.0	3.5	0.23	132	0.00	1.7
20	0.00	0.23	6.7	3.9	3.0	3.4	2.1	3.2	0.22	203	0.00	1.2
21	0.00	24	6.1	4.0	2.7	2.7	2.0	2.7	0.14	1.1	0.00	1.3
22	0.00	7.3	5.6	3.5	138	3.0	2.4	3.3	0.25	0.00	0.00	1.4
23	0.00	7.1	4.1	2.0	304	3.7	2.1	5.3	0.24	0.00	0.00	1.4
24	0.00	9.9	4.9	2.5	31	4.4	2.1	2.5	0.31	0.00	0.13	1.7
25	0.00	9.2	5.8	2.6	8.4	4.1	33	2.8	0.01	0.07	0.00	1.6
26	0.00	6.2	5.4	6.0	9.4	3.0	15	1.5	0.19	0.00	0.11	1.3
27	0.00	7.3	4.7	6.9	8.8	2.4	2.0	0.89	0.00	0.00	0.13	1.4
28	0.00	7.1	5.4	4.3	7.2	2.8	2.1	0.30	0.03	0.15	0.01	1.4
29	0.00	7.2	6.0	3.4		3.0	1.7	0.11	0.17	0.31	0.15	1.3
30	0.00	9.0	17	4.4		3.5	1.5	0.12	0.16	4.9	0.17	1.9
31	0.00		12	5.5		2.1		0.07		59	0.00	
Total	.000	115	3,078	162	576	174	112	108	2.56	452	4.86	545
Mean	.000	3.82	99.3	5.22	20.6	5.62	3.72	3.49	.085	14.6	.16	18.2
Max	0.00	24	861	17	304	12	33	14	0.31	203	1.0	495
Min	0.00	0.00	0.01	2.0	1.5	2.1	1.5	0.07	0.00	0.00	0.00	0.00
Ac-ft	.000	227	6,105	321	1,143	345	222	215	5.08	897	9.64	1,081

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	16.9	13.8	80.9	109	87.1	60.9	56.9	24.7	7.29	6.45	8.37	4.76
Max	200	47.1	764	1,185	376	398	351	247	112	52.9	102	40.6
(WY)	(2005)	(2014)	(2011)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)
Min	.000	.67	1.16	.000	.82	4.10	.040	.000	.000	.000	.000	.000
(WY)	(2003)	(2001)	(2001)	(2003)	(2002)	(2008)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

Water-Data Report 2015

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

SUMMARY STATISTICS

	Water Year 2015		Water Years 2000 - 2015	
Annual total	5,329			
Annual mean	14.6		39.6	
Highest annual mean			264.8	2005
Lowest annual mean			1.70	2002
Highest daily mean	861.0	Dec 04	12,500	Jan 11, 2005
Lowest daily mean	0.0	Oct 01	0.0	May 14, 2000
Annual 7-day minimum	0.0	Oct 01	0.0	Sep 11, 2000
Maximum peak flow			35,700[a,b]	Jan 11, 2005
Maximum peak stage			9.04	Jan 11, 2005
Annual runoff (cfsm)	0.027		0.073	
Annual runoff (inches)	0.366		0.993	
10 percent exceeds	9.28		43.0	
50 percent exceeds	2.00		0.830	
90 percent exceeds	0.0		0.0	

[a] Discharge affected by Regulation or Diversion

[b] All or part of the record affected by Urbanization, Mining, Agricultural changes, Channelization, or other

USGS Water-data graph for site USGS 11059300

USGS Water-Year Summary 2015

11072100 Temescal Creek above Main Street, at Corona, CA

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.

REVISIONS - On January 23, 2015, discharge records were revised for the period of September 10, 2013 to October 5, 2014.

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 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.

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.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [January 19, 2016], at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?dd_parm_cds=001_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11072100&agency_cd=USGS

Water-Data Report 2015

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

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015
1	2.3	66	2.1	e1.1	1.4	2.2	1.2	1.5	2.4	1.8	1.1	1.8
2	1.9	2.1	230	1.1	1.6	16	1.4	1.6	1.7	1.5	1.3	1.9
3	2.2	e2.0	57	1.2	1.7	1.7	1.3	2.4	2.2	1.8	1.3	1.9
4	2.3	1.8	82	1.1	2.2	1.3	1.4	1.6	1.8	1.4	1.7	2.1
5	2.5	2.6	1.8	1.1	2.7	1.0	1.4	1.7	1.8	1.6	1.1	2.2
6	2.6	2.0	1.4	1.3	1.7	0.95	1.4	1.9	1.6	1.5	1.2	2.3
7	2.3	1.7	1.2	1.4	1.7	1.1	6.1	2.0	1.6	1.5	1.2	2.4
8	2.9	1.5	1.4	1.5	1.8	1.0	6.7	29	1.6	1.9	1.0	1.9
9	2.4	2.5	1.3	1.6	2.3	1.0	1.6	3.7	1.7	1.3	1.1	13
10	2.6	2.1	1.2	1.3	1.9	1.3	1.3	2.9	1.5	1.8	1.0	2.1
11	2.2	1.4	1.3	69	e1.5	1.1	1.0	2.3	2.2	1.2	1.3	1.8
12	e1.8	1.6	230	2.6	e1.6	1.1	1.4	2.4	1.6	1.2	1.5	1.2
13	e1.5	3.0	6.0	2.1	2.5	1.1	1.3	2.6	1.3	1.4	1.3	1.6
14	e1.4	1.9	1.7	1.9	e2.3	1.3	1.2	61	2.3	1.3	1.2	1.3
15	1.9	e1.7	1.4	1.8	e1.7	1.0	1.2	16	2.0	1.2	1.3	311
16	1.4	1.6	2.4	2.0	2.4	0.97	1.1	2.9	1.4	1.3	1.9	4.6
17	1.4	e1.7	69	1.5	e1.8	0.98	1.0	3.1	1.4	1.3	1.4	1.2
18	1.7	1.6	1.7	1.5	e1.5	1.4	1.3	4.6	2.0	73	1.9	1.2
19	1.9	e1.8	1.5	1.6	e1.7	1.4	1.2	3.7	1.8	151	1.9	1.4
20	2.0	e1.9	1.4	1.9	e1.1	1.6	1.2	3.5	1.3	47	1.4	1.1
21	1.2	2.0	1.3	1.7	e2.2	1.4	1.1	3.1	1.2	1.5	1.5	1.4
22	1.4	e2.2	1.5	1.9	e95	1.1	1.3	3.4	1.4	1.0	1.8	2.2
23	1.3	2.4	1.6	1.8	e44	1.1	1.3	2.9	0.97	1.1	2.0	1.5
24	1.5	e2.2	1.3	2.1	e1.3	1.4	1.2	2.8	1.1	0.95	1.5	1.4
25	1.3	e2.1	1.4	2.2	1.1	1.9	4.7	2.9	1.1	0.95	1.7	1.3
26	1.1	e2.0	e1.1	46	1.1	1.1	1.9	3.3	1.5	1.0	2.2	1.3
27	1.8	e1.7	e1.2	3.0	1.2	1.2	0.97	2.8	1.6	0.98	1.9	1.1
28	1.8	e1.6	1.2	1.5	1.5	1.3	1.1	2.3	1.5	1.1	1.8	1.6
29	2.2	1.9	1.6	1.4		1.1	1.00	2.8	1.5	1.2	1.8	1.3
30	2.6	2.2	6.4	6.3		1.0	1.3	2.4	1.3	1.7	2.1	1.9
31	2.9		2.5	2.1		1.3		1.9		1.3	3.4	
Total	60.3	123	717	169	185	53.4	51.6	181	48.4	309	48.8	373
Mean	1.95	4.09	23.1	5.44	6.59	1.72	1.72	5.84	1.61	9.96	1.57	12.4
Max	2.9	66	230	69	95	16	6.7	61	2.4	151	3.4	311
Min	1.1	1.4	1.1	1.1	1.1	0.95	0.97	1.5	0.97	0.95	1.0	1.1
Ac-ft	120	244	1,422	334	366	106	102	359	95.9	612	96.8	740

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	12.9	16.0	28.2	53.0	81.7	55.2	32.6	17.9	10.8	9.68	8.96	9.87
Max	52.5	58.2	222	335	400	349	190	100	34.3	24.9	20.7	30.4

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
(WY)	(2005)	(2006)	(2011)	(2005)	(2005)	(1995)	(1995)	(1995)	(1995)	(1993)	(2005)	(2005)
Min	1.95	4.09	5.33	2.51	6.59	1.72	1.72	1.36	1.61	2.21	1.57	2.08
(WY)	(2015)	(2015)	(2014)	(2014)	(2015)	(2015)	(2015)	(2013)	(2015)	(2014)	(2015)	(2014)

Water-Data Report 2015

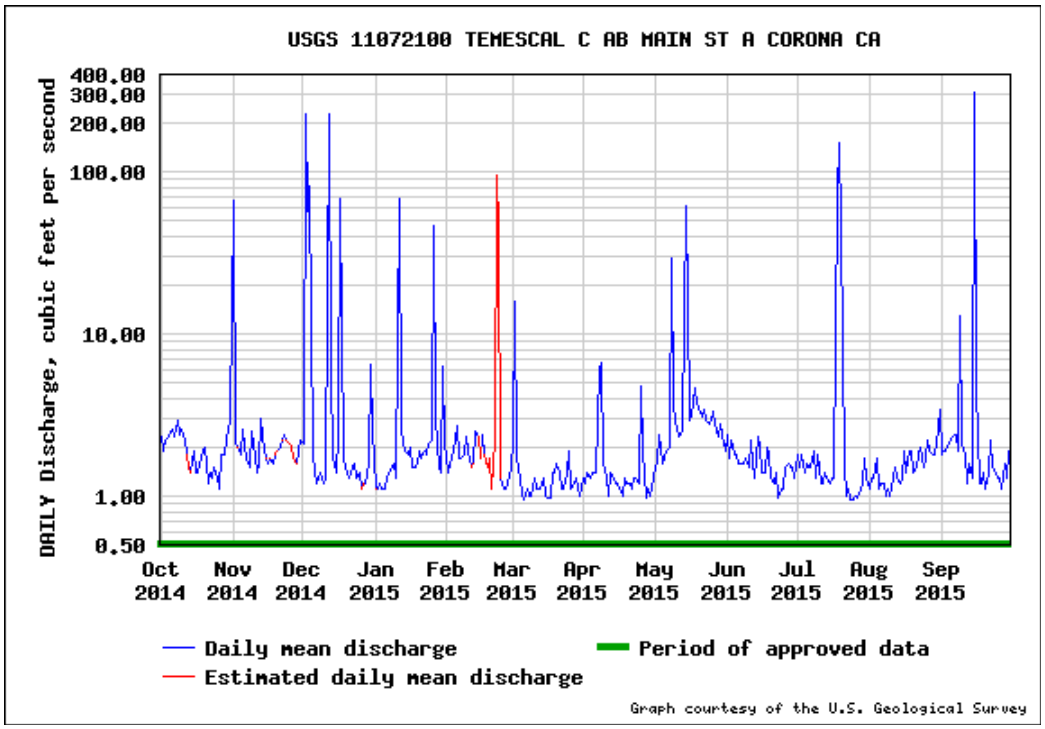
11072100 Temescal Creek above Main Street, at Corona, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 1991 - 2015	
Annual total	2,318			
Annual mean	6.35		27.8	
Highest annual mean			104.5	2005
Lowest annual mean			5.10	2013
Highest daily mean	311.0	Sep 15	2,870	Dec 22, 2010
Lowest daily mean	0.950	Mar 06	0.340	Jul 03, 1992
Annual 7-day minimum	1.01	Jul 22	0.513	May 08, 2013
Maximum peak flow			5,290[a,b]	Dec 22, 2010
Maximum peak stage			7.27	Dec 22, 2010
Annual runoff (cfsm)	0.028		0.124	
Annual runoff (inches)	0.385		1.68	
10 percent exceeds	3.00		57.0	
50 percent exceeds	1.60		11.0	
90 percent exceeds	1.10		2.20	

[a] Discharge affected by Regulation or Diversion

[b] All or part of the record affected by Urbanization, Mining, Agricultural changes, Channelization, or other



USGS Water-Year Summary 2015

11071900 Temescal Creek at Corona Lake, near Corona, CA

LOCATION - Lat 33°45'01", long 117°26'45" referenced to North American Datum of 1983, in SE 1/4 NW 1/4 sec.07, T.5 S., R.5 W., Riverside County, CA, Hydrologic Unit 18070203, on left bank, 10 ft upstream from Corona Lake Weir Control into Temescal Creek, 9.3 mi downstream of Lake Elsinore, and 12.3 mi south of Corona.

DRAINAGE AREA - 57.9 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD - November 5, 2012 to current year.

GAGE - Water-stage recorder and concrete spillway control. Elevation of gage is 1,190 ft above NGVD of 1929, from a topographic map.

REMARKS - No flow for water year 2014. Gage established for the purpose of monitoring discharges from concrete weir on spill way of Corona Lake flowing into Temescal Creek.

EXTREMES FOR PERIOD OF RECORD - Maximum discharge, 35 ft³/s, Feb. 23, 2013, gage height, 37.35 ft; minimum discharge, 0.00 ft³/s, on many days, gage height, 31.72 ft. No peaks greater than 35 ft³/s occurred outside of period of published record during this water year.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [January 19, 2016], at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?dd_parm_cds=002_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11071900&agency_cd=USGS

Water-Data Report 2015

11071900 Temescal Creek at Corona Lake, near Corona, CA -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015
1	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	e0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	e0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00		0.00	0.00		0.00		0.00		0.00	0.00	
Total	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Mean	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Max	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ac-ft	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2013 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	.000	.000	.000	.63	4.33	.62	.000	.000	.000	.000	.000	.000
Max	.000	.000	.000	1.90	13.0	1.87	.000	.000	.000	.000	.000	.000

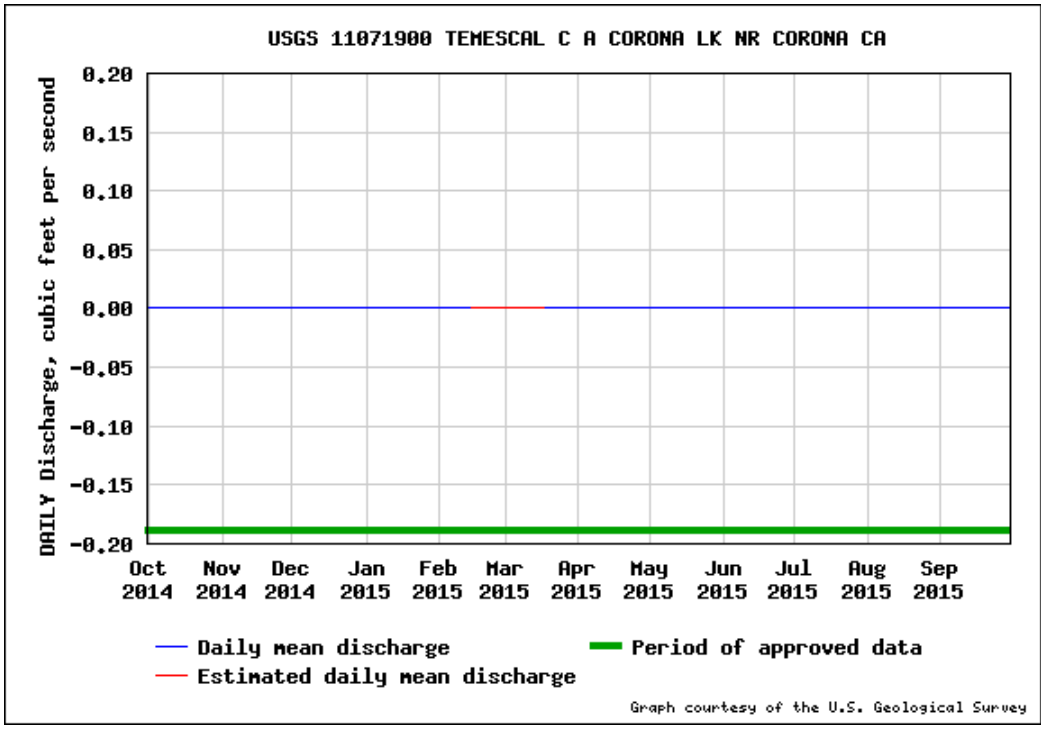
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
(WY)	(2014)	(2014)	(2013)	(2013)	(2013)	(2013)	(2013)	(2013)	(2013)	(2013)	(2013)	(2013)
Min	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	(2014)	(2014)	(2013)	(2014)	(2014)	(2014)	(2013)	(2013)	(2013)	(2013)	(2013)	(2013)

Water-Data Report 2015

11071900 Temescal Creek at Corona Lake, near Corona, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 2013 - 2015	
Annual total	0.0			
Annual mean	0.0		0.0	
Highest annual mean			0.0	2014
Lowest annual mean			0.0	2014
Highest daily mean	0.0	Sep 30	32.0	Feb 23, 2013
Lowest daily mean	0.0	Oct 01	0.0	Nov 06, 2012
Annual 7-day minimum	0.0	Oct 01	0.0	Nov 06, 2012
Maximum peak flow			35	Feb 23, 2013
Maximum peak stage			37.35	Feb 23, 2013
Annual runoff (cfsm)	0.0		0.008	
Annual runoff (inches)	0.0		0.106	
10 percent exceeds	0.0		0.0	
50 percent exceeds	0.0		0.0	
90 percent exceeds	0.0		0.0	



USGS Water-Year Summary 2015

11073495 Cucamonga Creek near Mira Loma, CA

LOCATION - Lat 33°58'58", long 117°35'55" referenced to North American Datum of 1927, in SW 1/4 NE 1/4 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 mi².

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 ft³/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 ft³/s, Oct. 20, 2004, gage height, 6.58 ft, from rating curve extended above 617 ft³/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 ft³/s, May 28, 2010.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [February 17, 2016], at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?dd_parm_cds=001_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11073495&agency_cd=USGS

Water-Data Report 2015

11073495 Cucamonga Creek near Mira Loma, CA -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2014	2014	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015
1	6.5	250	30	43	31	77	31	3.7	8.1	11	2.5	e1.7
2	3.6	21	e600	34	15	103	19	8.9	3.5	4.7	2.6	1.2
3	2.6	20	e260	45	18	52	16	15	5.0	2.3	2.6	1.6
4	2.8	20	320	54	19	49	24	11	3.8	2.5	e2.7	1.3
5	10	19	40	44	14	49	28	3.9	3.4	3.6	e2.2	1.2
6	6.4	8.8	37	31	12	48	23	13	9.5	3.4	2.5	4.0
7	2.7	19	44	32	17	47	37	31	18	2.9	2.0	5.8
8	2.8	21	41	34	23	51	32	150	13	3.1	2.0	3.7
9	3.4	25	41	30	16	38	18	29	9.0	2.5	12	56
10	5.2	25	43	53	7.8	31	15	31	7.8	2.4	4.4	9.8
11	3.2	27	47	144	6.3	32	23	30	5.4	2.3	1.7	1.7
12	11	21	602	56	7.7	32	34	19	3.7	6.4	1.6	1.9
13	11	18	68	45	10	19	22	25	6.0	3.0	2.1	12
14	4.7	16	40	48	17	23	9.0	143	14	2.3	2.6	13
15	11	23	43	40	20	23	6.3	75	5.4	2.6	1.7	435
16	6.6	27	47	25	22	16	13	40	3.1	2.6	2.4	26
17	12	17	286	49	33	18	8.9	44	3.3	2.4	2.5	15
18	13	8.0	47	51	21	10	14	42	3.2	39	1.3	16
19	14	3.4	44	50	20	16	21	18	3.1	51	1.6	15
20	20	4.0	44	36	22	12	12	9.7	3.0	79	1.6	17
21	18	35	53	51	31	11	11	9.4	2.8	28	1.4	19
22	15	21	56	48	193	23	28	6.9	2.6	12	e1.7	15
23	21	25	60	24	276	19	35	16	2.7	10	e1.5	9.8
24	16	21	61	53	52	16	40	6.9	3.0	3.3	e2.4	8.7
25	13	17	66	49	40	6.1	92	6.2	2.7	3.8	7.6	6.2
26	20	19	54	138	46	5.2	36	8.6	2.1	7.5	2.0	13
27	15	23	44	60	52	4.9	23	12	8.4	4.1	1.3	21
28	14	20	50	43	63	5.9	7.0	5.1	15	3.0	e1.7	21
29	9.1	19	46	36		10	14	3.9	7.6	3.3	e2.2	17
30	17	96	51	31		10	3.1	7.5	9.0	4.2	e2.2	16
31	26		49	17		17		8.0		2.8	4.5	
Total	337	889	3,313	1,494	1,105	874	695	833	187	311	83.1	786
Mean	10.9	29.6	107	48.2	39.5	28.2	23.2	26.9	6.24	10.0	2.68	26.2
Max	26	250	602	144	276	103	92	150	18	79	12	435
Min	2.6	3.4	30	17	6.3	4.9	3.1	3.7	2.1	2.3	1.3	1.2
Ac-ft	668	1,764	6,573	2,963	2,191	1,734	1,379	1,652	371	617	165	1,558

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	42.2	42.2	65.3	85.0	101	63.3	44.6	34.5	31.0	29.3	28.9	32.9
Max	223	102	328	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	10.9	12.5	16.7	15.6	19.1	13.3	6.28	6.57	3.31	5.00	2.68	6.36
(WY)	(2015)	(2013)	(2014)	(2014)	(2013)	(2013)	(2013)	(2014)	(2014)	(2014)	(2015)	(2013)

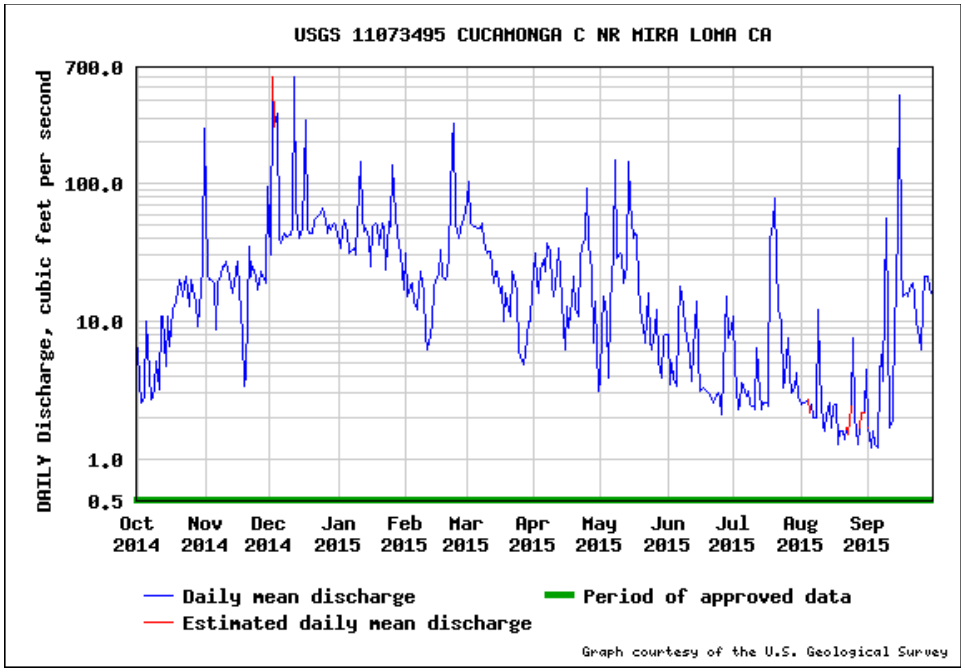
Water-Data Report 2015

11073495 Cucamonga Creek near Mira Loma, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 1986 - 2015	
Annual total	10,910			
Annual mean	29.9		49.7	
Highest annual mean			137.4	2005
Lowest annual mean			15.8	2013
Highest daily mean	602.0	Dec 12	5,200	Jan 09, 2005
Lowest daily mean	1.20	Sep 02	1.20	Sep 02, 2015
Annual 7-day minimum	1.64	Aug 18	1.64	Aug 18, 2015
Maximum peak flow			17,300[a]	Oct 20, 2004
Maximum peak stage			6.58	Oct 20, 2004
Annual runoff (cfsm)	0.394		0.656	
Annual runoff (inches)	5.35		8.91	
10 percent exceeds	51.4		60.0	
50 percent exceeds	16.0		34.0	
90 percent exceeds	2.50		14.0	

[a] All or part of the record affected by Urbanization, Mining, Agricultural changes, Channelization, or other



USGS Water-Year Summary 2015

11073360 Chino Creek at Schaefer Avenue, near Chino, CA

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 mi².

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, except when estimated is considered fair. 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 OUTSIDE PERIOD OF RECORD - Flood of Jan. 25, 1969, reached a stage of 9.23 ft, present datum, discharge, 9,200 ft³/s, on basis of contracted-opening measurement at site 6.1 mi downstream.

EXTREMES FOR PERIOD OF RECORD - Maximum discharge, 12,700 ft³/s, Feb. 27, 1983, gage height, 10.32 ft, from rating curve extended above 560 ft³/s, on basis of slope-conveyance study; no flow May 21, June 30, July 1, Oct. 30, Nov. 3, 1977.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [February 17, 2016], at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?dd_parm_cds=001_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11073360&agency_cd=USGS

Water-Data Report 2015

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

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2014	2014	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015
1	0.22	92	4.6	0.11	0.34	19	0.39	e0.18	0.22	0.24	0.12	0.12
2	0.19	0.38	345	0.13	0.43	37	0.35	0.18	0.24	e0.19	0.12	0.12
3	0.17	0.22	187	0.15	0.34	0.58	0.33	0.16	0.23	e0.09	e0.12	0.11
4	0.14	0.21	46	0.21	0.38	0.59	0.38	0.15	0.27	0.09	e0.12	0.11
5	0.13	0.18	0.90	0.19	0.33	0.54	0.34	0.14	0.26	0.08	e0.12	0.11
6	0.15	0.14	0.82	0.24	0.32	0.67	0.31	0.14	0.26	0.13	0.15	0.10
7	0.16	0.19	0.35	0.22	0.32	0.72	4.3	4.1	0.23	0.09	0.13	0.12
8	0.18	0.22	0.31	0.29	0.30	0.81	0.59	31	0.25	0.12	e0.11	0.13
9	0.17	0.28	0.24	0.38	0.30	0.85	0.33	0.27	0.24	0.09	e0.11	0.31
10	0.17	0.24	0.23	1.0	e0.30	0.91	0.32	0.22	0.28	0.09	0.11	0.14
11	0.14	0.25	0.28	77	0.28	0.60	0.30	0.25	0.19	0.10	0.11	0.14
12	e0.15	0.26	212	0.88	0.24	0.59	0.29	0.24	0.22	0.09	0.13	0.11
13	0.15	0.27	1.9	0.72	0.23	0.65	0.29	0.24	0.21	0.10	0.13	0.09
14	0.17	0.27	0.26	0.27	0.20	0.66	0.28	19	0.19	e0.09	0.14	0.11
15	0.17	0.24	0.24	0.30	0.19	0.58	0.28	3.1	0.24	e0.09	0.13	250
16	0.15	0.19	0.76	0.24	0.24	0.51	0.31	0.24	0.21	0.09	0.11	2.5
17	0.14	0.26	66	0.26	0.24	0.45	0.30	0.21	0.23	0.09	0.13	0.23
18	0.12	0.25	0.33	0.26	0.21	0.43	0.23	0.21	0.22	23	0.11	0.17
19	0.10	0.27	0.24	0.33	0.18	0.40	0.20	0.22	0.24	46	0.11	0.13
20	0.12	0.33	0.19	0.31	0.18	0.44	0.22	0.23	0.19	7.9	0.13	0.12
21	0.17	20	0.17	0.41	0.15	0.41	0.21	0.22	0.16	0.24	0.12	0.12
22	0.18	0.33	0.18	0.38	61	0.35	0.26	0.21	0.18	0.16	0.12	0.14
23	0.14	0.36	0.21	0.36	29	0.41	0.24	0.26	0.19	0.14	0.10	0.17
24	0.13	0.60	0.24	0.41	0.85	0.39	0.21	0.19	0.14	0.14	0.13	0.12
25	0.12	0.39	0.25	0.38	0.46	0.42	e34	0.22	0.14	0.13	0.13	0.13
26	0.10	0.50	0.19	23	0.42	0.50	e0.85	0.23	0.14	0.11	0.13	0.11
27	0.13	0.50	0.17	1.4	0.39	0.41	e0.34	0.23	0.13	0.12	0.13	0.09
28	0.17	0.33	0.23	0.38	6.2	0.37	0.18	0.23	0.11	0.12	0.14	0.12
29	0.16	0.35	0.15	0.31		0.35	0.18	0.24	0.12	0.14	0.12	0.12
30	0.15	77	0.86	0.34		0.40	0.17	0.24	0.16	0.26	0.11	0.11
31	10		0.25	0.39		0.35		0.20		0.15	0.12	
Total	14.5	197	871	111	104	71.3	47.0	62.9	6.09	80.5	3.79	256
Mean	.47	6.57	28.1	3.59	3.72	2.30	1.57	2.03	.20	2.60	.12	8.54
Max	10	92	345	77	61	37	34	31	0.28	46	0.15	250
Min	0.10	0.14	0.15	0.11	0.15	0.35	0.17	0.14	0.11	0.08	0.10	0.09
Ac-ft	28.8	391	1,727	221	206	142	93.2	125	12.1	160	7.52	508

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	15.2	14.5	24.5	32.3	35.7	23.8	8.79	10.7	14.3	16.4	14.1	12.4
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	.061	.23	.53	.48	.33	.30	.14	.22	.062	.069	.12	.13
(WY)	(1978)	(1978)	(1970)	(2014)	(1972)	(1972)	(1977)	(1973)	(1977)	(1977)	(2015)	(1977)

Water-Data Report 2015

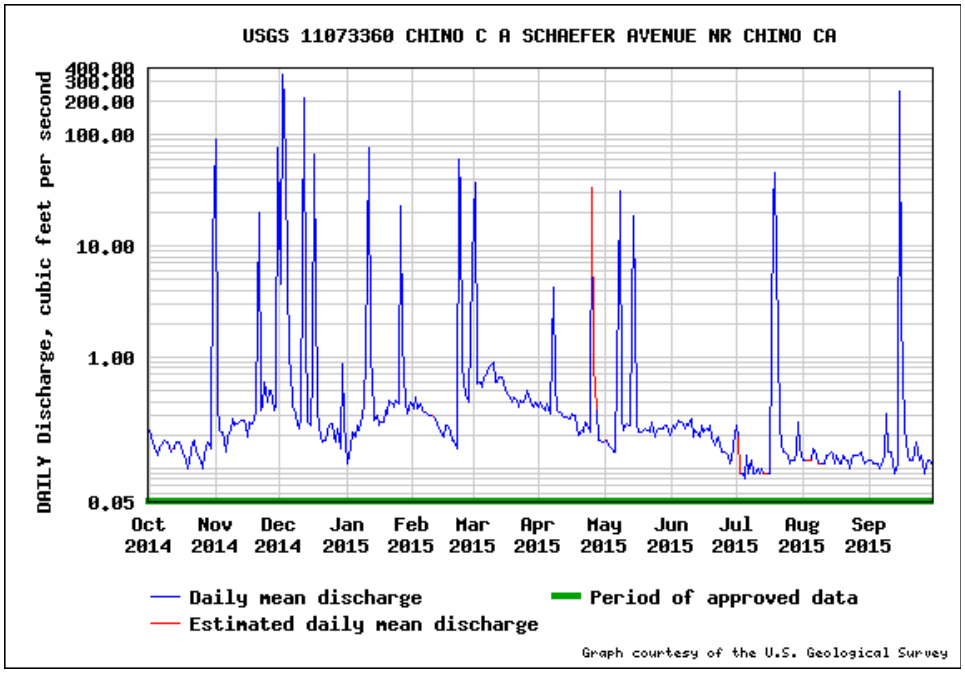
11073360 Chino Creek at Schaefer Avenue, near Chino, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 1970 - 2015	
Annual total	1,825			
Annual mean	5.00		18.5	
Highest annual mean			92.4	1974
Lowest annual mean			2.25	2014
Highest daily mean	345.0	Dec 02	2,060	Mar 01, 1978
Lowest daily mean	0.080	Jul 05	0.0	May 21, 1977
Annual 7-day minimum	0.093	Jul 09	0.024	Oct 29, 1977
Maximum peak flow			13,100[a,b]	Feb 27, 1983
Maximum peak stage			10.32	Feb 27, 1983
Annual runoff (cfsm)	0.102		0.378	
Annual runoff (inches)	1.39		5.14	
10 percent exceeds	0.850		57.0	
50 percent exceeds	0.230		1.20	
90 percent exceeds	0.110		0.320	

[a] Discharge affected by Regulation or Diversion

[b] All or part of the record affected by Urbanization, Mining, Agricultural changes, Channelization, or other



USGS Water-Year Summary 2015

11065000 Lytle Creek at Colton, CA

LOCATION - Lat 34°04'44", long 117°18'17" referenced to North American Datum of 1927, San Bernardino County, CA, Hydrologic Unit 18070203, in San Bernardino Grant, on right bank, 400 ft downstream from Colton Avenue, 1,930 ft upstream from outlet end of channel, and 1.3 mi northeast of Colton.

DRAINAGE AREA - 186 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD - October 1957 to September 1983, October 1984 to current year.

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

GAGE - Water-stage recorder and concrete-lined flood-control channel. Datum of gage is 974.67 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS - Records fair. Estimated daily vaules are considered poor. Flow partly regulated by Lytle Creek spreading grounds 3.2 mi upstream. Diversions upstream from station for irrigation, power development, domestic use, and ground-water replenishment. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD - Maximum discharge, 17,500 ft³/s, Mar. 4, 1978, gage height, 14.8 ft, from rating curve extended above 4,200 ft³/s, on basis of discharge for design flood at gage height 21.4 ft; no flow for many days most years.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web
(USGS Water Data for the Nation), accessed [March 16, 2016],
at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?
dd_parm_cds=001_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11065000&agency_cd=USGS

Water-Data Report 2015

11065000 Lytle Creek at Colton, CA -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2014	2014	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015
1	0.02	17	0.16	0.49	0.37	1.4	0.25	0.15	0.35	0.28	0.92	0.80
2	0.01	0.07	61	0.33	0.37	0.56	0.24	0.16	0.31	0.50	0.80	0.86
3	0.03	0.07	41	0.37	0.36	0.13	0.23	0.21	0.20	0.53	1.0	1.0
4	0.01	0.09	64	0.39	0.37	0.11	0.34	0.29	0.22	0.46	0.76	1.00
5	0.00	0.07	0.70	0.41	0.40	0.11	0.50	0.37	0.26	0.72	0.69	0.83
6	0.00	0.28	0.67	0.44	0.45	0.11	0.44	0.41	e0.35	0.40	0.73	0.72
7	0.01	0.08	0.54	0.48	0.49	0.13	0.30	0.38	e0.40	0.21	0.87	0.70
8	0.00	0.08	0.62	0.50	0.45	0.15	0.32	12	0.57	0.17	0.82	0.53
9	0.22	0.09	0.64	0.55	0.43	0.15	0.19	0.11	0.41	0.12	0.77	0.50
10	0.45	0.15	0.75	0.47	0.45	0.12	0.10	0.08	0.35	0.12	0.77	0.48
11	0.21	0.18	0.75	8.6	0.44	0.20	0.12	0.08	0.37	0.09	0.70	0.47
12	0.23	0.15	138	0.33	0.40	0.13	0.17	0.11	0.31	0.17	0.58	0.48
13	0.17	0.11	2.6	0.35	0.35	0.15	0.27	0.14	0.13	0.41	0.68	e0.40
14	0.21	0.10	0.60	0.34	0.36	0.15	0.36	6.1	0.19	0.45	0.73	e0.40
15	0.30	0.11	0.56	0.33	0.40	0.16	0.28	0.24	0.21	0.13	0.73	72
16	0.29	0.13	0.72	0.37	0.42	0.18	0.20	0.25	0.45	e0.15	0.62	1.3
17	0.22	0.12	27	0.39	0.37	0.19	0.24	0.29	0.49	e0.60	0.40	1.3
18	0.15	0.12	0.54	0.42	0.39	0.21	0.26	0.47	0.55	7.7	0.54	1.2
19	0.09	0.14	0.53	0.43	0.34	0.19	0.25	0.55	0.70	9.3	0.60	1.2
20	0.10	0.16	0.50	0.37	0.33	0.16	0.21	0.61	0.72	18	0.66	1.1
21	0.09	5.9	0.49	0.40	0.30	0.19	0.24	e0.65	0.74	1.2	0.59	1.1
22	0.08	0.07	0.50	0.40	21	0.21	0.21	e0.65	0.82	0.94	0.47	1.2
23	0.09	0.09	0.70	0.39	17	0.20	0.29	e0.57	0.84	1.2	0.46	1.2
24	0.09	0.10	0.67	0.47	0.34	0.15	0.27	e0.54	0.88	0.84	0.63	1.0
25	0.10	0.11	0.75	0.45	0.26	0.13	1.6	e0.51	0.74	0.89	0.73	0.97
26	0.08	0.11	0.75	5.4	0.29	0.19	0.16	e0.43	0.74	0.88	0.71	0.94
27	0.08	0.14	0.75	0.52	0.25	0.23	0.15	e0.46	0.64	0.98	0.70	0.93
28	0.07	0.16	0.72	0.36	0.29	0.27	0.14	0.45	0.78	1.1	0.70	1.0
29	0.08	0.12	0.59	0.42		0.26	0.14	0.40	0.78	0.87	0.76	1.1
30	0.12	0.57	1.7	0.51		0.17	0.20	0.26	0.58	1.1	0.72	1.2
31	0.11		0.68	0.42		0.21		0.39		0.84	0.78	
Total	3.71	26.7	350	26.1	47.7	6.90	8.67	28.3	15.1	51.4	21.6	97.9
Mean	.12	.89	11.3	.84	1.70	.22	.29	.91	.50	1.66	.70	3.26
Max	0.45	17	138	8.6	21	1.4	1.6	12	0.88	18	1.0	72
Min	0.00	0.07	0.16	0.33	0.25	0.11	0.10	0.08	0.13	0.09	0.40	0.40
Ac-ft	7.36	52.9	695	51.8	94.6	13.7	17.2	56.2	29.9	102	42.9	194

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	2.11	3.71	9.66	18.6	27.2	15.4	4.01	3.46	1.96	1.24	.81	.66
Max	83.2	79.1	142	318	363	326	57.3	87.6	61.3	35.4	17.1	9.58
(WY)	(2005)	(1966)	(2011)	(1969)	(1980)	(1978)	(1969)	(1969)	(1978)	(1978)	(1969)	(1980)
Min	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	(1958)	(1958)	(1959)	(1963)	(1961)	(1959)	(1961)	(1959)	(1958)	(1958)	(1958)	(1958)

Water-Data Report 2015

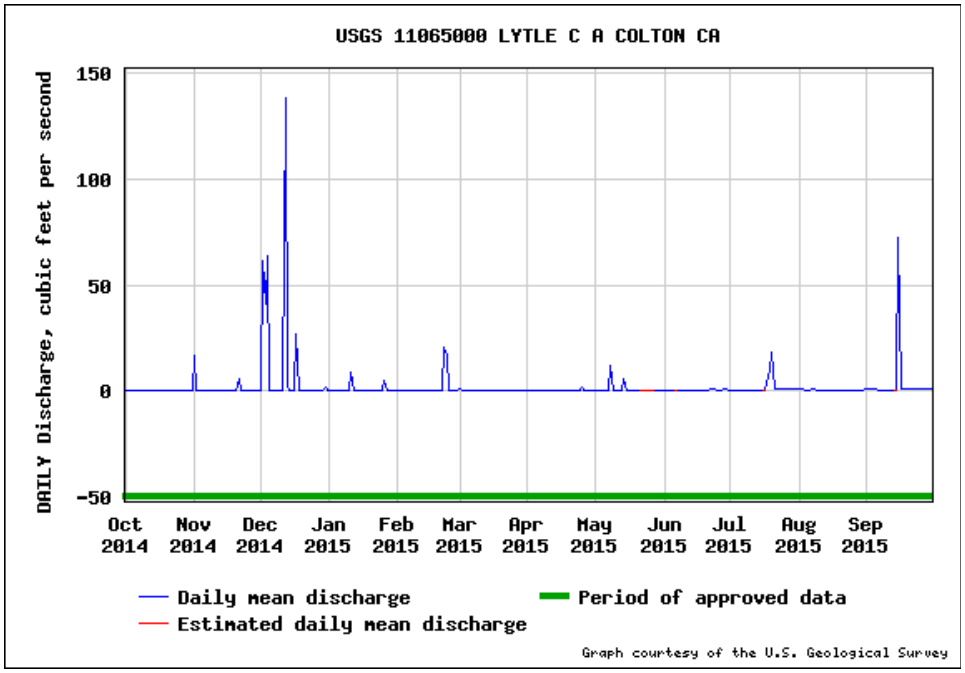
11065000 Lytle Creek at Colton, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 1958 - 2015	
Annual total	684.2			
Annual mean	1.87		7.33	
Highest annual mean			65.4	1969
Lowest annual mean			0.008	1977
Highest daily mean	138.0	Dec 12	5,040	Jan 25, 1969
Lowest daily mean	0.0	Oct 05	0.0	Oct 01, 1957
Annual 7-day minimum	0.009	Oct 02	0.0	Oct 01, 1957
Maximum peak flow			17,500[a,b]	Mar 04, 1978
Maximum peak stage			14.80	Mar 04, 1978
Annual runoff (cfsm)	0.010		0.039	
Annual runoff (inches)	0.137		0.533	
10 percent exceeds	1.00		3.00	
50 percent exceeds	0.400		0.0	
90 percent exceeds	0.110		0.0	

[a] Discharge affected to unknown degree by Regulation or Diversion

[b] All or part of the record affected by Urbanization, Mining, Agricultural changes, Channelization, or other



USGS Water-Year Summary 2015

11060400 Warm Creek near San Bernardino, CA

LOCATION - Lat 34°04'42", 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, 0.2 mi downstream from Interstate Highway 215 Bridge, and 2.0 mi southwest of San Bernardino.

DRAINAGE AREA - 11 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD - February 1964 to September 1972, October 1974 to current year. CHEMICAL DATA: Water years 1999-2004. SPECIFIC CONDUCTANCE: Water years 1999-2001. WATER TEMPERATURE: Water years 1999-2001. SEDIMENT DATA: Water years 1999-2004.

REVISED RECORDS - WDR CA-83-1: Drainage area. WDR CA-92-1: 1978 (instantaneous maximum discharge), 1980-81 (instantaneous maximum discharge), 1983-86 (instantaneous maximum discharge).

GAGE - Water-stage recorder and concrete-lined flood-control channel. Elevation of gage is 960 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1974, at site 0.1 mi upstream at different datum.

REMARKS - Records fair except for estimated daily discharges, which are poor. Natural channel prior to October 1972; concrete-lined channel since October 1974. Possible diversion during high flows into Warm Creek from Lytle Creek flood detention basin 3.4 mi upstream. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD - Maximum discharge, 8,500 ft³/s, Mar. 4, 1978, gage height, 4.88 ft, from rating curve extended above 420 ft³/s, on basis of step-backwater analysis, maximum gage height, 6.33 ft, Nov. 22, 1965, site and datum then in use; no flow at times in some years.

U.S. Department of the Interior
U.S. Geological Survey

Water-Data Report 2015

11060400 Warm Creek near San Bernardino, CA -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES
[e, Value has been estimated.]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
	2014	2014	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015
1	0.00	30	1.4	0.03	0.00	2.8	0.00	0.00	0.00	0.03	0.22	0.00
2	0.00	0.07	91	0.00	0.01	0.73	0.00	0.01	0.00	0.40	0.17	0.00
3	0.00	0.00	43	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.16	0.00
4	0.00	0.00	42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00
5	0.00	0.00	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00
6	0.00	0.01	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00
7	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.02	0.00
8	0.00	0.00	0.17	0.04	0.00	0.00	0.12	21	0.00	0.00	0.01	0.02
9	0.00	0.00	0.19	0.32	0.00	0.02	0.00	0.05	0.00	0.00	0.01	0.00
10	0.00	0.00	0.15	e0.01	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00
11	0.00	0.00	0.13	e11	0.02	0.00	0.00	0.04	0.00	0.00	0.01	0.04
12	0.00	0.00	156	e0.04	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00
13	0.00	0.00	3.2	0.01	0.02	0.00	0.00	0.00	0.02	0.01	0.01	0.00
14	0.00	0.00	0.16	0.01	0.06	0.00	0.02	13	0.00	0.00	0.00	0.07
15	0.00	0.00	0.11	0.00	0.07	0.00	0.00	0.18	0.00	0.00	0.00	154
16	0.00	0.00	0.72	0.00	0.05	0.00	0.00	0.04	0.00	0.01	0.00	0.26
17	0.00	0.01	45	0.00	0.04	0.00	0.00	0.03	0.00	0.02	0.00	0.11
18	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.04	0.00	22	0.00	0.02
19	0.00	0.00	0.04	0.01	0.00	0.08	0.00	0.03	0.00	8.3	0.00	0.02
20	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.01	0.00	17	0.00	0.10
21	0.00	3.2	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00	0.08
22	0.00	0.00	0.00	0.00	30	0.00	0.00	0.15	0.00	0.32	0.00	0.02
23	0.00	0.00	0.02	0.00	41	0.00	0.00	0.00	0.00	0.27	0.00	0.01
24	0.00	0.01	0.04	0.00	0.53	0.00	0.00	0.00	0.00	0.23	0.10	0.01
25	0.00	0.02	0.01	0.02	0.09	0.00	2.5	0.00	0.00	0.23	1.5	0.01
26	0.05	0.02	0.00	5.6	0.00	0.00	0.10	0.09	0.00	0.18	1.2	0.01
27	0.08	0.03	0.00	0.30	0.00	0.00	0.00	0.01	0.05	0.16	0.68	0.01
28	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.16	0.00	0.01
29	0.03	0.01	0.00	0.01		0.00	0.02	0.00	0.02	0.16	0.00	0.01
30	0.09	1.9	2.6	0.04		0.00	0.85	0.00	0.06	0.90	0.00	0.01
31	0.10		0.03	0.02		0.00		0.00		0.27	0.00	
Total	.35	35.3	388	17.5	71.9	3.63	3.61	34.8	.23	51.0	4.43	155
Mean	.011	1.18	12.5	.56	2.57	.12	.12	1.12	.008	1.65	.14	5.16
Max	0.10	30	156	11	41	2.8	2.5	21	0.08	22	1.5	154
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ac-ft	.69	70.0	770	34.6	143	7.20	7.16	68.9	.46	101	8.79	307

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5.82	7.32	10.5	14.0	28.2	24.0	11.1	8.69	6.37	5.59	5.40	5.20
Max	32.4	33.1	48.3	41.2	418	376	44.2	86.7	43.6	34.5	50.6	30.3
(WY)	(1984)	(1986)	(2011)	(1993)	(1978)	(1978)	(1986)	(1980)	(1980)	(1980)	(1983)	(1983)
Min	.011	.087	.40	.066	.72	.12	.12	.082	.008	.059	.061	.023
(WY)	(2015)	(1996)	(1980)	(2003)	(2002)	(2015)	(2015)	(2014)	(2015)	(2002)	(1979)	(1979)

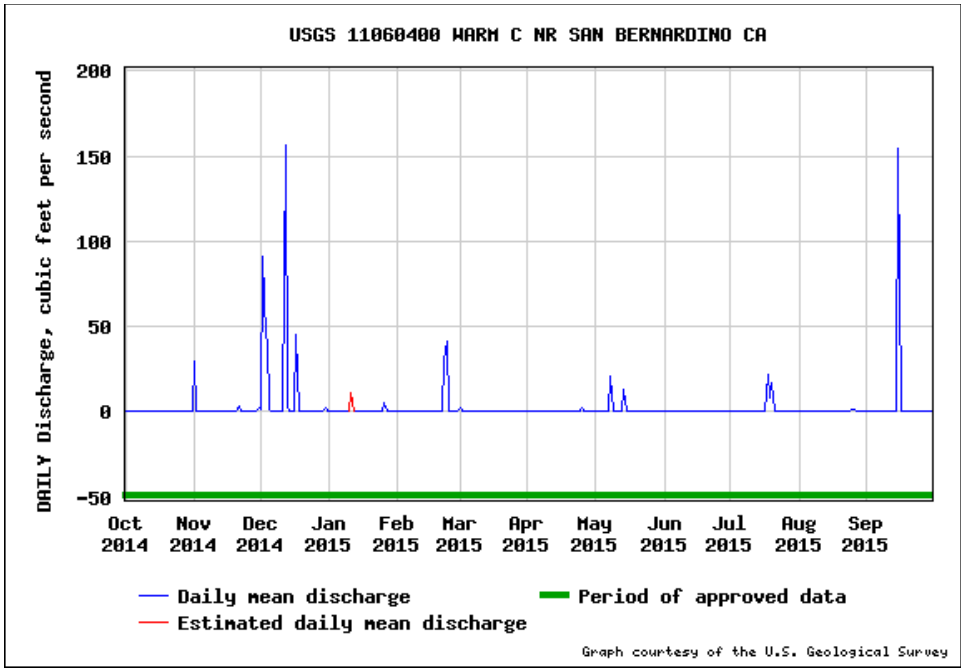
Water-Data Report 2015

11060400 Warm Creek near San Bernardino, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 1975 - 2015	
Annual total	765.4			
Annual mean	2.10		10.9	
Highest annual mean			70.5	1978
Lowest annual mean			1.23	2002
Highest daily mean	156.0	Dec 12	3,400	Mar 01, 1978
Lowest daily mean	0.0	Oct 01	0.0	Nov 29, 1974
Annual 7-day minimum	0.0	Oct 01	0.0	Dec 07, 1974
Maximum peak flow			8,500[a]	Mar 04, 1978
Maximum peak stage			4.88	Mar 04, 1978
Annual runoff (cfsm)	0.191		0.993	
Annual runoff (inches)	2.59		13.5	
10 percent exceeds	0.320		25.0	
50 percent exceeds	0.0		2.10	
90 percent exceeds	0.0		0.090	

[a] All or part of the record affected by Urbanization, Mining, Agricultural changes, Channelization, or other



USGS Water-Year Summary 2015

11057500 San Timoteo Creek near Loma Linda, CA

LOCATION - Lat 34°03'41", long 117°16'00" referenced to North American Datum of 1927, in NW 1/4 NE 1/4 sec.26, T.1 S., R.4 W., San Bernardino County, CA, Hydrologic Unit 18070203, on left bank, 1,500 ft upstream from Redlands Boulevard Bridge, and 0.6 mi northwest of Loma Linda.

DRAINAGE AREA - 125 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD - October 1954 to September 1965, February 1968 to September 1975, April 1979 to current year. Discharge measurements only, October 1997 to September 1998. WATER TEMPERATURE: Water years 1979-82, 1992-94. SEDIMENT DATA: Water years 1979-82, 1992-94.

GAGE - Water-stage recorder and concrete-lined flood-control channel. Elevation of gage is 1,040 ft above NGVD of 1929, from topographic map. Prior to April 1979, water-stage recorder at site 0.45 mi downstream at different datum. April 1979 to Dec. 7, 1997, at site 0.25 mi downstream at different datum.

REMARKS - Records fair. Since Dec. 7, 1997, channel is a trapezoidal concrete floodway. No regulation upstream from station. Natural flow affected by pumping and return flow from irrigated areas. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD - Maximum discharge, 15,000 ft³/s, Feb. 25, 1969, gage height, 8.2 ft, from floodmark, from rating curve extended above 2,100 ft³/s, on basis of slope-conveyance study of peak flow, at site and datum then in use; no flow for many days most years.

U.S. Department of the Interior
U.S. Geological Survey

Suggested citation: U.S. Geological Survey, 2016, National Water Information System data available on the World Wide Web (USGS Water Data for the Nation), accessed [March 16, 2016], at URL http://nwis.waterdata.usgs.gov/nwis/wys_rpt?dd_parm_cds=001_00060&adr_begin_date=2014-10-01&adr_end_date=2015-09-30&site_no=11057500&agency_cd=USGS

Water-Data Report 2015

11057500 San Timoteo Creek near Loma Linda, CA -- Continued

DISCHARGE, CUBIC FEET PER SECOND
YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES

Day	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015
1	2.2	23	10	9.7	1.9	7.7	1.9	0.37	5.0	0.52	9.9	0.63
2	2.1	9.7	43	8.1	3.2	9.6	1.1	0.22	2.4	0.62	4.7	0.59
3	1.4	7.1	76	6.3	3.9	13	1.3	0.58	1.7	0.21	3.8	1.1
4	1.1	3.8	119	7.0	2.3	4.2	1.0	0.80	1.6	0.24	2.0	1.2
5	1.1	2.8	60	6.9	2.4	2.7	2.6	1.3	1.7	0.43	1.6	0.94
6	1.2	2.3	29	6.7	2.3	2.2	2.7	1.2	2.2	0.47	1.7	0.90
7	0.94	1.8	21	5.7	1.5	2.7	1.6	2.4	2.5	0.34	1.7	0.79
8	1.1	1.7	19	5.3	2.5	2.1	4.0	7.5	2.2	0.33	2.0	0.80
9	2.0	3.1	16	4.1	2.1	2.1	2.7	4.5	1.4	0.59	3.0	0.88
10	2.1	5.7	16	3.8	2.5	2.2	1.8	5.0	2.5	0.67	3.3	1.2
11	1.6	5.7	16	9.0	1.9	1.2	1.5	3.4	3.1	0.84	2.9	0.98
12	2.4	9.0	54	10	1.9	1.1	2.7	3.9	3.0	1.0	2.0	1.1
13	1.8	8.8	75	8.1	2.0	0.70	1.6	1.8	2.5	0.70	2.0	1.2
14	2.9	9.5	37	5.6	0.92	0.95	1.3	9.7	3.1	0.35	1.1	1.2
15	1.9	8.9	21	6.0	1.6	1.1	1.6	14	1.9	0.33	0.81	52
16	2.1	9.5	20	5.9	1.4	1.2	1.3	8.2	0.84	0.34	1.0	45
17	1.8	11	42	5.8	1.6	1.2	0.85	6.6	0.66	0.33	0.74	6.0
18	1.9	10	40	5.4	1.1	1.1	1.4	6.0	0.39	9.7	0.39	4.4
19	2.6	8.5	20	5.7	0.98	5.8	0.62	5.1	0.51	29	0.16	3.7
20	4.3	11	9.7	5.8	0.97	1.6	1.8	3.8	0.84	49	0.07	2.9
21	4.4	8.0	9.6	6.9	1.3	1.4	1.8	4.4	0.83	7.0	1.8	3.6
22	2.1	5.8	9.2	5.8	17	1.7	3.5	5.1	0.76	2.4	1.8	2.4
23	1.5	6.9	9.6	3.8	34	1.5	2.4	6.5	0.96	1.4	1.4	2.7
24	1.6	14	9.2	4.2	28	2.2	2.9	7.8	1.2	0.68	1.6	1.8
25	1.6	10	8.9	4.2	5.7	1.8	11	8.1	0.68	0.73	1.2	2.1
26	2.3	6.7	6.7	7.5	4.2	1.8	22	7.1	0.53	0.85	0.48	2.1
27	3.7	8.3	6.0	6.3	5.0	1.3	3.0	6.1	0.90	0.98	0.56	2.0
28	4.5	7.5	6.7	5.3	4.9	2.6	0.88	6.0	1.3	0.47	0.41	2.0
29	4.1	9.3	7.0	2.1		2.0	0.22	5.1	1.6	0.22	0.50	1.5
30	3.3	10	13	1.8		2.7	0.31	6.8	0.55	5.3	0.51	1.2
31	3.7		13	2.1		1.8		5.1		95	0.75	
Total	71.3	239	843	181	139	85.3	83.4	154	49.3	211	55.9	149
Mean	2.30	7.98	27.2	5.84	4.97	2.75	2.78	4.98	1.64	6.81	1.80	4.96
Max	4.5	23	119	10	34	13	22	14	5.0	95	9.9	52
Min	0.94	1.7	6.0	1.8	0.92	0.70	0.22	0.22	0.39	0.21	0.07	0.59
Ac-ft	142	475	1,671	359	276	169	165	306	97.9	419	111	295

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1.96	2.61	6.11	12.6	14.0	7.84	3.14	1.60	1.13	.83	.77	.93
Max	39.8	16.5	76.2	124	186	53.7	23.1	8.93	7.43	6.81	3.05	4.96
(WY)	(2005)	(2014)	(2011)	(2005)	(1969)	(1991)	(2006)	(2010)	(2013)	(2015)	(2014)	(2015)
Min	.000	.000	.16	.079	.17	.000	.000	.000	.000	.000	.000	.000
(WY)	(1996)	(1996)	(1996)	(1972)	(1968)	(1997)	(1979)	(1996)	(1996)	(1995)	(1995)	(1995)

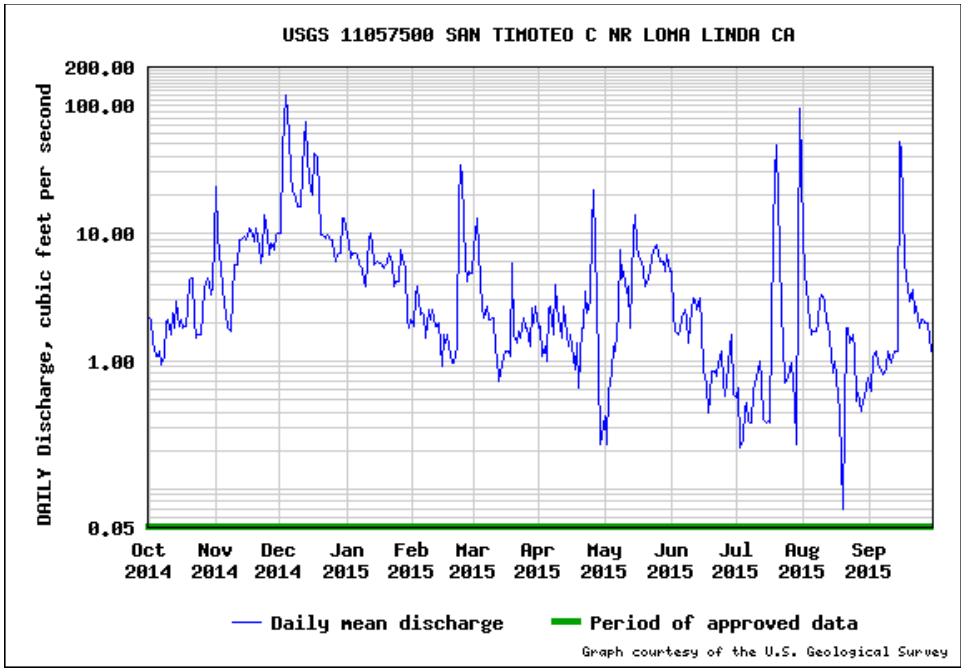
Water-Data Report 2015

11057500 San Timoteo Creek near Loma Linda, CA -- Continued

SUMMARY STATISTICS

	Water Year 2015		Water Years 1955 - 2015	
Annual total	2,262			
Annual mean	6.20		4.45	
Highest annual mean			25.3	2005
Lowest annual mean			0.448	2002
Highest daily mean	119.0	Dec 04	3,500	Feb 25, 1969
Lowest daily mean	0.070	Aug 20	0.0	Feb 04, 1968
Annual 7-day minimum	0.373	Jul 03	0.0	Apr 15, 1969
Maximum peak flow			15,000	Feb 25, 1969
Maximum peak stage			8.50[a]	Feb 16, 1980
Annual runoff (cfsm)	0.050		0.035	
Annual runoff (inches)	0.673		0.476	
10 percent exceeds	10.4		5.40	
50 percent exceeds	2.30		0.700	
90 percent exceeds	0.666		0.0	

[a] Gage datum changed during this year



APPENDIX B

DAILY PRECIPITATION DATA
FOR SAN BERNARDINO

WATER YEAR 2014-15

TABLE B-1

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

	2014			2015								
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.00	0.48	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.21	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	1.77	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	1.81
16	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.56	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
21	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.01	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.05	0.11	0.02		0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.01		0.00	0.01		0.00		0.00		0.00	0.00	
Total	0.01	0.62	4.58	0.59	1.38	0.29	0.07	0.75	0.00	0.99	0.00	1.81

Total Rainfall = 11.09 Inches

APPENDIX C

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

WATER YEAR 2014-15

SINCE 1933

ORANGE COUNTY WATER DISTRICT

ORANGE COUNTY'S GROUNDWATER AUTHORITY

March 11, 2016

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

Subject: Review of Fiscal Year 2014-15 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, 2015. 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 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

STATEMENT OF ASSETS AND LIABILITIES ARISING FROM CASH TRANSACTIONS

JUNE 30, 2015

ASSETS

Cash in Bank Account	$ 12,039

LIABILITIES AND NET ASSETS

Total Net Assets	$ 12,039

SANTA ANA RIVER WATERMASTER

STATEMENT OF REVENUE AND EXPENSES ARISING FROM CASH TRANSACTIONS

FOR THE PERIOD JULY 1, 2014 - JUNE 30, 2015

	Actual	Budget	Variance - Favorable (Unfavorable)	
REVENUE COLLECTED:				
Water District Contributions				
Orange County Water District	$ 12,000	$ 5,600	6,400	
Inland Empire Utilities Agency	6,000	2,800	3,200	
Western Municipal Water District	6,000	2,800	3,200	
San Bernardino Valley Municipal Water District	6,000	2,800	3,200	
TOTAL REVENUE COLLECTED	$ 30,000	$ 14,000	$ 16,000	(A)
EXPENSES PAID:				
Professional Engineering Services	$ 29,238	$ 12,500	(16,738)	(B)
Administrative Expenses:				
Auditing Services				
Reproduction of Annual Report	1,424	1,500	76	(C)
Bank service charges				
	$ 30,662	$ 14,000	$ (16,662)	
CHANGE IN NET ASSETS	$ (662)			
NET ASSETS - BEGINNING OF THE YEAR	$ 12,701			
NET ASSETS - END OF THE YEAR	$ 12,039			

(A) Revenue for the fiscal year 2013-14 were received in fiscal year 2014-15

(B) For engineering service expenditure of 2012-13 and 2013-14, the payment checks were issued in fiscal year 2014-15 to WMWD and OCWD

(C) For administrative expenes of 2012-13 and 2013-14, the payment was made in fiscal year 2014-15 to WMWD and OCWD

SANTA ANA RIVER WATERMASTER

NOTES TO FINANCIAL STATEMENTS

JUNE 30, 2015

1. SIGNIFICANT ACCOUNTING POLICIES:

Basis of Accounting:

The Santa Ana River Watermaster's ("Watermaster") policy is to prepare its financial statements on the cash basis of accounting consequently, certain revenues are recognized when received rather than when earned, and certain expenses are recognized when cash is disbursed rather than when the obligation is incurred.

2. ORGANIZATION AND HISTORY:

The Santa Ana River Watermaster is composed of a committee of five representatives from four water districts. Two representatives serve from Orange County Water District and one representative each serves from the Inland Empire Utilities Agency, Western Municipal Water District and San Bernardino Valley Municipal Water District. The committee was established on April 23, 1969, by order of the Superior Court of California in Orange County as part of a judgment resulting from a lawsuit by the Orange County Water District as plaintiff vs. City of Chino, et al, as defendants.

Costs and expenses incurred by the individual representatives are reimbursed directly from the water districts. Collective Watermaster costs and expenses are budgeted and paid for by the Watermaster after receiving contributions from the water districts. Water districts contributions are made in the following ratios:

Orange County Water District	40%
Inland Empire Utilities Agency	20%
Western Municipal Water District	20%
San Bernardino Valley Municipal Water District	20%
Total	100%

The Water master issues a report each year to satisfy its obligation to monitor and test water flows from the Upper Area to the Lower Area of the Santa Ana River.

3. CASH IN BANK:

The following disclosures are made in accordance with Statement No. 3 of the Governmental Accounting Standards Board (GASB 3):

Cash at June 30, 2015 consisted of the following:

Bank of America:	$12,039

All cash is fully insured by the FDIC.

APPENDIX D

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

WATER YEAR 2014-15

There was no discharge of HGMP water to Santa Ana River in the Bunker Hill area during the 2014-15 water year.

APPENDIX E

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

WATER YEAR 2014-15

There was no discharge of OC-59 water to Santa Ana River during the 2014-15 water year.

APPENDIX F

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

WATER YEAR 2014-15

There was no discharge of Arlington Desalter water to the Arlington Valley Drain for Orange County Water District during the 2014-15 water year.

APPENDIX G

WATER QUALITY AND DISCHARGE FROM THE SAN JACINTO WATERSHED

WATER YEAR 2014-15

There was no discharge of the San Jacinto Watershed to the Santa Ana River during the 2014-15 water year.

APPENDIX H

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

WATER YEAR 2014-15

TABLE H-1

WATER QUALITY SAMPLES BELOW PRADO DAM
WATER YEAR 2014-15

Date	TDS (mg/L)	EC (um/cm)	TDS/EC Ratio	Source
10/3/2014	707	1150	0.61478	USGS
10/14/2014	714	1140	0.62632	OCWD
10/16/2014	725	1180	0.61441	USGS
10/23/2014	691	1080	0.63981	USGS
11/4/2014	584	924	0.63203	OCWD
11/6/2014	661	1090	0.60642	USGS
11/13/2014	680	1120	0.60714	USGS
11/18/2014	677	1110	0.60991	USGS
12/3/2014	354	536	0.66045	OCWD
12/8/2014	285	476	0.59874	USGS
12/9/2014	308	480	0.64167	USGS
12/18/2014	329	522	0.63027	USGS
1/6/2015	542	879	0.61661	OCWD
1/12/2015	423	705	0.60000	USGS
1/20/2015	693	1110	0.62432	USGS
1/27/2015	376	606	0.62046	USGS
1/29/2015	625	1020	0.61275	USGS
2/10/2015	707	1190	0.59412	USGS
2/10/2015	740	1130	0.65487	OCWD
2/12/2015	721	1170	0.61624	USGS
2/24/2015	258	424	0.60849	USGS
2/26/2015	366	603	0.60697	USGS
3/10/2015	570	952	0.59874	OCWD
3/17/2015	745	1210	0.61570	USGS
3/18/2015	715	1190	0.60084	USGS
3/24/2015	709	1140	0.62193	USGS
3/30/2015	721	1160	0.62155	USGS
4/7/2015	708	1180	0.60000	OCWD
4/14/2015	701	1130	0.62035	USGS
4/15/2015	687	1140	0.60263	USGS
4/28/2015	648	1070	0.60561	USGS
4/28/2015	622	1080	0.57593	USGS
5/5/2015	686	1100	0.62364	OCWD
5/12/2015	612	1040	0.58846	USGS
5/14/2015	628	1070	0.60690	USGS
5/26/2015	668	1170	0.57094	USGS
5/28/2015	674	1130	0.62966	USGS
6/2/2015	680	1180	0.57627	OCWD
6/9/2015	683	1130	0.60442	USGS
6/11/2015	696	1160	0.61653	USGS
6/24/2015	726	1170	0.62051	USGS
6/25/2015	716	1200	0.59667	USGS
7/8/2015	738	1200	0.61500	USGS
7/14/2015	734	1200	0.61167	OCWD
7/15/2015	735	1210	0.60744	USGS
7/28/2015	647	1070	0.60467	USGS
8/4/2015	710	1220	0.58197	OCWD
8/11/2015	699	1180	0.59237	USGS
8/11/2015	706	1150	0.61391	OCWD
8/18/2015	746	1250	0.59680	OCWD
8/18/2015	725	1150	0.63043	USGS
8/25/2015	686	1200	0.57167	OCWD
8/31/2015	688	1110	0.61982	USGS
9/1/2015	744	1190	0.62521	USGS
9/16/2015	295	523	0.56405	USGS
9/22/2015	484	947	0.51109	OCWD
9/28/2015	462	803	0.57534	USGS

TABLE H-2

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

October 2014

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS [1]	Outflow X TDS
1	66	1,170	711	46,926
2	66	1,170	711	46,926
3	58	1,180	717	41,586
4	50	1,170	711	35,550
5	40	1,180	717	28,680
6	47	1,210	735	34,545
7	46	1,200	729	33,534
8	44	1,200	729	32,076
9	44	1,220	741	32,604
10	45	1,240	753	33,885
11	43	1,260	766	32,938
12	53	1,280	778	41,234
13	68	1,240	753	51,204
14	65	1,210	735	47,775
15	63	1,220	741	46,683
16	70	1,200	729	51,030
17	66	1,210	735	48,510
18	64	1,210	735	47,040
19	71	1,180	717	50,907
20	76	1,170	711	54,036
21	82	1,140	693	56,826
22	78	1,160	705	54,990
23	90	1,150	699	62,910
24	88	1,140	693	60,984
25	77	1,170	711	54,747
26	81	1,160	705	57,105
27	87	1,140	693	60,291
28	82	1,140	693	56,826
29	86	1,130	687	59,082
30	76	1,120	681	51,756
31	84	1,090	662	55,608
Total	2,056			1,468,794
		Monthly Flow-weighted TDS =	714	mg/L

(1) TDS = EC x 0.607633

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

November 2014

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS [1]	Outflow X TDS
1	134	567	345	46,230
2	158	576	350	55,300
3	157	713	433	67,981
4	176	901	547	96,272
5	181	1,020	620	112,220
6	170	1,040	632	107,440
7	155	1,090	662	102,610
8	135	1,090	662	89,370
9	119	1,070	650	77,350
10	133	1,050	638	84,854
11	108	1,050	638	68,904
12	107	1,050	638	68,266
13	100	1,060	644	64,400
14	97	1,060	644	62,468
15	97	1,060	644	62,468
16	100	1,090	662	66,200
17	94	1,080	656	61,664
18	77	1,130	687	52,899
19	77	1,140	693	53,361
20	81	1,140	693	56,133
21	129	881	535	69,015
22	108	1,030	626	67,608
23	102	1,090	662	67,524
24	100	1,080	656	65,600
25	88	1,090	662	58,256
26	101	1,090	662	66,862
27	102	1,090	662	67,524
28	107	1,090	662	70,834
29	101	1,080	656	66,256
30	124	1,060	644	79,856
Total	3,518			2,135,725
		Monthly Flow-weighted TDS =	607	mg/L

(1) TDS = EC x 0.607633

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

December 2014

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS [1]	Outflow X TDS
1	325	619	376	122,200
2	205	944	574	117,670
3	191	504	306	58,446
4	304	447	272	82,688
5	411	416	253	103,983
6	426	449	273	116,298
7	413	461	280	115,640
8	448	454	276	123,648
9	461	465	283	130,463
10	458	473	287	131,446
11	284	518	315	89,460
12	279	572	348	97,092
13	722	335	204	147,288
14	733	391	238	174,454
15	722	425	258	186,276
16	532	461	280	148,960
17	373	505	307	114,511
18	317	515	313	99,221
19	310	513	312	96,720
20	305	538	327	99,735
21	305	556	338	103,090
22	305	574	349	106,445
23	338	602	366	123,708
24	395	595	362	142,990
25	393	657	399	156,807
26	388	673	409	158,692
27	382	647	393	150,126
28	378	662	402	151,956
29	378	676	411	155,358
30	376	692	420	157,920
31	365	725	441	160,965
Total	12,222			3,924,256
		Monthly Flow-weighted TDS =	321	mg/L

(1) TDS = EC x 0.607633

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

January 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	358	718	436	156,088
2	350	736	447	156,450
3	343	756	459	157,437
4	333	776	472	157,176
5	406	817	496	201,376
6	438	836	508	222,504
7	423	905	550	232,650
8	430	962	585	251,550
9	425	980	595	252,875
10	401	1,010	614	246,214
11	380	1,070	650	247,000
12	401	718	436	174,836
13	383	788	479	183,457
14	399	996	605	241,395
15	358	1,150	699	250,242
16	172	1,140	693	119,196
17	157	1,140	693	108,801
18	157	1,090	662	103,934
19	159	1,070	650	103,350
20	163	----	----	----
21	156	----	----	----
22	145	----	----	----
23	136	----	----	----
24	137	----	----	----
25	144	----	----	----
26	138	----	----	----
27	170	----	----	----
28	247	----	----	----
29	226	----	----	----
30	153	----	----	----
31	155	----	----	----
Total	8,443			3,566,531
		Monthly Flow-weighted TDS(2) =	551	mg/L
Total Outflow Used	6,473 (3)			

(1) TDS = EC x 0.607633

(2) Equipment Malfunction - EC data missing 1/20/2015 - 1/31/2015. Flow data for period of missing EC is excluded in the Monthly Flow-weighted TDS calculation.

(3) Actual outflow used to calculate TDS.

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

February 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	156	----	----	----
2	178	----	----	----
3	187	----	----	----
4	179	----	----	----
5	179	----	----	----
6	159	----	----	----
7	139	----	----	----
8	143	----	----	----
9	155	----	----	----
10	137	----	----	----
11	129	1,180	717	92,493
12	127	1,160	705	89,535
13	124	1,160	705	87,420
14	128	1,140	693	88,704
15	124	1,120	681	84,444
16	123	1,120	681	83,763
17	125	1,110	674	84,250
18	126	1,110	674	84,924
19	124	1,110	674	83,576
20	119	1,090	662	78,778
21	125	1,090	662	82,750
22	139	1,070	650	90,350
23	208	478	290	60,320
24	182	435	264	48,048
25	165	493	300	49,500
26	165	548	333	54,945
27	167	592	360	60,120
28	169	584	355	59,995
Total	4,181			1,363,915
		Monthly Flow-weighted TDS(2) =	531	mg/L
Total Outflow Used	2,569 (3)			

(1) TDS = EC x 0.607633

(2) Equipment Malfunction - EC data missing 2/01/2015 - 2/10/2015. Flow data for period of missing EC is excluded in the Monthly Flow-weighted TDS calculation.

(3) Actual outflow used to calculate TDS.

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

March 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	172	719	437	75,164
2	176	718	436	76,736
3	225	734	446	100,350
4	266	786	478	127,148
5	301	796	484	145,684
6	300	809	492	147,600
7	301	785	477	143,577
8	301	804	489	147,189
9	301	857	521	156,821
10	300	937	569	170,700
11	297	975	592	175,824
12	299	1,020	620	185,380
13	305	1,060	644	196,420
14	288	1,100	668	192,384
15	268	1,160	705	188,940
16	272	1,220	741	201,552
17	185	1,220	741	137,085
18	123	1,190	723	88,929
19	113	1,200	729	82,377
20	115	1,190	723	83,145
21	106	1,200	729	77,274
22	109	1,200	729	79,461
23	114	1,190	723	82,422
24	110	1,180	717	78,870
25	103	1,180	717	73,851
26	92	1,180	717	65,964
27	89	1,200	729	64,881
28	86	1,210	735	63,210
29	83	1,200	729	60,507
30	84	1,230	747	62,748
31	87	1,210	735	63,945
Total	5,971			3,596,138

Monthly Flow-weighted TDS = 602 mg/L

(1) TDS = EC x 0.607633

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

April 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	95	1,210	735	69,825
2	97	1,140	693	67,221
3	78	1,180	717	55,926
4	86	1,200	729	62,694
5	100	1,220	741	74,100
6	95	1,190	723	68,685
7	95	1,230	747	70,965
8	120	1,140	693	83,160
9	127	1,140	693	88,011
10	92	1,190	723	66,516
11	93	1,200	729	67,797
12	96	1,200	729	69,984
13	97	1,180	717	69,549
14	91	1,210	735	66,885
15	86	1,190	723	62,178
16	76	1,200	729	55,404
17	76	1,210	735	55,860
18	80	1,190	723	57,840
19	88	1,170	711	62,568
20	81	1,170	711	57,591
21	61	1,200	729	44,469
22	78	1,210	735	57,330
23	100	1,150	699	69,900
24	103	1,170	711	73,233
25	114	1,190	723	82,422
26	304	797	484	147,136
27	159	1,110	674	107,166
28	103	1,200	729	75,087
29	92	1,250	760	69,920
30	92	1,240	753	69,276
Total	3,055			2,128,698
		Monthly Flow-weighted TDS =	697	mg/L

(1) TDS = EC x 0.607633

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

May 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS [1]	Outflow X TDS
1	84	1,240	753	63,252
2	80	1,270	772	61,760
3	81	1,270	772	62,532
4	88	1,240	753	66,264
5	85	1,240	753	64,005
6	83	1,260	766	63,578
7	84	1,230	747	62,748
8	157	675	410	64,370
9	188	676	411	77,268
10	180	980	595	107,100
11	171	1,120	681	116,451
12	167	1,170	711	118,737
13	125	1,220	741	92,625
14	104	1,070	650	67,600
15	80	627	381	30,480
16	72	608	369	26,568
17	74	670	407	30,118
18	188	802	487	91,556
19	264	939	571	150,744
20	255	1,020	620	158,100
21	225	1,080	656	147,600
22	173	1,160	705	121,965
23	121	1,200	729	88,209
24	114	1,180	717	81,738
25	106	1,210	735	77,910
26	113	1,220	741	83,733
27	99	1,200	729	72,171
28	91	1,200	729	66,339
29	93	1,220	741	68,913
30	86	1,220	741	63,726
31	86	1,220	741	63,726
Total	3,917			2,511,886

Monthly Flow-weighted TDS = 641 mg/L

(1) TDS = EC x 0.607633

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

June 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	85	1,210	735	62,475
2	76	1,210	735	55,860
3	74	1,240	753	55,722
4	80	1,260	766	61,280
5	71	1,270	772	54,812
6	66	1,340	814	53,724
7	80	1,340	814	65,120
8	85	1,350	820	69,700
9	72	----	----	----
10	81	----	----	----
11	71	----	----	----
12	69	----	----	----
13	65	----	----	----
14	69	----	----	----
15	76	----	----	----
16	68	----	----	----
17	68	----	----	----
18	71	----	----	----
19	56	----	----	----
20	56	----	----	----
21	58	----	----	----
22	60	----	----	----
23	58	----	----	----
24	55	----	----	----
25	58	----	----	----
26	56	----	----	----
27	55	----	----	----
28	61	----	----	----
29	67	----	----	----
30	64	----	----	----
Total	2,031			478,693

Monthly Flow-weighted TDS(2) = 776 mg/L

Total Outflow Used 617 (3)

(1) TDS = EC x 0.607633

(2) Equipment Malfunction - EC data missing 6/09/2015 - 6/30/2015. Flow data for period of missing EC is excluded in the Monthly Flow-weighted TDS calculation.

(3) Actual outflow used to calculate TDS.

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

July 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	74	----	----	----
2	64	----	----	----
3	55	----	----	----
4	54	----	----	----
5	52	----	----	----
6	54	----	----	----
7	54	----	----	----
8	56	----	----	----
9	54	1,200	729	39,366
10	52	1,210	735	38,220
11	53	1,200	729	38,637
12	53	1,190	723	38,319
13	55	1,200	729	40,095
14	51	1,140	693	35,343
15	54	1,140	693	37,422
16	52	1,140	693	36,036
17	51	1,120	681	34,731
18	53	1,100	668	35,404
19	132	696	423	55,836
20	174	637	387	67,338
21	187	537	326	60,962
22	183	617	375	68,625
23	178	665	404	71,912
24	174	722	439	76,386
25	171	798	485	82,935
26	171	865	526	89,946
27	168	939	571	95,928
28	161	988	600	96,600
29	157	1,050	638	100,166
30	146	1,090	662	96,652
31	121	1,110	674	81,554
Total	3,114			1,418,413
		Monthly Flow-weighted TDS(2) =	535	mg/L
Total Outflow Used	2,651 (3)			

(1) TDS = EC x 0.607633

(2) Equipment Malfunction - EC data missing 7/01/2015 - 7/08/2015. Flow data for period of missing EC is excluded in the Monthly Flow-weighted TDS calculation.

(3) Actual outflow used to calculate TDS.

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

August 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	98	1,060	644	63,112
2	82	1,140	693	56,826
3	79	1,130	687	54,273
4	71	1,120	681	48,351
5	65	1,120	681	44,265
6	66	1,110	674	44,484
7	68	1,080	656	44,608
8	68	1,050	638	43,384
9	68	1,040	632	42,976
10	73	1,010	614	44,822
11	67	988	600	40,200
12	63	977	594	37,422
13	61	972	591	36,051
14	59	981	596	35,164
15	54	975	592	31,968
16	50	994	604	30,200
17	52	1,020	620	32,240
18	53	----	----	----
19	55	----	----	----
20	61	----	----	----
21	59	----	----	----
22	58	----	----	----
23	59	----	----	----
24	63	----	----	----
25	59	----	----	----
26	63	----	----	----
27	69	----	----	----
28	61	----	----	----
29	50	----	----	----
30	57	----	----	----
31	64	----	----	----
Total	1,975			730,346

Monthly Flow-weighted TDS(2) = 638 mg/L

Total Outflow Used 1,144 (3)

(1) TDS = EC x 0.607633

(2) Equipment Malfunction - EC data missing 8/18/2015 - 8/31/2015. Flow data for period of missing EC is excluded in the Monthly Flow-weighted TDS calculation.

(3) Actual outflow used to calculate TDS.

TABLE H-2 (continued)

SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM
WATER YEAR 2014-15

September 2015

Day	Prado Outflow (cfs)	Daily Median EC (microsiemens/cm)	Computed TDS (1)	Outflow X TDS
1	57	----	----	----
2	60	----	----	----
3	63	----	----	----
4	64	----	----	----
5	66	----	----	----
6	66	----	----	----
7	65	----	----	----
8	65	----	----	----
9	92	----	----	----
10	136	----	----	----
11	106	----	----	----
12	91	----	----	----
13	87	----	----	----
14	86	----	----	----
15	86	----	----	----
16	125	----	----	----
17	176	584	355	62,480
18	193	607	369	71,217
19	191	608	369	70,479
20	190	634	385	73,150
21	138	654	397	54,786
22	130	698	424	55,120
23	155	633	385	59,675
24	177	672	408	72,216
25	182	687	417	75,894
26	181	729	443	80,183
27	183	764	464	84,912
28	185	778	473	87,505
29	186	812	493	91,698
30	184	834	507	93,288
Total	3,766			1,032,603
		Monthly Flow-weighted TDS(2) =	421	mg/L
Total Outflow Used	2,451 (3)			

(1) TDS = EC x 0.607633

(2) Equipment Malfunction - EC data missing 9/01/2015 - 9/16/2015. Flow data for period of missing EC is excluded in the Monthly Flow-weighted TDS calculation.

(3) Actual outflow used to calculate TDS.

TABLE H-3

ANNUAL SUMMARY OF FLOW-WEIGHTED TDS BELOW PRADO DAM

WATER YEAR 2014-15

Month	Monthly Flow (cfs-days)	Monthly Flow-weighted TDS[1] (mg/L)	Monthly Flow x TDS
2014			
October	2,056	714	1,467,984
November	3,518	607	2,135,426
December	12,222	321	3,923,262
2015			
January	6,473	551	3,566,623
February	2,569	531	1,364,139
March	5,971	602	3,594,542
April	3,055	697	2,129,335
May	3,917	641	2,510,797
June	617	776	478,792
July	2,651	535	1,418,285
August	1,144	638	729,872
September	2,451	421	1,031,871
Total	46,644 (1)		24,350,928
	Yearly Flow-weighted TDS[1] =	522	

(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 2014-15

PREPARED BY

JOHN V. ROSSI

TABLE I-1

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

WATER YEAR 2014-15

MONTH	Discharge (acre -feet)	TDS (mg/L)	Discharge xTDS
2014			
October	194	776	150,544
November	184	404	74,336
December	187	740	138,380
2015			
January	187	700	130,900
February	169	768	129,792
March	187	796	148,852
April	178	820	145,960
May	187	796	148,852
June	184	902	165,968
July	184	902	165,968
August	193	964	186,052
September	184	952	175,168
Total	2,218		1,760,772

$$\text{Flow-weighted TDS} = \frac{1{,}760{,}772}{2{,}218} = 794 \text{ mg/L}$$

APPENDIX J

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

WATER YEAR 2014-15

PREPARED BY

JOHN V. ROSSI

TABLE J-1

WATER QUALITY SAMPLES AT RIVERSIDE NARROWS
WATER YEAR 2014-15

	Date Sampled	EC (microsiemens/cm)	TDS (mg/L)	Source of Data		Ratio	Average
2014	10/01/14	1516	976	C of R	**	0.64	
	10/06/14	968	636	USGS		0.66	
	10/08/14	1520	969	C of R	**	0.64	
	10/15/14	1508	954	C of R	**	0.63	
	10/16/14	1515	980	C of R	**	0.65	
	10/22/14	1522	898	C of R	**	0.59	
	10/23/14	1030	643	USGS		0.62	
	10/29/14	1511	962	C of R	**	0.64	***640***
	11/05/14	1503	918	C of R	**	0.61	
	11/06/14	1040	633	USGS		0.61	
	11/12/14	1506	944	C of R	**	0.63	
	11/18/14	996	620	USGS		0.62	
	11/19/14	1505	914	C of R	**	0.61	
	11/21/14	539	326	USGS	*	0.60	
	11/26/14	1511	962	C of R	**	0.64	***627***
	12/03/14	829	536	C of R	**	0.65	
	12/03/14	369	242	USGS	*	0.66	
	12/10/14	1495	968	C of R	**	0.65	
	12/17/14	342	222	C of R	**	0.65	
	12/18/14	886	544	USGS		0.61	
	12/24/14	1422	882	C of R	**	0.62	
	12/31/14	1326	834	C of R	**	0.63	***544***
2015	01/07/15	1484	930	C of R	**	0.63	
	01/13/15	989	621	USGS		0.63	
	01/14/15	1504	946	C of R	**	0.63	
	01/21/15	1488	922	C of R	**	0.62	
	01/27/15	846	582	USGS		0.69	
	01/28/15	1448	906	C of R	**	0.63	***602***

*	TDS data not used in determining monthly averages
**	City of Riverside data not used in determining monthly averages
C of R	City of Riverside
USGS	U.S. Geological Survey

TABLE J-1 (continued)

WATER QUALITY SAMPLES AT RIVERSIDE NARROWS
WATER YEAR 2014-15

	Date Sampled	EC (microsiemens/cm)	TDS (mg/L)	Source of Data		Ratio	Average
2015	02/04/15	1500	936	C of R	**	0.62	
	02/11/15	1516	930	C of R	**	0.61	
	02/11/15	974	590	USGS		0.61	
	02/18/15	1487	944	C of R	**	0.63	
	02/23/15	347	218	USGS	*	0.63	
	02/25/15	1359	804	C of R	**	0.59	***590***
	03/04/15	1504	916	C of R	**	0.61	
	03/11/15	1497	927	C of R	**	0.62	
	03/18/15	1502	936	C of R	**	0.62	
	03/18/15	987	616	USGS		0.62	
	03/25/15	1515	944	C of R	**	0.62	
	03/30/15	1010	633	USGS		0.63	***625***
	04/01/15	1522	936	C of R	**	0.61	
	04/08/15	1496	928	C of R	**	0.62	
	04/15/15	958	621	USGS		0.65	
	04/15/15	1528	935	C of R	**	0.61	
	04/22/15	1519	931	C of R	**	0.61	
	04/28/15	1030	638	USGS		0.62	
	04/29/15	1506	944	C of R	**	0.63	***630***
	05/06/15	1512	935	C of R	**	0.62	
	05/13/15	1511	947	C of R	**	0.63	
	05/14/15	1050	646	USGS		0.62	
	05/20/15	1521	936	C of R	**	0.62	
	05/27/15	1498	982	C of R	**	0.66	
	05/28/15	1020	616	USGS		0.60	***631***

*	TDS data not used in determining monthly averages
**	City of Riverside data not used in determining monthly averages
C of R	City of Riverside
USGS	U.S. Geological Survey

TABLE J-1 (continued)

WATER QUALITY SAMPLES AT RIVERSIDE NARROWS
WATER YEAR 2014-15

Date Sampled	EC (microsiemens/cm)	TDS (mg/L)	Source of Data		Ratio	Average
06/03/15	1521	962	C of R	**	0.63	
06/10/15	1510	980	C of R	**	0.65	
06/11/15	1030	627	USGS		0.61	
06/17/15	1507	948	C of R	**	0.63	
06/24/15	1519	960	C of R	**	0.63	
06/24/15	1020	631	USGS		0.62	***629***
07/01/15	1476	944	C of R	**	0.64	
07/08/15	1517	980	C of R	**	0.65	
07/08/15	1040	659	USGS		0.63	
07/15/15	1531	966	C of R	**	0.63	
07/20/15	420	265	USGS	*	0.63	
07/22/15	1521	1008	C of R	**	0.66	
07/29/15	1530	1072	C of R	**	0.70	***659***
08/05/15	1536	978	C of R	**	0.64	
08/12/15	1528	980	C of R	**	0.64	
08/18/15	957	593	USGS		0.62	
08/19/15	1540	996	C of R	**	0.65	
08/26/15	1528	998	C of R	**	0.65	
08/28/15	970	623	USGS		0.64	***608***
09/02/15	1501	1004	C of R	**	0.67	
09/09/15	1510	1016	C of R	**	0.67	
09/16/15	1364	950	C of R	**	0.70	
09/16/15	813	506	USGS	*	0.62	
09/23/15	1506	1028	C of R	**	0.68	
09/28/15	1040	635	USGS		0.61	
09/30/15	1515	996	C of R	**	0.66	***635***

*	TDS data not used in determining monthly averages
**	City of Riverside data not used in determining monthly averages
C of R	City of Riverside
USGS	U.S. Geological Survey

APPENDIX K

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

WATER YEAR 2014-15

There was no discharge of WMWD Transfer Program water to the Santa Ana River above Riverside Narrows during the 2014-15 water year.