



August 27, 2010

Mr. Ken Manning
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730

Subject: Annual Streamflow Monitoring Report for Fiscal 2009/10, Water Rights Permit 21225

Dear Mr. Manning:

Wildermuth Environmental, Inc. (WEI) hereby submits the second Annual Streamflow Monitoring Report which was prepared at your direction and pursuant to Term 10 of Watermaster's Water Rights Permit 21225. Per the terms of the March 20, 2007 Stipulation, Watermaster and the California Department of Fish and Game have agreed that Watermaster will prepare estimates of the monthly changes in discharge in each tributary of the Santa Ana River from which stormwater is diverted, prepare annual reports describing the data and methods used to prepare these estimates, and submit these annual reports to the Department of Fish and Game by September 1 of each year. Each annual report will be prepared for the 12-month period running from July 1 through June 30. This report describes the data collected, the methodology for assessing impacts from stormwater diversions, and summarizes the diversion analysis for each tributary system for the period July 1, 2009 through June 30, 2010.

DATA COLLECTION AND METHODOLOGY

There are four main tributary systems to the Santa Ana River from which stormwater and dry-weather discharges are diverted for groundwater recharge: Chino Creek, Cucamonga Creek, Day Creek, and San Sevaine Creek. These creeks, their drainage areas, and other significant hydrologic features are shown in Figure 1.

Two of the four systems, Chino and Cucamonga, are equipped with USGS stream gages from which average daily discharge data are available. The data collected from the USGS gages, stormwater and dry-weather discharge diversions measured and reported by the Inland Empire Utilities Agency (IEUA), and discharge data collected from other known point discharges (e.g. recycled water discharges) are used to estimate the discharge of Chino and Cucamonga Creeks as they enter the Prado Dam Reservoir. These data are also used to reconstruct hydrographs for each tributary as they would have been without the stormwater and dry-weather discharge diversions.

Day Creek and San Sevaine Creek are not equipped with USGS gage stations. In lieu of measured discharge data, the hydrographs for these two systems were estimated using WEI's Waste Load Allocation Model (WLAM). The WLAM uses recharge basin and stream channel characteristics, daily precipitation, boundary inflows, and land use characteristics to collect and route stormwater, non-tributary, and dry-weather discharges through the Santa Ana River Watershed. The WLAM was developed for and is used by the Santa Ana Regional Water Quality Control Board to evaluate volumetric and water quality impacts from existing and planned recycled water discharges to the surface and groundwater resources of the watershed

(WEI, 2009). In addition, Watermaster used the WLAM to develop its Recharge Master Plan and continues to use it to estimate cumulative changes in surface water discharge (WEI, 2010).

Daily discharge tables for key hydrologic components and for the aggregate of hydrologic components have been included in the appendices.

DISCHARGE IMPACT ANALYSIS

During fiscal 2009/10, Watermaster diverted a total of 14,285 acre-feet (acre-ft) of stormwater and dry-weather discharge to spreading basins on the Chino, Cucamonga, Day, and San Sevaine tributary systems. Table 1 summarizes, by tributary, the monthly recharge volumes diverted to each spreading basin. The impacts of these diversions are analyzed below.

Chino Creek

Figure 1 shows the locations of significant points of recharge and discharge on the Chino Creek tributary system, including Watermaster's points of diversion to recharge basins, USGS gaging stations, and IEUA's recycled water discharges. The impact of Watermaster's diversions on discharge to the Prado Dam Reservoir is assessed at the point on Chino Creek where recycled water from the IEUA RP1 recycling plant discharges to Chino Creek¹ (see *Point of Discharge Estimation* on Figure 1). Estimated average daily discharge entering the Prado Dam Reservoir from Chino Creek is calculated from the average daily discharge measured at USGS gage 11073360 plus the average daily discharge from each of IEUA's recycled water discharge points (Carbon Canyon, RP1-Prado, and RP5). These discharges are summarized in rows 1 and 2 of Table 2a and are shown in detail in Appendices A1 and A2. The resulting daily discharge time history, summarized in row 3 of Table 2a and shown in detail in Appendix A3, approximates actual daily discharge in Chino Creek after Watermaster's diversions. Note that this estimation does not account for additional stormwater inputs generated by the Chino Creek drainage area located south of USGS gage 11073360. This area covers 23.75 square miles and represents about 26 percent of the total Chino Creek drainage. Thus, the relative impact of Watermaster's diversions is overstated.

The time history of stormwater and dry-weather discharge diversions is summarized in row 4 of Table 2a and is shown in detail in Appendix A4. When added together, the daily discharge time histories from Appendices A3 and A4 yield the approximate daily discharge time history in Chino Creek had Watermaster not diverted stormwater and dry-weather flows for recharge. The discharge time history without stormwater diversions is summarized in row 5 of Table 2a and is shown in detail in Appendix A5. The percent reduction in discharge entering the Prado Dam Reservoir relative to the estimated discharge without Watermaster diversions is summarized in row 6 of Table 2a.

The total discharge entering the Prado Dam Reservoir from Chino Creek during fiscal 2009/10 was estimated to be about 29,400 acre-ft, ranging from a low of about 1,500 acre-ft/month to a high of about 5,800 acre-ft/month. The total diversions from Chino Creek were estimated to be about 2,200 acre-ft. Most of the diversions occurred during the period of December through April and were coincident with the larger storm events of the year. About 7 percent of the total discharge in Chino Creek was diverted for recharge in fiscal 2009/10. Total discharge to the Prado Dam Reservoir is shown in Figure 2a as a stacked bar chart for monthly totals (acre-ft) and an x-y plot for the average daily discharge (cubic feet per second [cfs]). Figure 2a illustrates

¹ Note that the IEUA RP1 recycling plant has two discharge locations: one to Chino Creek (RP1-Prado) and one to Cucamonga Creek (RP1-Cucamonga).

that the relative magnitude of the stormwater diversions for recharge are small compared with the total estimated discharge entering the Prado Dam Reservoir. Figure 2a also shows that the vast majority of recharge results from just a few short-duration, high-volume stormwater events.

Cucamonga Creek

Figure 1 shows the location of significant points of recharge and discharge on the Cucamonga Creek tributary system, including Watermaster's points of diversion to recharge basins, USGS gaging stations, and IEUA's recycled water discharges. The impact of Watermaster's diversions on discharge to the Santa Ana River at the Prado Dam Reservoir is assessed at the point where the concrete-lined channel of Cucamonga Creek ends (see *Point of Discharge Estimation* on Figure 1). Average daily discharge entering the Prado Dam Reservoir from Cucamonga Creek is approximated as the average daily discharge measured at USGS gage 11073495. The estimated discharge time history is summarized in row 1 of Table 2b and is shown in detail in Appendix B1. Note that this estimation does not account for additional stormwater inputs generated by the Cucamonga Creek drainage area located south of USGS gage 11073495. This area covers 13.42 square miles and represents about 15 percent of the total Cucamonga Creek drainage. Thus, the relative impact of Watermaster's diversions is overstated.

The time history of stormwater and dry-weather discharge diversions is summarized in row 2 of Table 2b and is shown in detail in Appendix B2. When added together, the daily discharge time histories from Appendices B1 and B2 yield the approximate daily discharge time history in Cucamonga Creek had Watermaster not diverted stormwater and dry-weather flows for recharge. The discharge time history without Watermaster diversions is summarized in row 3 of Table 2b and is shown in detail in Appendix B3. The percent reduction in discharge entering the Prado Dam Reservoir relative to the estimated discharge without Watermaster diversions is summarized in row 4 of Table 2b.

The total discharge entering the Prado Dam Reservoir from Cucamonga Creek during fiscal 2009/10 was estimated to be about 37,600 acre-ft, ranging from a low of about 400 acre-ft/month to a high of about 11,400 acre-ft/month. The total diversions from Cucamonga Creek were estimated to be about 5,500 acre-ft. Most of the diversions occurred during the period of December through April and were coincident with the larger storm events of the year. About 13 percent of the total discharge in Cucamonga Creek was diverted for recharge in fiscal 2009/10. Total discharge to the Prado Dam Reservoir is shown in Figure 2b as a stacked bar chart for monthly totals (acre-ft) and an x-y plot for average daily discharge (cfs). Figure 2b illustrates that the relative magnitude of the stormwater diversions for recharge are small compared with the total estimated discharge entering the Prado Dam Reservoir. Figure 2b also shows that the vast majority of recharge results from just a few short-duration, high-volume stormwater events.

Day Creek

Figure 1 shows the locations of significant points of recharge and discharge on the Day Creek tributary system, including Watermaster's points of diversion to recharge basins and the confluence of the Day Creek with the Santa Ana River (see *Point of Discharge Estimation* on Figure 1). Average daily discharge to the Santa Ana River from Day Creek is simulated using the WLAM. The simulated daily discharge represents the discharge to the Santa Ana River without stormwater and dry-weather diversions for recharge. The discharge time history simulated by the WLAM is summarized in row 1 of Table 2c and is shown in detail in Appendix C1.

The time history of stormwater and dry-weather discharge diversions is summarized in row 2 of Table 2a and is shown in detail in Appendix C2. Subtracting the daily diversion time history of Appendix C2 from the daily discharge time history of Appendix C1 yields an estimated time history of average daily discharge from Day Creek to the Santa Ana River after Watermaster diversions.² This discharge time history is summarized in row 3 of Table 2c and shown in detail in Appendix C3. The percent reduction in discharge entering the Santa Ana River relative to the simulated discharge without Watermaster diversions is summarized in row 4 of Table 2c. Table 2c (row 5) also shows a summary of the discharge measured at USGS gage 11064600, the closest gage on the Santa Ana River upstream of the confluence with Day Creek (see Figure 1). The percent reduction in discharge from Day Creek relative to discharge in the Santa Ana River is summarized in row 6 of Table 2c.

Total discharge to the Santa Ana River from Day Creek during fiscal 2009/10 was estimated to be about 8,062 acre-ft, ranging from a low of 0 acre-ft/month to a high of about 3,553 acre-ft/month. The total diversions from Day Creek were estimated to be about 1,800 acre-ft. Most of the diversions occurred during the period of December through April and were coincident with the larger storm events of the year. About 17 percent of the total discharge in Day Creek was diverted for recharge in fiscal 2009/10. The percent reduction in discharge in Day Creek relative to discharge in the Santa Ana River, as represented at USGS gage 11064600, is about 1.5 percent. Total discharge is shown in Figure 2c as a stacked bar chart for monthly totals (acre-ft) and an x-y plot for average daily discharge (cfs). Figure 2c illustrates that the vast majority of recharge results from just a few short-duration, high-volume stormwater events.

San Sevaine Creek

Figure 1 shows the locations of significant points of recharge and discharge on the San Sevaine Creek tributary system, including Watermaster's points of diversion and the confluence of the San Sevaine Creek with the Santa Ana River (*Point of Discharge Estimation* on Figure 1). Average daily discharge to the Santa Ana River from San Sevaine Creek is simulated using the WLAM. The simulated daily discharge represents the discharge to the Santa Ana River without stormwater and dry-weather diversions for recharge. The discharge time history simulated by the WLAM is summarized in row 1 of Table 2d and shown in detail in Appendix D1.

The time history of stormwater and dry-weather discharge diversions is summarized in row 2 of Table 2d and shown in detail in Appendix D2. Subtracting the daily diversion time history of Appendix D2 from the daily discharge time history of Appendix D1 yields an estimated time history of daily discharge from San Sevaine Creek to the Santa Ana River after Watermaster diversions.² This discharge time history is summarized in row 3 of Table 2d and shown in detail in Appendix D3. The percent reduction in discharge entering the Santa Ana River relative to the estimated discharge of San Sevaine Creek without Watermaster diversions is summarized in row 4 of Table 2d. Table 2d (row 5) also shows a summary of the discharge measured at USGS gage 11064600, the closest gage on the Santa Ana River upstream of the confluence with San Sevaine Creek (see Figure 1). The percent reduction in discharge from San Sevaine Creek relative to discharge in the Santa Ana River is summarized in row 6 of Table 2d.

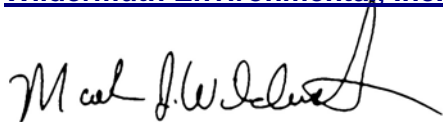
² Note that the WLAM does not simulate dry-weather flows on the Day Creek or San Sevaine Creek tributary systems. Thus, there will be dates where the simulated discharge to the Santa Ana River without diversions is zero even though measured diversions from Day Creek or San Sevaine were greater than zero on those same dates. For those dates where WLAM simulated discharge to the Santa Ana River without diversions is zero and diversions from Day or San Sevaine Creeks are greater than zero, the calculated average daily flow after diversions is set to zero because discharge cannot be a negative number.

Total discharge to the Santa Ana River from San Sevaine Creek during fiscal 2009/10 was estimated to be about 5,000 acre-ft, ranging from a low of 0 acre-ft/month to a high of about 2,800 acre-ft/month. The total diversions from San Sevaine Creek were estimated to be about 4,800 acre-ft. Most of the diversions occurred during the period of December through April and were coincident with the larger storm events of the year. About 38 percent of the total discharge in San Sevaine Creek was diverted for recharge in fiscal 2009/10. The percent reduction in discharge in San Sevaine Creek relative to discharge in the Santa Ana River, as represented at USGS gage 11064600, is about 3 percent. Total discharge is shown in Figure 2d as a stacked bar chart for monthly totals (acre-ft) and an x-y plot for average daily discharge (cfs). Figure 2d illustrates that the vast majority of recharge results from just a few short-duration, high-volume stormwater events.

Should you have any questions regarding the information contained herein, please call me or Samantha Adams at (949) 420-3030.

Respectfully,

[Wildermuth Environmental, Inc.](#)



Mark J. Wildermuth, MS, RCE 32331 (exp 12/31/2010)
Chairman



Samantha Adams
Senior Scientist

Encl. Tables 1, 2a through 2d; Figures 1 and 2a through 2d; and Appendices A through D

REFERENCES

Wildermuth Environmental, Inc. (2009). *2008 Santa Ana River Wasteload Allocation Model Report*. Prepared for the Basin Monitoring Program Task Force. May, 2009.

Wildermuth Environmental, Inc, Black & Veatch Corporation, Wagner & Bonsignore, and Sierra Water Group. (2010). *2010 Recharge Master Plan Update*. Prepared for the Chino Basin Watermaster, Chino Basin Water Conservation District, and the Inland Empire Utilities Agency. June, 2010.

Table 1
Total Monthly Stormwater Recharge¹ -- FY 2009/10
(acre-ft)

Tributary System	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Chino Creek													
College Heights	0	0	0	0	0	0	58	7	0	0	0	0	65
Upland	0	0	0	12	0	102	212	168	13	25	0	0	532
Montclair	0	0	0	19	7	118	447	279	30	36	0	0	936
Brooks	1	0	0	13	4	129	251	215	27	23	2	1	666
<i>Tributary Total</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>44</i>	<i>11</i>	<i>349</i>	<i>968</i>	<i>669</i>	<i>70</i>	<i>84</i>	<i>2</i>	<i>1</i>	<i>2,199</i>
Cucamonga Creek													
7th and 8th	19	33	18	74	90	303	387	474	73	206	34	33	1,744
Ely	0	21	17	131	78	215	319	221	45	109	22	0	1,178
Turner 1&2	33	19	29	77	49	403	293	329	35	158	38	0	1,463
Turner 3&4	0	0	0	0	3	99	185	175	111	83	27	75	757
Grove	0	0	0	8	25	127	59	71	17	43	0	0	352
<i>Tributary Total</i>	<i>52</i>	<i>73</i>	<i>64</i>	<i>291</i>	<i>245</i>	<i>1,147</i>	<i>1,244</i>	<i>1,270</i>	<i>281</i>	<i>600</i>	<i>121</i>	<i>108</i>	<i>5,494</i>
Day Creek													
Lower Day	2	3	0	8	11	117	237	146	5	10	1	1	540
Etiwanda Debris	0	0	0	0	17	38	387	278	27	28	0	0	775
Victoria	1	0	0	37	19	89	153	172	2	20	1	1	494
<i>Tributary Total</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>45</i>	<i>47</i>	<i>243</i>	<i>778</i>	<i>596</i>	<i>35</i>	<i>57</i>	<i>2</i>	<i>2</i>	<i>1,809</i>
San Sevaine Creek													
San Sevaine	0	0	0	55	21	334	290	224	16	53	0	0	993
Hickory	10	3	3	24	26	158	214	200	17	44	0	0	699
Banana	0	0	0	15	0	75	100	143	17	66	0	0	416
RP3	22	31	36	122	101	376	522	377	96	130	49	40	1,902
Decléz	22	17	5	15	39	173	73	241	55	122	6	5	773
<i>Tributary Total</i>	<i>53</i>	<i>51</i>	<i>44</i>	<i>232</i>	<i>188</i>	<i>1,115</i>	<i>1,199</i>	<i>1,184</i>	<i>201</i>	<i>415</i>	<i>55</i>	<i>46</i>	<i>4,783</i>
Grand Total	108	127	108	612	490	2,855	4,189	3,718	587	1,155	180	157	14,285

1--Recharge volumes represent diversions of both stormwater and local runoff

Table 2a
Impact of Stormwater Diversions on Total Monthly Discharge Entering the Prado Dam Reservoir from Chino Creek for FY 2009/10
 (acre-ft)

Row	Dicharge Components	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Total
(1)	Discharge in Chino Creek at USGS Gage 11073360	47	44	41	139	89	834	3,729	2,477	208	304	98	56	8,067
(2)	Recycled Water Discharges from IEUA's Carbon Canyon, RP-5, and RP1-Prado	1,489	1,566	1,428	1,878	1,932	2,173	2,079	1,949	1,877	1,872	1,657	1,427	21,328
(3) = (1) + (2)	Estimated Discharge Entering the Prado Dam Reservoir	1,536	1,610	1,469	2,017	2,021	3,007	5,808	4,426	2,086	2,176	1,755	1,483	29,395
(4)	Stormwater and Dry-Weather Discharge Diversions	1	0	0	44	11	349	968	669	70	84	2	1	2,199
(5) = (3) + (4)	Estimated Discharge that would have Entered the Prado Dam Reservoir <i>without</i> Stormwater and Dry-Weather Diversions	1,537	1,610	1,469	2,061	2,032	3,357	6,776	5,095	2,155	2,260	1,757	1,484	31,594
(6) = (4) / (5)	Percent Reduction in Discharge Entering the Prado Dam Reservoir Relative to the Estimated Discharge <i>without</i> Diversions	0.1%	0.0%	0.0%	2.1%	0.5%	10.4%	14.3%	13.1%	3.2%	3.7%	0.1%	0.1%	7.0%

Table 2b
Impact of Stormwater Diversions on Total Monthly Discharge Entering the Prado Dam Reservoir from Cucamonga Creek for FY 2009/10
(acre-ft)

Row	Discharge Components	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Total
(1)	Discharge Entering the Prado Dam Reservoir after Stormwater and Dry-Weather Diversions (USGS Gage 11073495)	808	883	1,117	1,285	1,677	5,183	11,391	9,057	3,265	1,984	623	369	37,642
(2)	Stormwater and Dry-Weather Discharge Diversions	52	73	64	291	245	1,147	1,244	1,270	281	600	121	108	5,494
(3) = (1) + (2)	Estimated Discharge that would have Entered the Prado Dam Reservoir <i>without</i> Stormwater and Dry-Weather Diversions	860	956	1,181	1,575	1,922	6,330	12,635	10,326	3,546	2,584	744	477	43,136
(4) = (2) / (3)	Percent Reduction in Discharge Entering the Prado Dam Reservoir Relative to the Estimated Discharge <i>without</i> Diversions	6.06%	7.60%	5.38%	18.46%	12.74%	18.12%	9.84%	12.30%	7.92%	23.21%	16.28%	22.63%	12.74%

Table 2c
Impact of Stormwater Diversions on Total Monthly Discharge Entering the Santa Ana River from Day Creek for FY 2009/10
 (acre-ft)

Row	Discharge Components	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Total
(1)	Discharge Entering the Santa Ana River <u>without</u> Stormwater and Dry-Weather Diversions ¹	0	0	0	9	8	1,611	4,332	2,683	568	455	0	0	9,666
(2)	Stormwater and Dry-Weather Discharge Diversions	2	3	0	45	47	243	778	596	35	57	2	2	1,809
(3) ²	Estimated Discharge Entering the Prado Dam Reservoir after Stormwater and Dry-Weather Diversions	0	0	0	6	0	1,423	3,553	2,135	524	400	0	0	8,041
(4) ³	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge <u>without</u> Diversions	0%	0%	0%	30%	100%	12%	18%	20%	8%	12%	0%	0%	17%
(5)	Discharge in the Santa Ana river at USGS Gage 110664600	3,136	2,727	2,340	3,138	3,092	13,176	45,725	17,038	6,079	5,036	3,485	3,156	108,129
(6) ⁴	Precent Reduction in Discharge Entering the Santa Ana River Relative to Discharge at 110664600	0.0%	0.0%	0.0%	0.1%	0.3%	1.4%	1.7%	3.2%	0.7%	1.1%	0.0%	0.0%	1.5%

1--Simulated using the WLAM

2--Calculated on a daily basis, (3) = (1) - (2). For those dates where WLAM simulated discharge to the Santa Ana River without diversions is 0 and diversions from Day Creek are greater than zero, the calculated average daily flow after diversions is set to zero because discharge cannot be negative.

3-- (4) = [(1) - (3)] / (1)

4-- (6) = [(1) - (3)] / (5)

Table 2d
Impact of Stormwater Diversions on Total Monthly Discharge Entering the Santa Ana River from San Sevaine Creek for FY 2009/10
 (acre-ft)

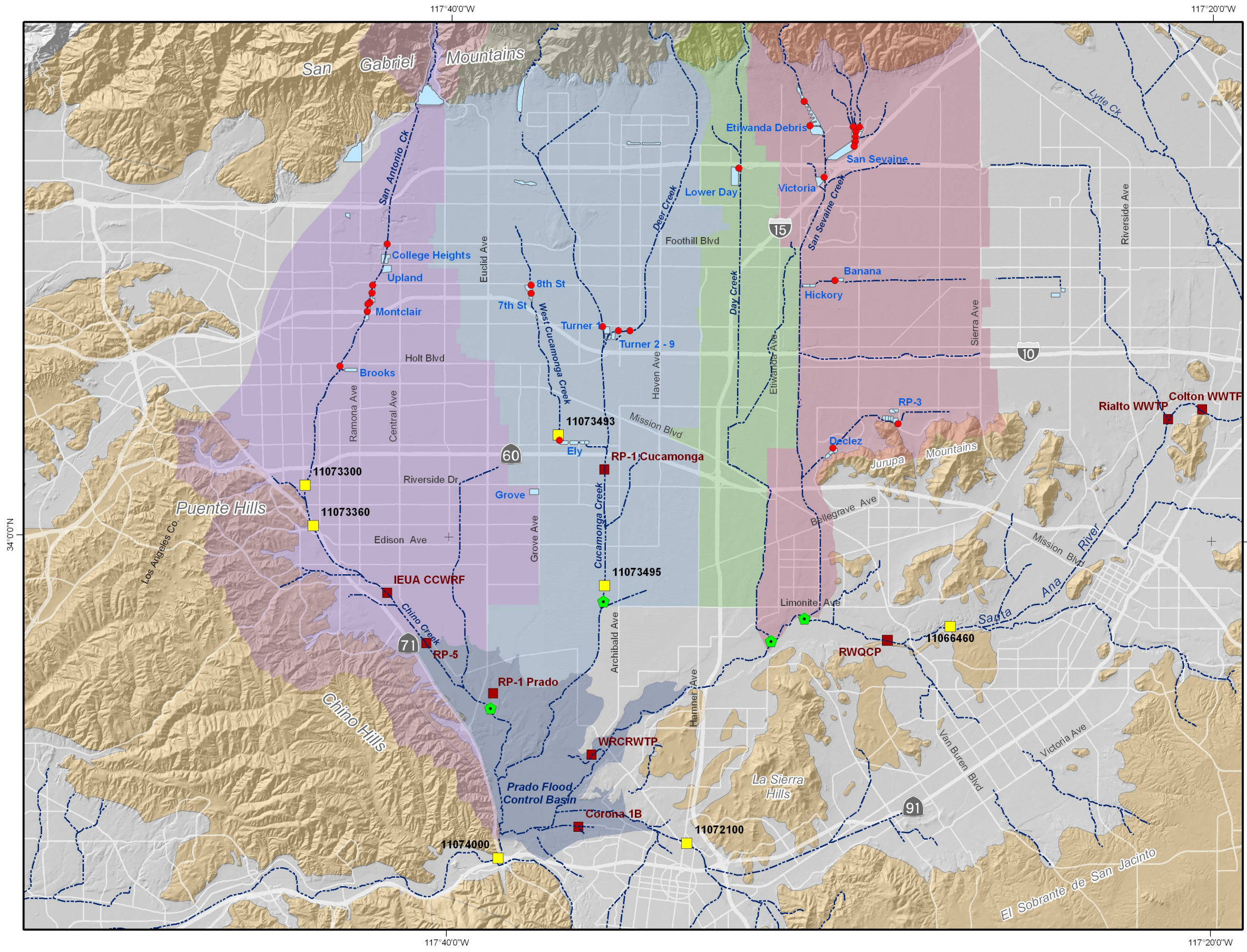
Row	Discharge Components	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10	Total
(1)	Discharge Entering the Santa Ana River <u>without</u> Stormwater and Dry-Weather Diversions ¹	0	0	0	79	59	1,466	3,892	2,154	95	313	0	0	8,056
(2)	Stormwater and Dry-Weather Discharge Diversions	53	51	44	232	188	1,115	1,199	1,184	201	415	55	46	4,783
(3) ²	Estimated Discharge Entering the Prado Dam Reservoir after Stormwater and Dry-Weather Diversions	0	0	0	45	0	715	2,802	1,200	2	215	0	0	4,979
(4) ³	Percent Reduction in Discharge Entering the Santa Ana River Relative to Discharge <u>without</u> Diversions	0%	0%	0%	43%	100%	51%	28%	44%	98%	31%	0%	0%	38%
(5)	Discharge in the Santa Ana river at USGS Gage 110664600	3,136	2,727	2,340	3,138	3,092	13,176	45,725	17,038	6,079	5,036	3,485	3,156	108,129
(6) ⁴	Precent Reduction in Discharge Entering the Santa Ana River Relative to Discharge at 110664600	0.0%	0.0%	0.0%	1.1%	1.9%	5.7%	2.4%	5.6%	1.5%	2.0%	0.0%	0.0%	2.8%

1--Simulated using the WLAM

2--Calculated on a daily basis, (3) = (1) - (2). For those dates where WLAM simulated discharge to the Santa Ana River without diversions is 0 and diversions from Day Creek are greater than zero, the calculated average daily flow after diversions is set to zero because discharge cannot be negative.

3-- (4) = [(1) - (3)] / (1)

4-- (6) = [(1) - (3)] / (5)



- ### Main Map Features
- Flood Control and Conservation Basins
 - Rivers and Streams
 - Active Points of Diversion
 - USGS Gaging Station
 - Recycled Water Discharge Location
 - Points of Discharge Estimation

- ### Drainage Areas
- Chino Creek System
 - Cucamonga Creek System
 - Day Creek System
 - San Sevaine and Etiwanda Creek Systems
 - Prado Dam Reservoir

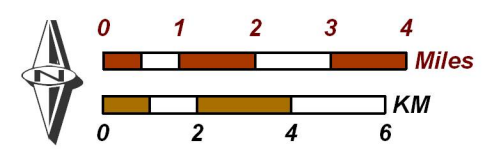
- ### Geology
- Water-Bearing Sediments*
- Quaternary Alluvium
- Consolidated Bedrock*
- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks



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Author: SSA
 Date: 20100809
 File: 20090820_Diversions.mxd



Stormwater Recharge Points of Diversion Water Rights Permit 21225

Figure 1

Figure 2a
Estimated Discharge from Chino Creek to Prado Dam Reservoir
with and without Stormwater Diversions

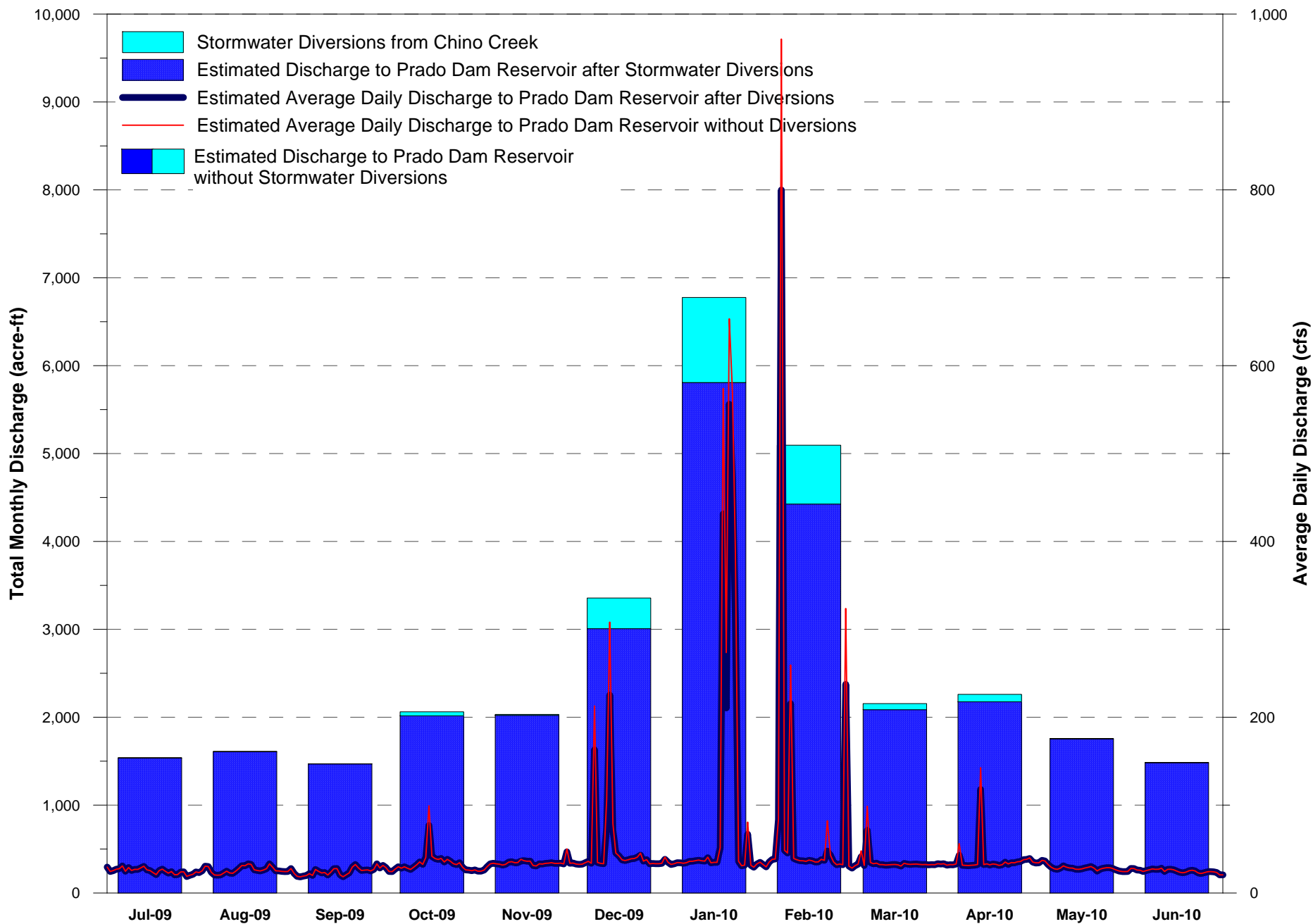


Figure 2b
Estimated Discharge from Cucamonga Creek to Prado Dam Reservoir
with and without Stormwater Diversions

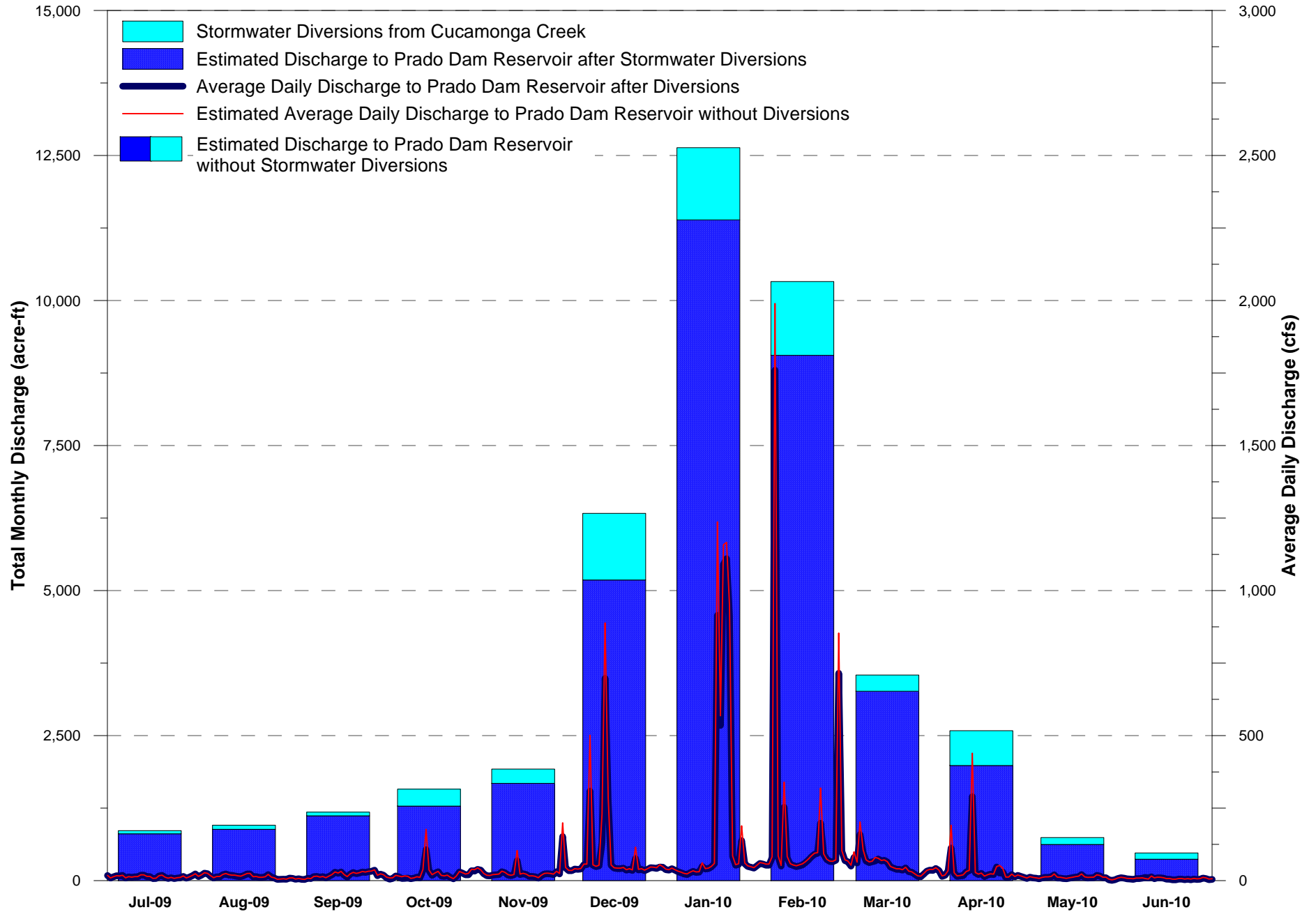


Figure 2c
Estimated Discharge from Day Creek to the Santa Ana River
with and without Stormwater Diversions

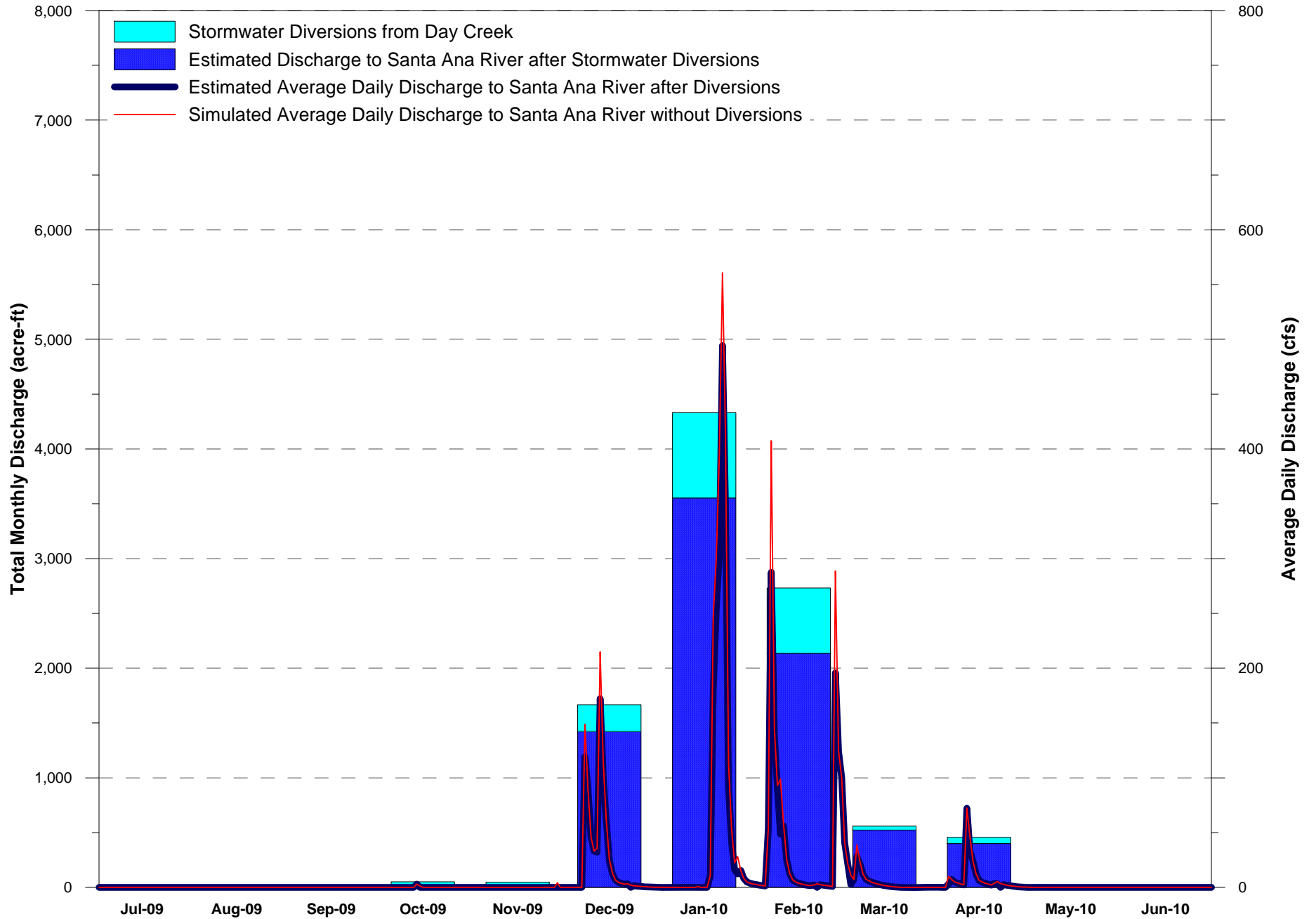
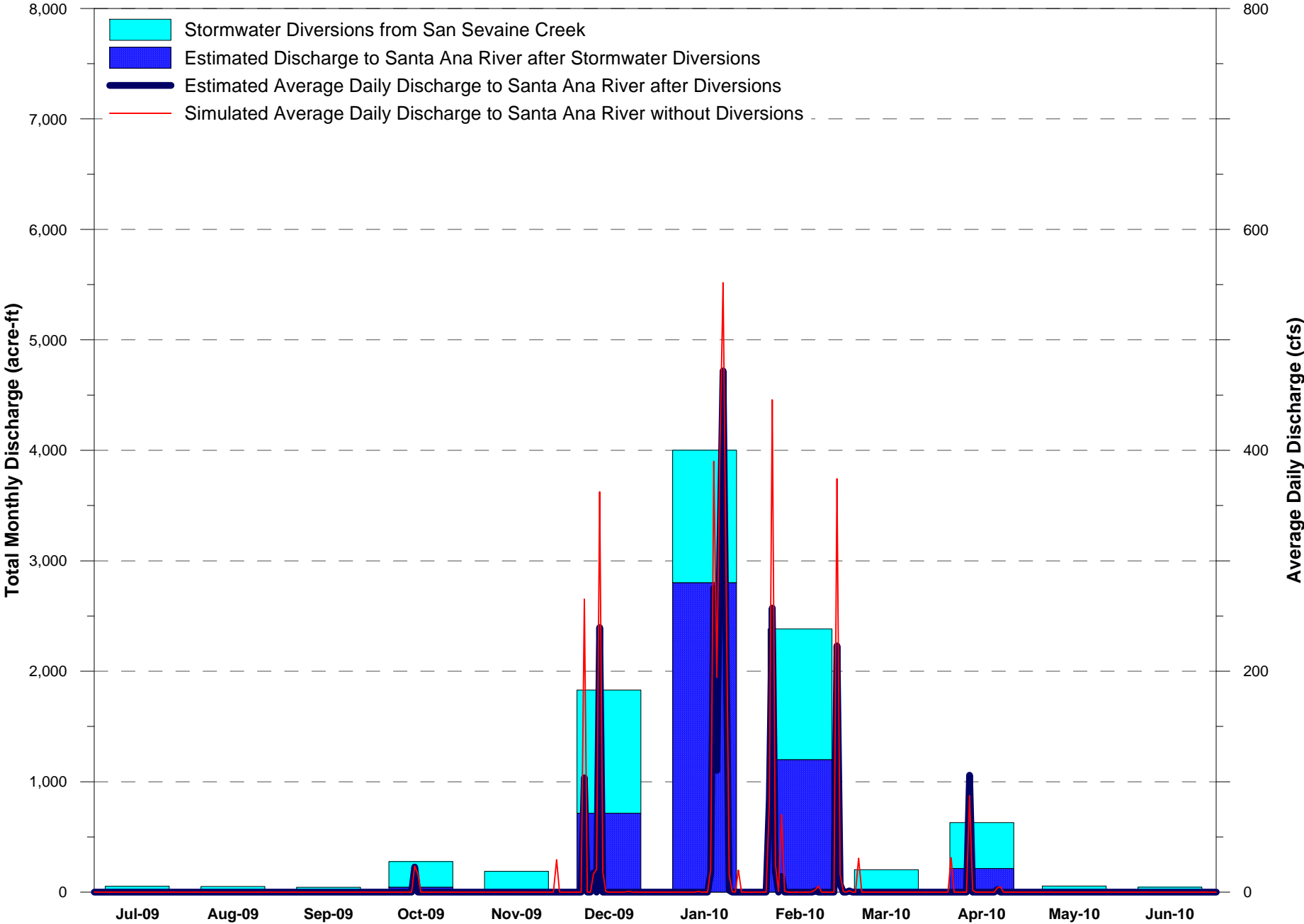


Figure 2d
Estimated Discharge from San Sevaine Creek to the Santa Ana River
with and without Stormwater Diversions



Appendix A1
Average Daily Discharge at USGS Gage 11073360 on Chino Creek
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.63	0.70	0.74	0.76	1.10	1.00	0.95	0.95	2.00	1.70	1.70	1.30
2	0.69	0.71	0.80	0.87	1.10	1.00	0.96	1.10	2.50	1.80	1.70	1.30
3	0.77	0.77	0.69	0.84	1.20	1.00	0.88	0.90	1.70	1.90	1.80	1.40
4	0.71	0.71	0.67	0.77	1.10	1.00	0.82	0.88	9.20	2.20	1.90	1.10
5	0.71	0.75	0.67	0.83	0.95	0.94	0.83	44.00	1.70	12.00	2.00	0.95
6	0.72	0.69	0.68	0.78	1.10	0.94	0.86	753.00	41.00	1.40	1.70	0.95
7	0.85	0.71	0.69	0.83	0.98	128.00	0.84	5.40	3.50	1.50	1.80	0.99
8	0.75	0.71	0.68	0.77	1.20	1.50	0.84	2.80	1.80	1.70	1.70	0.95
9	0.72	0.71	0.71	0.83	1.00	1.30	0.77	175.00	3.00	1.60	1.50	0.91
10	0.69	0.71	0.73	0.76	0.96	0.92	0.76	5.20	1.50	1.60	1.40	0.86
11	0.78	0.72	0.71	0.74	0.98	42.00	0.82	2.40	1.70	1.50	1.50	0.93
12	0.72	0.75	0.69	0.76	0.97	187.00	0.81	2.10	1.60	86.00	1.50	0.86
13	0.75	0.72	0.67	5.60	1.80	26.00	7.30	2.10	1.60	1.90	1.70	0.86
14	0.75	0.76	0.67	37.00	0.89	1.80	0.91	1.90	1.60	1.80	1.60	1.10
15	0.89	0.61	0.68	1.50	0.89	1.40	0.89	1.80	1.70	1.80	1.60	0.96
16	0.74	0.60	0.68	1.30	0.94	1.50	0.86	1.80	1.80	1.70	1.50	1.00
17	0.80	0.62	0.69	1.20	1.00	1.10	17.00	1.90	1.80	1.60	1.50	0.92
18	0.72	0.61	0.70	1.10	0.97	1.10	393.00	1.80	1.80	1.60	1.70	0.93
19	0.69	0.62	0.69	1.10	0.97	1.10	172.00	4.00	1.80	1.60	1.70	0.81
20	0.78	0.58	0.70	1.10	0.97	1.00	521.00	3.40	1.80	3.70	1.60	0.80
21	0.78	0.68	0.75	1.00	1.00	1.00	430.00	13.00	1.80	1.60	2.00	0.81
22	0.82	0.67	0.69	1.00	0.93	3.80	272.00	7.80	1.80	3.40	1.50	0.66
23	1.00	0.68	0.71	1.00	0.97	1.00	5.30	1.70	1.90	1.60	1.40	0.76
24	0.95	0.72	0.63	0.97	1.00	0.97	2.30	1.80	1.80	1.60	1.60	0.70
25	0.94	0.72	0.63	0.98	0.98	1.00	2.00	1.70	1.70	1.90	1.60	0.71
26	1.10	0.69	0.63	1.00	0.98	0.97	38.00	1.60	1.80	1.80	1.50	2.20
27	0.76	0.80	0.62	1.00	0.99	0.95	2.70	206.00	1.80	1.70	1.40	0.62
28	0.68	0.80	0.69	0.87	15.00	0.96	1.40	2.90	1.70	5.60	1.40	0.61
29	0.67	0.81	0.59	0.90	1.00	1.10	1.10		1.90	1.70	1.30	0.65
30	0.68	0.80	0.72	0.91	1.10	5.90	1.10		1.80	1.80	1.40	0.69
31	0.69	0.85		0.99		1.30	0.94		1.90		1.40	
Total (cfs-days)	23.93	21.98	20.60	70.06	45.02	420.55	1879.94	1248.93	105.00	153.30	49.60	28.29
Min	0.63	0.58	0.59	0.74	0.89	0.92	0.76	0.88	1.50	1.40	1.30	0.61
Max	1.10	0.85	0.80	37.00	15.00	187.00	521.00	753.00	41.00	86.00	2.00	2.20
Avg	0.77	0.71	0.69	2.26	1.50	13.57	60.64	44.60	3.39	5.11	1.60	0.94
Total (acre-ft)	47	44	41	139	89	834	3,729	2,477	208	304	98	56

Appendix A2
Average Daily Discharge of Recycled Water Effluent to Chino Creek

(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	29.06	24.51	18.18	23.74	25.13	31.89	31.55	28.69	26.33	29.93	32.60	26.51
2	23.72	29.80	17.47	23.38	28.81	31.60	32.30	34.13	28.54	30.42	35.58	24.83
3	24.69	29.35	18.52	26.38	32.03	31.81	33.61	37.33	31.07	30.11	34.70	24.40
4	26.33	22.87	19.10	29.10	32.72	33.44	33.54	37.85	32.07	30.72	30.40	23.30
5	27.00	19.77	21.32	27.25	32.35	35.07	33.02	39.47	29.56	30.88	27.35	24.58
6	30.04	19.62	19.39	29.09	31.61	32.91	33.54	46.86	30.39	30.18	25.79	25.55
7	23.88	19.68	26.12	27.33	30.88	34.91	35.09	43.14	31.23	29.80	25.07	26.45
8	28.10	21.92	23.95	26.01	31.41	33.31	35.28	42.68	31.48	29.40	26.61	25.93
9	24.96	24.18	22.03	28.40	34.13	32.44	35.99	40.37	30.97	29.77	29.44	26.09
10	26.18	21.97	22.71	31.20	34.69	32.39	36.53	34.17	30.71	30.16	27.89	27.23
11	25.97	21.66	19.71	34.67	33.54	32.80	35.81	35.38	30.57	30.82	26.97	23.48
12	27.95	24.10	23.23	31.92	33.59	38.28	35.50	34.68	30.16	31.83	26.73	26.05
13	29.62	27.25	27.09	34.91	34.56	45.69	32.87	34.54	30.31	30.38	25.38	26.22
14	25.57	30.39	27.15	39.88	35.91	43.73	33.36	34.07	30.70	31.37	25.29	25.40
15	24.85	30.51	19.87	40.37	35.31	40.69	33.98	35.47	30.75	30.10	25.81	23.92
16	22.43	32.66	17.71	37.97	35.31	36.14	34.04	34.74	30.10	31.27	26.95	22.48
17	20.05	32.07	20.03	36.88	30.23	35.89	34.34	33.35	28.76	30.89	27.70	22.13
18	24.79	25.86	22.22	38.24	29.83	36.67	38.38	33.57	31.94	29.75	28.40	22.95
19	26.47	25.00	28.86	34.10	32.24	37.85	38.40	33.77	31.14	30.49	26.39	24.56
20	24.03	24.49	31.77	37.25	32.03	38.26	35.15	33.78	30.73	31.38	23.40	25.08
21	21.81	25.45	27.65	35.11	32.64	39.80	43.03	34.75	30.91	30.89	25.23	24.21
22	23.56	27.07	25.07	32.35	33.08	39.35	40.82	34.98	31.11	31.08	26.44	22.15
23	19.68	32.53	25.26	31.25	33.56	35.29	30.77	33.59	30.71	32.64	27.51	21.53
24	20.01	28.74	25.65	33.54	32.70	37.05	28.67	30.37	30.45	33.83	27.06	22.49
25	22.98	24.46	24.46	28.30	32.74	32.30	29.69	31.16	30.70	33.87	26.57	23.43
26	23.01	24.37	26.09	25.25	33.00	32.60	28.78	30.56	30.16	36.14	24.92	22.16
27	18.07	23.82	32.62	25.03	32.13	32.47	28.83	31.43	30.50	36.43	23.75	23.60
28	19.54	23.49	27.80	24.56	31.82	32.44	27.93	27.65	30.44	33.56	23.00	22.82
29	20.53	23.60	30.76	25.48	32.86	32.54	31.89		31.42	33.33	22.99	19.98
30	23.28	27.01	28.24	23.94	33.10	32.42	33.89		31.12	32.39	22.99	19.97
31	22.55	21.42		23.93		33.68	31.49		31.43		26.55	
Total (cfs-days)	750.71	789.62	720.03	946.81	973.94	1095.71	1048.07	982.53	946.46	943.81	835.46	719.48
Min	18.07	19.62	17.47	23.38	25.13	31.60	27.93	27.65	26.33	29.40	22.99	19.97
Max	30.04	32.66	32.62	40.37	35.91	45.69	43.03	46.86	32.07	36.43	35.58	27.23
Avg	24.22	25.47	24.00	30.54	32.46	35.35	33.81	35.09	30.53	31.46	26.95	23.98
Total (acre-ft)	1,489	1,566	1,428	1,878	1,932	2,173	2,079	1,949	1,877	1,872	1,657	1,427

Appendix A3
Estimated Average Daily Discharge from Chino Creek to Prado Dam Reservoir
after Watermaster Diversions
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	29.69	25.21	18.92	24.50	26.23	32.89	32.50	29.64	28.33	31.63	34.30	27.81
2	24.41	30.51	18.27	24.25	29.91	32.60	33.26	35.23	31.04	32.22	37.28	26.13
3	25.46	30.12	19.21	27.22	33.23	32.81	34.49	38.23	32.77	32.01	36.50	25.80
4	27.04	23.58	19.77	29.87	33.82	34.44	34.36	38.73	41.27	32.92	32.30	24.40
5	27.71	20.52	21.99	28.08	33.30	36.01	33.85	83.47	31.26	42.88	29.35	25.53
6	30.76	20.31	20.07	29.87	32.71	33.85	34.40	799.86	71.39	31.58	27.49	26.50
7	24.73	20.39	26.81	28.16	31.86	162.91	35.93	48.54	34.73	31.30	26.87	27.44
8	28.85	22.63	24.63	26.78	32.61	34.81	36.12	45.48	33.28	31.10	28.31	26.88
9	25.68	24.89	22.74	29.23	35.13	33.74	36.76	215.37	33.97	31.37	30.94	27.00
10	26.87	22.68	23.44	31.96	35.65	33.31	37.29	39.37	32.21	31.76	29.29	28.09
11	26.75	22.38	20.42	35.41	34.52	74.80	36.63	37.78	32.27	32.32	28.47	24.41
12	28.67	24.85	23.92	32.68	34.56	225.28	36.31	36.78	31.76	117.83	28.23	26.91
13	30.37	27.97	27.76	40.51	36.36	71.69	40.17	36.64	31.91	32.28	27.08	27.08
14	26.32	31.15	27.82	76.88	36.80	45.53	34.27	35.97	32.30	33.17	26.89	26.50
15	25.74	31.12	20.55	41.87	36.20	42.09	34.87	37.27	32.45	31.90	27.41	24.88
16	23.17	33.26	18.39	39.27	36.25	37.64	34.90	36.54	31.90	32.97	28.45	23.48
17	20.85	32.69	20.72	38.08	31.23	36.99	51.34	35.25	30.56	32.49	29.20	23.05
18	25.51	26.47	22.92	39.34	30.80	37.77	431.38	35.37	33.74	31.35	30.10	23.88
19	27.16	25.62	29.55	35.20	33.21	38.95	210.40	37.77	32.94	32.09	28.09	25.37
20	24.81	25.07	32.47	38.35	33.00	39.26	556.15	37.18	32.53	35.08	25.00	25.88
21	22.59	26.13	28.40	36.11	33.64	40.80	473.03	47.75	32.71	32.49	27.23	25.02
22	24.38	27.74	25.76	33.35	34.01	43.15	312.82	42.78	32.91	34.48	27.94	22.81
23	20.68	33.21	25.97	32.25	34.53	36.29	36.07	35.29	32.61	34.24	28.91	22.29
24	20.96	29.46	26.28	34.51	33.70	38.02	30.97	32.17	32.25	35.43	28.66	23.19
25	23.92	25.18	25.09	29.28	33.72	33.30	31.69	32.86	32.40	35.77	28.17	24.14
26	24.11	25.06	26.72	26.25	33.98	33.57	66.78	32.16	31.96	37.94	26.42	24.36
27	18.83	24.62	33.24	26.03	33.12	33.42	31.53	237.43	32.30	38.13	25.15	24.22
28	20.22	24.29	28.49	25.43	46.82	33.40	29.33	30.55	32.14	39.16	24.40	23.43
29	21.20	24.41	31.35	26.38	33.86	33.64	32.99		33.32	35.03	24.29	20.63
30	23.96	27.81	28.96	24.85	34.20	38.32	34.99		32.92	34.19	24.39	20.66
31	23.24	22.27		24.92		34.98	32.43		33.33		27.95	
Total (cfs-days)	774.64	811.60	740.63	1016.87	1018.96	1516.26	2928.01	2231.46	1051.46	1097.11	885.06	747.77
Min	18.83	20.31	18.27	24.25	26.23	32.60	29.33	29.64	28.33	31.10	24.29	20.63
Max	30.76	33.26	33.24	76.88	46.82	225.28	556.15	799.86	71.39	117.83	37.28	28.09
Avg	24.99	26.18	24.69	32.80	33.97	48.91	94.45	79.70	33.92	36.57	28.55	24.93
Total (acre-ft)	1,536	1,610	1,469	2,017	2,021	3,007	5,808	4,426	2,086	2,176	1,755	1,483

Appendix A4
Daily Diversions to Spreading Basins from the Chino Creek Tributary System
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
2	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
3	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
4	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05	6.72	0.10	0.03	0.01
5	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05	0.05	13.23	0.03	0.01
6	0.02	0.02	0.00	0.00	0.00	0.00	0.05	171.72	27.32	0.10	0.03	0.01
7	0.02	0.02	0.00	0.00	0.00	49.85	0.05	0.05	0.05	0.10	0.03	0.01
8	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
9	0.02	0.02	0.00	0.00	0.00	0.00	0.05	44.09	0.05	0.10	0.03	0.01
10	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
11	0.02	0.02	0.00	0.00	0.00	31.29	0.05	0.05	0.05	0.10	0.03	0.01
12	0.02	0.02	0.00	0.00	0.00	82.94	0.05	0.05	0.05	24.75	0.03	0.01
13	0.02	0.02	0.00	0.00	2.02	7.61	0.56	0.05	0.05	0.10	0.03	0.01
14	0.02	0.02	0.00	22.32	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
15	0.02	0.02	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
16	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
17	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
18	0.02	0.00	0.00	0.00	0.00	0.00	142.58	0.05	0.05	0.10	0.03	0.01
19	0.02	0.00	0.00	0.00	0.00	0.00	63.20	0.50	0.05	0.10	0.03	0.01
20	0.02	0.00	0.00	0.00	0.00	0.00	97.19	0.05	0.05	0.10	0.03	0.01
21	0.02	0.00	0.00	0.00	0.00	0.00	96.64	34.39	0.05	0.56	0.03	0.01
22	0.02	0.00	0.00	0.00	0.00	2.25	74.03	0.00	0.05	0.10	0.03	0.01
23	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
24	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
25	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.10	0.03	0.01
26	0.02	0.00	0.00	0.00	0.00	0.00	13.83	0.05	0.05	0.10	0.03	0.01
27	0.02	0.00	0.00	0.00	0.00	0.00	0.05	86.31	0.05	0.10	0.03	0.01
28	0.02	0.00	0.00	0.00	3.28	0.00	0.05	0.05	0.05	0.81	0.03	0.01
29	0.02	0.00	0.00	0.00	0.00	0.00	0.05		0.05	0.10	0.03	0.01
30	0.02	0.00	0.00	0.00	0.00	2.51	0.05		0.05	0.10	0.03	0.01
31	0.02	0.00		0.00		0.00	0.05		0.05		0.03	
Total (cfs-days)	0.52	0.25	0.00	22.32	5.30	176.47	489.23	338.13	35.51	41.97	0.86	0.30
Min	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.10	0.03	0.01
Max	0.02	0.02	0.00	22.32	3.28	82.94	142.58	171.72	27.32	24.75	0.03	0.01
Avg	0.02	0.01	0.00	0.72	0.18	5.69	15.78	12.08	1.15	1.40	0.03	0.01
Total (acre-ft)	1	0	0	44	11	349	968	669	70	84	2	1

Appendix A5
Estimated Average Daily Discharge from Chino Creek to Prado Dam Reservoir
without Watermaster Diversions
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	29.71	25.23	18.92	24.50	26.23	32.89	32.55	29.69	28.38	31.73	34.33	27.82
2	24.43	30.53	18.27	24.25	29.91	32.60	33.31	35.28	31.09	32.32	37.31	26.14
3	25.48	30.14	19.21	27.22	33.23	32.81	34.54	38.28	32.82	32.11	36.53	25.81
4	27.06	23.60	19.77	29.87	33.82	34.44	34.41	38.78	47.99	33.02	32.33	24.41
5	27.73	20.54	21.99	28.08	33.30	36.01	33.90	83.52	31.31	56.11	29.38	25.54
6	30.78	20.33	20.07	29.87	32.71	33.85	34.45	971.58	98.71	31.68	27.52	26.51
7	24.75	20.41	26.81	28.16	31.86	212.76	35.98	48.59	34.78	31.40	26.90	27.45
8	28.87	22.65	24.63	26.78	32.61	34.81	36.17	45.53	33.33	31.20	28.34	26.89
9	25.70	24.91	22.74	29.23	35.13	33.74	36.81	259.46	34.02	31.47	30.97	27.01
10	26.89	22.70	23.44	31.96	35.65	33.31	37.34	39.42	32.26	31.86	29.32	28.10
11	26.77	22.40	20.42	35.41	34.52	106.09	36.68	37.83	32.32	32.42	28.50	24.42
12	28.69	24.87	23.92	32.68	34.56	308.22	36.36	36.83	31.81	142.58	28.26	26.92
13	30.39	27.99	27.76	40.51	38.38	79.30	40.73	36.69	31.96	32.38	27.11	27.09
14	26.34	31.17	27.82	99.20	36.80	45.53	34.32	36.02	32.35	33.27	26.92	26.51
15	25.76	31.14	20.55	41.87	36.20	42.09	34.92	37.32	32.50	32.00	27.44	24.89
16	23.19	33.26	18.39	39.27	36.25	37.64	34.95	36.59	31.95	33.07	28.48	23.49
17	20.87	32.69	20.72	38.08	31.23	36.99	51.39	35.30	30.61	32.59	29.23	23.06
18	25.53	26.47	22.92	39.34	30.80	37.77	573.96	35.42	33.79	31.45	30.13	23.89
19	27.18	25.62	29.55	35.20	33.21	38.95	273.60	38.27	32.99	32.19	28.12	25.38
20	24.83	25.07	32.47	38.35	33.00	39.26	653.34	37.23	32.58	35.18	25.03	25.89
21	22.61	26.13	28.40	36.11	33.64	40.80	569.67	82.14	32.76	33.05	27.26	25.03
22	24.40	27.74	25.76	33.35	34.01	45.40	386.85	42.78	32.96	34.58	27.97	22.82
23	20.70	33.21	25.97	32.25	34.53	36.29	36.12	35.34	32.66	34.34	28.94	22.30
24	20.98	29.46	26.28	34.51	33.70	38.02	31.02	32.22	32.30	35.53	28.69	23.20
25	23.94	25.18	25.09	29.28	33.72	33.30	31.74	32.91	32.45	35.87	28.20	24.15
26	24.13	25.06	26.72	26.25	33.98	33.57	80.61	32.21	32.01	38.04	26.45	24.37
27	18.85	24.62	33.24	26.03	33.12	33.42	31.58	323.74	32.35	38.23	25.18	24.23
28	20.24	24.29	28.49	25.43	50.10	33.40	29.38	30.60	32.19	39.97	24.43	23.44
29	21.22	24.41	31.35	26.38	33.86	33.64	33.04		33.37	35.13	24.32	20.64
30	23.98	27.81	28.96	24.85	34.20	40.83	35.04		32.97	34.29	24.42	20.67
31	23.26	22.27		24.92		34.98	32.48		33.38		27.98	
Total (cfs-days)	775.16	811.85	740.63	1039.19	1024.26	1692.73	3417.24	2569.59	1086.97	1139.08	885.92	748.07
Min	18.85	20.33	18.27	24.25	26.23	32.60	29.38	29.69	28.38	31.20	24.32	20.64
Max	30.78	33.26	33.24	99.20	50.10	308.22	653.34	971.58	98.71	142.58	37.31	28.10
Avg	25.01	26.19	24.69	33.52	34.14	54.60	110.23	91.77	35.06	37.97	28.58	24.94
Total (acre-ft)	1,538	1,610	1,469	2,061	2,032	3,357	6,778	5,097	2,156	2,259	1,757	1,484

Appendix B1
Estimated Average Daily Discharge from Cucamonga Creek to Prado Dam Reservoir after Diversions
(Average Daily Discharge at USGS Gage 11073495)
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	18.00	19.00	4.60	9.30	36.00	34.00	38.00	59.00	69.00	35.00	12.00	8.40
2	9.00	26.00	6.30	5.00	24.00	40.00	36.00	57.00	65.00	15.00	9.40	5.80
3	13.00	24.00	4.30	7.60	17.00	39.00	41.00	53.00	50.00	18.00	8.20	5.70
4	17.00	14.00	3.50	16.00	16.00	40.00	36.00	53.00	80.00	33.00	6.10	4.30
5	16.00	9.10	8.10	13.00	19.00	55.00	31.00	79.00	61.00	112.00	9.30	6.70
6	18.00	13.00	6.70	7.20	20.00	55.00	27.00	1760.00	159.00	26.00	11.00	6.80
7	8.60	13.00	14.00	8.00	21.00	309.00	23.00	83.00	96.00	15.00	11.00	8.10
8	13.00	20.00	15.00	9.00	31.00	53.00	21.00	50.00	68.00	16.00	13.00	11.00
9	11.00	23.00	12.00	6.60	27.00	48.00	27.00	253.00	62.00	17.00	20.00	8.70
10	13.00	19.00	14.00	8.30	19.00	51.00	32.00	79.00	65.00	30.00	9.00	13.00
11	13.00	18.00	9.90	12.00	17.00	132.00	28.00	56.00	68.00	34.00	8.70	6.50
12	19.00	16.00	15.00	9.60	20.00	698.00	29.00	52.00	75.00	290.00	7.50	9.50
13	19.00	15.00	20.00	36.00	69.00	279.00	49.00	48.00	68.00	27.00	6.10	9.60
14	14.00	14.00	29.00	107.00	21.00	53.00	40.00	51.00	70.00	21.00	8.50	8.30
15	14.00	18.00	25.00	35.00	24.00	43.00	41.00	54.00	64.00	25.00	10.00	5.20
16	7.00	23.00	30.00	18.00	21.00	41.00	47.00	62.00	47.00	14.00	12.00	4.80
17	7.40	23.00	19.00	26.00	15.00	41.00	58.00	71.00	43.00	19.00	13.00	2.90
18	16.00	13.00	12.00	31.00	15.00	43.00	915.00	82.00	39.00	22.00	21.00	2.90
19	18.00	14.00	22.00	16.00	13.00	36.00	535.00	91.00	39.00	21.00	11.00	4.90
20	11.00	11.00	28.00	15.00	8.50	39.00	1090.00	94.00	36.00	47.00	8.90	5.10
21	7.40	11.00	24.00	18.00	17.00	35.00	1110.00	198.00	44.00	26.00	9.50	3.30
22	10.00	13.00	26.00	11.00	23.00	76.00	912.00	91.00	31.00	30.00	10.00	4.90
23	6.70	21.00	30.00	6.10	24.00	37.00	83.00	73.00	29.00	11.00	18.00	3.00
24	9.00	12.00	28.00	15.00	23.00	39.00	53.00	66.00	22.00	11.00	16.00	5.50
25	10.00	8.80	31.00	30.00	21.00	34.00	56.00	65.00	15.00	21.00	10.00	3.60
26	15.00	4.10	32.00	26.00	31.00	39.00	138.00	70.00	13.00	13.00	10.00	4.40
27	8.20	4.50	36.00	20.00	23.00	45.00	58.00	715.00	22.00	18.00	2.90	8.80
28	12.00	5.00	17.00	20.00	152.00	44.00	49.00	101.00	33.00	15.00	0.97	7.10
29	17.00	4.50	22.00	34.00	44.00	42.00	46.00		36.00	11.00	3.40	3.10
30	23.00	8.70	19.00	33.00	34.00	47.00	43.00		35.00	7.40	7.60	4.30
31	14.00	7.70		39.00		46.00	51.00		42.00		10.00	
Total (cfs-days)	407.30	445.40	563.40	647.70	845.50	2613.00	5743.00	4566.00	1646.00	1000.40	314.07	186.20
Min	6.70	4.10	3.50	5.00	8.50	34.00	21.00	48.00	13.00	7.40	0.97	2.90
Max	23.00	26.00	36.00	107.00	152.00	698.00	1110.00	1760.00	159.00	290.00	21.00	13.00
Avg	13.14	14.37	18.78	20.89	28.18	84.29	185.26	163.07	53.10	33.35	10.13	6.21
Total (acre-ft)	808	883	1,117	1,285	1,677	5,183	11,391	9,057	3,265	1,984	623	369

Appendix B2
Daily Diversions to Spreading Basins on the Cucamonga Creek Tributary System
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.30	1.10	1.06	2.81	0.96	0.86	1.65	3.10	2.44	1.11	1.72	1.80
2	0.30	1.12	1.06	4.13	1.15	0.86	1.90	3.63	2.90	1.31	1.72	2.11
3	0.30	1.08	1.06	1.88	1.62	0.81	1.90	3.63	2.90	1.31	1.72	1.82
4	0.30	3.27	0.81	1.86	1.62	1.38	1.90	3.61	19.31	1.31	1.72	2.14
5	0.30	1.10	0.40	2.53	1.62	1.67	1.90	3.27	2.63	78.43	1.72	1.86
6	0.59	1.46	0.40	6.13	1.62	1.72	1.90	229.83	43.19	1.31	1.72	1.82
7	0.93	1.45	0.40	8.19	1.62	192.38	1.90	2.71	9.65	1.31	1.72	1.59
8	0.93	1.45	0.45	5.72	1.62	1.28	1.90	2.02	3.33	1.31	1.97	-3.70
9	0.93	1.43	0.45	1.42	1.62	1.32	2.11	86.89	2.83	2.93	2.88	-3.36
10	0.93	1.91	0.45	1.48	1.62	2.07	1.75	3.94	1.72	1.31	2.88	2.51
11	0.93	0.70	0.45	1.48	1.62	98.46	1.90	2.49	11.97	1.31	2.88	3.02
12	0.93	2.90	0.56	1.53	1.40	190.31	1.90	1.84	1.87	149.60	2.06	2.38
13	0.93	1.71	0.56	2.10	34.85	7.12	12.58	3.03	1.72	1.31	1.72	2.12
14	0.93	1.40	0.83	69.55	1.16	0.86	1.67	3.64	1.77	1.26	1.72	2.00
15	0.93	1.81	1.51	1.94	1.16	1.48	1.90	3.66	1.77	1.31	1.72	1.65
16	0.93	1.46	1.82	2.42	1.16	2.07	1.75	3.64	1.77	1.31	2.02	2.71
17	0.93	1.85	1.82	0.85	1.16	2.07	1.62	3.66	1.77	1.31	2.02	2.14
18	0.93	0.38	1.92	0.87	1.52	2.12	321.26	3.64	1.72	1.31	2.02	2.28
19	0.93	0.41	1.43	1.82	1.82	2.02	33.72	3.62	1.57	1.31	2.02	2.28
20	0.93	0.40	0.71	0.95	1.82	2.07	67.63	2.53	1.72	1.27	2.02	2.28
21	0.93	0.40	1.05	0.93	1.82	2.12	56.47	121.31	2.02	26.16	2.02	2.28
22	0.93	0.43	1.36	0.93	1.82	39.21	38.00	1.31	1.77	13.43	2.02	2.17
23	0.93	0.47	1.36	0.97	1.80	1.77	2.53	0.71	1.77	1.31	2.02	2.48
24	0.93	0.49	1.36	0.91	1.36	2.11	2.00	1.34	1.77	1.31	2.02	2.40
25	0.93	0.92	1.36	1.43	1.36	2.01	2.00	1.40	1.77	1.31	2.02	2.31
26	0.93	0.52	1.36	1.24	1.31	2.11	50.59	1.65	2.10	1.19	2.02	2.31
27	0.93	0.88	1.36	2.46	1.31	2.11	2.81	138.23	2.58	1.19	2.02	2.31
28	0.93	1.43	1.36	4.70	47.27	2.11	2.00	1.89	2.58	1.31	2.02	2.31
29	0.93	0.50	1.36	5.30	1.36	2.16	1.84		2.89	1.31	1.63	2.31
30	0.93	0.49	1.36	4.99	1.36	7.34	1.84		3.21	1.31	1.46	2.31
31	0.93	1.81		4.84		2.16	1.84		3.00		1.46	
Total (cfs-days)	25.47	36.74	31.50	148.34	123.49	578.11	626.72	642.21	143.95	302.84	60.66	54.65
Min	0.30	0.38	0.40	0.85	0.96	0.81	1.62	0.71	1.57	1.11	1.46	-3.70
Max	0.93	3.27	1.92	69.55	47.27	192.38	321.26	229.83	43.19	149.60	2.88	3.02
Avg	0.82	1.19	1.05	4.79	4.12	18.65	20.22	22.94	4.64	10.09	1.96	1.82
Total (acre-ft)	52	73	64	291	245	1,147	1,244	1,270	281	600	121	108

Appendix B3
Estimated Average Daily Discharge from Cucamonga Creek to Prado Dam Reservoir
without Watermaster Diversions
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	18.30	20.10	5.66	12.11	36.96	34.86	39.65	62.10	71.44	36.11	13.72	10.20
2	9.30	27.12	7.36	9.13	25.15	40.86	37.90	60.63	67.90	16.31	11.12	7.91
3	13.30	25.08	5.36	9.48	18.62	39.81	42.90	56.63	52.90	19.31	9.92	7.52
4	17.30	17.27	4.31	17.86	17.62	41.38	37.90	56.61	99.31	34.31	7.82	6.44
5	16.30	10.20	8.50	15.53	20.62	56.67	32.90	82.27	63.63	190.43	11.02	8.56
6	18.59	14.46	7.10	13.33	21.62	56.72	28.90	1989.83	202.19	27.31	12.72	8.62
7	9.53	14.45	14.40	16.19	22.62	501.38	24.90	85.71	105.65	16.31	12.72	9.69
8	13.93	21.45	15.45	14.72	32.62	54.28	22.90	52.02	71.33	17.31	14.97	7.30
9	11.93	24.43	12.45	8.02	28.62	49.32	29.11	339.89	64.83	19.93	22.88	5.34
10	13.93	20.91	14.45	9.78	20.62	53.07	33.75	82.94	66.72	31.31	11.88	15.51
11	13.93	18.70	10.35	13.48	18.62	230.46	29.90	58.49	79.97	35.31	11.58	9.52
12	19.93	18.90	15.56	11.13	21.40	888.31	30.90	53.84	76.87	439.60	9.56	11.88
13	19.93	16.71	20.56	38.10	103.85	286.12	61.58	51.03	69.72	28.31	7.82	11.72
14	14.93	15.40	29.83	176.55	22.16	53.86	41.67	54.64	71.77	22.26	10.22	10.30
15	14.93	19.81	26.51	36.94	25.16	44.48	42.90	57.66	65.77	26.31	11.72	6.85
16	7.93	24.46	31.82	20.42	22.16	43.07	48.75	65.64	48.77	15.31	14.02	7.51
17	8.33	24.85	20.82	26.85	16.16	43.07	59.62	74.66	44.77	20.31	15.02	5.04
18	16.93	13.38	13.92	31.87	16.52	45.12	1236.26	85.64	40.72	23.31	23.02	5.18
19	18.93	14.41	23.43	17.82	14.82	38.02	568.72	94.62	40.57	22.31	13.02	7.18
20	11.93	11.40	28.71	15.95	10.32	41.07	1157.63	96.53	37.72	48.27	10.92	7.38
21	8.33	11.40	25.05	18.93	18.82	37.12	1166.47	319.31	46.02	52.16	11.52	5.58
22	10.93	13.43	27.36	11.93	24.82	115.21	950.00	92.31	32.77	43.43	12.02	7.07
23	7.63	21.47	31.36	7.07	25.80	38.77	85.53	73.71	30.77	12.31	20.02	5.48
24	9.93	12.49	29.36	15.91	24.36	41.11	55.00	67.34	23.77	12.31	18.02	7.90
25	10.93	9.72	32.36	31.43	22.36	36.01	58.00	66.40	16.77	22.31	12.02	5.91
26	15.93	4.62	33.36	27.24	32.31	41.11	188.59	71.65	15.10	14.19	12.02	6.71
27	9.13	5.38	37.36	22.46	24.31	47.11	60.81	853.23	24.58	19.19	4.92	11.11
28	12.93	6.43	18.36	24.70	199.27	46.11	51.00	102.89	35.58	16.31	2.99	9.41
29	17.93	5.00	23.36	39.30	45.36	44.16	47.84		38.89	12.31	5.03	5.41
30	23.93	9.19	20.36	37.99	35.36	54.34	44.84		38.21	8.71	9.06	6.61
31	14.93	9.51		43.84		48.16	52.84		45.00		11.46	
Total (cfs-days)	432.77	482.14	594.90	796.04	968.99	3191.11	6369.72	5208.21	1789.95	1303.24	374.73	240.85
Min	7.63	4.62	4.31	7.07	10.32	34.86	22.90	51.03	15.10	8.71	2.99	5.04
Max	23.93	27.12	37.36	176.55	199.27	888.31	1236.26	1989.83	202.19	439.60	23.02	15.51
Avg	13.96	15.55	19.83	25.68	32.30	102.94	205.47	186.01	57.74	43.44	12.09	8.03
Total (acre-ft)	860	956	1,181	1,575	1,922	6,330	12,635	10,326	3,546	2,584	744	477

Appendix C1
WLAM Simulated Daily Discharge from Day Creek to the Santa Ana River without Watermaster Diversions
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	100.08	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	40.89	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	21.32	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	11.30	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.99	7.16	10.02	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	407.49	38.66	7.31	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	148.78	0.00	144.75	23.23	4.95	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	91.08	0.00	92.98	12.25	4.01	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	46.01	0.00	98.65	7.32	3.06	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	33.06	0.00	58.21	5.89	2.36	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	35.69	0.00	25.55	4.61	72.36	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	214.90	0.00	12.89	3.66	46.79	0.00	0.00
13	0.00	0.00	0.00	3.00	0.00	113.93	0.73	6.78	2.86	24.16	0.00	0.00
14	0.00	0.00	0.00	1.30	0.00	62.12	0.00	4.78	2.23	12.26	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	25.59	0.00	3.78	1.75	6.48	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	12.74	0.00	3.00	1.27	4.83	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	6.63	10.71	2.33	0.80	3.77	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	4.53	247.26	1.78	0.48	2.95	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	3.58	301.30	1.67	0.32	2.24	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	2.84	395.26	2.22	0.16	3.65	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	3.26	560.72	3.33	0.00	5.42	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	2.00	416.46	2.56	0.00	3.42	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	1.58	112.46	2.00	0.00	2.71	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	1.16	53.21	1.56	0.00	2.12	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.95	22.35	1.22	0.00	1.65	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.63	28.06	0.89	0.00	1.18	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.53	15.49	288.62	0.00	0.82	0.00	0.00
28	0.00	0.00	0.00	0.00	4.20	0.32	8.21	124.09	0.00	0.59	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.21	4.88		0.00	0.35	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.11	3.85		0.00	0.12	0.00	0.00
31	0.00	0.00		0.00		0.00	3.12		0.00		0.00	
Total (cfs-days)	0.00	0.00	0.00	4.30	4.20	812.22	2184.06	1352.77	286.24	229.58	0.00	0.00
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00
Max	0.00	0.00	0.00	3.00	4.20	214.90	560.72	407.49	100.08	72.36	0.00	0.00
Avg	0.00	0.00	0.00	0.14	0.14	26.20	70.45	48.31	9.23	7.65	0.00	0.00
Total (acre-ft)	0	0	0	9	8	1,611	4,332	2,683	568	455	0	0

Appendix C2
Daily Diversions to Spreading Basins on the Day Creek Tributary System
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.03
2	0.00	0.05	0.00	0.00	0.00	3.34	0.00	0.00	0.00	0.10	0.03	0.03
3	0.00	0.05	0.00	0.00	0.00	8.01	0.00	0.00	0.00	0.10	0.03	0.03
4	0.00	0.05	0.00	0.00	0.00	5.01	0.00	0.00	8.64	0.10	0.03	0.03
5	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.03	0.03
6	0.00	0.05	0.00	0.00	0.00	0.00	0.00	119.95	10.40	0.10	0.03	0.03
7	0.00	0.05	0.00	0.00	0.00	29.59	0.00	5.45	2.12	0.10	0.03	0.03
8	0.00	0.05	0.00	0.00	0.00	0.00	0.00	2.12	0.08	0.10	0.03	0.03
9	0.00	0.05	0.00	0.00	0.00	0.00	0.00	50.15	0.08	0.10	0.03	0.03
10	0.00	0.05	0.00	0.00	0.00	0.00	0.00	2.12	0.08	0.10	0.03	0.03
11	0.00	0.05	0.00	0.00	0.00	3.58	0.00	0.30	0.08	0.10	0.03	0.03
12	0.00	0.05	0.00	0.00	0.00	42.76	0.00	0.00	0.08	13.48	0.03	0.03
13	0.00	0.05	0.00	0.00	11.31	14.04	0.51	0.00	0.08	0.10	0.03	0.03
14	0.00	0.05	0.00	22.88	0.00	1.01	0.00	0.00	0.08	0.10	0.03	0.03
15	0.00	0.05	0.00	0.00	0.00	1.01	0.00	0.00	0.08	0.10	0.03	0.03
16	0.07	0.05	0.00	0.00	0.00	0.51	0.00	0.00	0.08	0.10	0.03	0.04
17	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.10	0.03	0.04
18	0.07	0.05	0.00	0.00	0.00	0.00	66.77	0.00	0.08	0.10	0.03	0.04
19	0.07	0.05	0.00	0.00	0.00	0.00	46.31	0.00	0.08	0.10	0.03	0.04
20	0.07	0.05	0.00	0.00	0.00	0.00	91.77	0.00	0.08	0.10	0.03	0.04
21	0.07	0.05	0.00	0.00	0.00	0.00	66.31	32.73	0.08	2.07	0.03	0.04
22	0.07	0.05	0.00	0.00	0.00	6.17	64.80	0.00	0.08	3.84	0.03	0.04
23	0.07	0.05	0.00	0.00	0.00	0.00	22.14	0.00	0.08	0.10	0.03	0.04
24	0.07	0.05	0.00	0.00	0.00	0.00	12.09	0.00	0.08	0.10	0.03	0.04
25	0.07	0.05	0.00	0.00	0.00	0.00	6.35	0.00	0.08	0.10	0.03	0.04
26	0.07	0.05	0.00	0.00	0.00	0.00	15.81	0.00	0.08	0.10	0.03	0.04
27	0.07	0.05	0.00	0.00	0.00	0.00	0.00	92.83	0.08	0.10	0.03	0.04
28	0.07	0.05	0.00	0.00	12.27	0.00	0.00	0.00	0.08	0.10	0.03	0.04
29	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.10	0.03	0.04
30	0.07	0.05	0.00	0.00	0.00	7.68	0.00	0.00	0.08	0.10	0.03	0.04
31	0.07	0.05		0.00		0.00	0.00		0.08		0.03	
Total (cfs-days)	1.13	1.57	0.00	22.88	23.59	122.71	392.85	305.66	23.14	28.89	0.78	0.98
Min	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.03
Max	0.07	0.05	0.00	22.88	12.27	42.76	91.77	119.95	10.40	13.48	0.03	0.04
Avg	0.04	0.05	0.00	0.74	0.79	3.96	12.67	10.92	0.75	0.96	0.03	0.03
Total (acre-ft)	2	3	0	45	47	243	778	596	35	57	2	2

Appendix C3
Estimated Average Daily Discharge from Day Creek to the Santa Ana River after Watermaster Diversions
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	100.08	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	40.89	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	21.32	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	2.66	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.99	7.16	3.15	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	287.54	28.26	7.21	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	119.18	0.00	139.30	21.11	4.85	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	91.08	0.00	90.86	12.17	3.91	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	46.01	0.00	48.50	7.24	2.96	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	33.06	0.00	56.09	5.80	2.26	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	32.11	0.00	25.25	4.53	72.26	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	172.14	0.00	12.89	3.58	33.30	0.00	0.00
13	0.00	0.00	0.00	3.00	0.00	99.88	0.22	6.78	2.78	24.06	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	61.11	0.00	4.78	2.15	12.16	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	24.58	0.00	3.78	1.67	6.38	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	12.24	0.00	3.00	1.19	4.73	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	6.63	10.71	2.33	0.71	3.67	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	4.53	180.49	1.78	0.40	2.85	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	3.58	254.99	1.67	0.24	2.14	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	2.84	303.49	2.22	0.08	3.55	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	3.26	494.41	0.00	0.00	3.35	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	351.66	2.56	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	1.58	90.31	2.00	0.00	2.61	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	1.16	41.12	1.56	0.00	2.02	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.95	16.00	1.22	0.00	1.55	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.63	12.25	0.89	0.00	1.08	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.53	15.49	195.79	0.00	0.72	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.32	8.21	124.09	0.00	0.49	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00	0.21	4.88		0.00	0.25	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	3.85		0.00	0.02	0.00	0.00
31	0.00	0.00		0.00		0.00	3.12		0.00		0.00	
Total (cfs-days)	0.00	0.00	0.00	3.00	0.00	717.62	1791.21	1076.51	264.01	201.51	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
Max	0.00	0.00	0.00	3.00	0.00	172.14	494.41	287.54	100.08	72.26	0.00	0.00
Avg	0.00	0.00	0.00	0.10	0.00	23.15	57.78	38.45	8.52	6.72	0.00	0.00
Total (acre-ft)	0	0	0	6	0	1,423	3,553	2,135	524	400	0	0

Appendix D1
WLAM Simulated Daily Discharge from San Sevaine Creek to the Santa Ana River
without Watermaster Diversions
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.68	0.00	38.15	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	474.25	44.79	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	286.19	0.00	26.70	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.47	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	18.01	0.00	0.96	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	22.11	0.00	0.00	0.00	106.74	0.00	0.00
12	0.00	0.00	0.00	0.00	0.20	391.04	0.00	0.00	0.00	2.08	0.00	0.00
13	0.00	0.00	0.00	23.50	0.00	19.85	0.83	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	16.40	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	21.65	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	405.96	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	202.35	0.53	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	413.66	2.45	0.00	4.77	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.65	574.38	5.85	0.00	5.87	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.43	306.03	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	15.93	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	20.82	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	398.19	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	29.30	0.00	0.00	16.91	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	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	0.00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (cfs-days)	0.00	0.00	0.00	39.90	29.50	738.93	1962.03	1085.85	47.72	157.73	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
Max	0.00	0.00	0.00	23.50	29.30	391.04	574.38	474.25	44.79	106.74	0.00	0.00
Avg	0.00	0.00	0.00	1.29	0.98	23.84	63.29	38.78	1.54	5.26	0.00	0.00
Total (acre-ft)	0	0	0	79	59	1,466	3,892	2,154	95	313	0	0

Appendix D2
Daily Diversions to Spreading Basins on the San Sevaine Creek Tributary System
(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.35	0.96	0.91	0.71	0.71	1.21	2.68	0.35	3.84	0.89	0.83	0.78
2	1.13	0.96	0.91	0.71	0.71	1.21	0.20	1.35	0.35	0.89	0.83	0.78
3	0.30	0.96	0.91	0.71	0.71	1.21	0.20	1.35	0.96	0.89	0.83	0.78
4	0.30	0.96	0.88	0.71	0.71	1.21	0.45	1.19	16.82	0.89	0.83	0.78
5	0.30	1.06	0.76	0.71	0.71	0.20	1.21	0.94	0.96	60.05	0.83	0.78
6	0.35	0.86	0.76	0.71	0.71	0.20	1.21	217.07	48.74	0.50	0.83	0.78
7	1.13	0.81	0.76	0.71	0.71	182.69	1.21	8.03	3.89	0.29	0.83	0.78
8	1.13	0.81	0.73	0.71	0.71	0.45	1.21	6.84	1.81	0.29	0.83	0.78
9	1.13	0.81	0.76	0.71	0.71	0.13	1.21	60.25	1.81	0.54	0.80	0.78
10	0.67	0.81	0.76	0.71	0.71	0.58	1.21	3.38	1.82	0.89	0.63	0.78
11	0.86	0.81	0.76	0.71	0.71	88.80	1.21	2.17	1.36	0.89	0.75	0.78
12	0.86	0.81	0.76	0.71	0.71	151.42	3.79	0.96	0.96	100.56	0.83	0.78
13	1.64	0.81	0.76	0.71	38.84	63.25	10.86	0.75	0.96	0.29	0.83	0.78
14	0.86	0.81	0.71	95.76	0.71	1.16	5.15	0.66	0.96	0.29	0.83	0.78
15	0.50	0.81	0.71	0.71	0.71	1.26	5.81	0.66	0.96	0.62	0.83	0.78
16	0.35	0.81	0.71	0.71	0.71	1.16	0.05	0.66	0.96	0.89	0.97	0.84
17	1.13	0.81	0.71	0.71	0.71	1.16	4.70	0.75	0.96	0.89	0.97	0.81
18	0.35	0.81	0.71	0.71	0.71	1.16	130.66	0.96	0.96	0.89	0.97	0.81
19	1.13	0.81	0.71	0.71	0.71	1.16	92.02	0.74	0.96	0.89	0.97	0.81
20	1.13	0.81	0.71	0.71	0.71	1.16	103.79	1.35	0.96	2.42	0.97	0.81
21	1.13	0.81	0.71	0.71	0.71	1.16	102.47	84.49	0.96	15.25	0.97	0.81
22	1.13	0.81	0.71	0.71	0.71	32.96	79.09	3.40	0.96	12.07	0.97	0.81
23	1.23	0.81	0.71	0.71	0.71	1.38	14.34	1.36	0.96	0.92	0.97	0.81
24	1.23	0.81	0.71	0.71	0.71	1.21	9.65	2.93	0.96	0.92	0.97	0.81
25	0.45	0.81	0.71	0.71	0.71	1.21	0.05	4.44	0.96	0.92	0.97	0.81
26	0.45	0.81	0.71	0.71	0.71	1.21	29.29	2.23	1.04	1.12	0.97	0.81
27	1.23	0.81	0.71	0.71	0.71	1.21	0.35	175.20	1.97	0.92	0.97	0.81
28	0.81	0.81	0.71	0.71	35.71	1.21	2.12	9.87	1.67	0.92	0.97	0.81
29	0.96	0.81	0.71	0.71	0.71	1.21	0.35		1.36	0.92	0.97	0.81
30	0.96	0.81	0.71	0.71	0.71	16.65	0.35		1.36	0.92	0.97	0.81
31	0.96	0.81		0.71		1.55	1.11		1.36		0.97	
Total (cfs-days)	26.17	25.96	22.42	116.97	94.34	561.77	608.03	594.36	104.57	209.65	27.74	23.82
Min	0.30	0.81	0.71	0.71	0.71	0.13	0.05	0.35	0.35	0.29	0.63	0.78
Max	1.64	1.06	0.91	95.76	38.84	182.69	130.66	217.07	48.74	100.56	0.97	0.84
Avg	0.84	0.84	0.75	3.77	3.14	18.12	19.61	21.23	3.37	6.99	0.89	0.79
Total (acre-ft)	53	51	44	232	188	1,115	1,199	1,184	201	415	55	46

Appendix D3
Estimated Daily Discharge of San Sevaine Creek to the Santa Ana River with Watermaster Diversions

(cfs)

	Jul 09	Aug 09	Sep 09	Oct 09	Nov 09	Dec 09	Jan 10	Feb 10	Mar 10	Apr 10	May 10	Jun 10
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	0.00	0.00	0.00
4	0.00	0.00	0.00	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	83.74	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	257.18	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	103.50	0.00	18.67	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.22	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	17.43	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	105.85	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	239.62	0.00	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	22.79	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	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	16.95	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	275.30	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	110.33	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	309.87	1.09	0.00	2.35	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	471.90	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	226.94	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	1.58	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	222.99	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.04	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	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	0.00
31	0.00	0.00		0.00		0.00	0.00		0.00		0.00	
Total (cfs-days)	0.00	0.00	0.00	22.79	0.00	360.56	1412.89	604.94	1.09	108.19	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
Max	0.00	0.00	0.00	22.79	0.00	239.62	471.90	257.18	1.09	105.85	0.00	0.00
Avg	0.00	0.00	0.00	0.74	0.00	11.63	45.58	21.61	0.04	3.61	0.00	0.00
Total (acre-ft)	0	0	0	45	0	715	2,802	1,200	2	215	0	0