F.1.7 Potential Changes in Delta Exports and Outflow

Changes in SJR flow at Vernalis for LSJR Alternatives 2, 3, and 4 have been accurately estimated using the WSE model. The effects of these changes in SJR flow at Vernalis on southern Delta salinity have also been evaluated, based on approximate relationships between Vernalis flow and the salinity increases observed at the southern Delta salinity compliance stations. The changes in SJR flow at Vernalis also change flow in the Delta channels, and may change southern Delta exports and Delta outflow.

Changes in exports would affect water supply (beneficial uses) in the CVP and SWP service area south of the Delta; the salinity gradient (i.e., X2) in the western estuary (i.e., Suisun Bay and western Delta); and, could influence aquatic resources associated with salinity (i.e., low-salinity zone habitat distribution). The analysis below provides an accurate accounting of the two most likely changes in the Delta (exports and Delta outflow) that would result from changes in the LSJR flow at Vernalis. Changes in southern Delta exports associated with the LSJR alternatives are generally small. The combination of the modeled SJR flow changes and the likely export changes determine the likely changes in Delta outflow. Further evaluation of these Delta outflow and export changes will be included in the State Water Board's ongoing review of the 2006 Bay-Delta WQCP in Phases II, III and IV.

F.1.7.1 Current Operational Summary

The existing CVP and SWP Delta pumping operations are determined by several rules and objectives that guide the daily Delta operations. Many of these rules are included in D-1641 (which implemented the 1995 Bay-Delta WQCP objectives). Several additional rules have been added by the 2008 FWS BO (USFWS 2008) and the 2009 NMFS BO for the CVP and SWP Operations Criteria and Plan (OCAP) (NMFS 2009). The existing CVP and SWP Delta pumping operations are summarized in this section so that the possible changes in the southern Delta pumping can be identified for the LSJR alternatives.

Delta operations under D-1641 can be simplified into two sets of rules: 1) rules controlling the maximum allowable exports and 2) rules controlling the minimum required Delta outflow. Several objectives control the allowable exports and several objectives control the minimum Delta outflow. Both the 2008 FWS BO and the 2009 NMFS BO added pumping restrictions to limit reverse (negative) Old and Middle River (OMR) flows. There are two RPAs from the NMFS BO that apply to the SJR inflow and are associated with southern Delta pumping. The applicable Delta operational rules control the existing southern Delta pumping.

The CVP permitted pumping capacity is 4,600 cfs, which requires use of the new DMC Intertie facility in the winter months. The SWP pumping capacity is constrained by the CCF diversion limits (Rivers and Harbors Section 10) of 6,680 cfs, with additional diversions of 1/3 of the SJR flow at Vernalis (with a maximum monthly pumping of 8,500 cfs assumed in CALSIM) between December 15 and March 15. SWP pumping at the physical capacity of 10,300 cfs is not currently permitted. The export/inflow ratio limits the CVP and SWP combined pumping to 65 percent of the Delta inflow July–January, and to 35 percent of the Delta inflow February–June. The 35 percent ratio in February is increased to 45 percent if the January runoff is low. An additional pumping limit imposed by the 2009 NMFS BO was an export limit that applies in April and May (a similar export restriction during VAMP applied for 31 days). This ratio effectively limits the combined export to 1,500 cfs for SJR inflows of less than 6,000 cfs. The exports are limited to 25 percent of the SJR inflow if the inflow is greater than 6,000 cfs.

The FWS and NMFS BOs also introduced new limits on the reverse (negative) OMR flow in December–June of many years (adaptively managed based on temperature, turbidity, and fish monitoring). Because the southern Delta exports often come primarily from OMR channels north of the export facilities, the minimum OMR restrictions limit exports. For example, an OMR limit of -2,000 cfs restricts exports to about 2,000 cfs plus the head of Old River flow diverted from the SJR near Mossdale. About 50 percent of the SJR flow is diverted into Old River unless there is a physical barrier installed. The OMR limits vary each year with fish and turbidity conditions; however, CALSIM modeling has assumed a monthly OMR limit that varies generally with the water year type.

Another possible constraint on Delta exports is related to the seasonal (monthly) water supply deliveries that are assumed for south of Delta CVP and SWP contractors. The San Luis Reservoir provides about 2,000 TAF of seasonal storage for meeting the peak summer water demands. The San Luis Reservoir storage space allows relatively high exports to continue through the fall and winter period. Without the San Luis Reservoir, exports would be reduced in the fall and winter to match the monthly water demands. Once San Luis Reservoir is filled, pumping is generally reduced to the monthly water demand, with some additional SWP exports for Article 21 deliveries to contractors with local storage capacity (e.g., surface reservoirs or groundwater storage).

The minimum required Delta outflow also may limit the allowable exports. Minimum monthly outflows are specified in D-1641 for each month, which often depend on the water year type (i.e., runoff conditions). For example, a minimum monthly outflow of 3,000 cfs is specified in September of all years. A minimum monthly outflow of 8,000 cfs is specified in July of wet and above normal water year types (about half of the years).

Delta outflow is also controlled by the maximum salinity objectives specified in D-1641 for each month or period. For example, EC objectives are specified at Emmaton and Jersey Point to protect agricultural diversions, and salinity (chloride) objectives are specified at the Contra Costa Water District Rock Slough intake to protect drinking water supplies. Because Delta outflow is the major factor determining salinity within the Delta channels, these salinity objectives are satisfied by increasing Delta outflow (normally by reducing exports).

The D-1641 February–June X2 objectives are another example of salinity requirements, which are satisfied by adjusting Delta outflow. The maximum location of the 2 parts per thousand (ppt) salinity (i.e., upstream edge of estuarine salinity gradient) is specified (kilometers [km] upstream of the Golden Gate), based on the month and the unimpaired runoff in the previous month. This was formulated as an adaptive objective; the required monthly outflow increased with higher runoff conditions. D-1641 provides equivalent Delta outflows for the X2 objectives; X2 at Collinsville (81 km) can be satisfied with an outflow of 7,100 cfs and X2 at Chipps Island (75 km) can be satisfied with an outflow of 11,400 cfs. The 2008 FWS BO included an additional outflow requirement for September and October of wet and above normal water year types (about half the years). The “Fall X2” rule requires X2 to be downstream of Collinsville (7,100 cfs outflow) in above normal years and downstream of Chipps Island (11,400 cfs outflow) in wet years.

F.1.7.2 Methods to Estimate Changes in Delta Exports and Outflow

The CALSIM model does not currently include the option of using a specified fraction of the unimpaired flow as the required reservoir release flows, and cannot change Tuolumne or Merced diversions based on higher target release flows. Therefore, an approximate method for estimating

the potential change in southern Delta pumping was used with the WSE model results. Changes in SJR flow at Vernalis would either change exports or change outflow. Because the WSE model does not include the Delta, there are no model results to help determine which factors would limit Delta exports. As a result, the potential change in export pumping was estimated by selecting the most likely limiting factor each month. Table F.1.7-1 summarizes the Delta regulations affecting exports and shows which regulations were used to assess whether changes in flow at Vernalis affected Delta exports or outflow. Following the table is a narrative summary of the export controls organized by month. These export controls were used to evaluate potential LSJR alternative changes.

Summary of Controls and Potential LSJR Alternative Changes

April and May. The most restrictive export regulations occur during April and May. The NMFS BO RPA 4.2.1 limits the exports to 1,500 cfs unless the SJR inflow is greater than 6,000 cfs in April and May. The maximum exports are limited to 25 percent of the SJR inflow at higher flows. It is therefore unlikely that the LSJR alternatives would result in increased exports during April or May. But if the Vernalis flow was greater than 6,000 cfs and the LSJR alternatives increased the flow to 7,000 cfs, for example, the pumping would increase by 250 cfs. Reductions in the SJR inflow would result in reduced pumping only if the pumping was greater than 1,500 cfs,

January, February, March, June, and December. In January, February, March, June, and December, the OMR regulations will likely limit exports. When OMR regulations are in effect, no extra water can be drawn from the north for exports. However, extra flow at Vernalis can be exported if it reaches the pumps by passing through the head of Old River. Because approximately 50 percent of the flow at Vernalis enters the Head of Old River, the pumping change would be 50 percent of the SJR flow increment.

July–November. From July–November, the most likely limit would be the E/I ratio of 65 percent. When a 65 percent E/I ratio is limiting, the pumping change would be 65 percent of the SJR flow increment.

In some instances, these assumptions about the export-limiting regulations would be incorrect. For example, if exports are at the minimum of 1,500 cfs, a reduction in flow at Vernalis would not cause a reduction in exports; if exports are at the maximum permitted export pumping of 11,280 cfs (11,780 cfs in July–September) then an increase in flow at Vernalis would not cause an increase in exports. Similarly, reductions in the SJR flow at Vernalis would cause a reduction in exports of the same amount if the baseline Delta outflow was equal to the minimum required Delta outflow. However, there were seldom decreases in Vernalis flow under the LSJR alternatives.

Changes in SJR flow at Vernalis would also cause changes in Delta outflow. Because the LSJR alternatives could reduce the SJR flow at Vernalis in some months and increase the SJR flow at Vernalis flow in other months, the possibility of increased and decreased Delta outflow must be considered. The most likely effect on a decrease in the SJR flow at Vernalis would be that Delta outflow would be reduced, but the reduction in outflow would be less than the reduction in SJR flow because there would be less exports (as calculated above). The change in outflow each month would be the change at Vernalis minus the change in exports.

Table F.1.7-1. Regulations that May Affect Export of Water Entering the Delta

Restriction: Regulation	January	February	March	April	May	June	July	August	September	October	November	December
Export Minimum (cfs): D-1641	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Export Maximum (cfs): D-1641	13,100[e]	13,100[e]	13,100/ 11,280[e]	11,280	11,280	11,280	11,780[f]	11,780[f]	11,780[f]	11,280	11,280	11,280/ 13,100[e]
Export Maximum (cfs): 2009 NMFS BO[a]				1,500	1,500							
E/I Ratio: D-1641	0.65	0.35	0.35[g]	0.35	0.35	0.35	0.65	0.65	0.65	0.65	0.65	0.65
HOR barrier in place: 2009 NMFS BO				X	X							
OMR Restrictions (cfs): 2008 FWS BO and 2009 NMFS BO[b]	0 to -5,000	0 to -5,000	0 to -5,000	0 to -5,000	0 to -5,000	0 to -5,000						0 to -5,000
Minimum Delta Outflow (cfs): D-1641	4,500[h]						4,000 to 8,000[i]	3,000 to 4,000[i]	3,000i	3,000 to 4,000[i]	3,500 to 4,500[i]	3,500 to 4,500[i]

Restriction: Regulation	January	February	March	April	May	June	July	August	September	October	November	December
Outflow for X2 Objectives (cfs): D-1641 and 2008 FWS BO		7,100-11,400[j]	7,100-11,400[j]	7,100-11,400[j]	7,100-11,400[j]	7,100-11,400[j]			7,100-11,400[k]	7,100-11,400[k]		
Western Delta Conductivity Standards for Agriculture (µS/cm): D-1641[c]				450 to 2,780	450 to 2,780	450 to 2,780	450 to 2,780	450 to 2,780				
Contra Costa Water District Drinking-Water Chloride Standards (mg/l): D-1641[d]	150 to 250	150 to 250	150 to 250	150 to 250	150 to 250	150 to 250	150 to 250	150 to 250	150 to 250	150 to 250	150 to 250	150 to 250

Footnotes:

HOR = Head of Old River

Shading indicates the regulations used for the export/outflow impact assessment.

Other factors that may control exports include:

- Delta water quality standards at other locations, although these other locations are less likely to affect exports than locations listed above.
- Capacity in San Luis Reservoir or with the water contractors (surface reservoirs or groundwater storage).

a. If SJR inflow (Vernalis) is > 6,000 cfs, exports can be increased to equal 0.25 * Vernalis.

b. Adaptively managed based on temperature, turbidity, and fish monitoring. SJR flows that pass through the Head of Old River can be diverted without affecting Old and Middle River flows. These flows are approximately equal to 0.5 * Vernalis when the Head of River barrier is not in place.

c. Value depends on location (Emmaton, Jersey Point, or San Andreas), water year type, and date. No objective after August 15. (Terminus also has similar standards, but these are unlikely to affect Delta exports). Salinity in the western Delta is largely controlled by Delta outflow, with higher Delta

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

outflow causing a reduction in seawater intrusion. Particular EC objectives can be met by maintaining sufficient Delta outflow. For example, 450 µS/cm and 2,780 µS/cm at Emmaton can be met by maintaining Delta outflow at approximately 7,500 cfs and 3,500 cfs, respectively.

d. Chlorides should stay below 150 mg/l for about half the year and below 250 mg/l at all times. Contra Costa Water District takes water from multiple locations within the Delta. Its intake at Rock Slough is the site most likely to exceed the chloride objective. Chlorides near Rock Slough can be maintained below the 150 mg/l and 250 mg/l objectives by limiting salinity intrusion from the ocean by maintaining Delta outflow above approximately 4,500 cfs and 3,500 cfs, respectively, although local agricultural drainage could cause the objectives to be exceeded regardless of Delta outflow.

e. From December 15–March 15, one-third of the SJR flow at Vernalis can be added to the SWP export limit of 6,680 cfs to bring SWP exports up to 8,500 cfs (upper limit assumed by CALSIM).

f. Extra 500 cfs allowed by USACE.

g. Increased to 0.45 if January runoff is low.

h. Increased to 6,000 cfs if December 8 river index > 800 TAF.

i. Depends on year type.

j. D-1641 criteria: Outflow needed to keep X2 at Collinsville or Chipps Island. Number of days at Chipps Island depends on previous month's river index. Outflow could be less than 7,100 cfs under drought conditions. Several other caveats exist.

k. 2008 FWS BO: 7,100 cfs (Collinsville) in above normal years and 11,400 cfs (Chipps Island) in wet years.

The most likely effect of an increase in the SJR flow at Vernalis would be that any water not exported would increase Delta outflow. It is possible that an increase in Delta outflow might allow upstream reservoir releases into the Sacramento River system to be reduced, with increased storage that could later be released for increased exports. However, a reduction in upstream reservoir releases (increase in storage) would generally not be possible if the Delta outflow was already greater than the required Delta outflow. In most spring months (February–June), the reservoir releases are controlled by maximum flood control storage or by minimum downstream flow requirements. Because the E/I ratio is only 35 percent in these months, exports can only be increased by 35 percent of the increased reservoir releases; releases of stored water for exports are unlikely in these months. With the additional FWS and NMFS restrictions on reverse OMR flow in these months, reservoir releases are almost always reduced to the minimum possible for flood control and downstream minimum requirements.

The likely changes in the baseline Delta outflow were calculated for each month for LSJR Alternatives 2, 3, and 4 to provide an initial estimate of the magnitude and frequency of the likely changes in Delta outflow. The increase in SJR flow (minus the estimated increase in exports) was assumed to be the increase in Delta outflow. These increases in Delta outflow are expected to be beneficial for estuarine habitat and fish survival.

This analysis provides a best estimate of how much of a change in flow at Vernalis would go to exports and how much would go to Delta outflow. An analysis of extremes could assume that all of the change in flow would go towards a change in Delta exports or that all of the change in flow would go towards a change in Delta outflow. The values presented here are between these two extremes. However, even if the extremes were used, the maximum potential changes in Delta exports or Delta outflow associated with the LSJR alternatives would be relatively small because of the relatively small contribution of the SJR to flow in the Delta. During water years 1995–2013, the average annual SJR flow of 3,360 TAF represented only about 14 percent of the combined average annual exports (5,185 TAF) and average annual Delta outflow (19,034 TAF) (data from DWR's DAYFLOW dataset).

F.1.7.3 Changes in Delta Exports and Outflow

Summary

The analysis of the change in exports and change in Delta outflow does not include an estimate of total Delta outflow or exports. As a result, the changes cannot be evaluated as a change in the distribution of outflow and exports. Some of the large changes are unlikely to be a concern because they would not affect the typical distribution of outflow and exports that would be expected. The primary result of interest from the Delta export and outflow analysis is the overall average change estimated for each month.

The annual and February–June cumulative distributions of SJR flow at Vernalis, change in SJR flow at Vernalis, change in southern Delta exports, and change in Delta outflow are summarized in Tables F.1.7-2a, F.1.7-2b, and F.1.7-2c. The monthly cumulative distributions of the likely changes in exports and outflow for the LSJR alternatives (20, 40, and 60 percent unimpaired flow) are described in more detail in tables below. Results for the 30 percent and 50 percent unimpaired flow are not described in detail, and only presented in the summary tables, because their results are, as expected, intermediate between the other percent unimpaired flows.

Table F.1.7-2a. Summary of Estimated Changes in SJR Flow at Vernalis (TAF)

Cumulative Distributions of Baseline and Changes in SJR Flow (TAF)			Percent of Unimpaired Flow									
	Baseline		20%		30%		40%		50%		60%	
	Annual SJR Flow (TAF)	Feb–June SJR Flow (TAF)	Annual SJR Flow Change	Feb–June SJR Flow Change	Annual SJR Flow Change	Feb–June SJR Flow Change	Annual SJR Flow Change	Feb–June SJR Flow Change	Annual SJR Flow Change	Feb–June SJR Flow Change	Annual SJR Flow Change	Feb–June SJR Flow Change
Minimum	875	364	40	17	49	25	81	53	124	96	168	140
10%	1,077	444	59	69	224	154	388	272	529	361	582	496
20%	1,386	604	65	64	214	244	387	374	546	506	745	674
30%	1,585	785	9	50	183	177	338	263	516	453	678	635
40%	1,778	935	47	-5	165	159	320	372	573	571	822	786
50%	2,041	1,103	61	118	234	357	463	633	777	845	1,112	1,016
60%	2,690	1,509	50	-22	132	162	232	417	535	654	901	1,017
70%	3,266	1,904	3	46	-35	193	146	310	447	526	733	823
80%	4,197	2,508	310	64	337	127	327	114	389	374	655	722
90%	5,542	3,554	-37	14	-84	75	-50	164	272	471	770	871
Maximum	15,907	9,415	0	0	0	72	-67	191	-167	410	-355	697
Average	2,965	1,742	59	56	149	174	294	288	469	485	693	728
	Percentage Change		2.0%	3.2%	5.0%	10.0%	9.9%	16.5%	15.8%	27.8%	23.4%	41.8%

Table F.1.7-2b. Summary of Estimated Changes in Delta Exports (TAF)

Cumulative Distributions of Changes in Delta Exports (TAF)	Percent of Unimpaired Flow									
	20%		30%		40%		50%		60%	
	Annual Exports Change	Feb–June Exports Change	Annual Exports Change	Feb–June Exports Change	Annual Exports Change	Feb–June Exports Change	Annual Exports Change	Feb–June Exports Change	Annual Exports Change	Feb–June Exports Change
Minimum	-74	-61	-132	-65	-190	-140	-263	-186	-376	-36
10%	-24	-10	-64	-7	-46	-36	-29	1	-4	45
20%	-16	-5	-15	6	3	0	28	28	58	87
30%	-1	0	1	13	29	14	62	57	100	117
40%	2	3	9	21	44	38	89	95	160	161
50%	9	8	18	30	69	58	122	119	187	196
60%	17	13	28	40	88	77	149	143	217	217
70%	32	24	52	55	125	99	174	168	268	265
80%	52	34	83	77	148	129	234	209	336	302
90%	77	60	127	118	216	202	316	307	450	439
Maximum	158	134	204	204	329	301	453	430	592	579
Average	18	16	27	41	76	67	124	128	194	211

Table F.1.7-2c. Summary of Estimated Changes in Delta Outflow (TAF)

Cumulative Distributions of Changes in Delta Outflow (TAF)	Percent of Unimpaired Flow									
	20%		30%		40%		50%		60%	
	Annual Exports Change	Feb–June Exports Change	Annual Exports Change	Feb–June Exports Change	Annual Exports Change	Feb–June Exports Change	Annual Exports Change	Feb–June Exports Change	Annual Exports Change	Feb–June Exports Change
Minimum	-88	-89	-88	-72	-168	-130	-189	-135	-31	64
10%	-23	-22	-9	17	-15	44	43	125	183	272
20%	-10	-4	19	45	88	81	166	189	293	338
30%	3	4	53	72	137	131	230	245	371	388
40%	14	14	78	81	166	153	282	271	432	444
50%	34	34	112	132	204	199	348	329	480	478
60%	48	50	150	151	246	234	375	377	521	503
70%	64	62	167	167	279	280	418	419	582	573
80%	89	81	207	203	372	371	537	535	698	698
90%	115	108	275	275	472	462	672	664	876	869
Maximum	300	300	437	450	590	577	836	823	1,071	1,058
Average	41	40	123	133	218	220	345	357	499	518

20 Percent Unimpaired Flow (LSJR Alternative 2)

Table F.1.7-3a shows the monthly cumulative distributions of the changes in the monthly Vernalis flows that were calculated with the WSE model of 1922–2003 (82 years) for LSJR Alternative 2. In some months, Vernalis flow increased significantly (the largest increase was 4,620 cfs in May 1978), while in other months, the flow decreased by a large amount (the largest decrease was 1,645 cfs in July 1941). The monthly flow reductions occurred most frequently in February–May, most likely due to reduced flood control releases. On average, all months, except March, July, and December, showed increased monthly flow. Annually, total flow at Vernalis increased more frequently than it decreased, with more than 70 percent of years registering an overall increase in flow. The average annual change in the SJR flow at Vernalis was an increase of 59 TAF/y, and the average change over February–June was an increase of 56 TAF/y.

Table F.1.7-3b shows the monthly cumulative distributions of the changes in monthly Delta exports, based on the monthly change in Vernalis flow under LSJR Alternative 2 and the regulations determined to control monthly exports (the shaded boxes in Table F.1.7-1). In some months, the Delta exports were estimated to increase significantly (the largest increase was 1,207 cfs in June 1932), while in other months, the exports decreased by a large amount (the largest decrease was 1,063 cfs in July 1941). The distribution of monthly export changes does not indicate whether the changes occurred in years with low baseline exports (larger effects) or in years with higher baseline exports (smaller effects). The overall changes in the monthly distributions of exports would generally be much smaller than the distribution of individual monthly export changes. Many of the large monthly export reductions would be compensated by increased exports in other months. On average, all months, except March, July, and December, showed increased exports. Annually, total Delta exports increased more frequently than they decreased, with more than 60 percent of years registering an overall increase. The average annual change in Delta exports was an increase of 18 TAF/y, and the average change over February–June was an increase of 16 TAF/y. This is relatively small compared to average historical exports of 5,185 TAF/y.

Table F.1.7-3c shows the monthly cumulative distributions of the changes in monthly Delta outflow, based on the changes in SJR flow at Vernalis and the estimated changes in Delta exports under LSJR Alternative 2. In some months, Delta outflow was estimated to increase significantly (the largest increase was 3,465 cfs in May 1978), while in other months, outflow decreased by a large amount (the largest decrease was 1,149 cfs in April 1953). Many of the large monthly reductions in outflow would be compensated by increased outflow in other months. On average, all months, except March, April, July, and December, showed increased monthly outflow. Annually, total Delta outflow increased more frequently than it decreased, with more than 70 percent of years registering an overall increase. The average annual change in Delta outflow was an increase of 41 TAF/y, and the average change over February–June was an increase of 40 TAF/y. This is relatively small compared to the average historical Delta outflow of about 19,000 TAF/y.

The results from this analysis indicate that about 31 percent of the average annual increase in the SJR flow at Vernalis would go toward an increase in exports, and 69 percent would go toward Delta outflow for LSJR Alternative 2.

Table F.1.7-3a. Cumulative Distributions of Monthly Changes in Vernalis Flow under LSJR Alternative 2

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual (TAF)
Minimum	-45	-100	-1,101	-808	-1,587	-1,364	-1,149	-896	-850	-1,635	-409	-499	-162
10%	0	0	0	-114	-469	-476	-479	-250	-79	0	0	0	-39
20%	0	0	0	0	-123	-190	-284	-23	0	0	0	0	-23
30%	0	0	0	0	0	0	-136	144	48	0	0	0	0
40%	0	0	0	0	0	0	0	304	163	0	0	0	32
50%	0	0	0	0	0	0	0	402	267	0	0	0	52
60%	0	0	0	0	0	0	99	517	485	0	0	0	70
70%	0	0	0	0	0	0	188	680	594	0	0	0	82
80%	0	0	0	0	109	20	250	879	930	0	0	40	110
90%	51	0	0	6	550	273	420	1,121	1,281	50	50	50	181
Maximum	139	518	1,622	1,103	2,174	1,376	1,121	4,620	2,414	535	1,081	1,125	434
Average	10	11	-19	2	28	-15	8	468	431	-24	32	43	59

Table F.1.7-3b. Cumulative Distributions of the Estimated Monthly Changes in Delta Exports under LSJR Alternative 2

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual
Minimum	-29	-65	-550	-404	-794	-682	-94	-101	-425	-1,063	-266	-324	-74
10%	0	0	0	-57	-235	-238	0	0	-40	0	0	0	-24
20%	0	0	0	0	-61	-95	0	0	0	0	0	0	-16
30%	0	0	0	0	0	0	0	0	24	0	0	0	-1
40%	0	0	0	0	0	0	0	0	81	0	0	0	2
50%	0	0	0	0	0	0	0	0	134	0	0	0	9
60%	0	0	0	0	0	0	0	0	242	0	0	0	17
70%	0	0	0	0	0	0	0	0	297	0	0	0	32
80%	0	0	0	0	55	10	0	25	465	0	0	26	52
90%	33	0	0	3	275	136	57	96	641	33	33	33	77
Maximum	90	337	811	552	1,087	688	270	1,155	1,207	348	702	732	158
Average	6	7	-10	1	14	-8	12	35	216	-16	21	28	18

Table F.1.7-3c. Cumulative Distributions of the Estimated Monthly Changes in Delta Outflow under LSJR Alternative 2

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual (TAF)
Minimum	-16	-35	-550	-404	-794	-682	-1,149	-896	-425	-572	-143	-175	-88
10%	0	0	0	-57	-235	-238	-479	-250	-40	0	0	0	-23
20%	0	0	0	0	-61	-95	-279	-23	0	0	0	0	-10
30%	0	0	0	0	0	0	-109	144	24	0	0	0	3
40%	0	0	0	0	0	0	0	238	81	0	0	0	14
50%	0	0	0	0	0	0	0	373	134	0	0	0	34
60%	0	0	0	0	0	0	89	517	242	0	0	0	48
70%	0	0	0	0	0	0	172	668	297	0	0	0	64
80%	0	0	0	0	55	10	246	870	465	0	0	14	89
90%	18	0	0	3	275	136	411	1,076	641	18	18	18	115
Maximum	49	181	811	552	1,087	688	1,121	3,465	1,207	187	378	394	300
Average	3	4	-10	1	14	-8	-4	433	216	-8	11	15	41

40 Percent Unimpaired Flow (LSJR Alternative 3)

Table F.1.7-4a shows the monthly cumulative distributions of the changes in the monthly Vernalis flows that were calculated with the WSE model of 1922–2003 (82 years) for LSJR Alternative 3. In some months, Vernalis flow increased significantly (the largest increase was 5,820 cfs in June 1932), while in other months, the flow decreased by a large amount (the largest decrease was 6,801cfs in February 1998). The monthly flow reductions occurred most frequently in December–March, most likely due to reduced flood control releases. On average, April–June and September–November showed monthly increases in Vernalis flow, while all other months had decreases. The September–November increases most likely occurred as a result of adaptive implementation flow shifting. Annually, total flow at Vernalis increased more frequently than it decreased, with more than 80 percent of years registering an overall increase in flow. The average annual change in the SJR flow at Vernalis was an increase of 294 TAF/y, and the average change over February–June was an increase of 288 TAF/y.

Table F.1.7-4b shows the monthly cumulative distributions of the changes in monthly Delta exports, based on the monthly change in Vernalis flow under LSJR Alternative 3 and the regulations determined to control monthly exports (the shaded boxes in Table F.1.7-1). In some months, the Delta exports were estimated to increase significantly (the largest increase was 2,910 cfs in June 1932), while in other months, the exports decreased by a large amount (the largest decrease was 3,401 cfs in February 1998). The distribution of monthly export changes does not indicate whether the changes occurred in years with low baseline exports (larger effects) or in years with higher baseline exports (smaller effects). The overall changes in the monthly distributions of exports would generally be much smaller than the distribution of individual monthly export changes. Many of the large monthly exports reductions would be compensated by increased exports in other months. On average, April–June and September–November showed monthly increases in Delta exports, while all other months had decreases. Annually, total Delta exports increased more frequently than they decreased, with more than 80 percent of years registering an overall increase. The average annual change in Delta exports was an increase of 76 TAF/y, and the average change over February–June was an increase of 67 TAF/y. This is relatively small compared to average historical exports of 5,185 TAF/y.

Table F.1.7-4c shows the monthly cumulative distributions of the changes in monthly Delta outflow, based on the changes in SJR flow at Vernalis and the estimated changes in Delta exports under LSJR Alternative 3. In some months, Delta outflow was estimated to increase significantly (the largest increase was 4,775 cfs in May 2003), while in other months, outflow decreased by a large amount (the largest decrease was 3,401 cfs in February 1998). Many of the large monthly reductions in outflow would be compensated by increases in outflow in other months. On average, April–June and September–November showed monthly increases in Delta outflow, while all other months had decreases. Annually, total Delta outflow increased more frequently than it decreased, with more than 80 percent of years registering an overall increase. The average annual change in Delta outflow was an increase of 218 TAF/y, and the average February–June change was an increase of 220 TAF/y. This is relatively small compared to the average historical Delta outflow of about 19,000 TAF/y. The results from this analysis indicate that about 26 percent of the average annual increase in the SJR flow at Vernalis would go toward an increase in exports, and 74 percent would go toward Delta outflow for LSJR Alternative 3.

Table F.1.7-4a. Cumulative Distributions of Monthly Changes in Vernalis Flow under LSJR Alternative 3

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual (TAF)
Minimum	-410	-717	-3,095	-3,216	-6,801	-3,657	-1,354	-358	-2,272	-3,084	-1,651	-2,106	-358
10%	7	0	-620	-1,311	-1,479	-1,270	-216	731	96	-254	-190	-50	-66
20%	32	0	0	-234	-445	-635	28	1,210	418	-50	-35	0	77
30%	97	0	0	-6	-65	-55	210	1,516	615	0	0	0	183
40%	157	0	0	0	0	0	447	1,820	960	0	0	0	224
50%	199	0	0	0	0	0	611	2,216	1,399	0	0	0	281
60%	232	0	0	0	47	127	790	2,622	1,803	0	0	34	334
70%	337	0	0	0	245	300	1,104	3,038	2,131	0	0	98	415
80%	566	612	0	0	669	510	1,669	3,692	2,775	50	50	481	515
90%	974	834	0	6	1,572	934	2,135	4,269	3,674	212	98	816	680
Maximum	1,651	1,021	1,368	2,861	3,521	2,881	4,333	5,447	5,820	1,211	461	1,108	915
Average	327	176	-191	-294	-16	-44	810	2,400	1,602	-29	-31	154	294

Table F.1.7-4b. Cumulative Distributions of the Estimated Monthly Changes in Delta Exports under LSJR Alternative 3

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual (TAF)
Minimum	-267	-466	-1,548	-1,608	-3,401	-1,828	-339	-66	-1,136	-2,005	-1,073	-1,369	-190
10%	4	0	-310	-656	-739	-635	0	0	48	-165	-124	-33	-46
20%	21	0	0	-117	-223	-318	0	0	209	-33	-23	0	3
30%	63	0	0	-3	-32	-27	0	0	308	0	0	0	29
40%	102	0	0	0	0	0	0	24	480	0	0	0	44
50%	129	0	0	0	0	0	0	178	700	0	0	0	69
60%	151	0	0	0	23	63	0	362	902	0	0	22	88
70%	219	0	0	0	123	150	30	442	1,066	0	0	64	125
80%	368	398	0	0	335	255	91	586	1,388	33	33	313	148
90%	633	542	0	3	786	467	180	835	1,837	138	64	531	216
Maximum	1,073	663	684	1,430	1,761	1,440	926	1,192	2,910	787	299	720	329
Average	212	114	-96	-147	-8	-22	50	299	801	-19	-20	100	76

Table F.1.7-4c. Cumulative Distributions of the Estimated Monthly Changes in Delta Outflow under LSJR Alternative 3

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual (TAF)
Minimum	-144	-251	-1,548	-1,608	-3,401	-1,828	-1,016	-358	-1,136	-1,079	-578	-737	-168
10%	2	0	-310	-656	-739	-635	-216	648	48	-89	-67	-18	-15
20%	11	0	0	-117	-223	-318	25	1,105	209	-18	-12	0	88
30%	34	0	0	-3	-32	-27	175	1,337	308	0	0	0	137
40%	55	0	0	0	0	0	395	1,631	480	0	0	0	166
50%	70	0	0	0	0	0	548	2,036	700	0	0	0	204
60%	81	0	0	0	23	63	731	2,329	902	0	0	12	246
70%	118	0	0	0	123	150	1,104	2,781	1,066	0	0	34	279
80%	198	214	0	0	335	255	1,585	3,229	1,388	18	18	169	372
90%	341	292	0	3	786	467	2,016	3,661	1,837	74	34	286	472
Maximum	578	357	684	1,430	1,761	1,440	3,454	4,775	2,910	424	161	388	590
Average	114	62	-96	-147	-8	-22	761	2,102	801	-10	-11	54	218

60 Percent Unimpaired Flow (LSJR Alternative 4)

Table F.1.7-5a shows the monthly cumulative distributions of the changes in the monthly Vernalis flows, which were calculated with the WSE model of 1922–2003 (82 years) for LSJR Alternative 4. In some months, Vernalis flow increased significantly (the largest increase was 10,173 cfs in May 1973), while in other months, the flow decreased by a large amount (the largest decrease was 9,276 cfs in July 1983). The monthly flow reductions occurred most frequently in January, July, and August, most likely due to reduced flood control releases. On average, February–June and September–November showed monthly increases in Vernalis flow, while all other months had decreases. The September–November increases most likely occurred as a result of adaptive implementation flow shifting. Annually, total flow at Vernalis increased more frequently than it decreased, with more than 90 percent of years registering an overall increase in flow. The average annual change in the SJR flow at Vernalis was an increase of 693 TAF/y, and the average change over February–June was an increase of 728 TAF/y.

Table F.1.7-5b shows the monthly cumulative distributions of the changes in monthly Delta exports, based on the monthly change in Vernalis flow under LSJR Alternative 4 and the regulations determined to control monthly exports (the shaded boxes in Table F.1.7-1). In some months, the Delta exports were estimated to increase significantly (the largest increase was 4,730 cfs in June 1932), while in other months, the exports decreased by a large amount (the largest decrease was 6,029 cfs in July 1983). The distribution of monthly export changes does not indicate whether the changes occurred in years with low baseline exports (larger effects) or in years with higher baseline exports (smaller effects). The overall changes in the monthly distributions of exports would generally be much smaller than the distribution of individual monthly export changes. Many of the large monthly exports reductions would be compensated by increased exports in other months. On average, February–June and September–November showed monthly increases in Delta exports, while all other months had decreases. Annually, total Delta exports increased more frequently than they decreased, with more than 80 percent of years registering an overall increase. The average annual change in Delta exports was an increase of 194 TAF/y, and the average change over February–June was an increase of 211 TAF/y. This is relatively small compared to average historical exports of 5,185 TAF/y.

Table F.1.7-5c shows the monthly cumulative distributions of the changes in monthly Delta outflow, based on the changes in SJR flow at Vernalis and the estimated changes in Delta exports under LSJR Alternative 4. In some months, Delta outflow was estimated to increase significantly (the largest increase was 7,990 cfs in May 1973), while in other months, outflow decreased by a large amount (the largest decrease was 4,075 cfs in December 1996). Many of the large monthly reductions in outflow would be compensated by increases in outflow in other months. On average, February–June and September–November showed monthly increases in Delta outflow, while all other months had decreases. Annually, total Delta outflow increased more frequently than it decreased, with more than 90 percent of years registering an overall increase. The average annual change in Delta outflow was an increase of 499 TAF/y, and the average change over February–June was an increase of 518 TAF/y. This is relatively small compared to the average historical Delta outflow of about 19,000 TAF/y. The results from this analysis indicate that about 28 percent of the average annual increase in the SJR flow at Vernalis would go toward an increase in exports, and 72 percent would go toward Delta outflow for LSJR Alternative 4.

Table F.1.7-5a. Cumulative Distributions of Monthly Changes in Vernalis Flow under LSJR Alternative 4

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual (TAF)
Minimum	-410	-2,198	-8,150	-6,963	-5,242	-2,476	-1,655	778	70	-9,276	-1,978	-2,106	-355
10%	1	0	-1,049	-2,316	-1,459	-1,567	487	2,281	941	-2,097	-402	-50	173
20%	34	0	-20	-744	-461	-208	1,032	2,843	1,463	-457	-126	-50	310
30%	97	0	0	-6	0	0	1,166	3,861	2,213	-50	-50	0	495
40%	157	0	0	-6	10	201	1,524	4,534	2,860	-50	-27	0	585
50%	199	0	0	0	276	454	1,979	4,986	3,217	0	0	0	674
60%	232	0	0	0	599	896	2,168	5,672	3,884	0	0	34	754
70%	337	0	0	0	1,018	1,187	2,657	6,309	4,788	0	0	67	880
80%	630	665	0	0	2,031	1,656	3,535	7,328	5,459	39	9	473	937
90%	1,036	842	0	6	2,850	2,115	4,462	8,209	6,446	96	72	802	1,322
Maximum	1,687	1,083	3,335	5,609	8,897	5,222	7,879	10,173	9,460	1,340	511	1,239	1,663
Average	340	171	-269	-434	638	586	2,178	5,149	3,531	-421	-98	141	693

Table F.1.7-5b. Cumulative Distributions of the Estimated Monthly Changes in Delta Exports under LSJR Alternative 4

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual (TAF)
Minimum	-267	-1,428	-4,075	-3,482	-2,621	-1,238	-414	0	35	-6,029	-1,285	-1,369	-376
10%	0	0	-524	-1,158	-730	-783	0	0	470	-1,363	-261	-33	-4
20%	22	0	-10	-372	-231	-104	0	73	732	-297	-82	-33	58
30%	63	0	0	-3	0	0	0	356	1,107	-33	-33	0	100
40%	102	0	0	-3	5	101	24	594	1,430	-33	-17	0	160
50%	129	0	0	0	138	227	193	861	1,608	0	0	0	187
60%	151	0	0	0	300	448	271	1,153	1,942	0	0	22	217
70%	219	0	0	0	509	594	311	1,412	2,394	0	0	44	268
80%	409	432	0	0	1,016	828	406	1,471	2,730	25	6	307	336
90%	674	547	0	3	1,425	1,058	663	1,795	3,223	62	47	521	450
Maximum	1,097	704	1,668	2,804	4,448	2,611	1,812	2,468	4,730	871	332	805	592
Average	221	111	-135	-217	319	293	252	889	1,766	-274	-63	92	194

Table F.1.7-5c. Cumulative Distributions of the Estimated Monthly Changes in Delta Outflow under LSJR Alternative 4

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Annual (TAF)
Minimum	-144	-769	-4,075	-3,482	-2,621	-1,238	-1,241	778	35	-3,247	-692	-737	-31
10%	0	0	-524	-1,158	-730	-783	419	2,024	470	-734	-141	-18	183
20%	12	0	-10	-372	-231	-104	800	2,686	732	-160	-44	-18	293
30%	34	0	0	-3	0	0	962	3,412	1,107	-18	-18	0	371
40%	55	0	0	-3	5	101	1,287	3,821	1,430	-18	-9	0	432
50%	70	0	0	0	138	227	1,668	4,243	1,608	0	0	0	480
60%	81	0	0	0	300	448	2,006	4,764	1,942	0	0	12	521
70%	118	0	0	0	509	594	2,519	5,164	2,394	0	0	23	582
80%	220	233	0	0	1,016	828	3,492	5,750	2,730	14	3	165	698
90%	363	295	0	3	1,425	1,058	3,902	6,368	3,223	34	25	281	876
Maximum	591	379	1,668	2,804	4,448	2,611	6,066	7,990	4,730	469	179	434	1,071
Average	119	60	-135	-217	319	293	1,926	4,260	1,766	-147	-34	49	499

F.1.8 References Cited

CALFED. 2009. *San Joaquin River Basin Water Temperature Modeling and Analysis*. Prepared by AD Consultants; Resource Management Associates, Inc.; and Watercourse Engineering, Inc.

California Department of Fish and Wildlife (CDFW). 2013. *San Joaquin River Basin-Wide Water Temperature and EC Model*. June. Prepared by AD Consultants, Resource Management Associates, and Watercourse Engineering, Inc.

California Department of Water Resources (DWR). 1967. *Contract between State of California and Merced Irrigation District for Recreation and Fish Enhancement Grants under the Davis-Grunsky Act.* Available: http://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/mrcdrvr2179/mr_davis_grunsky_contract.pdf.

California Department of Water Resources (DWR). 2007. *California Central Valley Unimpaired Flow Data*. Fourth edition. Draft. May 2007. Available: http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/docs/sjrf_sprtinfo/dwr_2007a.pdf.

California Department of Water Resources (DWR) 2010. *The State Water Project Delivery Reliability Report, 2009.* August 2010. Available: http://baydeltaoffice.water.ca.gov/swpreliability/Reliability2010final101210.pdf.

Federal Energy Regulatory Commission (FERC). 1995. *New Don Pedro Proceeding: P-2299-024. Settlement Agreement.*

Federal Energy Regulatory Commission (FERC). 2015. *Draft Environmental Impact Statement for Hydropower Licenses*. Merced River Hydroelectric Project, FERC Project No. 2179-043; Merced Falls Hydroelectric Project, FERC Project No. 2467-020. March 2015. Available: http://ferc.gov/industries/hydropower/enviro/eis/2015/03-30-15.asp. Accessed: May 1, 2015.

Merced Irrigation District (Merced ID). 2012. *Merced Irrigation District Agricultural Water Management Plan.*

Merced Irrigation District (Merced ID). 2013. *Merced Irrigation District Agricultural Water Management Plan.* Developed for the Department of Water Resources. Adopted September 3, 2013. Available: http://www.mercedid.com/index.cfm/water/ag-water-management-plan/. Accessed: July 10, 2015.

Modesto Irrigation District (MID). 2012. *Modesto Irrigation District Agricultural Water Management Plan for 2012*. December. Available: http://www.mid.org/water/irrigation/WaterManagementPlan_2012.pdf. Accessed: July 10, 2015.

Modesto Irrigation District (MID). 2015. *Agricultural Water Management Plan 2015 Update*. Prepared by Provost & Pritchard Consulting Group.

Modesto and Turlock Irrigation Districts (MID and TID). 2013. *Project Operations Water Balance Model Study Report Don Pedro Project.* FERC NO. 2299. Prepared by Dan Steiner, Consulting Engineer. December. Available: http://www.donpedro-relicensing.com/Documents/P-2299-075_54_DP_FLA_AttC_StudyRept_W-AR-02_140428.pdf. Accessed: July 6, 2016.

National Marine Fisheries Service (NMFS). 2009. *Appendix 2-E: Stanislaus River Minimum Flows for Fish Needs. Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project*. Southwest Region. June 4, 2009.

Oakdale Irrigation District (OID). 2012. *Oakdale Irrigation District Agricultural Water Management.* Davids Engineering, Inc. December 2012. Available: http://www.oakdaleirrigation.com/files/OID%202012%20AWMP%20-%20OID%20Web%20Version.pdf. Accessed: July 10, 2015.

San Francisco Public Utilities Commission (SFPUC). 2007. *Water System Improvement Program Environmental Impact Report.* Water Supply and System Operations—Setting and Impacts, 5.1: Overview. No. 2005.0159E. June. Prepared by ESA+Orion.

San Joaquin Tributary Authority (SJTA). 2012. *Stanislaus River Metering Handouts.* October 10. New Melones operations model runs in support of DO petition discussions.

South San Joaquin Irrigation District (SSJID). 2012. *Agricultural Water Management Plan.* Prepared by Davids Engineering, Inc. December 2012. Available: http://www.ssjid.com/assets/pdf/2012-Ag-Water-Management-Plan.pdf. Accessed: July 10, 2015.

Turlock Irrigation District (TID). 2012. *Turlock Irrigation District 2012 Agricultural Water Management Plan.* December 2012. Available: http://www.water.ca.gov/wateruseefficiency/sb7/docs/2014/plans/Turlock%20ID%20Final%20AWMP%2012-11-2012.pdf. Accessed: July 12, 2015.

U.S. Bureau of Reclamation (USBR). 2004. *San Joaquin River Water Quality Module*. Version 1.00. For CALSIM II. June. Mid-Pacific Region.

———. 2005. *CALSIM II San Joaquin River Model (DRAFT).* April. Documentation by MBK Engineers for CALSIM II 2005 peer review release. Mid-Pacific Region.

———. 2013a. *Stanislaus CalSim studies of proposed SWRCB standards*. January. Prepared by Tom FitzHugh.

———. 2013b. *Assumptions for CalSim studies comparing Stanislaus deliveries under baseline and proposed SWRCB standards*.

U.S. Bureau of Reclamation (USBR) and Oakdale Irrigation District (OID). 1988. *Agreement and Stipulation* ("1988 Agreement"). *OID 1972 ,1988 Water Agreements.pdf.*

U.S. Bureau of Reclamation and the San Joaquin River Group Authority (USBR and SJRGA). 1999. *Meeting Flow Objectives for the San Joaquin River Agreement, 1999–2010, Final Environmental Impact Statement/Environmental Impact Repor*t. January 28. Prepared by EA Engineering, Science, and Technology. Sacramento, CA.

U.S. Fish and Wildlife Service. 2008. *Biological opinion on coordinated operations of the central valley project and state water project.* Available: https://www.fws.gov/sfbaydelta/documents/SWP-CVP_OPs_BO_12-15_final_OCR.pdf. Accessed: July 29, 2016.

U.S. Office of Technology Assessment (OTA). 1982. *Use of Models for Water Resource Management, Planning, and Policy*. Chapter 3. Washington, DC.

Appendix F.1
Attachment 1

This attachment to Appendix F.1, *Hydrologic and Water Quality Modeling*, contains resulting flow and reservoir storage for the CALSIM II baseline and WSE model results of the three LSJR alternatives. The baseline is presented first followed by each of the alternatives and the preferred alternative. Tables 16 through 21 contain the baseline results, Tables 22 through 27 contain LSJR Alternative 2 (20% unimpaired flow),[1] Tables 28 through 33 contain LSJR Alternative 3 (40% unimpaired flow), and Tables 34 through 39 contain LSJR Alternative 4 (60% unimpaired flow). Flow results are presented for each tributary (Stanislaus, Tuolumne, and Merced Rivers) and the SJR at Vernalis. Storage results are presented for the three major reservoirs: New Melones, New Don Pedro, and New Exchequer (Lake McClure).

[1] Any reference in this appendix to 20% unimpaired, 40% unimpaired, and 60% unimpaired is the same as LSJR Alternative 2, LSJR Alternative 3, and LSJR Alternative 4, respectively. Any reference to 1.0 EC objective and 1.4 EC objective is the same as SDWQ Alternative 2 and SDWQ Alternative 3, respectively.

This page intentionally left blank

TABLES

Table 1. Summary Table of Stanislaus River at 20 Percent Unimpaired Flow

	Year					District Diversions		Required Releases from Diversion Dam									
	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1389	993	49	0	1041	507	155	38	161	190	0	19	0	0	0	0	409
1923	1109	1292	56	0	1006	512	155	35	109	203	0	19	0	0	0	0	366
1924	385	1340	48	0	854	489	77	18	34	191	0	22	0	0	0	18	284
1925	1092	823	47	0	804	461	59	31	143	115	0	17	0	0	0	0	307
1926	619	1064	47	0	858	553	50	18	79	142	0	21	0	0	0	0	261
1927	1256	778	47	0	949	521	134	36	154	112	0	20	0	0	0	0	322
1928	952	1038	50	0	942	529	155	28	100	129	0	21	0	0	0	0	277
1929	506	998	41	0	706	455	31	13	66	121	0	21	0	0	0	1	222
1930	671	756	38	0	674	449	0	27	96	88	0	21	0	0	0	0	232
1931	438	715	36	0	487	225	0	61	48	102	0	19	0	0	0	26	256
1932	1160	630	41	0	879	512	47	33	193	94	0	20	0	0	0	0	340
1933	586	870	39	0	697	448	12	19	86	110	0	21	0	0	0	0	236
1934	498	720	39	0	475	231	0	58	57	100	0	18	0	0	0	14	249
1935	1082	704	43	0	778	460	47	45	136	95	0	18	0	0	0	0	295
1936	1291	965	53	0	969	491	136	58	122	194	0	18	0	0	0	0	392
1937	1080	1234	55	0	997	504	155	43	99	213	0	19	0	0	0	0	374
1938	2032	1263	66	47	1182	498	155	74	175	329	0	19	0	0	0	0	644
1939	562	2000	63	5	1090	536	155	12	68	299	0	20	0	0	0	0	404
1940	1327	1404	61	0	1163	522	155	45	153	305	0	19	0	0	0	0	522
1941	1290	1507	62	0	1115	493	155	42	43	398	0	18	0	0	0	0	502
1942	1450	1620	65	0	1098	477	155	39	149	296	0	17	0	0	0	0	501
1943	1538	1908	68	325	1186	503	155	61	164	334	0	19	0	0	0	0	904
1944	649	1866	60	0	1092	547	155	21	53	305	0	21	0	0	0	0	399
1945	1228	1363	59	0	1017	500	155	42	122	197	0	19	0	0	0	6	386
1946	1175	1516	60	0	1148	510	155	31	113	337	0	19	0	0	0	0	501
1947	632	1482	53	0	1040	613	155	15	68	165	0	23	0	0	0	3	274
1948	853	1022	44	0	862	495	78	29	120	130	0	19	0	0	0	1	299
1949	732	968	43	0	894	575	59	21	91	137	0	22	0	0	0	0	270
1950	1027	763	42	0	877	547	59	38	116	115	0	21	0	0	0	0	290
1951	1654	871	60	0	960	518	136	63	62	215	0	19	0	0	0	0	360
1952	1844	1504	67	90	1191	504	155	68	234	274	0	19	0	0	0	0	684
1953	965	2000	64	72	1227	548	155	24	78	412	0	21	0	0	0	0	607

	Year					District Diversions		Required Releases from Diversion Dam									
	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	882	1602	59	0	1104	577	155	37	122	200	0	22	0	0	0	0	381
1955	656	1322	49	0	942	521	155	26	79	155	0	19	0	0	0	0	279
1956	1825	986	59	0	1138	524	155	63	131	299	0	20	0	0	0	0	513
1957	878	1614	58	0	1074	552	155	18	98	237	0	21	0	0	0	0	374
1958	1599	1360	63	0	1046	441	155	71	154	273	0	17	0	0	0	0	515
1959	624	1850	62	0	1071	551	155	18	33	297	0	21	0	0	0	0	370
1960	574	1341	51	0	928	584	78	14	64	165	0	24	0	0	0	0	267
1961	446	936	40	0	603	360	12	9	40	141	0	22	0	0	8	7	227
1962	863	739	40	0	837	531	47	28	112	113	0	21	0	0	0	0	274
1963	1227	725	44	0	918	493	136	32	128	136	0	18	0	0	0	0	315
1964	632	990	42	0	813	530	31	17	51	167	0	23	0	0	0	0	257
1965	1666	767	53	0	981	510	124	61	130	185	0	19	0	0	0	0	395
1966	733	1399	55	0	971	558	155	20	58	165	0	21	0	0	0	0	264
1967	1831	1105	58	0	1099	492	155	64	202	227	0	18	0	0	0	0	511
1968	670	1779	61	0	1065	545	155	17	49	283	0	21	0	0	0	0	370
1969	2118	1323	69	156	1216	510	155	98	195	310	0	18	0	0	0	0	777
1970	1321	2000	66	432	1195	543	155	46	62	405	0	21	0	0	0	0	966
1971	1064	1628	60	0	1176	538	155	31	76	376	0	20	0	0	0	0	504
1972	764	1456	53	0	1125	600	155	20	71	262	0	23	0	0	0	0	376
1973	1237	1042	54	0	1001	508	155	51	104	202	0	20	0	0	0	4	381
1974	1500	1224	61	0	1094	479	155	46	114	321	0	18	0	0	0	0	499
1975	1210	1569	61	0	1143	507	155	33	105	349	0	19	0	0	0	0	506
1976	467	1574	54	0	941	512	155	10	19	217	0	23	0	0	0	0	269
1977	271	1046	42	0	526	250	31	9	12	169	0	21	4	0	0	24	239
1978	1311	750	48	0	890	447	124	50	207	87	0	17	0	0	0	0	362
1979	1139	1123	54	0	1047	535	155	47	138	184	0	19	0	0	0	0	388
1980	1721	1161	62	0	1131	502	155	48	84	362	0	19	0	0	0	0	513
1981	633	1688	60	0	1070	551	155	18	47	284	0	21	0	0	0	0	370
1982	2229	1192	69	204	1147	447	155	90	225	299	0	17	0	0	0	0	834
1983	2900	2000	72	1688	1141	436	155	120	267	265	0	16	0	0	0	0	2356
1984	1621	2000	68	693	1209	560	155	59	64	390	0	21	0	0	0	0	1227
1985	744	1651	61	0	1044	529	155	21	46	282	0	20	0	0	0	0	369
1986	1869	1289	65	23	1185	495	155	67	228	279	0	19	0	0	0	0	615
1987	497	1885	61	0	1066	539	155	13	28	308	0	22	0	0	0	0	371

	Year					District Diversions		Required Releases from Diversion Dam									
	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	389	1255	44	0	808	456	62	12	46	187	0	21	0	0	0	19	286
1989	648	792	36	0	701	440	8	12	110	103	0	21	0	0	0	6	252
1990	491	703	37	0	440	222	0	12	48	128	0	22	2	0	0	4	216
1991	502	717	36	0	502	279	0	15	63	119	0	21	0	0	0	7	225
1992	459	682	38	0	420	216	0	33	42	113	0	19	8	0	0	0	216
1993	1275	682	46	0	919	472	124	62	210	65	0	19	0	0	0	0	355
1994	501	992	42	0	689	421	31	19	65	115	0	19	0	0	0	18	235
1995	2160	762	57	0	1065	460	124	71	263	171	0	18	0	0	28	0	550
1996	1512	1799	72	131	1256	510	155	40	191	375	0	19	0	0	0	0	755
1997	1902	1852	70	864	1210	563	155	72	77	381	0	22	0	0	0	0	1416
1998	1876	1611	70	258	1159	454	155	79	215	317	0	16	0	0	0	0	885
1999	1326	2000	68	282	1201	526	155	39	157	335	0	20	0	0	0	0	834
2000	1062	1774	67	0	1122	477	155	40	128	336	0	17	0	0	0	0	521
2001	588	1647	60	0	989	493	155	40	64	248	0	19	0	0	0	0	372
2002	710	1187	51	0	903	558	78	16	115	118	0	21	0	0	0	1	272
2003	896	943	47	0	900	536	59	22	145	113	0	20	0	0	9	6	315
Avg:	1087	1262	54	64	969	489	115	38	110	220	0	20	0	0	1	2	455

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 2. Summary Table of Stanislaus River at 30 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1389	993	47	0	1146	507	155	38	286	170	0	19	0	0	0	0	514
1923	1109	1188	53	0	1035	512	155	35	195	147	0	19	0	0	0	0	395
1924	385	1210	46	0	702	383	31	18	55	172	0	22	0	0	0	16	284
1925	1092	847	46	0	958	457	124	31	250	102	0	17	0	0	0	0	399
1926	619	936	44	0	737	440	31	18	134	98	0	21	0	0	0	0	272
1927	1256	774	46	0	1028	514	124	36	268	94	0	20	0	0	0	0	418
1928	952	957	48	0	923	529	78	28	182	104	0	21	0	0	0	0	335
1929	506	938	40	0	630	369	12	13	112	104	0	21	0	0	0	1	251
1930	671	774	38	0	674	390	0	27	160	83	0	21	0	0	0	0	291
1931	438	732	37	0	497	221	0	61	74	98	0	19	0	0	0	17	270
1932	1160	637	39	0	988	512	47	33	306	89	0	20	0	0	0	0	448
1933	586	770	37	0	611	320	12	19	140	99	0	21	0	0	0	0	279
1934	498	708	38	0	478	220	0	58	91	94	0	18	0	0	0	0	263
1935	1082	690	42	0	867	460	47	45	242	79	0	18	0	0	0	0	385
1936	1291	863	49	0	1022	491	136	58	239	131	0	18	0	0	0	0	445
1937	1080	1083	51	0	1001	504	155	43	194	115	0	19	0	0	0	6	378
1938	2032	1111	62	0	1192	498	155	74	339	175	0	19	0	0	0	0	608
1939	562	1889	61	0	1068	536	155	12	111	233	0	20	0	0	0	0	376
1940	1327	1322	60	0	1126	522	155	45	272	149	0	19	0	0	0	0	485
1941	1290	1464	61	0	1122	493	155	42	152	296	0	18	0	0	0	0	509
1942	1450	1571	63	0	1123	477	155	39	256	215	0	17	0	0	0	0	526
1943	1538	1835	68	243	1205	503	155	61	284	224	0	19	0	0	0	9	841
1944	649	1857	60	0	1092	547	155	21	101	257	0	21	0	0	0	0	399
1945	1228	1354	58	0	1065	500	155	42	227	140	0	19	0	0	0	6	435
1946	1175	1459	61	0	1028	510	155	31	193	138	0	19	0	0	0	0	380
1947	632	1546	53	0	1147	613	155	15	118	226	0	23	0	0	0	0	381
1948	853	977	42	0	938	495	78	29	192	134	0	19	0	0	0	1	375
1949	732	851	41	0	793	481	12	21	151	115	0	22	0	0	0	0	309
1950	1027	749	41	0	935	538	47	38	212	98	0	21	0	0	0	0	368
1951	1654	800	58	0	973	518	136	63	128	162	0	19	0	0	0	0	372
1952	1844	1423	65	0	1259	504	155	68	388	188	0	19	0	0	0	0	662
1953	965	1943	64	16	1227	548	155	24	148	341	0	21	0	0	0	0	550

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	882	1602	58	0	1123	577	155	37	202	139	0	22	0	0	0	0	400
1955	656	1303	49	0	903	521	78	26	136	136	0	19	0	0	0	0	317
1956	1825	1007	59	0	1133	524	136	63	237	207	0	20	0	0	0	0	527
1957	878	1639	59	0	1104	552	155	18	176	189	0	21	0	0	0	0	405
1958	1599	1354	62	0	1121	441	155	71	291	211	0	17	0	0	0	0	590
1959	624	1770	61	0	1071	551	155	18	79	251	0	21	0	0	0	0	370
1960	574	1263	49	0	922	584	61	14	117	123	0	24	0	0	0	0	278
1961	446	866	39	0	532	285	7	9	73	114	0	22	0	0	8	7	234
1962	863	742	39	0	831	496	0	28	202	101	0	21	0	0	0	0	351
1963	1227	734	44	0	986	491	124	32	236	111	0	18	0	0	0	0	397
1964	632	931	41	0	736	438	31	17	97	137	0	23	0	0	0	0	273
1965	1666	785	53	0	1022	506	124	61	229	131	0	19	0	0	0	0	440
1966	733	1376	55	0	982	558	155	20	108	126	0	21	0	0	0	1	275
1967	1831	1073	56	0	1199	492	155	64	346	183	0	18	0	0	0	0	610
1968	670	1649	58	0	1077	545	155	17	105	239	0	21	0	0	0	0	382
1969	2118	1184	65	0	1287	510	155	98	340	236	0	18	0	0	0	0	692
1970	1321	1950	66	382	1195	543	155	46	128	339	0	21	0	0	0	0	916
1971	1064	1628	60	0	1176	538	155	31	156	296	0	20	0	0	0	0	504
1972	764	1456	53	0	1140	600	155	20	132	216	0	23	0	0	0	0	391
1973	1237	1027	52	0	1063	508	155	51	205	163	0	20	0	0	0	4	442
1974	1500	1149	59	0	1122	479	155	46	221	220	0	18	0	0	0	23	527
1975	1210	1468	59	0	1198	507	155	33	209	270	0	19	0	0	0	30	561
1976	467	1421	51	0	863	512	78	10	39	197	0	23	0	0	0	0	269
1977	271	974	40	0	487	234	12	9	24	157	0	21	1	0	0	24	235
1978	1311	718	45	0	1018	446	124	50	336	87	0	17	0	0	0	0	490
1979	1139	966	50	0	1064	535	155	47	238	101	0	19	0	0	0	0	405
1980	1721	991	58	0	1149	502	155	48	203	261	0	19	0	0	0	0	531
1981	633	1506	57	0	969	551	155	18	98	132	0	21	0	0	0	0	269
1982	2229	1114	67	93	1183	447	155	90	396	163	0	17	0	0	0	0	758
1983	2900	2000	72	1583	1246	436	155	120	468	169	0	16	0	0	0	0	2356
1984	1621	2000	68	687	1215	560	155	59	148	312	0	21	0	0	0	0	1227
1985	744	1651	61	0	1044	529	155	21	94	234	0	20	0	0	0	0	369
1986	1869	1289	65	0	1252	495	155	67	393	180	0	19	0	0	0	0	659
1987	497	1841	60	0	1066	539	155	13	57	279	0	22	0	0	0	0	371

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	389	1212	44	0	731	417	31	12	76	163	0	21	0	0	0	6	278
1989	648	827	36	0	717	402	0	12	180	100	0	21	0	0	0	1	314
1990	491	721	38	0	451	220	0	12	86	106	0	22	0	0	0	3	230
1991	502	724	36	0	506	250	0	15	110	105	0	21	0	0	0	7	258
1992	459	685	38	0	438	214	0	33	80	96	0	19	7	0	0	0	236
1993	1275	668	43	0	1131	472	124	62	334	65	0	19	0	0	0	88	568
1994	501	769	38	0	514	233	31	19	105	100	0	19	0	0	0	5	247
1995	2160	719	55	0	1167	447	124	71	436	111	0	18	0	0	28	0	664
1996	1512	1657	71	0	1212	510	155	40	321	200	0	19	0	0	0	0	579
1997	1902	1886	70	914	1194	563	155	72	129	313	0	22	0	0	0	0	1450
1998	1876	1611	70	206	1211	454	155	79	349	235	0	16	0	0	0	0	885
1999	1326	2000	68	263	1233	526	155	39	265	259	0	20	0	0	0	0	846
2000	1062	1762	66	0	1141	477	155	40	227	256	0	17	0	0	0	0	540
2001	588	1617	59	0	998	493	155	40	109	213	0	19	0	0	0	0	381
2002	710	1148	49	0	959	558	73	16	184	112	0	21	0	0	0	0	333
2003	896	850	44	0	919	536	18	22	226	97	0	20	0	0	9	0	375
Avg:	1087	1214	53	53	983	475	109	38	194	168	0	20	0	0	1	3	478

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 3. Summary Table of Stanislaus River at 40 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1389	993	46	0	1239	507	155	38	385	164	0	19	0	0	0	0	606
1923	1109	1097	49	0	1119	512	155	35	299	126	0	19	0	0	0	0	480
1924	385	1038	43	0	538	252	31	18	81	115	0	22	0	0	0	14	251
1925	1092	842	44	0	1046	451	124	31	347	98	0	17	0	0	0	0	493
1926	619	844	42	0	651	305	31	18	186	95	0	21	0	0	0	0	320
1927	1256	771	46	0	940	358	87	36	373	94	0	20	0	0	0	0	522
1928	952	1041	48	0	1031	522	102	28	276	102	0	21	0	0	0	0	427
1929	506	913	40	0	578	261	20	13	167	97	0	21	0	0	0	0	298
1930	671	802	39	0	662	314	0	27	224	83	0	21	0	0	0	0	354
1931	438	773	38	0	511	217	0	61	101	94	0	19	0	0	0	14	289
1932	1160	662	40	0	888	363	4	33	399	89	0	20	0	0	0	0	541
1933	586	894	40	0	658	319	1	19	204	94	0	21	0	0	0	0	338
1934	498	782	40	0	523	221	0	58	139	90	0	18	0	0	0	0	306
1935	1082	717	42	0	819	326	47	45	327	79	0	18	0	0	0	0	470
1936	1291	939	50	0	1117	483	136	58	364	107	0	18	0	0	0	0	547
1937	1080	1063	49	0	1073	504	155	43	274	114	0	19	0	0	0	0	450
1938	2032	1021	58	0	1348	498	155	74	524	147	0	19	0	0	0	0	764
1939	562	1647	56	0	982	536	44	12	170	199	0	20	0	0	0	0	401
1940	1327	1171	55	0	1186	522	128	45	382	126	0	19	0	0	0	0	572
1941	1290	1257	57	0	1091	493	155	42	252	165	0	18	0	0	0	0	478
1942	1450	1399	58	0	1214	476	155	38	373	188	0	17	0	0	0	0	617
1943	1538	1577	66	0	1227	503	155	61	404	136	0	19	0	0	0	0	620
1944	649	1821	59	0	1111	547	155	21	173	204	0	21	0	0	0	0	418
1945	1228	1301	56	0	1138	500	155	42	321	121	0	19	0	0	0	5	508
1946	1175	1335	56	0	1141	510	155	31	273	116	0	19	0	0	0	54	494
1947	632	1312	50	0	881	526	31	15	171	118	0	23	0	0	0	0	327
1948	853	1014	43	0	961	491	43	29	268	122	0	19	0	0	0	0	438
1949	732	862	41	0	772	400	10	21	215	114	0	22	0	0	0	0	371
1950	1027	781	42	0	838	381	13	38	306	98	0	21	0	0	0	0	463
1951	1654	928	61	0	993	512	128	63	195	129	0	19	0	0	0	0	407
1952	1844	1528	65	0	1405	504	155	68	546	176	0	19	0	0	0	0	808
1953	965	1902	63	0	1263	548	155	24	239	286	0	21	0	0	0	0	570

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	882	1542	56	0	1181	577	155	37	277	122	0	22	0	0	0	0	458
1955	656	1187	46	0	842	473	31	26	185	121	0	19	0	0	0	0	351
1956	1825	955	58	0	1199	521	124	63	335	190	0	20	0	0	0	0	608
1957	878	1524	54	0	1191	552	155	18	279	173	0	21	0	0	0	0	491
1958	1599	1156	56	0	1214	441	155	71	419	176	0	17	0	0	0	0	683
1959	624	1485	55	0	948	551	103	18	135	124	0	21	0	0	0	0	298
1960	574	1106	47	0	730	389	18	14	182	104	0	24	0	0	0	0	324
1961	446	904	41	0	510	256	0	9	104	107	0	22	0	0	5	3	249
1962	863	799	40	0	843	421	0	28	288	101	0	21	0	0	0	0	437
1963	1227	778	45	0	894	349	87	32	333	101	0	18	0	0	0	0	484
1964	632	1067	45	0	746	415	21	17	152	124	0	23	0	0	0	0	316
1965	1666	907	55	0	1093	506	124	61	319	113	0	19	0	0	0	0	512
1966	733	1425	54	0	1028	558	122	20	168	122	0	21	0	0	0	24	355
1967	1831	1075	55	0	1304	492	147	64	491	151	0	18	0	0	0	0	723
1968	670	1548	55	0	1025	545	72	17	171	204	0	21	0	0	0	0	413
1969	2118	1137	63	0	1385	510	135	98	492	202	0	18	0	0	0	0	810
1970	1321	1807	65	228	1207	543	155	46	210	269	0	21	0	0	0	0	774
1971	1064	1628	59	0	1207	538	155	31	247	237	0	20	0	0	0	0	535
1972	764	1425	53	0	1041	600	39	20	188	177	0	23	0	0	0	0	409
1973	1237	1095	53	0	1110	508	126	51	303	140	0	20	0	0	0	4	518
1974	1500	1169	59	0	1150	478	155	45	326	133	0	18	0	0	0	33	555
1975	1210	1460	59	0	1189	506	155	31	306	196	0	19	0	0	0	0	553
1976	467	1422	52	0	779	445	31	10	88	178	0	23	0	0	0	0	298
1977	271	1059	43	0	467	229	0	9	29	156	0	21	1	0	0	16	231
1978	1311	820	46	0	1147	446	124	50	454	98	0	17	0	0	0	0	620
1979	1139	938	47	0	1151	536	137	47	337	107	0	19	0	0	0	0	510
1980	1721	879	55	0	1152	502	150	48	325	147	0	19	0	0	0	0	538
1981	633	1393	54	0	912	551	60	18	157	111	0	21	0	0	0	0	307
1982	2229	1061	65	0	1293	447	132	90	556	137	0	17	0	0	0	0	799
1983	2900	1932	71	1313	1448	436	155	120	690	149	0	16	0	0	0	0	2288
1984	1621	2000	68	677	1224	560	155	59	227	243	0	21	0	0	0	0	1227
1985	744	1651	61	0	1054	529	155	21	153	185	0	20	0	0	0	0	379
1986	1869	1279	63	0	1367	495	155	67	538	149	0	19	0	0	0	0	774
1987	497	1718	58	0	960	537	31	13	109	248	0	22	0	0	0	0	392

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	389	1197	45	0	619	337	0	12	100	145	0	21	0	0	0	0	278
1989	648	922	38	0	747	354	0	12	252	106	0	21	0	0	0	0	391
1990	491	785	39	0	480	217	0	12	127	101	0	22	0	0	0	0	262
1991	502	757	36	0	505	209	0	15	151	104	0	21	0	0	0	7	298
1992	459	717	38	0	465	210	0	33	115	94	0	19	5	0	0	0	266
1993	1275	673	45	0	954	335	71	62	424	65	0	19	0	0	0	11	581
1994	501	950	42	0	557	222	17	19	177	97	0	19	0	0	0	3	315
1995	2160	852	57	0	1303	447	124	71	591	106	0	18	0	0	15	0	800
1996	1512	1652	70	0	1323	510	155	40	452	180	0	19	0	0	0	0	690
1997	1902	1772	69	769	1263	563	155	72	204	307	0	22	0	0	0	0	1375
1998	1876	1572	68	50	1330	454	155	79	512	191	0	16	0	0	0	0	848
1999	1326	2000	68	222	1320	526	155	39	375	236	0	20	0	0	0	0	893
2000	1062	1716	64	0	1185	477	155	40	324	203	0	17	0	0	0	0	583
2001	588	1529	57	0	914	493	120	40	157	116	0	19	0	0	0	0	332
2002	710	1145	49	0	862	452	22	16	252	103	0	21	0	0	0	0	392
2003	896	944	46	0	910	454	0	22	326	97	0	20	0	0	0	0	466
Avg:	1087	1190	52	40	996	446	91	38	281	142	0	20	0	0	0	2	524

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 4. Summary Table of Stanislaus River at 50 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1389	993	44	0	1347	507	155	38	511	147	0	19	0	0	0	0	714
1923	1109	990	46	0	1126	512	117	35	376	94	0	19	0	0	0	0	524
1924	385	927	40	0	514	223	21	18	110	104	0	22	0	0	0	11	266
1925	1092	758	43	0	796	220	0	31	453	98	0	17	0	0	0	0	600
1926	619	1011	46	0	693	311	0	18	244	104	0	21	0	0	0	0	387
1927	1256	891	45	0	1203	506	88	36	484	98	0	20	0	0	0	0	637
1928	952	898	44	0	952	441	21	28	358	102	0	21	0	0	0	0	509
1929	506	853	38	0	537	197	0	13	213	95	0	21	0	0	0	0	342
1930	671	783	38	0	645	233	0	27	288	83	0	21	0	0	0	0	418
1931	438	771	38	0	491	183	0	61	128	89	0	19	0	0	0	4	302
1932	1160	681	41	0	847	213	0	33	513	89	0	20	0	0	0	0	655
1933	586	953	41	0	666	263	0	19	261	102	0	21	0	0	0	0	403
1934	498	831	41	0	525	189	0	58	172	92	0	18	0	0	0	0	340
1935	1082	763	43	0	811	235	25	45	433	79	0	18	0	0	0	0	576
1936	1291	991	49	0	1223	478	131	58	482	107	0	18	0	0	0	0	665
1937	1080	1010	47	0	1154	504	139	43	374	111	0	19	0	0	0	0	547
1938	2032	890	53	0	1488	498	151	74	692	123	0	19	0	0	0	0	907
1939	562	1381	51	0	816	433	31	12	204	116	0	20	0	0	0	0	352
1940	1327	1076	51	0	1278	513	124	45	510	104	0	19	0	0	0	0	678
1941	1290	1073	51	0	1185	493	155	42	364	147	0	18	0	0	0	0	572
1942	1450	1127	52	0	1274	476	155	38	485	106	0	17	0	0	0	31	678
1943	1538	1251	58	0	1325	503	155	61	524	113	0	19	0	0	0	0	718
1944	649	1407	51	0	931	510	31	21	220	138	0	21	0	0	0	0	399
1945	1228	1075	49	0	1208	498	124	42	435	109	0	19	0	0	0	5	609
1946	1175	1046	48	0	1197	510	131	31	358	111	0	19	0	0	0	54	573
1947	632	977	43	0	697	303	25	15	223	111	0	23	0	0	0	0	372
1948	853	869	39	0	874	374	0	29	344	117	0	19	0	0	0	0	510
1949	732	808	39	0	729	302	0	21	279	114	0	22	0	0	0	0	436
1950	1027	772	42	0	773	233	0	38	402	98	0	21	0	0	0	0	558
1951	1654	984	60	0	1106	507	124	63	270	175	0	19	0	0	0	0	529
1952	1844	1471	62	0	1545	504	155	68	698	163	0	19	0	0	0	0	948
1953	965	1708	59	0	1211	548	155	24	312	161	0	21	0	0	0	0	518

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	882	1403	52	0	1143	577	38	37	358	121	0	22	0	0	0	0	537
1955	656	1090	45	0	759	374	2	26	242	109	0	19	0	0	0	0	395
1956	1825	942	56	0	1302	513	124	63	446	157	0	20	0	0	0	32	718
1957	878	1409	52	0	1148	552	47	18	357	159	0	21	0	0	0	0	556
1958	1599	1088	54	0	1302	441	128	71	565	145	0	17	0	0	0	0	798
1959	624	1331	52	0	842	480	31	18	183	114	0	21	0	0	0	0	336
1960	574	1061	46	0	679	301	0	14	237	104	0	24	0	0	0	0	379
1961	446	910	41	0	498	216	0	9	139	102	0	22	0	0	5	0	277
1962	863	817	40	0	847	335	0	28	378	101	0	21	0	0	0	0	527
1963	1227	793	45	0	877	252	60	32	440	101	0	18	0	0	0	0	591
1964	632	1098	46	0	732	377	15	17	201	106	0	23	0	0	0	0	346
1965	1666	952	56	0	1165	504	124	61	418	88	0	19	0	0	0	0	585
1966	733	1397	54	0	978	551	31	20	222	115	0	21	0	0	0	24	402
1967	1831	1099	55	0	1388	491	124	64	635	113	0	18	0	0	0	0	830
1968	670	1488	55	0	960	545	50	17	219	113	0	21	0	0	0	0	370
1969	2118	1143	62	0	1525	510	129	98	662	178	0	18	0	0	0	0	956
1970	1321	1674	64	84	1247	543	155	46	291	227	0	21	0	0	0	0	670
1971	1064	1600	59	0	1182	538	155	31	327	133	0	20	0	0	0	0	511
1972	764	1422	53	0	1000	522	31	20	251	160	0	23	0	0	0	0	454
1973	1237	1133	53	0	1188	505	124	51	408	119	0	20	0	0	0	4	602
1974	1500	1129	56	0	1255	478	155	45	435	108	0	18	0	0	0	54	660
1975	1210	1318	54	0	1284	506	155	31	413	184	0	19	0	0	0	0	647
1976	467	1190	47	0	639	304	31	10	111	155	0	23	0	0	0	0	300
1977	271	971	41	0	430	189	0	9	42	146	0	21	1	0	0	15	234
1978	1311	771	45	0	969	228	56	50	574	87	0	17	0	0	0	0	729
1979	1139	1068	50	0	1177	516	53	47	455	119	0	19	0	0	0	0	640
1980	1721	980	56	0	1236	502	134	48	435	135	0	19	0	0	0	3	639
1981	633	1408	55	0	884	503	31	18	207	109	0	21	0	0	0	0	356
1982	2229	1104	64	0	1439	445	124	90	726	121	0	17	0	0	0	0	954
1983	2900	1830	70	1029	1631	436	155	120	891	131	0	16	0	0	0	0	2187
1984	1621	2000	68	668	1263	560	155	59	311	197	0	21	0	0	0	0	1256
1985	744	1623	60	0	1041	529	134	21	209	137	0	20	0	0	0	0	387
1986	1869	1265	61	0	1504	495	150	67	704	127	0	19	0	0	0	0	916
1987	497	1569	56	0	844	518	31	13	135	125	0	22	0	0	0	0	295

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	389	1166	45	0	582	291	0	12	135	118	0	21	0	0	0	0	286
1989	648	929	38	0	739	278	0	12	322	104	0	21	0	0	0	0	460
1990	491	799	39	0	483	185	0	12	165	98	0	22	0	0	0	0	297
1991	502	768	36	0	522	179	0	15	198	104	0	21	0	0	0	7	345
1992	459	712	38	0	470	180	0	33	155	92	0	19	2	0	0	0	302
1993	1275	663	44	0	905	221	0	62	548	65	0	19	0	0	0	24	717
1994	501	990	43	0	557	203	0	19	217	94	0	19	0	0	0	3	352
1995	2160	890	55	0	1476	446	124	71	765	106	0	18	0	0	15	0	974
1996	1512	1519	65	0	1416	510	155	40	582	143	0	19	0	0	0	0	784
1997	1902	1550	68	542	1270	563	155	72	273	245	0	22	0	0	0	0	1154
1998	1876	1572	67	0	1447	454	155	79	670	151	0	16	0	0	0	0	916
1999	1326	1934	67	136	1398	526	155	39	483	206	0	20	0	0	0	0	885
2000	1062	1658	63	0	1196	477	155	40	421	117	0	17	0	0	0	0	595
2001	588	1461	56	0	839	465	31	40	204	112	0	19	0	0	0	0	375
2002	710	1154	50	0	831	375	0	16	321	103	0	21	0	0	0	0	461
2003	896	983	47	0	908	372	0	22	407	97	0	20	0	0	0	0	547
Avg:	1087	1132	50	30	1007	408	72	38	368	122	0	20	0	0	0	3	582

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 5. Summary Table of Stanislaus River at 60 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1389	993	43	0	1387	507	87	38	636	130	0	19	0	0	0	0	823
1923	1109	951	45	0	1065	469	14	35	462	94	0	19	0	0	0	0	610
1924	385	950	41	0	507	219	0	18	131	103	0	22	0	0	0	9	284
1925	1092	787	41	0	1012	329	0	31	560	98	0	17	0	0	0	0	706
1926	619	826	41	0	625	201	0	18	296	95	0	21	0	0	0	0	430
1927	1256	779	44	0	934	211	0	36	601	94	0	20	0	0	0	0	750
1928	952	1057	48	0	961	389	0	28	440	102	0	21	0	0	0	0	591
1929	506	1000	42	0	580	194	0	13	259	94	0	21	0	0	0	0	387
1930	671	884	40	0	671	184	0	27	354	92	0	21	0	0	0	0	493
1931	438	844	40	0	509	180	0	61	153	89	0	19	0	0	0	2	324
1932	1160	733	41	0	912	164	0	33	627	89	0	20	0	0	0	0	769
1933	586	941	41	0	637	181	0	19	315	100	0	21	0	0	0	0	455
1934	498	849	41	0	554	182	0	58	207	92	0	18	0	0	0	0	376
1935	1082	752	41	0	859	201	0	45	539	79	0	18	0	0	0	0	682
1936	1291	934	47	0	1219	476	11	58	599	107	0	18	0	0	0	0	782
1937	1080	959	45	0	1091	477	3	43	475	111	0	19	0	0	0	0	647
1938	2032	903	52	0	1620	496	124	74	859	116	0	19	0	0	0	0	1068
1939	562	1263	49	0	708	284	31	12	247	114	0	20	0	0	0	0	393
1940	1327	1068	50	0	1305	499	46	45	629	104	0	19	0	0	0	0	797
1941	1290	1040	49	0	1261	493	136	42	476	128	0	18	0	0	0	2	667
1942	1450	1020	47	0	1388	476	155	38	599	106	0	17	0	0	0	31	791
1943	1538	1035	51	0	1434	500	155	58	646	104	0	19	0	0	0	0	827
1944	649	1089	44	0	752	287	31	21	278	125	0	21	0	0	0	0	443
1945	1228	942	46	0	1159	483	0	42	531	100	0	19	0	0	0	8	699
1946	1175	965	46	0	1101	481	0	31	442	91	0	19	0	0	0	54	637
1947	632	992	44	0	658	236	0	15	284	102	0	23	0	0	0	0	424
1948	853	923	41	0	872	298	0	29	422	114	0	19	0	0	0	0	583
1949	732	863	41	0	731	239	0	21	344	114	0	22	0	0	0	0	500
1950	1027	824	41	0	986	350	0	38	497	98	0	21	0	0	0	0	654
1951	1654	824	57	0	1085	512	124	63	343	77	0	19	0	0	0	0	502
1952	1844	1337	57	0	1657	504	155	68	851	120	0	19	0	0	0	1	1059
1953	965	1467	54	0	1138	548	49	24	390	116	0	21	0	0	0	0	550

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	882	1240	49	0	1002	406	5	37	430	111	0	22	0	0	0	0	600
1955	656	1071	45	0	701	268	0	26	308	94	0	19	0	0	0	0	445
1956	1825	981	56	0	1402	507	124	63	557	137	0	20	0	0	0	49	825
1957	878	1349	51	0	1061	417	31	18	436	146	0	21	0	0	0	0	621
1958	1599	1115	53	0	1423	433	124	71	712	128	0	17	0	0	0	3	931
1959	624	1238	50	0	750	339	31	18	232	114	0	21	0	0	0	0	385
1960	574	1062	46	0	629	196	0	14	292	104	0	24	0	0	0	0	434
1961	446	961	42	0	495	180	0	9	175	100	0	22	0	0	5	0	310
1962	863	870	41	0	853	251	0	28	468	101	0	21	0	0	0	0	617
1963	1227	839	43	0	1168	472	24	32	548	101	0	18	0	0	0	0	699
1964	632	855	40	0	604	224	6	17	247	93	0	23	0	0	0	0	380
1965	1666	843	52	0	1257	497	124	61	520	84	0	19	0	0	0	0	684
1966	733	1201	50	0	836	361	31	20	277	108	0	21	0	0	0	24	451
1967	1831	1048	52	0	1507	476	124	64	779	104	0	18	0	0	0	0	964
1968	670	1321	51	0	827	376	31	17	275	113	0	21	0	0	0	0	426
1969	2118	1112	59	0	1658	502	124	98	823	163	0	18	0	0	0	0	1102
1970	1321	1513	62	0	1301	543	155	46	372	201	0	21	0	0	0	0	640
1971	1064	1471	56	0	1197	538	106	31	407	115	0	20	0	0	0	0	573
1972	764	1283	51	0	868	400	19	20	306	107	0	23	0	0	0	0	455
1973	1237	1128	53	0	1177	499	27	51	521	99	0	20	0	0	0	4	694
1974	1500	1136	55	0	1337	478	131	45	544	105	0	18	0	0	0	54	766
1975	1210	1244	51	0	1310	506	86	31	520	172	0	19	0	0	0	0	742
1976	467	1092	46	0	545	240	14	10	134	120	0	23	0	0	0	0	286
1977	271	968	41	0	428	184	0	9	59	132	0	21	1	0	0	16	237
1978	1311	770	44	0	1028	214	0	50	703	87	0	17	0	0	0	0	857
1979	1139	1009	49	0	1104	425	0	47	546	98	0	19	0	0	0	0	710
1980	1721	996	55	0	1414	498	124	48	563	135	0	19	0	0	0	66	831
1981	633	1248	51	0	758	326	31	18	257	111	0	21	0	0	0	0	407
1982	2229	1073	61	0	1602	438	124	90	897	121	0	17	0	0	0	0	1125
1983	2900	1639	69	639	1831	436	155	120	1091	131	0	16	0	0	0	0	1998
1984	1621	2000	68	658	1314	560	155	59	394	165	0	21	0	0	0	0	1297
1985	744	1582	60	0	927	478	31	21	265	122	0	20	0	0	0	0	427
1986	1869	1338	60	0	1641	493	124	67	869	127	0	19	0	0	0	0	1082
1987	497	1505	55	0	739	390	31	13	166	117	0	22	0	0	0	0	318

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	389	1208	46	0	551	243	0	12	165	105	0	21	0	0	0	0	303
1989	648	1000	40	0	745	214	0	12	392	104	0	21	0	0	0	0	530
1990	491	863	40	0	514	180	0	12	203	96	0	22	0	0	0	0	333
1991	502	800	36	0	569	179	0	15	245	104	0	21	0	0	0	7	392
1992	459	697	36	0	506	180	0	33	195	91	0	19	0	0	0	0	338
1993	1275	613	41	0	950	148	0	62	672	65	0	19	0	0	0	18	836
1994	501	897	40	0	573	179	0	19	256	94	0	19	0	0	0	3	391
1995	2160	785	52	0	1369	228	62	71	938	106	0	18	0	0	15	0	1147
1996	1512	1524	65	0	1486	486	140	40	712	123	0	19	0	0	0	0	893
1997	1902	1485	68	469	1289	563	155	72	347	191	0	22	0	0	0	0	1100
1998	1876	1562	65	0	1593	454	155	79	828	139	0	16	0	0	0	0	1061
1999	1326	1780	65	0	1489	526	155	39	591	189	0	20	0	0	0	0	839
2000	1062	1552	59	0	1258	477	117	40	520	117	0	17	0	0	0	0	694
2001	588	1297	53	0	694	286	21	40	250	109	0	19	0	0	0	0	418
2002	710	1139	50	0	768	244	0	16	389	103	0	21	0	0	0	0	529
2003	896	1031	48	0	882	264	0	22	488	97	0	20	0	0	0	0	628
Avg:	1087	1087	49	22	1016	362	49	38	456	112	0	20	0	0	0	4	652

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 6. Summary Table of Tuolumne River at 20 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	2207	1370	66	516	1310	857	0	0	283	163	0	7	0	0	0	0	969
1923	1532	1685	64	370	1219	867	0	0	158	188	0	7	0	0	0	0	723
1924	351	1562	57	0	789	616	0	0	32	132	0	9	0	0	0	0	173
1925	1567	1067	64	16	1042	778	0	0	209	49	0	7	0	0	0	0	280
1926	862	1511	69	32	1121	938	0	0	100	74	0	8	0	0	0	0	214
1927	1745	1152	66	0	1208	888	0	0	213	99	0	7	0	0	0	0	320
1928	1296	1624	68	273	1193	927	0	0	149	109	0	8	0	0	0	0	539
1929	674	1385	52	0	996	811	0	0	95	82	0	8	0	0	0	0	185
1930	861	1011	44	0	920	745	0	0	114	53	0	8	0	0	0	0	175
1931	355	909	45	0	499	387	0	0	35	69	0	8	0	0	0	0	112
1932	1795	721	58	0	1217	867	0	0	226	116	0	8	0	0	0	0	350
1933	828	1241	49	0	1073	815	0	0	107	142	0	8	0	0	0	0	258
1934	618	947	51	0	629	508	0	0	42	71	0	8	0	0	0	0	121
1935	1721	885	64	0	1104	781	0	0	232	85	0	6	0	0	0	0	324
1936	1887	1437	71	437	1226	835	0	0	250	135	0	7	0	0	0	0	828
1937	1730	1590	69	480	1255	853	0	0	242	154	0	7	0	0	0	0	882
1938	3149	1516	68	1530	1368	856	0	0	375	131	0	6	0	0	0	0	2042
1939	755	1700	60	130	1141	936	0	0	69	128	0	8	0	0	0	0	335
1940	1949	1124	66	319	1253	882	0	0	226	138	0	7	0	0	0	0	690
1941	2259	1436	66	668	1293	831	0	0	306	149	0	7	0	0	0	0	1130
1942	2141	1668	63	919	1149	804	0	0	160	180	0	6	0	0	0	0	1265
1943	2137	1678	66	859	1212	872	0	0	193	139	0	7	0	0	0	0	1199
1944	1023	1678	60	80	1194	926	0	0	96	165	0	8	0	0	0	0	348
1945	1801	1366	64	350	1197	856	0	0	220	115	0	7	0	0	0	0	692
1946	1630	1555	62	584	1201	888	0	0	134	172	0	7	0	0	0	0	898
1947	839	1338	55	0	1083	870	0	0	79	125	0	9	0	0	0	0	212
1948	1102	1039	47	0	1084	855	0	0	140	82	0	7	0	0	0	0	229
1949	980	1010	50	0	1070	847	0	0	136	79	0	8	0	0	0	0	223
1950	1246	871	51	0	1156	912	0	0	169	67	0	8	0	0	0	0	243
1951	2190	911	59	682	1178	883	0	12	153	123	0	7	0	0	0	0	977
1952	2727	1181	66	843	1299	834	0	0	332	127	0	6	0	0	0	0	1308
1953	1302	1700	63	149	1236	952	0	0	136	140	0	8	0	0	0	0	433

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	1166	1555	65	66	1194	971	0	0	155	60	0	8	0	0	0	0	289
1955	837	1396	54	0	1113	905	0	0	104	96	0	8	0	0	0	0	208
1956	2877	1066	67	954	1231	894	0	0	221	108	0	7	0	0	0	0	1291
1957	1161	1693	64	74	1260	971	0	0	149	133	0	8	0	0	0	0	363
1958	2369	1455	69	898	1158	758	0	0	253	141	0	6	0	0	0	0	1298
1959	820	1700	65	146	1142	941	0	0	60	132	0	8	0	0	0	0	347
1960	785	1167	56	0	915	749	0	0	106	51	0	9	0	0	0	0	166
1961	444	981	46	0	517	386	0	0	60	62	0	8	0	0	0	0	130
1962	1460	863	53	0	1128	875	0	0	187	58	0	8	0	0	0	0	253
1963	1781	1142	63	0	1248	848	0	0	266	127	0	7	0	0	0	0	400
1964	883	1613	59	15	1237	991	0	0	101	137	0	8	0	0	0	0	262
1965	2442	1184	64	727	1234	876	0	2	244	106	0	7	0	0	0	0	1085
1966	1091	1602	65	233	1206	961	0	0	125	112	0	8	0	0	0	0	478
1967	2810	1190	67	924	1309	813	0	0	377	113	0	6	0	0	0	0	1420
1968	792	1700	61	86	1187	976	0	0	79	123	0	8	0	0	0	0	297
1969	3571	1158	70	1426	1533	864	0	68	512	82	0	7	0	0	0	0	2094
1970	1736	1700	64	701	1276	907	0	0	188	173	0	8	0	0	0	0	1069
1971	1424	1395	63	46	1198	908	0	0	151	131	0	8	0	0	0	0	336
1972	946	1512	61	0	1242	1041	0	0	121	71	0	9	0	0	0	0	201
1973	1754	1154	70	51	1226	878	0	0	218	123	0	7	0	0	0	0	399
1974	2011	1562	74	600	1211	820	0	0	209	175	0	7	0	0	0	0	991
1975	1795	1688	70	414	1298	875	0	0	224	193	0	7	0	0	0	0	838
1976	431	1700	59	41	891	710	0	0	29	143	0	9	0	0	0	0	221
1977	223	1141	45	0	507	387	0	0	28	75	0	9	7	0	0	0	120
1978	2470	812	67	370	1164	750	0	0	315	94	0	6	0	0	0	0	785
1979	1702	1680	70	648	1286	901	0	0	183	195	0	7	0	0	0	0	1033
1980	2748	1377	69	1064	1292	860	0	0	274	151	0	7	0	0	0	0	1496
1981	832	1700	69	90	1174	948	0	0	91	128	0	8	0	0	0	0	316
1982	3505	1199	69	1689	1247	776	0	0	374	91	0	6	0	0	0	0	2160
1983	4438	1700	62	3091	1284	755	0	0	372	151	0	6	0	0	0	0	3620
1984	2275	1700	72	1228	1343	949	0	8	198	179	0	8	0	0	0	0	1621
1985	976	1333	64	0	1140	913	0	0	95	125	0	8	0	0	0	0	227
1986	2698	1105	65	717	1325	850	0	0	376	93	0	7	0	0	0	0	1192
1987	422	1696	61	0	942	756	0	0	51	126	0	8	0	0	0	0	186

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	532	1116	47	0	618	481	0	0	81	48	0	8	0	0	0	0	137
1989	1050	983	43	0	1078	834	0	0	190	46	0	8	0	0	0	0	243
1990	583	912	47	0	566	415	0	0	92	49	0	8	3	0	0	0	152
1991	837	882	42	0	838	626	0	0	152	53	0	8	0	0	0	0	212
1992	704	838	51	0	629	468	0	0	85	55	0	7	13	0	0	0	161
1993	2235	862	71	108	1220	803	0	0	330	81	0	7	0	0	0	0	525
1994	599	1698	58	0	1105	879	0	0	110	109	0	8	0	0	0	0	227
1995	3576	1133	66	1649	1294	780	0	0	421	87	0	6	0	0	0	0	2163
1996	2117	1700	69	796	1263	850	0	0	262	144	0	7	0	0	0	0	1208
1997	2944	1689	66	1654	1355	973	0	0	225	149	0	8	0	0	0	0	2036
1998	3050	1558	67	1563	1277	761	0	0	353	158	0	6	0	0	0	0	2080
1999	1890	1700	66	628	1349	914	0	1	268	159	0	8	0	0	0	0	1064
2000	1702	1546	68	345	1202	804	0	0	250	141	0	7	0	0	0	0	743
2001	837	1633	62	64	1086	849	0	0	116	114	0	7	0	0	0	0	301
2002	1135	1259	57	0	1164	935	0	0	171	50	0	8	0	0	0	0	229
2003	1296	1172	57	0	1192	916	0	0	211	57	0	8	0	0	0	0	276
Avg:	1586	1344	61	394	1132	824	0	1	186	114	0	7	0	0	0	0	703

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 7. Summary Table of Tuolumne River at 30 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	2207	1370	65	335	1492	857	0	0	493	134	0	7	0	0	0	0	970
1923	1532	1685	63	370	1303	867	0	0	285	145	0	7	0	0	0	0	807
1924	351	1480	55	0	710	507	0	0	67	126	0	9	0	0	0	0	203
1925	1567	1066	61	0	1201	774	0	0	372	49	0	7	0	0	0	0	427
1926	862	1370	65	0	1100	835	0	0	198	59	0	8	0	0	0	0	265
1927	1745	1068	60	0	1349	880	0	0	380	82	0	7	0	0	0	0	469
1928	1296	1404	66	0	1314	927	0	0	276	103	0	8	0	0	0	0	387
1929	674	1320	50	0	934	681	0	0	180	65	0	8	0	0	0	0	253
1930	861	1010	43	0	900	629	0	0	212	50	0	8	0	0	0	0	270
1931	355	929	45	0	525	380	0	0	73	65	0	8	0	0	0	0	146
1932	1795	714	55	0	1364	867	0	0	397	92	0	8	0	0	0	0	497
1933	828	1090	45	0	971	643	0	0	198	122	0	8	0	0	0	0	328
1934	618	902	50	0	587	414	0	0	109	55	0	8	0	0	0	0	172
1935	1721	883	60	0	1270	776	0	0	407	81	0	6	0	0	0	0	494
1936	1887	1274	69	189	1403	835	0	0	436	125	0	7	0	0	0	0	756
1937	1730	1501	67	341	1407	853	0	0	423	125	0	7	0	0	0	0	896
1938	3149	1415	68	1175	1622	856	0	0	635	125	0	6	0	0	0	0	1941
1939	755	1700	60	126	1144	889	0	0	135	112	0	8	0	0	0	0	380
1940	1949	1126	64	265	1400	878	0	0	410	106	0	7	0	0	0	0	788
1941	2259	1346	64	527	1464	831	0	0	502	125	0	7	0	0	0	0	1160
1942	2141	1550	63	684	1267	804	0	0	320	136	0	6	0	0	0	0	1148
1943	2137	1678	65	748	1374	872	0	0	370	125	0	7	0	0	0	0	1250
1944	1023	1627	58	30	1267	926	0	0	190	143	0	8	0	0	0	0	370
1945	1801	1295	62	228	1340	856	0	0	387	91	0	7	0	0	0	0	712
1946	1630	1465	61	463	1296	888	0	0	262	138	0	7	0	0	0	0	871
1947	839	1275	54	0	1018	746	0	0	165	98	0	9	0	0	0	0	271
1948	1102	1042	45	0	1161	837	0	0	254	63	0	7	0	0	0	0	324
1949	980	938	47	0	1021	698	0	0	237	77	0	8	0	0	0	0	323
1950	1246	850	49	0	1151	779	0	0	306	59	0	8	0	0	0	0	373
1951	2190	896	58	648	1260	876	0	12	272	93	0	7	0	0	0	0	1032
1952	2727	1119	65	560	1521	834	0	0	556	125	0	6	0	0	0	0	1247
1953	1302	1700	61	146	1317	952	0	0	247	109	0	8	0	0	0	0	511

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	1166	1478	62	0	1322	971	0	0	285	59	0	8	0	0	0	0	351
1955	837	1260	51	0	1008	734	0	0	196	70	0	8	0	0	0	0	274
1956	2877	1039	66	793	1364	878	0	0	397	82	0	7	0	0	0	0	1280
1957	1161	1693	63	56	1357	971	0	0	272	105	0	8	0	0	0	0	442
1958	2369	1378	69	653	1326	758	0	0	472	91	0	6	0	0	0	0	1221
1959	820	1700	63	146	1193	938	0	0	139	108	0	8	0	0	0	0	401
1960	785	1117	54	0	866	609	0	0	203	46	0	9	0	0	0	0	258
1961	444	981	45	0	557	376	0	0	121	52	0	8	0	0	0	0	181
1962	1460	823	49	0	1275	875	0	0	344	49	0	8	0	0	0	0	400
1963	1781	959	55	0	1390	848	0	0	433	102	0	7	0	0	0	0	542
1964	883	1296	52	0	1061	752	0	0	185	115	0	8	0	0	0	0	308
1965	2442	1066	62	584	1351	863	0	2	397	82	0	7	0	0	0	0	1072
1966	1091	1511	64	132	1261	931	0	0	221	101	0	8	0	0	0	0	462
1967	2810	1146	67	694	1496	810	0	0	588	91	0	6	0	0	0	0	1379
1968	792	1700	61	74	1222	949	0	0	167	98	0	8	0	0	0	0	348
1969	3571	1135	70	1133	1803	862	0	68	783	82	0	7	0	0	0	0	2074
1970	1736	1700	63	669	1383	907	0	0	311	157	0	8	0	0	0	0	1144
1971	1424	1322	61	0	1284	908	0	0	271	97	0	8	0	0	0	0	376
1972	946	1401	58	0	1159	876	0	0	219	54	0	9	0	0	0	0	282
1973	1754	1130	68	12	1347	868	0	0	384	87	0	7	0	0	0	0	490
1974	2011	1458	73	399	1333	820	0	0	367	140	0	7	0	0	0	0	912
1975	1795	1663	68	320	1438	875	0	0	389	168	0	7	0	0	0	0	883
1976	431	1632	58	0	833	631	0	0	63	130	0	9	0	0	0	0	202
1977	223	1172	46	0	511	381	0	0	57	63	0	9	1	0	0	0	130
1978	2470	837	67	194	1366	750	0	0	529	81	0	6	0	0	0	0	811
1979	1702	1680	69	586	1381	901	0	0	319	152	0	7	0	0	0	0	1065
1980	2748	1346	69	863	1462	860	0	0	471	125	0	7	0	0	0	0	1465
1981	832	1700	68	66	1246	948	0	0	177	114	0	8	0	0	0	0	364
1982	3505	1152	69	1377	1512	776	0	0	639	91	0	6	0	0	0	0	2112
1983	4438	1700	62	2828	1548	755	0	0	663	125	0	6	0	0	0	0	3621
1984	2275	1700	70	1193	1465	949	0	8	340	159	0	8	0	0	0	0	1708
1985	976	1248	61	0	1113	808	0	0	189	109	0	8	0	0	0	0	305
1986	2698	1051	65	433	1555	843	0	0	623	82	0	7	0	0	0	0	1145
1987	422	1696	61	0	902	675	0	0	100	119	0	8	0	0	0	0	227

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	532	1156	48	0	615	418	0	0	145	44	0	8	0	0	0	0	197
1989	1050	1025	44	0	1086	726	0	0	308	44	0	8	0	0	0	0	360
1990	583	945	47	0	596	383	0	0	161	44	0	8	0	0	0	0	213
1991	837	885	41	0	835	525	0	0	250	53	0	8	0	0	0	0	310
1992	704	846	50	0	623	409	0	0	152	44	0	7	11	0	0	0	215
1993	2235	877	69	0	1413	799	0	0	527	81	0	7	0	0	0	0	614
1994	599	1630	57	0	1026	734	0	0	185	100	0	8	0	0	0	0	292
1995	3576	1146	66	1416	1540	770	0	0	681	82	0	6	0	0	0	0	2185
1996	2117	1700	69	622	1436	850	0	0	454	125	0	7	0	0	0	0	1208
1997	2944	1689	64	1619	1487	973	0	0	380	125	0	8	0	0	0	0	2132
1998	3050	1463	67	1263	1484	761	0	0	592	125	0	6	0	0	0	0	1986
1999	1890	1700	64	595	1483	914	0	1	437	124	0	8	0	0	0	0	1164
2000	1702	1447	67	168	1358	804	0	0	423	125	0	7	0	0	0	0	723
2001	837	1557	60	0	1160	849	0	0	203	101	0	7	0	0	0	0	312
2002	1135	1174	53	0	1211	870	0	0	283	50	0	8	0	0	0	0	341
2003	1296	1044	51	0	1293	894	0	0	341	50	0	8	0	0	0	0	399
Avg:	1586	1296	60	314	1217	788	0	1	324	96	0	7	0	0	0	0	743

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 8. Summary Table of Tuolumne River at 40 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	2207	1370	65	201	1651	857	0	0	662	125	0	7	0	0	0	0	995
1923	1532	1659	61	275	1458	867	0	0	456	128	0	7	0	0	0	0	866
1924	351	1397	53	0	639	401	0	0	102	126	0	9	0	0	0	0	237
1925	1567	1056	57	0	1360	769	0	0	535	49	0	7	0	0	0	0	591
1926	862	1206	60	0	992	627	0	0	299	59	0	8	0	0	0	0	365
1927	1745	1016	56	0	1498	863	0	0	546	82	0	7	0	0	0	0	636
1928	1296	1208	58	0	1376	868	0	0	405	95	0	8	0	0	0	0	508
1929	674	1069	44	0	783	445	0	0	265	65	0	8	0	0	0	0	338
1930	861	916	41	0	829	461	0	0	315	44	0	8	0	0	0	0	367
1931	355	908	43	0	551	369	0	0	117	57	0	8	0	0	0	0	182
1932	1795	669	54	0	1203	546	0	0	569	81	0	8	0	0	0	0	657
1933	828	1207	48	0	1002	589	0	0	291	114	0	8	0	0	0	0	413
1934	618	985	52	0	621	382	0	0	176	55	0	8	0	0	0	0	239
1935	1721	930	58	0	1443	774	0	0	582	81	0	6	0	0	0	0	669
1936	1887	1149	66	0	1589	835	0	0	622	125	0	7	0	0	0	0	753
1937	1730	1382	65	189	1550	853	0	0	565	125	0	7	0	0	0	0	886
1938	3149	1308	67	823	1884	856	0	0	897	125	0	6	0	0	0	0	1852
1939	755	1683	60	60	1136	775	0	0	249	104	0	8	0	0	0	0	421
1940	1949	1182	63	263	1551	868	0	0	593	82	0	7	0	0	0	0	946
1941	2259	1255	62	399	1615	831	0	0	653	125	0	7	0	0	0	0	1183
1942	2141	1438	62	417	1439	804	0	0	502	127	0	6	0	0	0	0	1053
1943	2137	1661	64	665	1544	872	0	0	540	125	0	7	0	0	0	0	1337
1944	1023	1525	54	0	1345	892	0	0	337	108	0	8	0	0	0	0	453
1945	1801	1148	60	8	1505	854	0	0	554	91	0	7	0	0	0	0	659
1946	1630	1375	59	346	1421	888	0	0	395	131	0	7	0	0	0	0	880
1947	839	1179	51	0	942	592	0	0	252	90	0	9	0	0	0	0	351
1948	1102	1024	44	0	1132	696	0	0	370	59	0	7	0	0	0	0	436
1949	980	949	47	0	1015	589	0	0	349	69	0	8	0	0	0	0	426
1950	1246	867	48	0	1151	642	0	0	442	59	0	8	0	0	0	0	509
1951	2190	913	58	632	1294	799	0	12	391	84	0	7	0	0	0	0	1127
1952	2727	1119	65	412	1690	829	0	0	730	125	0	6	0	0	0	0	1273
1953	1302	1679	60	72	1464	952	0	0	408	95	0	8	0	0	0	0	584

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	1166	1386	57	0	1388	907	0	0	414	59	0	8	0	0	0	0	481
1955	837	1107	47	0	904	547	0	0	291	59	0	8	0	0	0	0	358
1956	2877	993	65	683	1474	861	0	0	523	82	0	7	0	0	0	0	1296
1957	1161	1648	59	0	1517	971	0	0	445	93	0	8	0	0	0	0	546
1958	2369	1233	68	351	1502	758	0	0	648	91	0	6	0	0	0	0	1096
1959	820	1680	64	78	1193	827	0	0	265	93	0	8	0	0	0	0	445
1960	785	1164	55	0	870	515	0	0	301	46	0	9	0	0	0	0	355
1961	444	1024	45	0	606	370	0	0	183	45	0	8	0	0	0	0	236
1962	1460	817	49	0	1107	550	0	0	501	49	0	8	0	0	0	0	557
1963	1781	1121	57	0	1518	822	0	0	599	91	0	7	0	0	0	0	697
1964	883	1327	53	0	1047	666	0	0	269	102	0	8	0	0	0	0	380
1965	2442	1110	61	623	1441	858	0	2	491	82	0	7	0	0	0	0	1205
1966	1091	1427	64	0	1243	765	0	0	376	93	0	8	0	0	0	0	478
1967	2810	1212	67	633	1637	796	0	0	744	91	0	6	0	0	0	0	1474
1968	792	1686	61	0	1209	800	0	0	308	93	0	8	0	0	0	0	409
1969	3571	1208	70	990	2048	853	0	68	1038	82	0	7	0	0	0	0	2185
1970	1736	1670	61	589	1507	907	0	0	452	141	0	8	0	0	0	0	1189
1971	1424	1249	56	0	1400	908	0	0	392	93	0	8	0	0	0	0	492
1972	946	1216	54	0	1034	653	0	0	317	54	0	9	0	0	0	0	380
1973	1754	1075	63	0	1496	854	0	0	552	82	0	7	0	0	0	0	641
1974	2011	1270	72	188	1481	820	0	0	524	130	0	7	0	0	0	0	849
1975	1795	1541	67	188	1568	875	0	0	532	154	0	7	0	0	0	0	881
1976	431	1513	56	0	746	491	0	0	135	112	0	9	0	0	0	0	255
1977	223	1143	45	0	529	371	0	0	86	62	0	9	1	0	0	0	158
1978	2470	791	66	84	1519	742	0	0	690	81	0	6	0	0	0	0	861
1979	1702	1592	69	343	1568	901	0	0	526	133	0	7	0	0	0	0	1009
1980	2748	1315	68	675	1630	860	0	0	638	125	0	7	0	0	0	0	1445
1981	832	1689	68	22	1239	834	0	0	297	100	0	8	0	0	0	0	427
1982	3505	1192	69	1183	1745	769	0	0	879	91	0	6	0	0	0	0	2159
1983	4438	1700	61	2526	1851	755	0	0	965	125	0	6	0	0	0	0	3621
1984	2275	1700	68	1145	1599	949	0	8	494	139	0	8	0	0	0	0	1795
1985	976	1163	58	0	1043	650	0	0	286	99	0	8	0	0	0	0	393
1986	2698	1038	64	246	1792	832	0	0	871	82	0	7	0	0	0	0	1205
1987	422	1635	60	0	831	558	0	0	159	107	0	8	0	0	0	0	273

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	532	1166	47	0	627	367	0	0	208	44	0	8	0	0	0	0	260
1989	1050	1024	43	0	1071	592	0	0	426	44	0	8	0	0	0	0	479
1990	583	961	46	0	656	375	0	0	229	44	0	8	0	0	0	0	282
1991	837	842	39	0	808	400	0	0	348	53	0	8	0	0	0	0	408
1992	704	831	49	0	639	361	0	0	219	44	0	7	8	0	0	0	278
1993	2235	847	68	0	1491	739	0	0	665	81	0	7	0	0	0	0	753
1994	599	1523	53	0	963	543	0	0	318	94	0	8	0	0	0	0	420
1995	3576	1105	66	1188	1739	757	0	0	893	82	0	6	0	0	0	0	2170
1996	2117	1688	69	498	1616	850	0	0	635	125	0	7	0	0	0	0	1264
1997	2944	1622	64	1487	1644	973	0	0	538	125	0	8	0	0	0	0	2158
1998	3050	1372	67	927	1750	761	0	0	858	125	0	6	0	0	0	0	1916
1999	1890	1678	62	473	1684	914	0	1	637	124	0	8	0	0	0	0	1242
2000	1702	1349	64	0	1531	804	0	0	595	125	0	7	0	0	0	0	727
2001	837	1456	56	0	1104	708	0	0	296	93	0	7	0	0	0	0	396
2002	1135	1132	52	0	1162	709	0	0	394	50	0	8	0	0	0	0	453
2003	1296	1054	50	0	1273	744	0	0	471	50	0	8	0	0	0	0	529
Avg:	1586	1253	58	242	1289	725	0	1	465	91	0	7	0	0	0	0	807

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 9. Summary Table of Tuolumne River at 50 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	2207	1370	64	36	1861	857	0	0	872	125	0	7	0	0	0	0	1039
1923	1532	1616	60	189	1584	867	0	0	586	125	0	7	0	0	0	0	907
1924	351	1315	51	0	576	303	0	0	140	123	0	9	0	0	0	0	272
1925	1567	1039	54	0	1479	725	0	0	698	49	0	7	0	0	0	0	754
1926	862	1072	55	0	914	448	0	0	399	59	0	8	0	0	0	0	466
1927	1745	966	51	0	1632	830	0	0	713	82	0	7	0	0	0	0	802
1928	1296	1028	53	0	1272	637	0	0	534	93	0	8	0	0	0	0	635
1929	674	999	42	0	730	307	0	0	353	62	0	8	0	0	0	0	423
1930	861	901	40	0	809	339	0	0	417	44	0	8	0	0	0	0	470
1931	355	914	45	0	454	228	0	0	169	49	0	8	0	0	0	0	226
1932	1795	770	56	0	1152	324	0	0	740	81	0	8	0	0	0	0	828
1933	828	1357	52	0	1039	537	0	0	384	109	0	8	0	0	0	0	502
1934	618	1094	54	0	660	354	0	0	243	55	0	8	0	0	0	0	306
1935	1721	997	57	0	1561	717	0	0	757	81	0	6	0	0	0	0	844
1936	1887	1100	60	0	1771	831	0	0	808	125	0	7	0	0	0	0	940
1937	1730	1156	59	0	1731	853	0	0	747	125	0	7	0	0	0	0	878
1938	3149	1096	66	352	2145	856	0	0	1158	125	0	6	0	0	0	0	1641
1939	755	1683	60	49	1091	659	0	0	327	98	0	8	0	0	0	0	481
1940	1949	1237	61	236	1724	858	0	0	777	82	0	7	0	0	0	0	1103
1941	2259	1165	60	233	1811	831	0	0	849	125	0	7	0	0	0	0	1213
1942	2141	1321	61	161	1607	804	0	0	672	125	0	6	0	0	0	0	964
1943	2137	1633	62	545	1721	872	0	0	717	125	0	7	0	0	0	0	1394
1944	1023	1441	52	0	1273	722	0	0	447	96	0	8	0	0	0	0	551
1945	1801	1138	57	0	1662	843	0	0	721	91	0	7	0	0	0	0	818
1946	1630	1220	57	177	1456	796	0	0	528	125	0	7	0	0	0	0	837
1947	839	1159	50	0	911	475	0	0	339	88	0	9	0	0	0	0	436
1948	1102	1037	44	0	1120	567	0	0	487	59	0	7	0	0	0	0	552
1949	980	975	47	0	1014	477	0	0	463	66	0	8	0	0	0	0	538
1950	1246	894	48	0	1154	508	0	0	579	59	0	8	0	0	0	0	646
1951	2190	938	58	633	1257	642	0	12	510	84	0	7	0	0	0	0	1247
1952	2727	1180	65	261	1903	818	0	0	953	125	0	6	0	0	0	0	1345
1953	1302	1679	58	57	1573	952	0	0	520	93	0	8	0	0	0	0	678

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	1166	1293	54	0	1322	711	0	0	544	59	0	8	0	0	0	0	611
1955	837	1084	47	0	869	417	0	0	386	59	0	8	0	0	0	0	452
1956	2877	1005	63	644	1639	850	0	0	699	82	0	7	0	0	0	0	1433
1957	1161	1536	56	0	1469	799	0	0	569	93	0	8	0	0	0	0	670
1958	2369	1172	67	82	1712	748	0	0	868	91	0	6	0	0	0	0	1046
1959	820	1680	64	60	1155	706	0	0	348	93	0	8	0	0	0	0	509
1960	785	1220	56	0	872	420	0	0	398	46	0	9	0	0	0	0	452
1961	444	1077	48	0	529	231	0	0	245	44	0	8	0	0	0	0	298
1962	1460	945	48	0	1386	672	0	0	658	49	0	8	0	0	0	0	714
1963	1781	970	49	0	1696	832	0	0	766	91	0	7	0	0	0	0	863
1964	883	1008	45	0	872	415	0	0	354	95	0	8	0	0	0	0	457
1965	2442	973	59	438	1581	845	0	2	644	82	0	7	0	0	0	0	1174
1966	1091	1336	61	0	1164	591	0	0	473	93	0	8	0	0	0	0	573
1967	2810	1202	67	427	1833	782	0	0	954	91	0	6	0	0	0	0	1479
1968	792	1686	61	0	1176	679	0	0	396	93	0	8	0	0	0	0	497
1969	3571	1242	70	761	2311	845	0	68	1309	82	0	7	0	0	0	0	2227
1970	1736	1670	60	557	1602	894	0	0	575	125	0	8	0	0	0	0	1264
1971	1424	1188	54	0	1416	804	0	0	512	93	0	8	0	0	0	0	612
1972	946	1142	52	0	972	494	0	0	415	54	0	9	0	0	0	0	478
1973	1754	1064	60	0	1594	785	0	0	719	82	0	7	0	0	0	0	808
1974	2011	1164	69	33	1630	817	0	0	682	125	0	7	0	0	0	0	846
1975	1795	1442	64	56	1719	875	0	0	704	134	0	7	0	0	0	0	901
1976	431	1397	53	0	659	370	0	0	180	100	0	9	0	0	0	0	289
1977	223	1116	46	0	416	228	0	0	116	61	0	9	1	0	0	0	187
1978	2470	877	65	0	1719	728	0	0	904	81	0	6	0	0	0	0	991
1979	1702	1562	68	193	1718	901	0	0	685	125	0	7	0	0	0	0	1010
1980	2748	1284	68	449	1826	860	0	0	835	125	0	7	0	0	0	0	1415
1981	832	1689	68	12	1198	708	0	0	388	94	0	8	0	0	0	0	502
1982	3505	1244	69	977	2003	762	0	0	1144	91	0	6	0	0	0	0	2218
1983	4438	1700	61	2236	2141	755	0	0	1256	125	0	6	0	0	0	0	3622
1984	2275	1700	68	1112	1619	841	0	8	636	125	0	8	0	0	0	0	1890
1985	976	1177	58	0	1023	539	0	0	384	93	0	8	0	0	0	0	484
1986	2698	1072	63	144	2032	825	0	0	1118	82	0	7	0	0	0	0	1351
1987	422	1532	57	0	748	423	0	0	218	99	0	8	0	0	0	0	325

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	532	1149	47	0	558	235	0	0	271	44	0	8	0	0	0	0	323
1989	1050	1077	43	0	1076	479	0	0	545	44	0	8	0	0	0	0	597
1990	583	1008	48	0	572	222	0	0	298	44	0	8	0	0	0	0	350
1991	837	970	42	0	857	351	0	0	446	53	0	8	0	0	0	0	506
1992	704	908	51	0	639	297	0	0	287	44	0	7	4	0	0	0	342
1993	2235	922	65	0	1741	791	0	0	862	81	0	7	0	0	0	0	950
1994	599	1352	49	0	856	366	0	0	393	89	0	8	0	0	0	0	490
1995	3576	1045	65	882	1986	745	0	0	1152	82	0	6	0	0	0	0	2122
1996	2117	1688	67	400	1809	850	0	0	827	125	0	7	0	0	0	0	1359
1997	2944	1529	61	1354	1800	973	0	0	693	125	0	8	0	0	0	0	2180
1998	3050	1258	67	575	1989	761	0	0	1098	125	0	6	0	0	0	0	1804
1999	1890	1678	61	404	1853	914	0	1	806	124	0	8	0	0	0	0	1343
2000	1702	1250	58	0	1703	804	0	0	768	125	0	7	0	0	0	0	899
2001	837	1191	49	0	956	467	0	0	389	93	0	7	0	0	0	0	489
2002	1135	1023	49	0	1080	516	0	0	506	50	0	8	0	0	0	0	564
2003	1296	1029	49	0	1235	576	0	0	601	50	0	8	0	0	0	0	659
Avg:	1586	1220	57	180	1353	650	0	1	605	89	0	7	0	0	0	0	882

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 10. Summary Table of Tuolumne River at 60 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	2207	1370	60	0	2071	857	0	0	1082	125	0	7	0	0	0	0	1214
1923	1532	1445	59	0	1588	741	0	0	715	125	0	7	0	0	0	0	847
1924	351	1331	51	0	587	280	0	0	183	115	0	9	0	0	0	0	307
1925	1567	1043	53	0	1446	529	0	0	862	49	0	7	0	0	0	0	917
1926	862	1111	56	0	892	326	0	0	500	59	0	8	0	0	0	0	566
1927	1745	1025	52	0	1622	653	0	0	879	82	0	7	0	0	0	0	969
1928	1296	1097	54	0	1261	498	0	0	663	93	0	8	0	0	0	0	764
1929	674	1078	44	0	749	241	0	0	442	58	0	8	0	0	0	0	508
1930	861	960	41	0	810	238	0	0	520	44	0	8	0	0	0	0	572
1931	355	970	46	0	496	221	0	0	221	46	0	8	0	0	0	0	275
1932	1795	783	54	0	1225	225	0	0	911	81	0	8	0	0	0	0	1000
1933	828	1300	51	0	958	363	0	0	478	108	0	8	0	0	0	0	595
1934	618	1119	55	0	628	255	0	0	310	55	0	8	0	0	0	0	373
1935	1721	1054	57	0	1530	510	0	0	932	81	0	6	0	0	0	0	1020
1936	1887	1187	61	0	1799	673	0	0	994	125	0	7	0	0	0	0	1126
1937	1730	1215	59	0	1726	666	0	0	928	125	0	7	0	0	0	0	1060
1938	3149	1159	64	264	2389	840	0	0	1418	125	0	6	0	0	0	0	1813
1939	755	1592	60	0	971	466	0	0	404	93	0	8	0	0	0	0	505
1940	1949	1316	61	247	1788	737	0	0	961	82	0	7	0	0	0	0	1297
1941	2259	1170	58	171	1997	821	0	0	1044	125	0	7	0	0	0	0	1347
1942	2141	1203	59	0	1776	804	0	0	842	125	0	6	0	0	0	0	973
1943	2137	1509	61	329	1898	872	0	0	894	125	0	7	0	0	0	0	1355
1944	1023	1358	50	0	1187	529	0	0	558	93	0	8	0	0	0	0	658
1945	1801	1143	56	0	1674	688	0	0	888	91	0	7	0	0	0	0	986
1946	1630	1215	58	161	1366	573	0	0	661	125	0	7	0	0	0	0	953
1947	839	1260	53	0	896	374	0	0	426	88	0	9	0	0	0	0	523
1948	1102	1149	46	0	1124	455	0	0	603	58	0	7	0	0	0	0	669
1949	980	1080	50	0	1028	379	0	0	579	62	0	8	0	0	0	0	649
1950	1246	983	50	0	1163	380	0	0	716	59	0	8	0	0	0	0	783
1951	2190	1016	59	690	1175	441	0	12	630	84	0	7	0	0	0	0	1424
1952	2727	1283	63	225	2113	804	0	0	1177	125	0	6	0	0	0	0	1533
1953	1302	1608	57	0	1507	775	0	0	631	93	0	8	0	0	0	0	732

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	1166	1346	55	0	1287	546	0	0	674	59	0	8	0	0	0	0	741
1955	837	1171	49	0	859	312	0	0	481	59	0	8	0	0	0	0	547
1956	2877	1100	61	695	1806	842	0	0	875	82	0	7	0	0	0	0	1660
1957	1161	1414	53	0	1368	575	0	0	693	93	0	8	0	0	0	0	793
1958	2369	1155	64	0	1918	734	0	0	1088	91	0	6	0	0	0	0	1184
1959	820	1541	63	0	1027	494	0	0	431	93	0	8	0	0	0	0	532
1960	785	1272	58	0	832	283	0	0	495	46	0	9	0	0	0	0	549
1961	444	1167	49	0	582	222	0	0	308	44	0	8	0	0	0	0	360
1962	1460	979	48	0	1381	510	0	0	815	49	0	8	0	0	0	0	871
1963	1781	1010	48	0	1720	690	0	0	932	91	0	7	0	0	0	0	1030
1964	883	1023	46	0	844	305	0	0	438	93	0	8	0	0	0	0	539
1965	2442	1017	58	426	1729	840	0	2	798	82	0	7	0	0	0	0	1315
1966	1091	1245	58	0	1065	395	0	0	569	93	0	8	0	0	0	0	669
1967	2810	1213	66	246	2027	765	0	0	1164	91	0	6	0	0	0	0	1507
1968	792	1686	61	0	1104	520	0	0	483	93	0	8	0	0	0	0	584
1969	3571	1313	69	572	2573	835	0	68	1581	82	0	7	0	0	0	0	2310
1970	1736	1670	61	527	1526	695	0	0	698	125	0	8	0	0	0	0	1358
1971	1424	1292	56	0	1388	656	0	0	632	93	0	8	0	0	0	0	732
1972	946	1272	55	0	968	392	0	0	513	54	0	9	0	0	0	0	576
1973	1754	1195	63	0	1584	608	0	0	886	82	0	7	0	0	0	0	976
1974	2011	1302	68	123	1778	807	0	0	839	125	0	7	0	0	0	0	1094
1975	1795	1344	60	0	1864	855	0	0	876	125	0	7	0	0	0	0	1008
1976	431	1216	48	0	598	268	0	0	226	95	0	9	0	0	0	0	330
1977	223	1001	41	0	437	221	0	0	149	57	0	9	1	0	0	0	216
1978	2470	745	60	0	1583	377	0	0	1119	81	0	6	0	0	0	0	1206
1979	1702	1571	67	153	1802	825	0	0	844	125	0	7	0	0	0	0	1129
1980	2748	1251	66	275	2020	857	0	0	1031	125	0	7	0	0	0	0	1438
1981	832	1637	67	0	1101	520	0	0	479	93	0	8	0	0	0	0	580
1982	3505	1302	69	782	2256	750	0	0	1409	91	0	6	0	0	0	0	2288
1983	4438	1700	60	1946	2432	755	0	0	1546	125	0	6	0	0	0	0	3623
1984	2275	1700	68	1082	1545	625	0	8	778	125	0	8	0	0	0	0	2001
1985	976	1280	61	0	1007	426	0	0	481	93	0	8	0	0	0	0	581
1986	2698	1189	61	124	2272	818	0	0	1366	82	0	7	0	0	0	0	1579
1987	422	1429	55	0	649	267	0	0	278	95	0	8	0	0	0	0	381

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	532	1148	46	0	602	216	0	0	334	44	0	8	0	0	0	0	386
1989	1050	1032	42	0	1026	310	0	0	663	44	0	8	0	0	0	0	715
1990	583	1015	47	0	643	224	0	0	366	44	0	8	0	0	0	0	419
1991	837	908	40	0	816	212	0	0	544	52	0	8	0	0	0	0	604
1992	704	889	50	0	623	217	0	0	354	44	0	7	0	0	0	0	406
1993	2235	921	60	0	1933	786	0	0	1059	81	0	7	0	0	0	0	1147
1994	599	1163	42	0	844	280	0	0	468	88	0	8	0	0	0	0	564
1995	3576	876	64	482	2218	718	0	0	1412	82	0	6	0	0	0	0	1982
1996	2117	1688	66	304	2001	850	0	0	1020	125	0	7	0	0	0	0	1456
1997	2944	1434	60	1224	1811	829	0	0	849	125	0	8	0	0	0	0	2206
1998	3050	1282	66	371	2217	749	0	0	1337	125	0	6	0	0	0	0	1839
1999	1890	1678	60	363	1903	795	0	1	975	124	0	8	0	0	0	0	1471
2000	1702	1241	56	0	1698	626	0	0	940	125	0	7	0	0	0	0	1072
2001	837	1190	49	0	915	333	0	0	482	93	0	7	0	0	0	0	582
2002	1135	1063	50	0	1052	376	0	0	618	50	0	8	0	0	0	0	676
2003	1296	1096	51	0	1214	425	0	0	731	50	0	8	0	0	0	0	789
Avg:	1586	1226	56	144	1389	546	0	1	746	88	0	7	0	0	0	0	987

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 11. Summary Table of Merced River at 20 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1421	508	26	205	998	452	0	116	189	83	94	17	0	0	0	0	610
1923	947	700	25	115	809	483	0	6	87	74	94	39	0	0	0	0	321
1924	258	698	20	0	538	280	0	17	32	84	94	29	0	0	0	0	162
1925	916	398	22	0	785	473	0	1	64	84	94	43	0	0	0	0	193
1926	615	506	21	0	743	433	0	8	92	67	94	36	0	0	0	0	203
1927	994	358	16	0	889	493	0	11	163	59	94	42	0	0	0	0	275
1928	790	447	18	0	831	518	0	1	84	74	94	42	0	0	0	0	201
1929	521	389	13	0	588	292	0	7	63	81	94	44	0	0	0	0	194
1930	518	310	11	0	519	216	0	15	76	72	94	37	0	0	0	0	200
1931	270	298	14	0	328	84	0	6	35	81	94	27	0	0	0	0	150
1932	1123	226	20	0	877	489	0	13	141	74	94	37	0	0	0	0	265
1933	525	452	16	0	636	333	0	5	73	82	94	38	0	0	0	0	199
1934	365	324	17	0	368	127	0	7	33	75	94	29	0	0	0	0	145
1935	1182	304	25	0	820	417	0	6	158	82	94	32	0	0	0	0	278
1936	1170	642	29	203	879	467	0	11	173	63	94	38	0	0	0	0	489
1937	1234	700	28	334	871	461	0	31	158	62	94	30	0	0	0	0	614
1938	2094	700	27	1113	954	451	0	9	228	65	94	39	0	0	0	0	1453
1939	498	700	22	18	747	455	0	2	37	86	94	46	0	0	0	0	189
1940	1113	411	27	0	805	472	0	18	125	59	94	42	0	0	0	0	244
1941	1481	692	27	640	806	432	0	4	143	75	94	39	0	0	0	0	901
1942	1308	700	25	413	869	457	0	3	141	86	94	47	0	0	0	0	690
1943	1309	700	26	408	876	507	0	22	94	72	94	49	0	0	0	0	643
1944	706	700	22	0	821	502	0	12	71	76	94	46	0	0	0	0	205
1945	1121	563	26	98	860	483	0	3	133	62	94	48	0	0	0	0	344
1946	967	700	24	160	869	521	0	5	88	86	94	45	0	0	0	0	384
1947	591	613	22	0	771	461	0	1	57	82	94	45	0	0	0	0	186
1948	711	410	15	0	789	443	0	5	99	87	94	47	0	0	0	0	238
1949	666	318	16	0	666	335	0	2	83	81	94	47	0	0	0	0	213
1950	747	302	17	0	728	383	0	15	89	82	94	41	0	0	0	0	226
1951	1248	304	23	241	757	482	0	50	60	70	94	44	0	0	0	0	466
1952	1584	532	26	576	813	444	0	14	132	72	94	42	0	0	0	0	835
1953	648	700	21	48	820	523	0	7	56	80	94	46	0	0	0	0	237

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	688	459	19	0	788	478	0	1	74	74	94	47	0	0	0	0	196
1955	554	340	14	0	579	274	0	0	58	88	94	46	0	0	0	0	192
1956	1696	302	26	474	798	453	0	47	125	60	94	43	0	0	0	0	749
1957	674	700	22	0	860	531	0	4	63	86	94	49	0	0	0	0	202
1958	1434	492	27	437	762	406	0	3	83	87	94	34	0	0	0	0	644
1959	480	700	23	3	743	456	0	0	35	83	94	48	0	0	0	0	168
1960	507	411	18	0	580	287	0	0	47	85	94	46	0	0	0	0	178
1961	333	319	14	0	348	87	0	0	28	88	94	41	0	0	0	0	157
1962	953	290	20	0	807	473	0	3	79	79	94	42	0	0	0	0	202
1963	1009	417	22	0	819	480	0	0	98	75	94	49	0	0	0	0	222
1964	468	584	19	0	650	368	0	0	37	88	94	47	0	0	0	0	172
1965	1314	384	25	88	885	469	0	15	75	73	94	45	0	0	0	0	296
1966	648	700	24	98	801	528	0	23	45	66	94	47	0	0	0	0	279
1967	1700	426	27	544	856	428	0	13	191	65	94	42	0	0	0	0	855
1968	429	700	22	18	679	429	0	18	19	69	94	49	0	0	0	0	174
1969	2197	410	28	894	985	433	0	31	254	66	94	35	0	0	0	0	1280
1970	887	700	24	261	734	491	0	36	54	44	94	44	0	0	0	0	438
1971	734	568	22	0	770	492	0	10	55	76	94	49	0	0	0	0	189
1972	576	511	19	0	701	445	0	28	42	59	94	45	0	0	0	0	173
1973	1143	367	27	7	776	463	0	25	107	63	94	42	0	0	0	0	244
1974	1180	700	30	344	806	476	0	25	119	49	94	44	0	0	0	0	581
1975	1133	700	27	279	826	480	0	30	136	55	94	45	0	0	0	0	545
1976	300	700	21	25	550	300	0	10	7	84	94	48	0	0	0	0	174
1977	142	405	12	0	341	87	0	1	2	95	94	47	4	0	0	0	149
1978	1759	194	28	417	808	384	0	39	208	71	94	26	0	0	0	0	760
1979	1085	700	29	225	830	473	0	20	91	56	94	37	0	0	0	0	429
1980	1653	700	27	703	923	489	0	0	108	71	94	49	0	0	0	0	930
1981	502	700	24	0	779	479	0	0	33	88	94	48	0	0	0	0	169
1982	2006	400	27	730	949	426	0	1	190	67	94	41	0	0	0	0	1029
1983	2871	700	27	1527	1317	420	0	0	114	92	94	37	0	0	0	0	1770
1984	1208	700	29	343	915	515	0	0	62	83	94	49	0	0	0	0	537
1985	574	621	24	0	771	481	0	3	43	84	94	47	0	0	0	0	177
1986	1580	400	26	403	850	442	0	21	207	62	94	42	0	0	0	0	735
1987	322	700	21	0	607	346	0	1	23	89	94	48	0	0	0	0	160

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	392	393	15	0	454	191	0	0	32	80	94	45	0	0	0	0	158
1989	536	316	14	0	543	247	0	14	75	67	94	39	0	0	0	0	194
1990	383	296	15	0	366	83	0	2	49	75	94	42	1	0	0	0	170
1991	531	298	14	0	519	231	0	8	75	72	94	38	0	0	0	0	193
1992	444	296	17	0	428	158	0	9	49	71	94	34	7	0	0	0	170
1993	1452	295	28	239	780	381	0	55	198	54	94	15	0	0	0	0	561
1994	347	700	20	28	594	359	0	41	47	57	94	29	0	0	0	0	202
1995	2173	405	29	916	933	425	0	11	258	58	94	35	0	0	0	0	1278
1996	1178	700	33	296	850	459	0	8	146	62	94	41	0	0	0	0	552
1997	1754	700	31	947	835	511	0	47	88	47	94	44	0	0	0	0	1173
1998	1836	641	29	936	813	414	0	9	147	63	94	39	0	0	0	0	1194
1999	880	700	26	128	851	526	0	6	97	67	94	48	0	0	0	0	347
2000	941	575	28	38	790	468	0	17	104	69	94	43	0	0	0	0	271
2001	508	660	23	0	745	469	0	8	60	75	94	37	0	0	0	0	179
2002	621	400	20	0	659	369	0	2	83	72	94	36	0	0	0	0	192
2003	770	342	20	0	766	450	0	2	110	70	94	38	0	0	0	0	220
Avg:	965	514	22	194	751	407	0	13	95	73	94	41	0	0	0	0	417

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 12. Summary Table of Merced River at 30 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1421	508	26	108	1095	452	0	116	310	59	94	17	0	0	0	0	610
1923	947	700	24	115	869	483	0	6	158	63	94	39	0	0	0	0	380
1924	258	639	20	0	468	194	0	17	50	84	94	29	0	0	0	0	179
1925	916	409	21	0	842	471	0	1	139	68	94	43	0	0	0	0	252
1926	615	462	20	0	697	340	0	8	148	58	94	36	0	0	0	0	250
1927	994	360	15	0	978	489	0	11	256	59	94	42	0	0	0	0	368
1928	790	362	15	0	791	421	0	1	142	73	94	42	0	0	0	0	258
1929	521	346	12	0	552	219	0	7	105	76	94	44	0	0	0	0	231
1930	518	304	10	0	513	172	0	15	121	66	94	37	0	0	0	0	239
1931	270	299	13	0	345	82	0	6	56	80	94	27	0	0	0	0	168
1932	1123	210	19	0	952	489	0	13	230	59	94	37	0	0	0	0	340
1933	525	363	14	0	572	229	0	5	117	78	94	38	0	0	0	0	239
1934	365	301	16	0	351	91	0	7	59	68	94	29	0	0	0	0	163
1935	1182	300	23	0	904	416	0	6	257	68	94	32	0	0	0	0	364
1936	1170	554	28	43	978	467	0	11	277	59	94	38	0	0	0	0	427
1937	1234	675	28	202	979	461	0	31	269	59	94	30	0	0	0	0	590
1938	2094	700	27	949	1118	451	0	9	395	61	94	39	0	0	0	0	1453
1939	498	700	22	18	710	389	0	2	71	80	94	46	0	0	0	0	217
1940	1113	448	26	0	893	469	0	18	216	59	94	42	0	0	0	0	335
1941	1481	641	27	491	905	432	0	4	258	59	94	39	0	0	0	0	850
1942	1308	700	25	333	950	457	0	3	237	70	94	47	0	0	0	0	690
1943	1309	700	25	334	960	507	0	22	190	59	94	49	0	0	0	0	653
1944	706	691	21	0	870	502	0	12	126	69	94	46	0	0	0	0	253
1945	1121	506	25	0	951	483	0	3	225	62	94	48	0	0	0	0	338
1946	967	650	23	111	926	521	0	5	153	78	94	45	0	0	0	0	392
1947	591	557	21	0	701	358	0	1	99	73	94	45	0	0	0	0	218
1948	711	426	15	0	791	389	0	5	158	83	94	47	0	0	0	0	294
1949	666	331	16	0	678	298	0	2	140	74	94	47	0	0	0	0	263
1950	747	302	17	0	726	328	0	15	153	71	94	41	0	0	0	0	279
1951	1248	307	22	245	796	480	0	50	112	59	94	44	0	0	0	0	511
1952	1584	491	26	427	922	444	0	14	249	63	94	42	0	0	0	0	795
1953	648	700	20	48	829	492	0	7	98	78	94	46	0	0	0	0	277

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	688	450	19	0	769	403	0	1	135	69	94	47	0	0	0	0	253
1955	554	350	14	0	583	239	0	0	100	85	94	46	0	0	0	0	231
1956	1696	308	26	405	872	451	0	47	207	53	94	43	0	0	0	0	756
1957	674	700	22	0	902	527	0	4	119	76	94	49	0	0	0	0	248
1958	1434	450	27	318	839	406	0	3	177	71	94	34	0	0	0	0	603
1959	480	700	23	3	706	390	0	0	74	72	94	48	0	0	0	0	196
1960	507	448	19	0	594	267	0	0	93	73	94	46	0	0	0	0	211
1961	333	342	15	0	369	86	0	0	52	86	94	41	0	0	0	0	179
1962	953	291	18	0	880	473	0	3	156	75	94	42	0	0	0	0	276
1963	1009	346	19	0	897	480	0	0	178	73	94	49	0	0	0	0	300
1964	468	438	16	0	534	222	0	0	67	88	94	47	0	0	0	0	202
1965	1314	357	24	0	949	467	0	15	148	67	94	45	0	0	0	0	275
1966	648	697	24	95	777	470	0	23	86	59	94	47	0	0	0	0	310
1967	1700	450	27	453	970	425	0	13	313	60	94	42	0	0	0	0	881
1968	429	700	22	18	641	369	0	18	53	58	94	49	0	0	0	0	197
1969	2197	448	28	794	1123	431	0	31	393	66	94	35	0	0	0	0	1318
1970	887	700	24	254	782	491	0	36	114	31	94	44	0	0	0	0	479
1971	734	527	20	0	816	492	0	10	111	66	94	49	0	0	0	0	235
1972	576	425	18	0	628	334	0	28	84	55	94	45	0	0	0	0	212
1973	1143	356	25	0	845	460	0	25	189	53	94	42	0	0	0	0	309
1974	1180	629	29	191	889	476	0	25	203	47	94	44	0	0	0	0	510
1975	1133	700	27	182	924	480	0	30	234	55	94	45	0	0	0	0	545
1976	300	700	21	25	514	254	0	10	22	79	94	48	0	0	0	0	183
1977	142	440	13	0	340	85	0	1	12	90	94	47	1	0	0	0	151
1978	1759	229	28	330	930	384	0	39	341	60	94	26	0	0	0	0	795
1979	1085	700	28	194	903	473	0	20	178	42	94	37	0	0	0	0	471
1980	1653	659	27	555	1030	489	0	0	224	62	94	49	0	0	0	0	889
1981	502	700	24	0	745	410	0	0	68	88	94	48	0	0	0	0	204
1982	2006	433	28	621	1091	425	0	1	340	61	94	41	0	0	0	0	1064
1983	2871	700	27	1423	1420	420	0	0	218	92	94	37	0	0	0	0	1770
1984	1208	700	28	343	966	515	0	0	131	66	94	49	0	0	0	0	588
1985	574	571	23	0	708	384	0	3	84	76	94	47	0	0	0	0	212
1986	1580	414	26	282	985	438	0	21	346	62	94	42	0	0	0	0	752
1987	322	700	22	0	575	295	0	1	42	89	94	48	0	0	0	0	179

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	392	425	15	0	466	177	0	0	65	73	94	45	0	0	0	0	184
1989	536	336	13	0	563	223	0	14	123	62	94	39	0	0	0	0	238
1990	383	296	14	0	391	82	0	2	80	71	94	42	0	0	0	0	196
1991	531	273	13	0	494	159	0	8	126	69	94	38	0	0	0	0	241
1992	444	297	17	0	428	132	0	9	86	59	94	34	6	0	0	0	195
1993	1452	296	28	134	887	380	0	55	309	51	94	15	0	0	0	0	564
1994	347	700	21	28	558	299	0	41	77	52	94	29	0	0	0	0	227
1995	2173	440	29	808	1076	423	0	11	408	54	94	35	0	0	0	0	1315
1996	1178	700	32	197	949	459	0	8	248	58	94	41	0	0	0	0	553
1997	1754	700	30	941	897	511	0	47	154	43	94	44	0	0	0	0	1229
1998	1836	586	28	754	940	414	0	9	282	55	94	39	0	0	0	0	1139
1999	880	700	25	117	918	526	0	6	171	61	94	48	0	0	0	0	403
2000	941	520	26	0	864	468	0	17	185	62	94	43	0	0	0	0	307
2001	508	570	22	0	658	347	0	8	104	66	94	37	0	0	0	0	215
2002	621	399	20	0	644	310	0	2	134	64	94	36	0	0	0	0	236
2003	770	356	20	0	766	392	0	2	175	63	94	38	0	0	0	0	278
Avg:	965	500	22	157	788	380	0	13	166	66	94	41	0	0	0	0	444

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 13. Summary Table of Merced River at 40 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1421	508	26	42	1168	452	0	116	382	59	94	17	0	0	0	0	616
1923	947	694	23	59	986	483	0	6	278	60	94	39	0	0	0	0	441
1924	258	573	19	0	407	116	0	17	69	82	94	29	0	0	0	0	196
1925	916	405	20	0	910	469	0	1	216	61	94	43	0	0	0	0	322
1926	615	391	18	0	649	239	0	8	203	56	94	36	0	0	0	0	304
1927	994	339	13	0	1015	434	0	11	348	59	94	42	0	0	0	0	460
1928	790	305	13	0	752	324	0	1	205	68	94	42	0	0	0	0	316
1929	521	330	11	0	535	166	0	7	146	71	94	44	0	0	0	0	268
1930	518	304	9	0	513	128	0	15	168	63	94	37	0	0	0	0	283
1931	270	299	13	0	362	80	0	6	77	77	94	27	0	0	0	0	187
1932	1123	194	18	0	959	407	0	13	319	59	94	37	0	0	0	0	429
1933	525	340	14	0	549	166	0	5	162	73	94	38	0	0	0	0	279
1934	365	302	16	0	365	82	0	7	88	62	94	29	0	0	0	0	186
1935	1182	286	21	0	995	415	0	6	356	60	94	32	0	0	0	0	454
1936	1170	452	25	0	1082	467	0	11	380	59	94	38	0	0	0	0	488
1937	1234	516	27	23	1052	461	0	31	342	59	94	30	0	0	0	0	484
1938	2094	647	27	745	1274	451	0	9	552	61	94	39	0	0	0	0	1406
1939	498	694	22	0	704	305	0	2	157	73	94	46	0	0	0	0	277
1940	1113	467	25	0	981	466	0	18	307	59	94	42	0	0	0	0	426
1941	1481	573	27	359	978	432	0	4	331	59	94	39	0	0	0	0	792
1942	1308	690	25	227	1053	457	0	3	340	70	94	47	0	0	0	0	687
1943	1309	693	25	291	1060	507	0	22	290	59	94	49	0	0	0	0	711
1944	706	627	19	0	879	421	0	12	221	65	94	46	0	0	0	0	343
1945	1121	435	21	0	1041	481	0	3	317	62	94	48	0	0	0	0	430
1946	967	493	21	0	971	505	0	5	219	73	94	45	0	0	0	0	342
1947	591	468	19	0	625	245	0	1	142	66	94	45	0	0	0	0	255
1948	711	414	15	0	777	319	0	5	218	80	94	47	0	0	0	0	350
1949	666	334	16	0	682	245	0	2	197	73	94	47	0	0	0	0	320
1950	747	302	16	0	726	271	0	15	217	64	94	41	0	0	0	0	337
1951	1248	307	22	247	798	433	0	50	169	51	94	44	0	0	0	0	561
1952	1584	489	26	359	992	442	0	14	320	63	94	42	0	0	0	0	798
1953	648	696	21	0	837	413	0	7	189	74	94	46	0	0	0	0	316

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	688	486	19	0	773	350	0	1	197	64	94	47	0	0	0	0	309
1955	554	382	15	0	596	213	0	0	143	82	94	46	0	0	0	0	271
1956	1696	325	26	369	926	450	0	47	262	53	94	43	0	0	0	0	775
1957	674	700	21	0	884	424	0	4	214	67	94	49	0	0	0	0	334
1958	1434	469	27	267	909	404	0	3	249	71	94	34	0	0	0	0	624
1959	480	699	23	0	694	301	0	0	161	62	94	48	0	0	0	0	271
1960	507	462	19	0	587	225	0	0	138	64	94	46	0	0	0	0	247
1961	333	362	15	0	390	85	0	0	78	83	94	41	0	0	0	0	202
1962	953	291	17	0	899	415	0	3	233	75	94	42	0	0	0	0	352
1963	1009	328	17	0	965	470	0	0	263	67	94	49	0	0	0	0	378
1964	468	354	15	0	478	136	0	0	101	84	94	47	0	0	0	0	231
1965	1314	330	23	0	990	466	0	15	191	67	94	45	0	0	0	0	318
1966	648	630	24	0	772	386	0	23	171	54	94	47	0	0	0	0	295
1967	1700	483	27	415	1040	422	0	13	389	58	94	42	0	0	0	0	917
1968	429	700	22	0	636	290	0	18	136	49	94	49	0	0	0	0	252
1969	2197	471	28	731	1209	430	0	31	481	66	94	35	0	0	0	0	1343
1970	887	700	23	168	912	491	0	36	245	31	94	44	0	0	0	0	523
1971	734	485	19	0	776	404	0	10	167	59	94	49	0	0	0	0	284
1972	576	424	18	0	612	275	0	28	128	54	94	45	0	0	0	0	254
1973	1143	371	24	0	930	458	0	25	282	46	94	42	0	0	0	0	395
1974	1180	560	29	90	938	476	0	25	252	47	94	44	0	0	0	0	459
1975	1133	683	27	73	1020	480	0	30	330	55	94	45	0	0	0	0	532
1976	300	696	21	2	506	197	0	10	79	72	94	48	0	0	0	0	211
1977	142	467	14	0	346	83	0	1	24	86	94	47	1	0	0	0	159
1978	1759	249	28	269	1010	384	0	39	422	60	94	26	0	0	0	0	815
1979	1085	700	27	115	1046	473	0	20	321	42	94	37	0	0	0	0	535
1980	1653	596	27	420	1109	489	0	0	303	62	94	49	0	0	0	0	834
1981	502	693	24	0	727	320	0	0	145	83	94	48	0	0	0	0	276
1982	2006	445	28	492	1232	423	0	1	483	61	94	41	0	0	0	0	1078
1983	2871	700	27	1295	1549	420	0	0	375	64	94	37	0	0	0	0	1770
1984	1208	700	26	329	1040	515	0	0	209	62	94	49	0	0	0	0	648
1985	574	513	22	0	651	289	0	3	131	67	94	47	0	0	0	0	249
1986	1580	413	26	190	1077	435	0	21	440	62	94	42	0	0	0	0	755
1987	322	700	21	0	565	222	0	1	111	83	94	48	0	0	0	0	242

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	392	436	16	0	460	143	0	0	98	68	94	45	0	0	0	0	211
1989	536	352	13	0	574	188	0	14	171	60	94	39	0	0	0	0	284
1990	383	301	14	0	421	81	0	2	113	69	94	42	0	0	0	0	226
1991	531	250	13	0	471	85	0	8	177	68	94	38	0	0	0	0	292
1992	444	298	16	0	429	103	0	9	123	55	94	34	4	0	0	0	225
1993	1452	296	28	70	950	379	0	55	373	51	94	15	0	0	0	0	565
1994	347	700	21	0	560	227	0	41	155	48	94	29	0	0	0	0	273
1995	2173	467	29	742	1180	421	0	11	513	54	94	35	0	0	0	0	1354
1996	1178	689	32	126	1057	459	0	8	356	58	94	41	0	0	0	0	589
1997	1754	653	29	855	984	511	0	47	241	43	94	44	0	0	0	0	1230
1998	1836	539	28	585	1062	414	0	9	404	55	94	39	0	0	0	0	1092
1999	880	700	25	64	1002	496	0	6	289	57	94	48	0	0	0	0	464
2000	941	490	24	0	945	467	0	17	271	59	94	43	0	0	0	0	390
2001	508	461	19	0	579	227	0	8	149	62	94	37	0	0	0	0	255
2002	621	371	19	0	614	233	0	2	184	60	94	36	0	0	0	0	283
2003	770	359	19	0	756	321	0	2	240	60	94	38	0	0	0	0	340
Avg:	965	482	21	122	823	346	0	13	239	63	94	41	0	0	0	0	479

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 14. Summary Table of Merced River at 50 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1421	508	24	0	1276	452	0	116	492	58	94	17	0	0	0	0	683
1923	947	629	22	0	1056	472	0	6	361	58	94	39	0	0	0	0	464
1924	258	498	16	0	408	100	0	17	88	80	94	29	0	0	0	0	213
1925	916	331	18	0	875	357	0	1	293	61	94	43	0	0	0	0	399
1926	615	354	16	0	630	164	0	8	259	56	94	36	0	0	0	0	359
1927	994	323	14	0	840	166	0	11	441	59	94	42	0	0	0	0	553
1928	790	464	17	0	819	334	0	1	267	63	94	42	0	0	0	0	373
1929	521	418	13	0	591	182	0	7	189	68	94	44	0	0	0	0	307
1930	518	336	10	0	545	116	0	15	214	61	94	37	0	0	0	0	327
1931	270	299	13	0	380	80	0	6	99	74	94	27	0	0	0	0	206
1932	1123	176	18	0	799	159	0	13	408	59	94	37	0	0	0	0	518
1933	525	481	17	0	620	197	0	5	208	67	94	38	0	0	0	0	319
1934	365	369	17	0	391	83	0	7	117	57	94	29	0	0	0	0	211
1935	1182	326	22	0	886	209	0	6	455	58	94	32	0	0	0	0	552
1936	1170	600	25	46	1180	461	0	11	484	59	94	38	0	0	0	0	638
1937	1234	519	26	0	1153	461	0	31	443	59	94	30	0	0	0	0	562
1938	2094	573	27	493	1452	451	0	9	730	61	94	39	0	0	0	0	1332
1939	498	694	22	0	687	253	0	2	192	72	94	46	0	0	0	0	312
1940	1113	484	24	0	1070	464	0	18	398	59	94	42	0	0	0	0	517
1941	1481	502	27	176	1091	432	0	4	444	59	94	39	0	0	0	0	722
1942	1308	689	24	148	1136	457	0	3	433	60	94	47	0	0	0	0	691
1943	1309	689	24	260	1153	507	0	22	389	53	94	49	0	0	0	0	772
1944	706	562	18	0	841	320	0	12	289	60	94	46	0	0	0	0	406
1945	1121	409	20	0	1080	428	0	3	409	62	94	48	0	0	0	0	522
1946	967	429	20	0	925	394	0	5	284	73	94	45	0	0	0	0	407
1947	591	451	19	0	604	186	0	1	185	62	94	45	0	0	0	0	294
1948	711	419	15	0	774	261	0	5	277	77	94	47	0	0	0	0	406
1949	666	341	16	0	689	195	0	2	257	71	94	47	0	0	0	0	377
1950	747	303	16	0	728	211	0	15	281	61	94	41	0	0	0	0	398
1951	1248	306	22	244	781	363	0	50	225	47	94	44	0	0	0	0	611
1952	1584	507	26	269	1101	440	0	14	438	57	94	42	0	0	0	0	820
1953	648	696	21	0	818	355	0	7	234	68	94	46	0	0	0	0	356

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	688	505	19	0	774	292	0	1	258	62	94	47	0	0	0	0	368
1955	554	400	15	0	600	177	0	0	188	76	94	46	0	0	0	0	311
1956	1696	339	26	315	999	449	0	47	340	50	94	43	0	0	0	0	795
1957	674	695	21	0	870	348	0	4	281	63	94	49	0	0	0	0	396
1958	1434	478	27	166	1019	403	0	3	367	65	94	34	0	0	0	0	635
1959	480	699	23	0	681	249	0	0	200	62	94	48	0	0	0	0	309
1960	507	476	19	0	587	181	0	0	183	62	94	46	0	0	0	0	290
1961	333	376	15	0	410	83	0	0	104	79	94	41	0	0	0	0	224
1962	953	284	16	0	902	341	0	3	309	75	94	42	0	0	0	0	429
1963	1009	319	17	0	964	389	0	0	347	62	94	49	0	0	0	0	458
1964	468	347	15	0	471	100	0	0	135	79	94	47	0	0	0	0	261
1965	1314	330	24	0	933	344	0	15	259	62	94	45	0	0	0	0	382
1966	648	687	24	39	767	326	0	23	229	50	94	47	0	0	0	0	388
1967	1700	506	27	323	1156	419	0	13	511	54	94	42	0	0	0	0	943
1968	429	700	22	0	621	244	0	18	172	44	94	49	0	0	0	0	284
1969	2197	486	28	608	1347	428	0	31	619	66	94	35	0	0	0	0	1359
1970	887	700	23	157	901	419	0	36	306	31	94	44	0	0	0	0	573
1971	734	507	19	0	773	348	0	10	223	56	94	49	0	0	0	0	337
1972	576	449	18	0	615	236	0	28	174	51	94	45	0	0	0	0	297
1973	1143	392	23	0	1024	457	0	25	377	46	94	42	0	0	0	0	490
1974	1180	488	28	9	1012	476	0	25	329	44	94	44	0	0	0	0	452
1975	1133	620	25	0	1118	480	0	30	428	55	94	45	0	0	0	0	557
1976	300	609	19	0	456	123	0	10	107	67	94	48	0	0	0	0	232
1977	142	434	13	0	355	80	0	1	36	86	94	47	1	0	0	0	170
1978	1759	208	27	133	1107	348	0	39	554	60	94	26	0	0	0	0	812
1979	1085	700	26	88	1136	473	0	20	411	42	94	37	0	0	0	0	598
1980	1653	534	26	243	1225	489	0	0	419	62	94	49	0	0	0	0	772
1981	502	693	24	0	712	270	0	0	188	75	94	48	0	0	0	0	311
1982	2006	459	27	357	1381	422	0	1	633	61	94	41	0	0	0	0	1094
1983	2871	700	27	1113	1731	420	0	0	559	62	94	37	0	0	0	0	1771
1984	1208	700	26	321	1052	458	0	0	277	62	94	49	0	0	0	0	708
1985	574	509	22	0	638	233	0	3	178	64	94	47	0	0	0	0	293
1986	1580	424	25	106	1214	433	0	21	579	62	94	42	0	0	0	0	810
1987	322	659	20	0	532	168	0	1	138	77	94	48	0	0	0	0	264

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	392	428	15	0	450	103	0	0	130	66	94	45	0	0	0	0	242
1989	536	355	13	0	573	141	0	14	220	58	94	39	0	0	0	0	330
1990	383	304	13	0	450	80	0	2	145	66	94	42	0	0	0	0	257
1991	531	224	11	0	516	80	0	8	228	68	94	38	0	0	0	0	342
1992	444	228	14	0	439	77	0	9	161	55	94	34	2	0	0	0	260
1993	1452	220	26	0	964	294	0	55	472	51	94	15	0	0	0	0	593
1994	347	682	20	0	541	168	0	41	198	45	94	29	0	0	0	0	313
1995	2173	468	29	595	1328	419	0	11	663	54	94	35	0	0	0	0	1357
1996	1178	689	31	99	1149	459	0	8	449	58	94	41	0	0	0	0	655
1997	1754	588	28	771	1053	507	0	47	321	37	94	44	0	0	0	0	1219
1998	1836	490	28	393	1204	413	0	9	547	55	94	39	0	0	0	0	1043
1999	880	700	24	53	995	414	0	6	363	57	94	48	0	0	0	0	527
2000	941	509	24	0	968	403	0	17	357	59	94	43	0	0	0	0	476
2001	508	458	19	0	571	175	0	8	197	59	94	37	0	0	0	0	300
2002	621	377	19	0	611	180	0	2	235	60	94	36	0	0	0	0	333
2003	770	367	19	0	756	255	0	2	305	60	94	38	0	0	0	0	405
Avg:	965	478	21	92	854	305	0	13	313	61	94	41	0	0	0	0	520

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

Table 15. Summary Table of Merced River at 60 Percent Unimpaired Flow

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1922	1421	508	22	0	1396	452	0	116	612	58	94	17	0	0	0	0	803
1923	947	511	19	0	984	327	0	6	434	58	94	39	0	0	0	0	537
1924	258	455	15	0	418	93	0	17	108	77	94	29	0	0	0	0	230
1925	916	279	16	0	854	259	0	1	370	61	94	43	0	0	0	0	476
1926	615	325	15	0	617	96	0	8	315	56	94	36	0	0	0	0	415
1927	994	308	13	0	877	111	0	11	533	59	94	42	0	0	0	0	645
1928	790	412	15	0	781	236	0	1	329	61	94	42	0	0	0	0	433
1929	521	406	12	0	578	127	0	7	233	65	94	44	0	0	0	0	349
1930	518	337	9	0	555	81	0	15	261	58	94	37	0	0	0	0	371
1931	270	292	12	0	397	79	0	6	122	69	94	27	0	0	0	0	224
1932	1123	152	17	0	843	113	0	13	497	59	94	37	0	0	0	0	607
1933	525	416	15	0	583	116	0	5	253	66	94	38	0	0	0	0	363
1934	365	342	16	0	416	81	0	7	146	57	94	29	0	0	0	0	239
1935	1182	275	20	0	938	162	0	6	554	58	94	32	0	0	0	0	651
1936	1170	500	23	0	1148	325	0	11	587	59	94	38	0	0	0	0	695
1937	1234	499	25	0	1201	397	0	31	554	59	94	30	0	0	0	0	673
1938	2094	507	27	263	1617	448	0	9	898	61	94	39	0	0	0	0	1270
1939	498	694	22	0	653	184	0	2	230	70	94	46	0	0	0	0	347
1940	1113	518	24	0	1067	370	0	18	489	59	94	42	0	0	0	0	608
1941	1481	539	26	102	1202	428	0	4	559	59	94	39	0	0	0	0	763
1942	1308	689	23	119	1233	457	0	3	530	60	94	47	0	0	0	0	759
1943	1309	622	23	159	1253	507	0	22	488	53	94	49	0	0	0	0	771
1944	706	497	16	0	801	223	0	12	348	58	94	46	0	0	0	0	463
1945	1121	386	19	0	1060	315	0	3	502	62	94	48	0	0	0	0	615
1946	967	428	20	0	895	299	0	5	350	72	94	45	0	0	0	0	472
1947	591	479	20	0	593	132	0	1	228	61	94	45	0	0	0	0	335
1948	711	458	15	0	780	210	0	5	336	73	94	47	0	0	0	0	462
1949	666	374	16	0	707	155	0	2	316	69	94	47	0	0	0	0	434
1950	747	318	16	0	735	154	0	15	346	61	94	41	0	0	0	0	463
1951	1248	314	22	245	750	275	0	50	282	47	94	44	0	0	0	0	670
1952	1584	545	26	192	1216	437	0	14	556	57	94	42	0	0	0	0	860
1953	648	696	21	0	781	276	0	7	281	63	94	46	0	0	0	0	397

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1954	688	542	20	0	770	226	0	1	320	62	94	47	0	0	0	0	430
1955	554	440	16	0	606	143	0	0	234	70	94	46	0	0	0	0	350
1956	1696	374	25	304	1082	447	0	47	427	47	94	43	0	0	0	0	869
1957	674	659	20	0	828	249	0	4	338	62	94	49	0	0	0	0	452
1958	1434	485	27	59	1134	401	0	3	487	61	94	34	0	0	0	0	644
1959	480	699	23	0	653	181	0	0	239	62	94	48	0	0	0	0	349
1960	507	504	20	0	584	133	0	0	228	62	94	46	0	0	0	0	336
1961	333	407	15	0	431	81	0	0	131	74	94	41	0	0	0	0	246
1962	953	294	16	0	912	275	0	3	387	74	94	42	0	0	0	0	506
1963	1009	319	16	0	966	307	0	0	431	62	94	49	0	0	0	0	542
1964	468	346	14	0	486	85	0	0	169	74	94	47	0	0	0	0	291
1965	1314	315	23	0	936	279	0	15	330	60	94	45	0	0	0	0	451
1966	648	668	24	12	738	242	0	23	286	47	94	47	0	0	0	0	416
1967	1700	543	26	242	1275	416	0	13	633	54	94	42	0	0	0	0	984
1968	429	700	22	0	590	177	0	18	208	44	94	49	0	0	0	0	320
1969	2197	517	28	502	1484	427	0	31	767	57	94	35	0	0	0	0	1392
1970	887	700	23	150	870	327	0	36	366	31	94	44	0	0	0	0	627
1971	734	544	20	0	760	279	0	10	279	56	94	49	0	0	0	0	392
1972	576	499	19	0	615	192	0	28	219	49	94	45	0	0	0	0	340
1973	1143	441	23	0	1077	415	0	25	473	46	94	42	0	0	0	0	586
1974	1180	484	26	0	1088	476	0	25	409	41	94	44	0	0	0	0	520
1975	1133	549	22	0	1199	458	0	30	531	55	94	45	0	0	0	0	661
1976	300	461	16	0	436	89	0	10	127	62	94	48	0	0	0	0	246
1977	142	310	8	0	365	78	0	1	48	85	94	47	1	0	0	0	182
1978	1759	80	22	0	1144	249	0	39	689	60	94	26	0	0	0	0	814
1979	1085	673	26	37	1150	400	0	20	499	42	94	37	0	0	0	0	635
1980	1653	544	25	201	1339	487	0	0	535	62	94	49	0	0	0	0	846
1981	502	632	22	0	662	184	0	0	231	68	94	48	0	0	0	0	347
1982	2006	450	27	200	1529	420	0	1	783	61	94	41	0	0	0	0	1087
1983	2871	700	26	929	1915	420	0	0	742	62	94	37	0	0	0	0	1771
1984	1208	700	26	312	1023	360	0	0	346	62	94	49	0	0	0	0	769
1985	574	547	22	0	627	179	0	3	225	61	94	47	0	0	0	0	336
1986	1580	471	24	90	1350	432	0	21	717	62	94	42	0	0	0	0	932
1987	322	587	19	0	487	101	0	1	164	72	94	48	0	0	0	0	285

	Rim Reservoir					District Diversions		Required Releases from Diversion Dam									
Year	Res. Inflow	End of Sept. Storage	Res. Evap.	Res. Spills	Total Reservoir Release	Irrigation District Diversion	CVP Contractor Diversion	Balancing Releases*	UF Instream Flow Req.	Baseline Instream Flow Req.	CAD Flow Req.	Minor Diversion	Vernalis Min Flow Req.	VAMP Pulse	D1641 Flow Req.	Vernalis EC Req.	Total Diversion Dam Flow
WY	WY Sum	EOS begin	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum	WY Sum
	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF	TAF
1988	392	402	14	0	455	77	0	0	163	63	94	45	0	0	0	0	272
1989	536	325	12	0	558	80	0	14	268	55	94	39	0	0	0	0	376
1990	383	291	12	0	479	78	0	2	178	64	94	42	0	0	0	0	287
1991	531	182	7	0	567	80	0	8	279	68	94	38	0	0	0	0	393
1992	444	139	8	0	474	77	0	9	198	55	94	34	0	0	0	0	296
1993	1452	102	22	0	959	190	0	55	571	51	94	15	0	0	0	0	692
1994	347	572	18	0	492	79	0	41	240	43	94	29	0	0	0	0	353
1995	2173	410	29	390	1475	417	0	11	813	54	94	35	0	0	0	0	1302
1996	1178	689	30	69	1242	454	0	8	546	58	94	41	0	0	0	0	722
1997	1754	527	28	692	1028	407	0	47	396	37	94	44	0	0	0	0	1216
1998	1836	532	28	298	1342	409	0	9	689	55	94	39	0	0	0	0	1091
1999	880	700	24	42	968	313	0	6	437	57	94	48	0	0	0	0	591
2000	941	546	24	0	961	311	0	17	443	59	94	43	0	0	0	0	562
2001	508	502	20	0	573	132	0	8	244	56	94	37	0	0	0	0	344
2002	621	418	20	0	616	133	0	2	286	60	94	36	0	0	0	0	384
2003	770	404	20	0	759	193	0	2	369	60	94	38	0	0	0	0	470
Avg:	965	463	20	68	878	256	0	13	387	59	94	41	0	0	0	0	570

* Balancing releases accounts for the monthly net between instream accretions and depletions from CALSIM, maintaining nonzero flows, and change in unmodeled regulating reservoir operations (i.e., Tulloch or Goodwin).

This page intentionallay left blank

Baseline

Table 16. Baseline End-of-Month Storage at New Melones on the Stanislaus River in TAF from 1922 through 2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	951	960	990	1,015	1,120	1,199	1,166	1,351	1,567	1,495	1,399	1,340
1923	AN	1,291	1,307	1,377	1,439	1,487	1,487	1,492	1,582	1,558	1,482	1,382	1,340
1924	C	1,294	1,287	1,301	1,315	1,319	1,272	1,182	1,072	989	913	844	822
1925	BN	794	803	822	835	971	1,053	1,092	1,232	1,254	1,182	1,085	1,039
1926	D	996	989	993	996	1,044	1,037	1,063	992	904	803	720	677
1927	AN	645	662	716	760	898	949	1,032	1,126	1,123	1,030	938	899
1928	BN	880	912	937	951	998	1,172	1,170	1,224	1,162	1,062	977	935
1929	C	900	909	921	930	946	942	910	863	821	740	673	639
1930	C	608	606	617	639	673	735	729	672	672	596	531	495
1931	C	470	488	498	509	517	503	433	346	295	241	190	169
1932	AN	134	145	200	232	342	343	329	487	609	577	519	483
1933	D	453	451	471	482	491	471	424	392	399	322	253	216
1934	C	191	198	218	240	274	312	273	217	188	158	130	119
1935	AN	112	114	116	142	102	111	257	444	491	433	369	334
1936	AN	316	328	345	419	596	679	772	925	939	866	788	752
1937	W	722	725	742	764	860	969	1,003	1,175	1,180	1,095	1,016	974
1938	W	942	952	1,041	1,120	1,300	1,445	1,585	1,852	2,055	2,005	1,915	1,870
1939	D	1,831	1,827	1,841	1,859	1,875	1,901	1,805	1,657	1,551	1,438	1,342	1,299
1940	AN	1,248	1,235	1,240	1,340	1,475	1,646	1,713	1,817	1,808	1,694	1,598	1,543
1941	W	1,496	1,495	1,533	1,586	1,672	1,704	1,726	1,856	1,891	1,815	1,718	1,658
1942	W	1,613	1,611	1,659	1,749	1,827	1,812	1,893	2,020	2,145	2,097	1,997	1,944
1943	W	1,899	1,925	1,958	1,970	1,970	2,030	2,137	2,147	2,131	2,034	1,932	1,866
1944	BN	1,812	1,804	1,806	1,806	1,816	1,850	1,748	1,647	1,599	1,490	1,388	1,328
1945	AN	1,296	1,330	1,355	1,391	1,521	1,608	1,574	1,650	1,719	1,637	1,539	1,491
1946	AN	1,461	1,489	1,576	1,639	1,695	1,670	1,689	1,760	1,702	1,591	1,494	1,444
1947	D	1,400	1,416	1,436	1,451	1,470	1,441	1,368	1,278	1,196	1,083	990	945
1948	BN	926	926	930	933	933	911	922	956	1,045	974	901	866
1949	BN	839	843	857	865	875	911	869	893	869	782	709	669

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	625	612	620	668	732	781	790	897	957	881	808	779
1951	AN	757	1,035	1,425	1,532	1,629	1,729	1,702	1,643	1,593	1,482	1,386	1,330
1952	W	1,288	1,303	1,357	1,491	1,584	1,626	1,688	1,956	2,120	2,089	1,993	1,931
1953	BN	1,864	1,868	1,888	1,941	1,970	1,918	1,854	1,752	1,786	1,714	1,620	1,563
1954	BN	1,513	1,516	1,529	1,545	1,548	1,606	1,574	1,614	1,545	1,431	1,333	1,277
1955	D	1,226	1,235	1,253	1,283	1,304	1,322	1,303	1,257	1,246	1,157	1,079	1,036
1956	W	1,000	1,013	1,261	1,519	1,641	1,644	1,660	1,794	1,879	1,811	1,714	1,671
1957	BN	1,618	1,620	1,635	1,653	1,693	1,745	1,626	1,602	1,629	1,521	1,431	1,372
1958	W	1,311	1,316	1,322	1,372	1,451	1,531	1,686	1,977	2,106	2,039	1,941	1,878
1959	D	1,822	1,826	1,839	1,865	1,920	1,948	1,827	1,657	1,559	1,451	1,357	1,341
1960	C	1,286	1,280	1,284	1,289	1,330	1,355	1,309	1,230	1,164	1,068	990	934
1961	C	860	878	896	901	909	913	876	817	748	676	615	583
1962	BN	547	556	567	575	657	699	708	698	750	695	627	584
1963	AN	560	571	595	649	761	759	788	959	992	930	856	824
1964	D	804	835	856	891	910	914	871	818	785	707	643	599
1965	W	578	603	834	1,039	1,146	1,213	1,270	1,335	1,339	1,282	1,210	1,163
1966	BN	1,109	1,143	1,177	1,214	1,248	1,283	1,239	1,225	1,143	1,048	971	917
1967	W	880	893	977	1,082	1,094	1,130	1,214	1,406	1,677	1,717	1,630	1,578
1968	D	1,524	1,535	1,550	1,572	1,634	1,685	1,587	1,489	1,399	1,286	1,190	1,126
1969	W	1,091	1,116	1,127	1,419	1,615	1,681	1,830	2,091	2,219	2,160	2,055	1,983
1970	AN	1,941	1,951	1,970	1,970	1,970	1,997	1,933	1,868	1,842	1,722	1,615	1,562
1971	BN	1,518	1,546	1,613	1,671	1,713	1,767	1,700	1,682	1,699	1,611	1,515	1,462
1972	D	1,410	1,425	1,473	1,510	1,526	1,518	1,396	1,361	1,276	1,161	1,062	1,015
1973	AN	980	989	1,020	1,131	1,271	1,390	1,361	1,450	1,411	1,293	1,192	1,144
1974	W	1,121	1,168	1,246	1,360	1,439	1,508	1,606	1,703	1,719	1,635	1,534	1,477
1975	W	1,443	1,454	1,479	1,506	1,573	1,616	1,592	1,578	1,690	1,605	1,519	1,461
1976	C	1,428	1,444	1,464	1,473	1,486	1,459	1,383	1,285	1,192	1,111	1,051	1,012
1977	C	977	981	982	974	958	918	849	789	743	672	611	587
1978	W	544	538	559	637	725	879	991	1,123	1,211	1,163	1,074	1,064

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	1,019	1,031	1,051	1,118	1,235	1,364	1,333	1,419	1,299	1,180	1,080	1,032
1980	W	1,004	1,021	1,036	1,341	1,592	1,617	1,659	1,696	1,750	1,721	1,624	1,571
1981	D	1,534	1,532	1,553	1,600	1,608	1,654	1,575	1,446	1,325	1,207	1,116	1,074
1982	W	1,043	1,102	1,234	1,435	1,737	1,901	2,151	2,250	2,298	2,235	2,130	2,000
1983	W	1,970	1,970	1,970	1,970	1,970	2,030	2,090	2,200	2,420	2,300	2,130	2,000
1984	AN	1,970	1,970	1,970	1,970	1,970	1,990	1,930	1,919	1,871	1,775	1,692	1,651
1985	D	1,626	1,665	1,705	1,721	1,759	1,799	1,732	1,633	1,530	1,418	1,329	1,289
1986	W	1,260	1,271	1,289	1,368	1,836	2,030	2,065	2,059	2,063	1,950	1,856	1,817
1987	C	1,778	1,779	1,790	1,781	1,782	1,812	1,685	1,507	1,383	1,279	1,200	1,160
1988	C	1,103	1,086	1,078	1,079	1,076	1,056	1,008	931	881	830	790	758
1989	C	718	709	708	707	709	788	765	723	694	632	587	598
1990	C	602	612	636	647	657	653	583	509	442	367	320	297
1991	C	271	265	283	279	267	313	289	265	226	167	124	116
1992	C	106	101	120	130	178	220	216	175	144	122	105	100
1993	W	97	99	101	249	352	480	491	576	671	631	576	549
1994	C	541	568	607	635	657	624	572	518	442	352	284	248
1995	W	191	201	236	421	514	823	929	1,159	1,409	1,510	1,454	1,433
1996	W	1,414	1,420	1,457	1,536	1,732	1,851	1,873	1,976	1,965	1,866	1,786	1,744
1997	W	1,733	1,771	1,970	1,970	1,970	1,992	1,914	1,892	1,815	1,709	1,620	1,589
1998	W	1,557	1,573	1,602	1,716	1,916	1,990	2,029	2,081	2,295	2,300	2,130	2,000
1999	AN	1,970	1,970	1,970	1,970	1,970	2,002	1,981	1,971	1,923	1,828	1,750	1,713
2000	AN	1,692	1,695	1,712	1,770	1,880	1,901	1,881	1,851	1,800	1,693	1,613	1,581
2001	D	1,575	1,589	1,622	1,635	1,663	1,701	1,629	1,519	1,405	1,284	1,181	1,122
2002	D	1,067	1,070	1,108	1,152	1,145	1,177	1,130	1,063	972	881	807	774
2003	BN	738	757	810	861	862	862	855	851	803	724	659	627

Table 17. Baseline Monthly Average Flow at Ripon on the Stanislaus River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [TAF]
1922	W	763	259	310	322	391	381	1,877	1,476	596	435	463	469	283
1923	AN	970	354	403	356	235	629	1,755	1,430	1,254	534	463	469	319
1924	C	1,084	318	262	273	238	375	755	713	306	374	402	408	144
1925	BN	823	348	304	304	283	269	1,110	793	433	385	413	419	173
1926	D	832	320	262	267	515	728	919	792	378	385	413	419	199
1927	AN	832	455	288	321	274	699	1,145	950	1,625	385	413	419	281
1928	BN	832	348	304	295	219	481	1,137	1,012	382	385	413	419	195
1929	C	828	302	280	295	225	254	565	482	320	324	352	358	110
1930	C	768	263	94	308	218	380	457	668	256	324	352	358	119
1931	C	768	248	94	275	284	410	566	418	273	324	352	358	117
1932	AN	771	248	383	330	220	951	983	691	467	335	363	369	200
1933	D	780	266	94	308	230	662	464	619	374	335	363	369	141
1934	C	777	263	311	316	220	294	409	281	320	324	352	358	91
1935	AN	771	302	288	348	1,398	1,070	866	884	1,398	512	363	369	332
1936	AN	780	260	225	338	728	337	1,224	910	1,625	484	413	419	288
1937	W	832	266	262	321	350	491	1,048	818	1,122	484	413	419	229
1938	W	832	309	336	321	594	1,945	1,724	1,926	1,524	662	513	519	464
1939	D	1,110	356	280	294	238	238	1,569	1,527	481	435	463	469	244
1940	AN	970	266	225	371	233	451	1,897	1,638	596	534	463	469	290
1941	W	1,003	384	368	447	425	1,950	1,775	2,425	1,703	705	527	503	500
1942	W	1,035	588	383	323	574	1,802	1,537	1,746	1,205	729	552	575	413
1943	W	1,084	383	268	2,395	2,371	3,456	1,590	2,172	1,498	688	651	663	661
1944	BN	1,130	481	494	543	576	468	2,031	1,748	692	515	485	474	331
1945	AN	981	378	385	390	401	357	1,571	1,645	767	591	525	504	285
1946	AN	990	329	187	545	487	1,662	1,575	1,792	1,272	518	539	530	409
1947	D	976	343	347	404	376	805	891	852	428	356	368	379	201
1948	BN	782	341	292	362	352	1,047	690	809	743	514	414	389	220

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [TAF]
1949	BN	799	337	325	324	389	323	839	796	536	386	384	365	172
1950	BN	781	320	330	345	320	594	753	993	821	399	380	386	209
1951	AN	766	403	519	580	657	412	2,000	2,603	656	435	424	395	380
1952	W	867	281	223	397	174	1,641	1,632	2,089	1,767	957	696	666	442
1953	BN	1,116	434	423	504	646	1,674	1,722	2,322	1,313	688	509	513	462
1954	BN	1,005	325	316	351	615	308	1,248	1,362	581	428	418	391	246
1955	D	904	269	302	481	265	365	918	588	382	322	331	342	151
1956	W	774	290	357	841	555	1,720	1,849	1,704	1,431	686	542	495	438
1957	BN	975	294	281	341	369	336	2,003	1,919	613	484	463	462	315
1958	W	975	353	336	327	453	1,635	2,023	1,578	1,492	751	644	667	432
1959	D	1,071	360	403	434	368	477	1,970	1,656	537	406	425	443	301
1960	C	931	337	316	343	386	371	913	780	342	330	336	326	168
1961	C	875	305	307	333	384	394	575	512	245	229	243	247	126
1962	BN	663	282	286	294	342	369	981	1,580	276	370	336	338	214
1963	AN	759	343	304	346	817	1,349	1,073	1,278	1,659	505	426	422	369
1964	D	836	348	286	354	401	371	647	645	434	297	304	318	150
1965	W	725	338	-	449	231	314	1,744	1,932	1,906	491	530	513	368
1966	BN	1,017	325	301	386	467	388	1,231	1,118	412	340	336	335	216
1967	W	760	282	271	276	1,465	1,622	1,526	1,494	1,412	1,021	640	703	448
1968	D	1,192	260	288	380	385	345	1,842	1,432	535	393	409	406	273
1969	W	958	319	339	506	871	2,074	2,088	1,609	1,604	872	717	700	495
1970	AN	1,211	446	755	4,928	2,925	1,971	2,001	2,489	1,282	541	538	592	632
1971	BN	1,028	269	280	336	439	495	2,155	1,814	1,094	591	500	520	360
1972	D	1,184	248	181	342	455	959	1,755	1,409	523	401	403	400	307
1973	AN	891	300	306	310	534	295	1,925	1,627	1,692	540	477	538	363
1974	W	970	235	223	269	473	1,656	1,803	1,964	1,462	622	558	683	443
1975	W	1,110	335	444	349	198	1,778	1,827	2,110	1,665	662	632	637	458
1976	C	914	471	297	368	377	370	903	750	310	293	315	310	163

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [TAF]
1977	C	720	275	263	286	364	421	516	464	291	211	229	174	123
1978	W	599	213	226	343	271	58	803	624	645	553	433	454	143
1979	AN	886	377	320	204	267	238	1,877	1,491	1,964	476	475	463	350
1980	W	960	322	165	198	742	1,705	1,871	2,040	1,526	629	604	690	475
1981	D	1,104	385	305	377	387	368	1,706	1,517	505	463	397	428	269
1982	W	951	263	291	455	290	1,824	2,039	2,109	1,368	713	874	2,993	461
1983	W	1,810	2,651	3,175	4,217	5,177	6,223	1,710	2,208	4,653	4,340	2,664	3,050	1,185
1984	AN	1,538	3,453	5,126	2,177	2,262	1,912	1,808	1,930	1,277	572	626	746	550
1985	D	1,129	340	225	335	441	416	1,750	1,530	566	315	405	495	282
1986	W	995	383	311	311	701	2,960	2,026	2,193	1,289	705	524	631	553
1987	C	1,114	410	511	483	368	370	1,694	1,366	472	360	374	344	256
1988	C	858	238	270	295	369	409	577	485	218	217	201	238	123
1989	C	640	248	267	274	349	340	603	523	300	308	302	327	126
1990	C	667	257	248	260	348	409	599	542	211	244	262	257	126
1991	C	773	469	249	242	383	334	573	543	247	235	247	229	124
1992	C	689	379	239	241	339	278	562	482	395	205	208	192	123
1993	W	604	216	225	354	308	753	1,349	1,338	347	245	293	369	247
1994	C	600	247	232	233	254	438	507	478	210	247	221	235	113
1995	W	1,043	228	242	609	319	618	1,631	1,415	590	440	426	381	275
1996	W	861	270	272	336	168	1,843	1,550	1,775	1,105	471	500	475	390
1997	W	909	464	348	10,555	3,736	2,234	1,884	1,708	1,123	524	478	454	629
1998	W	977	257	247	324	1,330	1,903	1,708	1,996	1,218	1,396	2,214	2,196	488
1999	AN	1,347	898	1,127	1,621	3,452	1,835	1,644	1,791	1,759	439	476	478	617
2000	AN	901	250	241	327	394	1,777	1,767	1,786	1,137	455	443	435	415
2001	D	856	264	243	308	392	311	1,562	1,363	478	357	326	348	246
2002	D	826	220	286	321	783	653	1,272	952	590	307	340	328	253
2003	BN	846	233	262	249	879	890	823	882	1,345	344	312	292	287

Table 18. Baseline End-of-Month Storage at New Don Pedro on the Tuolumne River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	1,313	1,294	1,323	1,355	1,551	1,690	1,713	1,969	2,030	1,910	1,767	1,685
1923	AN	1,637	1,640	1,690	1,690	1,690	1,690	1,713	1,812	1,887	1,802	1,662	1,606
1924	C	1,556	1,538	1,529	1,523	1,528	1,498	1,469	1,408	1,293	1,183	1,094	1,048
1925	BN	1,049	1,062	1,128	1,184	1,372	1,488	1,665	1,780	1,879	1,763	1,625	1,552
1926	D	1,508	1,496	1,502	1,509	1,592	1,680	1,713	1,708	1,569	1,383	1,240	1,162
1927	AN	1,117	1,154	1,200	1,249	1,436	1,561	1,683	1,804	2,023	1,910	1,766	1,688
1928	BN	1,659	1,688	1,690	1,690	1,690	1,690	1,713	1,879	1,811	1,628	1,488	1,409
1929	C	1,351	1,340	1,338	1,337	1,355	1,389	1,396	1,372	1,410	1,242	1,108	1,029
1930	C	989	970	1,010	1,042	1,092	1,156	1,151	1,146	1,203	1,064	957	900
1931	C	871	871	909	920	962	961	909	854	759	651	575	543
1932	AN	520	514	694	847	1,104	1,260	1,277	1,332	1,431	1,368	1,235	1,156
1933	D	1,093	1,066	1,069	1,067	1,101	1,126	1,132	1,148	1,191	1,067	959	900
1934	C	854	840	862	907	979	1,107	1,104	1,053	989	879	800	767
1935	AN	754	767	808	984	1,126	1,256	1,522	1,600	1,753	1,621	1,477	1,389
1936	AN	1,353	1,343	1,338	1,404	1,690	1,690	1,713	1,806	1,973	1,857	1,708	1,623
1937	W	1,575	1,553	1,552	1,558	1,690	1,690	1,713	1,803	1,972	1,820	1,675	1,589
1938	W	1,534	1,523	1,690	1,690	1,690	1,690	1,690	1,730	2,025	1,910	1,779	1,700
1939	D	1,660	1,657	1,673	1,688	1,690	1,690	1,698	1,659	1,501	1,315	1,177	1,133
1940	AN	1,111	1,103	1,171	1,337	1,619	1,690	1,713	1,804	1,922	1,737	1,590	1,500
1941	W	1,448	1,431	1,536	1,690	1,690	1,690	1,690	1,803	2,030	1,910	1,767	1,682
1942	W	1,632	1,622	1,690	1,690	1,690	1,690	1,713	1,765	2,027	1,910	1,767	1,678
1943	W	1,617	1,652	1,690	1,690	1,690	1,690	1,713	1,939	2,030	1,910	1,767	1,678
1944	BN	1,624	1,607	1,600	1,606	1,680	1,690	1,685	1,740	1,751	1,608	1,469	1,390
1945	AN	1,364	1,409	1,457	1,495	1,690	1,690	1,713	1,743	1,931	1,851	1,700	1,610
1946	AN	1,607	1,638	1,690	1,690	1,690	1,690	1,713	1,734	1,766	1,583	1,430	1,343
1947	D	1,297	1,312	1,346	1,371	1,412	1,417	1,372	1,457	1,365	1,203	1,077	1,011
1948	BN	1,010	1,009	1,048	1,068	1,067	1,139	1,224	1,304	1,391	1,251	1,111	1,036
1949	BN	1,000	986	985	985	1,006	1,183	1,220	1,279	1,250	1,076	942	870

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	819	808	810	851	1,023	1,178	1,259	1,266	1,321	1,155	1,017	955
1951	AN	947	1,359	1,690	1,690	1,690	1,690	1,713	1,641	1,624	1,443	1,296	1,205
1952	W	1,161	1,159	1,273	1,512	1,690	1,690	1,690	1,895	2,030	1,910	1,778	1,700
1953	BN	1,639	1,624	1,642	1,690	1,690	1,690	1,701	1,707	1,866	1,804	1,673	1,597
1954	BN	1,552	1,550	1,554	1,574	1,633	1,690	1,713	1,862	1,829	1,650	1,507	1,427
1955	D	1,374	1,371	1,390	1,435	1,495	1,587	1,625	1,642	1,554	1,374	1,229	1,157
1956	W	1,108	1,102	1,664	1,690	1,690	1,690	1,713	1,815	2,030	1,910	1,769	1,693
1957	BN	1,648	1,632	1,629	1,636	1,690	1,690	1,620	1,706	1,878	1,713	1,576	1,501
1958	W	1,480	1,470	1,488	1,523	1,679	1,690	1,690	1,910	2,030	1,910	1,775	1,700
1959	D	1,635	1,612	1,595	1,632	1,690	1,690	1,697	1,626	1,487	1,303	1,162	1,155
1960	C	1,101	1,089	1,117	1,129	1,255	1,305	1,353	1,363	1,255	1,110	1,004	954
1961	C	925	923	1,009	1,024	1,044	1,049	1,026	983	895	793	722	688
1962	BN	665	658	688	705	904	1,032	1,085	1,142	1,346	1,238	1,103	1,029
1963	AN	999	990	1,005	1,052	1,279	1,353	1,456	1,654	1,893	1,830	1,694	1,620
1964	D	1,593	1,639	1,655	1,686	1,690	1,678	1,658	1,661	1,613	1,439	1,306	1,234
1965	W	1,216	1,237	1,665	1,690	1,690	1,690	1,713	1,730	1,852	1,839	1,753	1,680
1966	BN	1,619	1,690	1,690	1,690	1,690	1,690	1,703	1,763	1,611	1,430	1,288	1,216
1967	W	1,167	1,197	1,352	1,463	1,570	1,690	1,690	1,880	2,030	1,910	1,790	1,700
1968	D	1,641	1,626	1,625	1,638	1,690	1,690	1,648	1,667	1,570	1,384	1,251	1,173
1969	W	1,142	1,169	1,259	1,690	1,690	1,690	1,690	1,930	2,030	1,910	1,779	1,700
1970	AN	1,660	1,663	1,690	1,690	1,690	1,690	1,664	1,725	1,783	1,636	1,502	1,423
1971	BN	1,377	1,417	1,505	1,584	1,662	1,690	1,696	1,748	1,883	1,766	1,633	1,562
1972	D	1,517	1,522	1,570	1,633	1,690	1,690	1,629	1,643	1,619	1,443	1,314	1,246
1973	AN	1,215	1,226	1,309	1,450	1,639	1,690	1,713	1,956	2,030	1,849	1,707	1,622
1974	W	1,602	1,688	1,690	1,690	1,690	1,690	1,713	1,945	2,030	1,910	1,769	1,688
1975	W	1,657	1,643	1,646	1,664	1,690	1,690	1,713	1,794	2,030	1,910	1,789	1,700
1976	C	1,660	1,663	1,682	1,670	1,668	1,605	1,556	1,457	1,333	1,202	1,128	1,098
1977	C	1,077	1,069	1,093	1,095	1,096	1,041	960	902	811	711	641	611
1978	W	591	586	644	803	983	1,230	1,414	1,580	1,761	1,829	1,696	1,680

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	1,618	1,619	1,619	1,690	1,690	1,690	1,690	1,717	1,798	1,629	1,487	1,409
1980	W	1,381	1,381	1,402	1,690	1,690	1,690	1,713	1,890	1,960	1,910	1,781	1,700
1981	D	1,641	1,618	1,615	1,635	1,668	1,690	1,713	1,692	1,602	1,422	1,296	1,227
1982	W	1,217	1,321	1,473	1,690	1,690	1,690	1,713	1,876	2,003	1,910	1,790	1,700
1983	W	1,660	1,690	1,690	1,690	1,690	1,295	1,264	1,271	1,851	1,910	1,790	1,700
1984	AN	1,660	1,690	1,690	1,690	1,690	1,690	1,635	1,690	1,757	1,611	1,466	1,380
1985	D	1,360	1,393	1,438	1,441	1,485	1,568	1,588	1,650	1,554	1,375	1,247	1,182
1986	W	1,163	1,182	1,257	1,334	1,690	1,690	1,713	1,888	2,001	1,906	1,765	1,696
1987	C	1,650	1,626	1,612	1,594	1,600	1,641	1,609	1,523	1,398	1,245	1,134	1,076
1988	C	1,059	1,055	1,095	1,162	1,228	1,240	1,218	1,170	1,114	1,008	933	896
1989	C	872	878	913	950	994	1,123	1,157	1,247	1,245	1,068	939	922
1990	C	944	938	962	977	1,020	1,045	1,026	1,039	999	894	816	781
1991	C	767	761	787	793	787	870	892	928	1,028	923	843	801
1992	C	798	794	821	839	913	983	1,031	1,081	1,007	932	846	794
1993	W	774	765	811	1,031	1,192	1,455	1,571	1,886	2,030	1,910	1,776	1,698
1994	C	1,644	1,625	1,616	1,618	1,637	1,637	1,609	1,610	1,513	1,349	1,231	1,170
1995	W	1,137	1,154	1,199	1,468	1,589	1,690	1,713	1,630	1,983	1,910	1,790	1,700
1996	W	1,632	1,606	1,633	1,690	1,690	1,690	1,713	2,002	2,030	1,910	1,767	1,689
1997	W	1,653	1,690	1,690	1,690	1,690	1,690	1,636	1,871	1,954	1,801	1,664	1,609
1998	W	1,549	1,541	1,543	1,690	1,690	1,690	1,713	1,714	1,988	1,910	1,788	1,700
1999	AN	1,662	1,673	1,690	1,690	1,690	1,690	1,718	1,785	1,980	1,838	1,701	1,625
2000	AN	1,563	1,549	1,538	1,627	1,690	1,690	1,718	1,983	2,030	1,850	1,710	1,633
2001	D	1,619	1,603	1,596	1,601	1,633	1,690	1,718	1,836	1,674	1,495	1,362	1,294
2002	D	1,253	1,262	1,336	1,404	1,465	1,531	1,549	1,680	1,674	1,497	1,364	1,289
2003	BN	1,247	1,280	1,338	1,415	1,469	1,522	1,573	1,672	1,803	1,638	1,515	1,446

Table 19. Baseline Monthly Average Flow at Modesto on the Tuolumne River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [TAF]
1922	W	724	599	597	603	683	1,112	3,584	1,593	8,159	1,760	586	592	903
1923	AN	722	595	1,129	2,169	2,125	1,459	3,252	1,396	631	600	586	597	525
1924	C	737	605	580	579	601	597	556	546	366	356	362	366	160
1925	BN	428	442	440	427	454	475	1,107	2,110	493	405	410	421	279
1926	D	552	500	476	464	484	489	2,493	825	414	404	410	418	281
1927	AN	484	449	452	456	519	517	1,473	1,421	720	839	588	595	278
1928	BN	733	615	1,155	858	1,680	4,097	1,617	1,138	427	403	408	423	540
1929	C	552	495	477	468	498	479	631	619	367	358	361	376	155
1930	C	439	466	438	436	473	456	738	723	396	369	371	381	166
1931	C	462	453	449	437	465	448	560	548	368	359	364	367	142
1932	AN	429	437	430	427	520	466	1,423	1,464	721	602	588	591	276
1933	D	741	630	591	582	612	604	818	802	449	409	413	427	196
1934	C	544	501	481	464	491	477	558	644	367	356	361	366	151
1935	AN	438	445	437	436	468	429	1,527	1,564	731	587	585	600	283
1936	AN	736	609	597	593	2,179	4,073	3,584	1,748	681	590	585	595	737
1937	W	735	621	600	590	3,469	4,678	3,656	1,518	664	580	586	599	831
1938	W	737	614	1,712	1,803	7,280	7,992	5,665	5,398	3,996	3,535	592	715	1,803
1939	D	998	650	602	593	1,292	1,864	798	786	417	409	417	420	307
1940	AN	487	470	440	434	514	4,806	4,070	1,183	767	650	534	541	686
1941	W	645	526	755	1,211	5,180	5,100	4,622	1,075	977	2,392	638	560	1,001
1942	W	691	574	921	3,469	3,602	2,886	4,310	4,330	2,194	3,139	755	717	1,031
1943	W	819	641	797	3,855	3,424	6,406	3,999	1,400	1,658	920	521	449	1,007
1944	BN	758	584	626	650	752	2,170	1,169	1,454	513	439	425	372	366
1945	AN	529	453	389	529	2,520	4,144	2,599	1,542	560	713	654	585	678
1946	AN	684	466	3,250	2,893	3,189	3,405	1,948	1,777	805	662	620	593	660
1947	D	663	576	675	615	609	638	780	732	355	322	347	333	186
1948	BN	480	454	398	393	412	433	976	1,234	686	514	427	357	225

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [TAF]
1949	BN	530	463	407	514	480	740	809	864	408	379	379	356	198
1950	BN	530	475	463	686	427	522	1,127	1,117	583	420	399	380	226
1951	AN	513	206	2,684	3,950	3,887	3,072	1,643	1,113	562	622	594	558	604
1952	W	645	525	600	971	1,027	3,998	4,806	5,055	3,986	3,580	637	642	1,139
1953	BN	685	479	517	1,371	1,443	1,443	1,242	1,095	355	544	453	413	331
1954	BN	465	400	391	397	385	1,870	1,769	1,099	462	398	399	382	337
1955	D	473	385	420	702	365	486	794	768	391	363	373	354	168
1956	W	400	372	441	7,146	4,335	3,560	2,423	1,490	3,077	2,780	701	585	887
1957	BN	702	478	491	518	797	1,546	1,252	1,242	416	424	428	418	315
1958	W	489	380	432	561	844	5,254	6,374	4,863	4,664	2,571	692	659	1,326
1959	D	758	519	581	624	1,954	1,998	805	1,083	386	374	353	372	369
1960	C	466	364	307	362	513	446	612	585	305	301	315	334	147
1961	C	315	330	282	337	346	392	488	457	270	261	276	248	116
1962	BN	303	314	323	314	941	510	1,292	1,108	394	383	416	421	252
1963	AN	466	273	315	425	493	248	1,446	1,493	508	552	520	525	251
1964	D	548	381	400	518	871	526	737	671	296	281	288	293	185
1965	W	343	266	234	5,394	3,711	3,400	3,514	1,356	384	568	583	490	731
1966	BN	590	511	2,112	1,295	2,210	1,579	887	841	274	271	262	255	341
1967	W	394	267	318	582	285	2,253	4,636	3,885	6,079	6,352	653	759	1,031
1968	D	650	449	485	515	879	1,717	825	797	371	375	358	342	276
1969	W	401	367	288	1,752	5,624	4,123	5,386	6,786	7,110	3,661	479	623	1,727
1970	AN	1,289	761	1,105	6,185	2,753	3,267	1,517	1,505	319	457	380	438	556
1971	BN	676	503	532	524	456	1,808	1,073	1,267	390	358	370	371	301
1972	D	520	322	524	367	485	596	742	693	307	301	306	297	170
1973	AN	317	451	522	524	826	2,567	1,731	1,483	971	509	529	525	456
1974	W	560	540	1,992	3,021	1,922	3,971	2,891	1,592	2,644	891	495	670	778
1975	W	1,070	1,088	789	642	2,807	3,824	2,672	1,664	2,290	1,112	576	688	789
1976	C	1,369	812	584	543	509	604	610	562	283	270	295	290	154

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [TAF]
1977	C	289	307	322	295	308	320	411	418	199	195	187	166	99
1978	W	222	243	251	432	550	578	1,405	2,630	4,876	440	466	447	601
1979	AN	398	710	611	1,511	3,824	4,445	2,260	5,734	513	573	645	529	1,003
1980	W	612	813	877	2,800	6,927	3,963	2,720	2,046	4,677	3,352	587	829	1,208
1981	D	748	775	519	692	579	1,803	1,220	772	339	346	368	354	283
1982	W	441	421	600	683	6,846	5,797	9,332	6,347	4,430	3,527	712	2,296	1,946
1983	W	3,090	3,106	5,342	5,471	6,892	16,297	5,182	7,861	3,919	6,121	2,996	1,991	2,410
1984	AN	1,157	5,440	7,479	4,359	3,576	3,478	1,602	1,432	621	583	617	612	640
1985	D	743	974	430	489	609	660	768	844	432	366	387	372	198
1986	W	337	363	356	284	3,834	8,232	3,157	3,233	3,262	563	561	675	1,300
1987	C	1,171	1,300	566	596	523	711	544	553	299	282	285	266	157
1988	C	244	259	254	305	260	303	470	488	207	200	210	190	104
1989	C	199	220	245	244	243	345	477	489	211	213	223	220	106
1990	C	215	245	232	236	275	283	444	513	219	225	241	225	104
1991	C	216	239	223	208	235	449	392	517	193	208	221	201	107
1992	C	212	239	217	224	479	307	373	457	202	194	195	188	109
1993	W	216	208	217	781	481	305	1,117	1,348	2,436	1,906	346	417	340
1994	C	586	448	413	399	490	420	520	511	230	213	221	199	129
1995	W	233	218	223	518	152	7,910	4,890	9,474	4,718	8,190	1,918	804	1,649
1996	W	763	451	430	918	6,116	5,065	3,122	2,636	2,648	641	503	546	1,169
1997	W	592	565	6,298	17,925	3,886	3,498	1,431	1,357	505	524	506	499	630
1998	W	698	337	431	1,333	7,440	5,276	4,091	5,533	6,614	6,585	537	691	1,715
1999	AN	965	506	673	2,199	5,167	3,981	2,223	1,456	521	523	521	519	785
2000	AN	596	442	344	433	4,016	3,917	2,238	1,472	1,508	513	711	734	785
2001	D	692	465	418	518	400	1,557	943	732	349	318	334	313	240
2002	D	327	243	383	427	242	328	564	881	300	304	346	309	139
2003	BN	320	247	294	264	241	302	836	879	267	253	303	282	152

Table 20. Baseline End-of-Month Storage at New Exchequer on the Merced River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	469	457	482	505	647	735	801	970	1,024	910	770	700
1923	AN	669	669	675	675	675	674	769	927	955	887	770	700
1924	C	670	662	653	648	641	593	567	553	457	351	265	219
1925	BN	191	196	202	207	293	321	422	578	599	516	426	377
1926	D	346	338	333	327	372	361	459	400	364	307	242	192
1927	AN	154	142	147	135	160	187	207	363	431	398	374	386
1928	BN	391	387	399	413	424	417	382	432	412	370	340	339
1929	C	311	298	284	273	273	262	248	234	215	196	186	151
1930	C	114	100	86	74	62	24	23	39	67	94	119	121
1931	C	92	84	73	68	73	73	120	182	172	150	133	117
1932	AN	94	83	145	178	320	359	382	543	663	594	498	444
1933	D	401	387	376	375	374	361	329	346	417	319	219	169
1934	C	133	119	120	136	167	198	227	232	220	178	146	126
1935	AN	101	106	113	178	215	275	523	707	835	746	645	588
1936	AN	555	547	539	562	675	735	845	970	1,009	910	770	700
1937	W	675	663	666	673	675	735	837	970	1,024	910	770	700
1938	W	657	647	675	675	675	735	845	970	1,024	910	770	700
1939	D	675	675	675	672	675	685	729	701	610	488	381	336
1940	AN	311	299	289	399	521	650	775	947	965	857	753	693
1941	W	653	640	675	675	675	735	845	970	1,024	910	770	700
1942	W	673	672	675	675	675	723	842	970	1,024	910	770	700
1943	W	658	675	675	675	675	735	845	970	1,001	910	770	700
1944	BN	658	646	637	641	671	714	690	798	812	724	622	567
1945	AN	527	545	560	569	675	735	792	946	1,023	910	770	700
1946	AN	675	675	675	675	675	708	754	908	900	803	703	649
1947	D	622	640	671	675	675	676	661	714	640	520	413	356
1948	BN	330	324	314	310	298	271	293	427	526	434	333	279

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1949	BN	242	227	219	213	217	248	279	403	395	289	191	140
1950	BN	97	86	75	96	142	154	227	337	359	267	175	126
1951	AN	98	338	607	675	675	723	746	803	790	689	586	528
1952	W	492	484	526	673	675	735	845	970	1,024	910	770	700
1953	BN	657	648	659	675	675	661	652	652	695	612	508	450
1954	BN	407	395	385	387	417	476	560	671	628	516	403	345
1955	D	300	286	286	299	305	283	270	373	401	304	207	156
1956	W	113	99	467	675	675	725	802	970	1,024	910	770	700
1957	BN	667	660	653	650	673	657	623	707	762	658	553	492
1958	W	466	458	463	480	551	689	845	970	1,024	910	770	700
1959	D	659	645	632	637	675	659	665	632	559	433	322	301
1960	C	262	246	231	223	262	273	330	383	355	267	187	145
1961	C	109	100	97	89	91	90	141	200	206	169	137	116
1962	BN	89	77	70	64	210	248	338	416	490	415	315	254
1963	AN	219	204	192	217	372	393	431	565	655	591	499	445
1964	D	421	441	444	449	445	411	394	429	413	321	233	184
1965	W	158	161	367	434	475	494	572	675	783	743	674	624
1966	BN	583	635	658	675	675	692	728	761	682	563	459	407
1967	W	366	363	458	502	538	668	845	970	1,024	910	770	700
1968	D	675	665	661	662	675	665	666	656	585	456	349	294
1969	W	263	270	291	624	675	735	845	970	1,024	910	770	700
1970	AN	675	675	675	675	675	735	711	795	801	701	601	547
1971	BN	512	515	549	582	604	605	588	649	710	626	531	478
1972	D	439	431	453	466	485	479	471	530	513	403	306	273
1973	AN	249	244	260	312	425	521	598	838	918	821	729	676
1974	W	657	675	675	675	675	735	819	970	1,024	910	770	700
1975	W	672	663	662	673	675	735	741	906	1,024	910	770	700
1976	C	675	675	673	662	662	613	581	560	464	345	257	223
1977	C	190	171	154	140	120	101	99	109	127	113	97	81

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1978	W	56	39	56	152	286	460	682	963	1,024	910	770	700
1979	AN	675	675	668	675	675	735	797	970	990	890	770	700
1980	W	669	659	658	675	675	735	812	968	1,024	910	770	700
1981	D	657	636	625	627	634	647	677	715	657	538	436	381
1982	W	355	383	429	543	675	735	845	970	1,024	910	770	700
1983	W	675	675	675	675	675	735	820	970	1,024	910	770	700
1984	AN	640	675	675	675	675	725	757	885	877	792	698	646
1985	D	623	630	634	637	654	664	711	762	695	575	470	418
1986	W	385	382	396	423	675	735	845	970	1,024	910	770	700
1987	C	660	642	627	616	620	618	622	607	515	392	291	239
1988	C	207	203	197	207	210	212	253	292	274	218	163	134
1989	C	102	90	87	81	88	146	229	289	267	196	137	115
1990	C	99	93	84	83	87	104	175	218	208	172	137	116
1991	C	90	76	60	46	31	97	117	206	260	204	147	117
1992	C	95	88	80	76	121	142	222	258	217	182	138	117
1993	W	94	84	87	257	343	476	611	909	1,024	910	770	700
1994	C	675	660	650	643	655	641	643	666	600	481	382	331
1995	W	314	317	324	509	564	735	845	970	1,024	910	770	700
1996	W	654	639	648	675	675	735	841	970	1,000	910	770	700
1997	W	673	675	675	675	675	735	777	920	915	816	720	667
1998	W	624	615	614	675	675	735	845	970	1,024	910	770	700
1999	AN	670	669	675	675	675	683	692	840	867	761	658	603
2000	AN	557	547	535	574	675	735	800	947	951	835	729	675
2001	D	654	643	636	632	645	694	729	821	724	600	492	453
2002	D	417	410	441	466	484	497	528	601	563	439	334	282
2003	BN	242	255	270	294	310	328	334	499	540	431	337	283

Table 21. Baseline Monthly Average Flow at Stevinson on the Merced River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	356	318	436	432	829	629	(0)	1,018	3,266	1,285	799	359	342
1923	AN	280	254	1,020	1,217	963	277	151	371	526	130	409	501	134
1924	C	385	335	332	346	352	304	112	(0)	(0)	11	19	82	46
1925	BN	351	369	375	378	639	433	467	475	158	87	60	53	129
1926	D	299	304	325	325	286	296	135	597	(0)	(0)	(0)	101	79
1927	AN	338	272	263	331	391	282	279	268	109	107	75	66	79
1928	BN	420	302	339	311	452	355	608	568	215	150	83	49	132
1929	C	364	347	337	358	385	342	295	203	71	2	31	89	77
1930	C	350	322	309	311	325	326	482	177	(0)	(0)	(0)	92	78
1931	C	345	335	322	332	358	318	76	70	55	25	1	119	52
1932	AN	350	313	425	419	650	386	519	(0)	38	80	19	84	94
1933	D	401	336	333	376	321	356	508	182	24	17	(0)	72	83
1934	C	386	333	355	416	419	337	443	212	86	53	(0)	48	89
1935	AN	358	339	359	530	378	487	184	438	174	153	97	125	99
1936	AN	450	360	335	378	2,603	538	714	935	74	326	735	339	287
1937	W	453	374	367	366	4,359	1,139	253	2,058	457	476	728	345	481
1938	W	442	351	1,893	1,288	4,875	4,657	1,416	3,169	4,447	2,143	1,096	502	1,101
1939	D	566	405	358	393	566	474	324	471	114	80	88	122	116
1940	AN	426	374	368	523	449	204	381	512	181	116	101	142	103
1941	W	430	377	1,064	1,287	3,065	1,751	749	2,955	2,272	1,662	1,012	420	639
1942	W	483	397	1,308	1,474	1,666	520	293	964	2,882	1,547	952	414	373
1943	W	489	420	728	2,119	1,917	3,022	775	861	379	359	847	384	414
1944	BN	458	409	386	364	451	354	633	509	333	148	146	122	136
1945	AN	438	439	396	391	1,640	708	629	289	112	794	850	316	196
1946	AN	571	795	1,806	1,014	774	483	751	279	248	140	126	145	149
1947	D	473	384	403	512	811	344	585	96	126	77	101	150	114
1948	BN	398	347	348	338	337	335	596	203	141	153	97	101	96

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	430	354	336	352	371	373	523	194	207	92	118	135	99
1950	BN	414	344	344	378	353	399	612	301	273	133	127	169	115
1951	AN	402	352	33	580	1,590	459	848	328	252	157	113	139	202
1952	W	428	367	410	619	1,243	1,811	1,164	3,524	2,992	1,841	1,164	526	647
1953	BN	451	378	284	938	675	377	977	389	130	111	123	143	150
1954	BN	445	355	353	356	392	287	320	211	218	138	128	174	84
1955	D	402	342	359	487	392	359	215	207	100	101	120	158	75
1956	W	410	336	83	931	1,931	485	606	896	2,288	1,851	1,084	518	368
1957	BN	434	372	359	361	384	397	758	506	276	166	151	174	138
1958	W	462	331	355	431	671	721	2,104	3,409	2,665	1,649	1,080	591	575
1959	D	466	345	332	345	424	363	661	672	151	137	148	158	136
1960	C	400	324	333	347	411	364	286	345	143	132	159	130	93
1961	C	367	315	337	322	348	339	158	165	122	94	56	99	67
1962	BN	344	291	309	310	631	925	1,038	485	390	224	179	177	207
1963	AN	429	312	326	326	360	476	827	710	398	248	191	205	166
1964	D	438	347	348	354	334	348	430	386	146	144	120	164	99
1965	W	389	306	478	1,730	447	362	490	769	388	228	220	193	147
1966	BN	453	152	380	732	671	358	669	777	236	237	197	173	161
1967	W	392	316	350	358	374	407	536	2,525	4,079	3,989	1,448	715	476
1968	D	470	361	280	332	645	379	305	559	228	227	209	230	127
1969	W	378	381	384	853	3,232	1,416	2,010	5,379	4,045	2,323	1,159	613	958
1970	AN	565	328	531	2,886	1,211	779	941	619	271	227	219	203	225
1971	BN	468	325	309	375	334	350	700	776	258	227	186	171	145
1972	D	461	336	373	144	338	303	295	271	235	221	229	(0)	86
1973	AN	394	362	382	424	839	552	282	781	219	204	184	190	158
1974	W	457	644	1,039	1,637	817	978	441	1,277	700	715	966	483	252
1975	W	446	300	359	257	2,139	933	704	672	1,746	1,032	972	430	363
1976	C	847	373	312	342	337	326	293	258	234	205	232	221	87

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	450	271	300	323	304	272	337	219	149	137	109	128	76
1978	W	370	243	300	466	774	482	66	55	3,832	2,543	1,252	1,275	308
1979	AN	229	541	391	1,670	1,879	1,366	540	1,063	299	233	515	342	304
1980	W	519	324	342	4,027	4,472	1,352	574	531	2,081	2,153	1,157	478	531
1981	D	635	348	394	429	405	486	296	356	219	199	200	193	105
1982	W	465	355	364	434	1,250	2,184	4,845	3,215	1,838	2,158	1,331	1,073	799
1983	W	1,088	1,910	2,243	3,604	4,363	5,959	1,284	2,798	7,273	5,863	2,392	1,008	1,290
1984	AN	1,276	1,599	3,495	1,850	1,543	484	336	647	271	262	275	260	194
1985	D	591	288	284	396	393	382	275	251	248	267	237	198	92
1986	W	500	345	358	330	2,104	4,031	824	1,581	1,320	835	1,038	639	589
1987	C	514	366	368	331	330	399	218	181	163	161	167	185	77
1988	C	420	290	325	327	283	275	227	204	179	128	124	133	70
1989	C	342	224	272	254	260	353	162	(0)	121	90	71	117	53
1990	C	378	253	277	260	305	236	110	131	125	98	83	86	54
1991	C	323	208	245	249	207	361	172	147	100	72	29	35	59
1992	C	310	239	247	241	311	300	173	115	118	102	57	47	61
1993	W	219	263	300	634	399	338	(0)	22	979	1,388	1,016	546	103
1994	C	459	319	284	265	331	205	96	84	121	(0)	56	17	49
1995	W	264	277	267	561	336	2,971	936	2,861	5,050	4,805	1,644	421	733
1996	W	534	329	315	636	2,956	1,520	650	1,597	233	230	830	384	414
1997	W	387	974	3,439	9,859	2,091	1,013	761	479	184	120	111	115	264
1998	W	389	286	306	716	5,151	2,005	1,138	904	4,972	4,554	1,464	677	829
1999	AN	549	332	356	772	1,973	381	660	514	236	145	193	130	218
2000	AN	358	295	268	275	1,322	1,009	749	716	181	146	109	90	237
2001	D	356	446	342	339	341	372	150	181	223	94	110	72	75
2002	D	277	353	340	399	257	259	508	276	125	71	38	31	85
2003	BN	278	266	303	277	237	252	540	212	105	46	35	53	80

This page intentionallay left blank

LSJR Alternative 2 (20% Unimpaired Flow)

Table 22. LSJR Alternative 2 End-of-Month Storage at New Melones on the Stanislaus River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	951	960	990	1,015	1,120	1,199	1,166	1,342	1,519	1,447	1,351	1,292
1923	AN	1,243	1,260	1,329	1,391	1,440	1,462	1,467	1,557	1,558	1,482	1,382	1,340
1924	C	1,294	1,287	1,301	1,315	1,319	1,272	1,182	1,073	989	913	845	823
1925	BN	795	804	822	836	957	1,035	1,077	1,206	1,236	1,184	1,102	1,064
1926	D	1,025	1,023	1,031	1,036	1,101	1,124	1,150	1,085	1,001	902	820	778
1927	AN	747	764	818	862	983	1,051	1,134	1,220	1,264	1,170	1,077	1,038
1928	BN	1,019	1,051	1,075	1,090	1,136	1,286	1,290	1,347	1,268	1,148	1,047	998
1929	C	957	962	970	975	989	988	966	925	897	834	781	756
1930	C	730	731	743	765	800	865	864	833	842	788	740	715
1931	C	696	714	726	737	746	742	717	671	659	647	630	630
1932	AN	606	618	674	708	804	838	833	950	1,030	984	914	870
1933	D	834	830	847	856	864	874	846	835	847	794	745	720
1934	C	700	710	731	754	789	827	798	753	738	723	708	704
1935	AN	701	702	704	730	756	807	931	1,089	1,159	1,086	1,009	965
1936	AN	940	949	964	1,036	1,211	1,279	1,331	1,442	1,479	1,381	1,283	1,234
1937	W	1,190	1,188	1,201	1,219	1,310	1,415	1,397	1,520	1,524	1,415	1,317	1,263
1938	W	1,216	1,222	1,307	1,382	1,558	1,694	1,820	2,061	2,254	2,196	2,099	2,000
1939	D	1,958	1,949	1,956	1,966	1,970	1,996	1,900	1,763	1,657	1,544	1,447	1,404
1940	AN	1,352	1,339	1,344	1,444	1,558	1,648	1,724	1,824	1,780	1,664	1,564	1,507
1941	W	1,458	1,457	1,496	1,548	1,634	1,666	1,687	1,817	1,853	1,777	1,680	1,620
1942	W	1,575	1,573	1,621	1,711	1,789	1,774	1,856	1,982	2,108	2,060	1,960	1,908
1943	W	1,862	1,888	1,922	1,970	1,970	2,030	2,137	2,147	2,131	2,034	1,932	1,866
1944	BN	1,812	1,804	1,806	1,806	1,816	1,850	1,758	1,683	1,634	1,526	1,424	1,363
1945	AN	1,331	1,365	1,391	1,427	1,542	1,629	1,605	1,681	1,750	1,662	1,564	1,516
1946	AN	1,485	1,514	1,600	1,664	1,719	1,694	1,728	1,798	1,741	1,629	1,532	1,482
1947	D	1,439	1,454	1,474	1,489	1,508	1,507	1,435	1,356	1,274	1,161	1,067	1,022
1948	BN	1,003	1,003	1,006	1,009	1,010	1,030	1,046	1,066	1,149	1,077	1,004	968
1949	BN	942	946	959	968	977	1,013	972	989	964	877	804	763

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	719	706	714	762	827	888	890	990	1,050	974	900	871
1951	AN	849	1,126	1,516	1,624	1,720	1,820	1,813	1,819	1,769	1,658	1,561	1,504
1952	W	1,462	1,477	1,531	1,664	1,747	1,789	1,849	2,117	2,281	2,249	2,130	2,000
1953	BN	1,934	1,937	1,957	1,970	1,970	1,918	1,876	1,791	1,825	1,753	1,659	1,602
1954	BN	1,551	1,555	1,568	1,583	1,604	1,652	1,619	1,660	1,590	1,476	1,378	1,322
1955	D	1,271	1,280	1,298	1,328	1,349	1,363	1,340	1,274	1,239	1,131	1,038	986
1956	W	946	954	1,199	1,454	1,573	1,576	1,602	1,736	1,821	1,754	1,657	1,614
1957	BN	1,561	1,563	1,578	1,596	1,636	1,686	1,582	1,592	1,617	1,510	1,419	1,360
1958	W	1,299	1,304	1,311	1,361	1,439	1,520	1,675	1,949	2,078	2,011	1,913	1,850
1959	D	1,795	1,798	1,812	1,838	1,892	1,921	1,812	1,657	1,559	1,451	1,357	1,341
1960	C	1,286	1,280	1,283	1,289	1,330	1,357	1,312	1,232	1,166	1,070	992	936
1961	C	863	881	899	904	911	922	906	872	833	791	755	739
1962	BN	711	722	735	743	825	866	877	903	921	854	776	725
1963	AN	696	704	727	779	891	948	980	1,135	1,203	1,121	1,030	990
1964	D	964	991	1,008	1,040	1,056	1,063	1,009	956	937	867	808	767
1965	W	744	769	1,001	1,206	1,306	1,373	1,430	1,509	1,577	1,519	1,446	1,399
1966	BN	1,344	1,377	1,411	1,449	1,482	1,514	1,480	1,473	1,375	1,260	1,167	1,105
1967	W	1,062	1,071	1,151	1,253	1,319	1,356	1,439	1,624	1,880	1,919	1,832	1,779
1968	D	1,724	1,735	1,750	1,772	1,834	1,885	1,786	1,688	1,598	1,483	1,387	1,323
1969	W	1,287	1,312	1,322	1,614	1,810	1,876	2,025	2,265	2,393	2,300	2,130	2,000
1970	AN	1,958	1,967	1,970	1,970	1,970	1,997	1,949	1,934	1,908	1,788	1,681	1,628
1971	BN	1,583	1,611	1,678	1,736	1,781	1,754	1,711	1,690	1,702	1,611	1,511	1,456
1972	D	1,403	1,418	1,466	1,502	1,525	1,545	1,424	1,389	1,304	1,189	1,089	1,042
1973	AN	1,007	1,017	1,047	1,158	1,298	1,410	1,381	1,485	1,492	1,374	1,272	1,224
1974	W	1,201	1,248	1,326	1,439	1,518	1,588	1,685	1,797	1,812	1,729	1,626	1,569
1975	W	1,535	1,547	1,571	1,598	1,662	1,705	1,681	1,693	1,805	1,719	1,633	1,574
1976	C	1,542	1,557	1,577	1,586	1,599	1,569	1,489	1,379	1,269	1,168	1,094	1,046
1977	C	1,006	1,006	1,003	992	974	947	893	855	838	797	760	750
1978	W	715	710	732	812	894	1,007	1,114	1,205	1,271	1,223	1,133	1,123

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	1,078	1,090	1,110	1,177	1,287	1,399	1,368	1,469	1,430	1,310	1,209	1,161
1980	W	1,132	1,149	1,165	1,470	1,712	1,737	1,778	1,815	1,869	1,839	1,741	1,688
1981	D	1,651	1,649	1,670	1,717	1,728	1,774	1,695	1,566	1,445	1,326	1,235	1,192
1982	W	1,161	1,219	1,352	1,553	1,804	1,969	2,219	2,317	2,365	2,300	2,130	2,000
1983	W	1,970	1,970	1,970	1,970	1,970	2,030	2,090	2,200	2,420	2,300	2,130	2,000
1984	AN	1,970	1,970	1,970	1,970	1,970	1,990	1,930	1,919	1,871	1,776	1,692	1,651
1985	D	1,626	1,665	1,706	1,721	1,759	1,800	1,732	1,633	1,530	1,418	1,329	1,289
1986	W	1,260	1,272	1,290	1,368	1,769	2,030	2,079	2,098	2,111	2,006	1,917	1,885
1987	C	1,849	1,855	1,872	1,871	1,879	1,908	1,781	1,603	1,479	1,375	1,295	1,255
1988	C	1,197	1,181	1,172	1,174	1,170	1,152	1,087	993	935	876	829	792
1989	C	748	737	736	733	735	802	784	761	752	712	684	703
1990	C	710	723	748	759	770	795	774	737	725	708	711	717
1991	C	700	700	720	718	710	757	755	753	731	699	676	682
1992	C	676	673	693	703	751	793	794	754	727	705	688	682
1993	W	678	680	682	829	928	1,048	1,084	1,152	1,192	1,119	1,036	992
1994	C	973	994	1,027	1,050	1,068	1,041	1,002	959	906	838	787	762
1995	W	710	721	756	941	1,032	1,273	1,387	1,597	1,789	1,885	1,824	1,799
1996	W	1,779	1,784	1,821	1,899	1,970	2,030	2,039	2,116	2,095	1,988	1,901	1,852
1997	W	1,839	1,870	1,970	1,970	1,970	1,992	1,936	1,915	1,837	1,731	1,642	1,611
1998	W	1,579	1,595	1,624	1,738	1,937	2,011	2,050	2,103	2,287	2,300	2,130	2,000
1999	AN	1,970	1,970	1,970	1,970	1,970	2,002	1,991	1,988	1,985	1,889	1,811	1,774
2000	AN	1,753	1,755	1,772	1,831	1,925	1,947	1,941	1,918	1,866	1,759	1,679	1,647
2001	D	1,641	1,654	1,688	1,700	1,729	1,767	1,695	1,584	1,470	1,349	1,246	1,187
2002	D	1,131	1,134	1,172	1,216	1,240	1,291	1,272	1,219	1,144	1,052	977	943
2003	BN	907	926	979	1,030	1,061	1,097	1,093	1,078	1,072	992	926	893

Table 23. LSJR Alternative 2 Monthly Average Flow at Ripon on the Stanislaus River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	763	259	310	322	391	381	1,877	1,610	1,270	435	463	469	331
1923	AN	970	354	403	356	235	264	1,755	1,429	836	534	463	469	271
1924	C	1,084	318	262	273	238	375	755	713	306	374	402	408	144
1925	BN	823	348	304	304	551	390	1,110	1,158	578	385	413	419	226
1926	D	832	320	262	267	266	257	919	715	318	385	413	419	148
1927	AN	832	455	288	321	583	436	1,139	1,080	823	385	413	419	242
1928	BN	832	348	304	295	219	823	969	781	382	385	413	419	192
1929	C	828	302	280	295	225	254	560	638	329	324	352	358	120
1930	C	768	263	94	308	218	380	618	550	447	324	352	358	133
1931	C	768	248	94	275	284	410	393	299	261	324	352	358	98
1932	AN	771	248	383	330	459	381	775	1,252	1,005	385	413	419	233
1933	D	832	266	94	315	230	238	459	579	692	335	363	369	132
1934	C	777	263	311	316	220	329	475	321	320	324	352	358	100
1935	AN	771	302	288	348	216	339	1,172	1,233	837	562	413	419	228
1936	AN	832	260	225	344	728	501	1,842	1,392	915	534	463	469	322
1937	W	970	266	262	327	396	491	1,835	1,429	836	534	463	469	299
1938	W	970	309	336	327	634	2,072	1,957	2,329	1,684	791	613	1,412	522
1939	D	1,155	456	380	420	461	241	1,562	1,337	481	435	463	469	244
1940	AN	970	266	225	371	602	1,772	1,744	1,704	1,173	584	513	519	422
1941	W	1,026	384	368	454	432	1,950	1,775	2,425	1,703	705	527	503	500
1942	W	1,035	588	383	323	574	1,802	1,537	1,746	1,205	729	552	575	413
1943	W	1,084	383	268	1,796	2,371	3,456	1,590	2,172	1,498	688	651	663	661
1944	BN	1,130	481	494	543	576	468	1,860	1,327	692	515	485	474	295
1945	AN	981	378	385	390	659	357	1,403	1,645	773	687	525	504	289
1946	AN	990	329	187	545	487	1,662	1,329	1,792	1,272	518	539	530	394
1947	D	976	343	347	404	376	347	885	658	428	356	368	379	161
1948	BN	782	341	292	362	352	353	610	1,028	830	514	414	389	191

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	799	337	325	324	389	323	830	901	536	386	384	365	178
1950	BN	781	320	330	345	283	407	857	1,103	821	399	380	386	208
1951	AN	766	403	519	580	657	413	1,662	1,539	651	435	424	395	294
1952	W	867	281	223	397	369	1,641	1,632	2,089	1,767	957	1,071	1,791	453
1953	BN	1,116	434	423	1,158	1,168	1,674	1,342	2,054	1,313	688	509	513	452
1954	BN	1,005	325	316	351	306	472	1,248	1,362	581	428	418	391	239
1955	D	904	269	302	481	265	365	918	745	497	322	331	342	167
1956	W	774	290	357	841	555	1,720	1,681	1,704	1,431	686	542	495	428
1957	BN	975	294	281	341	369	377	1,745	1,379	635	484	463	462	270
1958	W	975	353	336	327	453	1,635	2,023	1,848	1,492	751	644	667	448
1959	D	1,071	360	403	434	368	477	1,751	1,426	537	406	425	443	274
1960	C	931	337	316	343	386	332	905	780	342	330	336	326	165
1961	C	875	305	307	333	384	394	575	512	245	229	243	247	126
1962	BN	663	282	286	294	342	369	914	905	692	420	386	388	193
1963	AN	811	343	304	353	778	337	952	1,356	784	505	426	422	251
1964	D	836	348	286	354	401	371	953	801	361	347	354	368	173
1965	W	777	338		449	371	325	1,744	1,683	823	491	530	513	297
1966	BN	1,017	325	301	386	467	388	978	826	372	340	336	335	181
1967	W	760	282	271	276	425	1,622	1,526	1,604	1,650	1,021	640	703	411
1968	D	1,192	260	288	380	385	345	1,842	1,429	535	393	409	406	273
1969	W	958	319	339	506	871	2,074	2,088	1,935	1,604	1,408	1,770	1,674	515
1970	AN	1,211	446	1,030	4,928	2,925	1,971	1,736	1,670	1,282	541	538	592	566
1971	BN	1,028	269	280	336	383	1,816	1,744	1,867	1,178	641	550	570	422
1972	D	1,206	248	181	349	333	491	1,755	1,409	523	401	403	400	272
1973	AN	891	300	306	310	534	410	1,925	1,381	920	540	477	538	309
1974	W	970	235	223	269	473	1,656	1,803	1,726	1,462	622	558	683	429
1975	W	1,110	335	444	349	256	1,778	1,827	1,675	1,665	662	632	637	434
1976	C	914	471	297	368	377	370	903	750	310	293	315	310	163

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	720	275	263	286	364	395	661	464	267	211	229	174	128
1978	W	599	213	226	343	389	725	877	1,278	1,015	553	433	454	257
1979	AN	886	377	320	204	389	520	1,877	1,252	596	476	475	463	278
1980	W	960	322	165	198	894	1,705	1,871	2,040	1,526	629	604	690	484
1981	D	1,104	385	305	377	329	368	1,706	1,511	505	463	397	428	265
1982	W	951	263	291	455	1,185	1,824	2,039	2,109	1,368	751	1,923	2,993	510
1983	W	1,810	2,651	3,175	4,217	5,177	6,223	1,710	2,208	4,653	4,340	2,664	3,050	1,185
1984	AN	1,538	3,453	5,126	2,177	2,262	1,912	1,808	1,926	1,277	572	626	746	550
1985	D	1,129	340	225	335	441	416	1,750	1,530	566	315	405	495	282
1986	W	995	383	311	311	1,916	1,867	1,793	1,789	1,129	576	424	531	505
1987	C	1,069	310	411	357	248	370	1,694	1,366	472	360	374	344	249
1988	C	858	238	270	295	369	370	847	715	268	267	251	288	154
1989	C	692	248	267	281	349	589	786	527	316	308	302	327	154
1990	C	667	257	248	260	348	270	599	542	238	244	262	257	119
1991	C	773	469	249	242	383	334	505	595	356	235	247	229	130
1992	C	689	379	239	241	339	254	495	482	353	205	208	192	115
1993	W	604	216	225	354	389	761	837	1,324	810	295	343	419	248
1994	C	651	247	232	239	261	438	504	517	188	247	221	235	114
1995	W	1,043	228	242	609	360	1,716	1,478	1,728	1,546	490	476	431	412
1996	W	884	270	272	343	2,341	2,801	1,775	2,179	1,265	600	600	575	622
1997	W	954	564	1,970	10,555	3,736	2,234	1,511	1,707	1,123	524	478	454	607
1998	W	977	257	247	324	1,330	1,903	1,708	1,996	1,718	1,264	2,214	2,196	517
1999	AN	1,347	898	1,127	1,621	3,452	1,835	1,476	1,668	1,021	439	476	478	556
2000	AN	901	250	241	327	657	1,777	1,522	1,668	1,137	455	443	435	408
2001	D	856	264	243	308	389	312	1,562	1,363	478	357	326	348	246
2002	D	826	220	286	321	234	332	790	721	326	307	340	328	144
2003	BN	846	233	262	249	316	312	764	1,057	608	344	312	292	183

Table 24. LSJR Alternative 2 End-of-Month Storage at New Don Pedro on the Tuolumne River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	1,313	1,294	1,323	1,355	1,551	1,690	1,713	1,923	2,030	1,910	1,767	1,685
1923	AN	1,637	1,640	1,690	1,690	1,690	1,690	1,713	1,793	1,842	1,758	1,618	1,562
1924	C	1,512	1,494	1,485	1,479	1,484	1,461	1,442	1,385	1,283	1,186	1,107	1,067
1925	BN	1,069	1,083	1,149	1,206	1,374	1,486	1,659	1,780	1,838	1,722	1,584	1,511
1926	D	1,467	1,456	1,462	1,468	1,552	1,639	1,713	1,698	1,559	1,373	1,230	1,152
1927	AN	1,107	1,144	1,191	1,239	1,410	1,535	1,657	1,774	1,942	1,845	1,702	1,624
1928	BN	1,595	1,624	1,659	1,675	1,690	1,690	1,713	1,860	1,786	1,604	1,464	1,385
1929	C	1,326	1,316	1,314	1,313	1,331	1,367	1,381	1,333	1,359	1,205	1,083	1,011
1930	C	973	956	996	1,028	1,080	1,146	1,145	1,142	1,180	1,056	960	909
1931	C	883	884	923	935	977	985	961	924	861	787	738	721
1932	AN	705	700	881	1,036	1,276	1,427	1,443	1,483	1,517	1,454	1,320	1,241
1933	D	1,178	1,151	1,154	1,152	1,185	1,211	1,221	1,239	1,228	1,109	1,004	947
1934	C	902	888	910	955	1,028	1,158	1,162	1,129	1,076	980	912	885
1935	AN	874	887	929	1,105	1,248	1,377	1,641	1,709	1,801	1,669	1,526	1,437
1936	AN	1,401	1,391	1,386	1,452	1,690	1,690	1,713	1,810	1,939	1,823	1,675	1,590
1937	W	1,542	1,520	1,518	1,525	1,690	1,690	1,713	1,770	1,898	1,746	1,602	1,516
1938	W	1,462	1,450	1,685	1,690	1,690	1,690	1,690	1,730	2,025	1,910	1,779	1,700
1939	D	1,660	1,657	1,673	1,688	1,690	1,690	1,689	1,650	1,493	1,307	1,168	1,124
1940	AN	1,103	1,094	1,162	1,328	1,590	1,690	1,713	1,763	1,857	1,672	1,525	1,436
1941	W	1,384	1,367	1,472	1,658	1,690	1,690	1,690	1,737	1,915	1,896	1,753	1,668
1942	W	1,619	1,608	1,690	1,690	1,690	1,690	1,713	1,765	2,027	1,910	1,767	1,678
1943	W	1,617	1,652	1,690	1,690	1,690	1,690	1,713	1,927	2,030	1,910	1,767	1,678
1944	BN	1,624	1,607	1,600	1,606	1,680	1,690	1,685	1,738	1,726	1,584	1,445	1,366
1945	AN	1,340	1,385	1,432	1,471	1,690	1,690	1,713	1,746	1,876	1,796	1,645	1,555
1946	AN	1,553	1,584	1,690	1,690	1,690	1,690	1,713	1,734	1,761	1,578	1,425	1,338
1947	D	1,292	1,307	1,341	1,366	1,407	1,417	1,381	1,451	1,368	1,217	1,100	1,039
1948	BN	1,039	1,039	1,079	1,098	1,099	1,170	1,255	1,324	1,366	1,225	1,085	1,010
1949	BN	975	961	959	959	981	1,160	1,197	1,239	1,205	1,052	933	871

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	826	816	818	860	1,031	1,187	1,267	1,250	1,276	1,110	972	911
1951	AN	903	1,315	1,690	1,690	1,690	1,690	1,713	1,635	1,600	1,420	1,272	1,181
1952	W	1,137	1,135	1,249	1,488	1,690	1,690	1,690	1,895	2,030	1,910	1,778	1,700
1953	BN	1,639	1,624	1,642	1,690	1,690	1,690	1,713	1,726	1,823	1,761	1,631	1,555
1954	BN	1,510	1,508	1,512	1,532	1,591	1,690	1,713	1,840	1,798	1,618	1,476	1,396
1955	D	1,343	1,340	1,359	1,404	1,464	1,556	1,594	1,585	1,462	1,283	1,139	1,066
1956	W	1,018	1,012	1,574	1,690	1,690	1,690	1,713	1,794	2,030	1,910	1,769	1,693
1957	BN	1,648	1,632	1,629	1,636	1,690	1,690	1,630	1,716	1,832	1,668	1,531	1,455
1958	W	1,435	1,425	1,442	1,478	1,634	1,690	1,690	1,910	2,030	1,910	1,775	1,700
1959	D	1,635	1,612	1,595	1,632	1,690	1,690	1,697	1,644	1,500	1,316	1,175	1,167
1960	C	1,114	1,102	1,130	1,142	1,268	1,320	1,365	1,363	1,253	1,121	1,026	981
1961	C	956	953	1,040	1,055	1,077	1,089	1,085	1,055	993	926	881	863
1962	BN	846	842	872	892	1,091	1,219	1,271	1,323	1,460	1,352	1,217	1,142
1963	AN	1,111	1,102	1,117	1,165	1,357	1,424	1,527	1,710	1,886	1,823	1,686	1,613
1964	D	1,586	1,632	1,648	1,679	1,690	1,678	1,658	1,638	1,563	1,389	1,256	1,184
1965	W	1,166	1,187	1,615	1,690	1,690	1,690	1,713	1,724	1,773	1,760	1,675	1,602
1966	BN	1,541	1,617	1,690	1,690	1,690	1,690	1,696	1,737	1,584	1,403	1,261	1,190
1967	W	1,140	1,171	1,325	1,437	1,537	1,690	1,690	1,880	2,030	1,910	1,790	1,700
1968	D	1,641	1,626	1,625	1,638	1,690	1,690	1,648	1,658	1,555	1,369	1,237	1,158
1969	W	1,127	1,154	1,244	1,690	1,690	1,690	1,690	1,930	2,030	1,910	1,779	1,700
1970	AN	1,660	1,663	1,690	1,690	1,690	1,690	1,674	1,745	1,755	1,608	1,474	1,395
1971	BN	1,350	1,390	1,478	1,556	1,634	1,690	1,698	1,758	1,832	1,715	1,583	1,512
1972	D	1,467	1,472	1,520	1,583	1,648	1,649	1,588	1,575	1,526	1,351	1,222	1,154
1973	AN	1,125	1,135	1,218	1,359	1,548	1,690	1,713	1,916	1,968	1,787	1,646	1,562
1974	W	1,541	1,628	1,690	1,690	1,690	1,690	1,713	1,931	2,030	1,910	1,769	1,688
1975	W	1,657	1,643	1,646	1,664	1,690	1,690	1,713	1,779	2,030	1,910	1,789	1,700
1976	C	1,660	1,663	1,682	1,670	1,668	1,612	1,569	1,472	1,356	1,234	1,167	1,141
1977	C	1,121	1,114	1,138	1,141	1,142	1,104	1,051	1,015	941	873	829	812
1978	W	797	794	853	1,014	1,187	1,403	1,587	1,580	1,761	1,829	1,696	1,680

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	1,618	1,619	1,619	1,690	1,690	1,690	1,690	1,717	1,765	1,597	1,455	1,377
1980	W	1,349	1,349	1,370	1,690	1,690	1,690	1,713	1,890	1,960	1,910	1,781	1,700
1981	D	1,641	1,618	1,615	1,635	1,668	1,690	1,713	1,674	1,574	1,394	1,269	1,199
1982	W	1,190	1,294	1,445	1,671	1,690	1,690	1,713	1,876	2,003	1,910	1,790	1,700
1983	W	1,660	1,690	1,690	1,690	1,690	1,295	1,264	1,271	1,851	1,910	1,790	1,700
1984	AN	1,660	1,690	1,690	1,690	1,690	1,690	1,635	1,671	1,708	1,563	1,418	1,333
1985	D	1,313	1,345	1,391	1,394	1,438	1,521	1,527	1,573	1,475	1,297	1,169	1,105
1986	W	1,086	1,105	1,180	1,257	1,690	1,690	1,713	1,888	2,001	1,906	1,765	1,696
1987	C	1,650	1,626	1,612	1,594	1,600	1,642	1,611	1,527	1,414	1,272	1,169	1,116
1988	C	1,100	1,096	1,137	1,205	1,271	1,285	1,267	1,218	1,168	1,078	1,013	983
1989	C	962	969	1,004	1,042	1,087	1,181	1,186	1,248	1,223	1,052	929	912
1990	C	936	930	954	969	1,013	1,041	1,028	1,054	1,033	958	903	882
1991	C	871	866	894	902	897	975	988	994	1,051	953	878	838
1992	C	836	832	860	877	952	1,019	1,050	1,106	1,035	979	906	862
1993	W	845	837	884	1,104	1,261	1,479	1,594	1,865	2,030	1,910	1,776	1,698
1994	C	1,644	1,625	1,616	1,618	1,637	1,637	1,602	1,580	1,474	1,310	1,194	1,133
1995	W	1,101	1,118	1,163	1,432	1,529	1,690	1,713	1,630	1,983	1,910	1,790	1,700
1996	W	1,632	1,606	1,633	1,690	1,690	1,690	1,713	2,002	2,030	1,910	1,767	1,689
1997	W	1,653	1,690	1,690	1,690	1,690	1,690	1,647	1,856	1,903	1,750	1,613	1,558
1998	W	1,499	1,490	1,492	1,666	1,690	1,690	1,713	1,714	1,988	1,910	1,788	1,700
1999	AN	1,662	1,673	1,690	1,690	1,690	1,690	1,718	1,761	1,899	1,758	1,622	1,546
2000	AN	1,484	1,470	1,459	1,548	1,690	1,690	1,718	1,966	2,030	1,850	1,710	1,633
2001	D	1,619	1,603	1,596	1,601	1,633	1,690	1,718	1,799	1,637	1,459	1,326	1,259
2002	D	1,217	1,226	1,300	1,368	1,427	1,484	1,476	1,588	1,555	1,379	1,246	1,172
2003	BN	1,130	1,164	1,221	1,298	1,352	1,399	1,450	1,500	1,573	1,409	1,288	1,220

Table 25. LSJR Alternative 2 Monthly Average Flow at Modesto on the Tuolumne River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	724	599	597	603	683	1,112	3,584	2,335	7,396	1,760	586	592	903
1923	AN	722	595	1,129	2,169	2,125	1,459	3,252	1,695	1,072	600	586	597	569
1924	C	737	605	580	579	601	597	556	680	366	356	362	366	168
1925	BN	428	442	440	427	817	540	1,176	2,012	1,183	405	410	421	343
1926	D	552	500	476	464	484	489	1,817	989	414	404	410	418	251
1927	AN	484	449	452	456	803	520	1,473	1,477	1,600	581	588	595	350
1928	BN	733	615	613	601	1,417	4,097	1,617	1,457	514	403	408	423	550
1929	C	552	495	477	468	498	479	631	1,229	756	358	361	376	215
1930	C	439	466	438	436	473	478	827	894	961	369	371	381	217
1931	C	462	453	449	437	465	448	560	680	368	359	364	367	150
1932	AN	429	437	430	427	834	559	1,423	1,704	1,791	602	588	591	378
1933	D	741	630	591	582	612	604	818	816	1,432	409	413	427	255
1934	C	544	501	481	464	491	488	625	546	367	356	361	366	150
1935	AN	438	445	437	436	468	446	1,563	1,727	1,718	587	585	600	355
1936	AN	736	609	597	593	3,015	4,073	3,584	1,691	1,311	590	585	595	819
1937	W	735	621	600	590	2,868	4,678	3,656	2,062	1,341	580	586	599	871
1938	W	737	614	611	1,728	7,280	7,992	5,665	5,398	3,996	3,535	592	715	1,803
1939	D	998	650	602	593	1,292	1,864	948	786	417	409	417	420	316
1940	AN	487	470	440	434	869	4,334	4,070	1,857	1,170	650	534	541	742
1941	W	645	526	755	683	4,611	5,100	4,622	2,157	1,798	757	638	560	1,084
1942	W	691	574	698	3,469	3,602	2,886	4,310	4,330	2,194	3,139	755	717	1,031
1943	W	819	641	797	3,855	3,424	6,406	3,999	1,610	1,443	920	521	449	1,007
1944	BN	758	584	626	650	752	2,170	1,169	1,483	897	439	425	372	391
1945	AN	529	453	389	529	2,084	4,144	2,599	1,480	1,553	713	654	585	709
1946	AN	684	466	2,366	2,893	3,189	3,405	1,948	1,777	891	662	620	593	665
1947	D	663	576	675	615	609	638	780	1,145	373	322	347	333	212
1948	BN	480	454	398	393	412	433	976	1,418	1,459	514	427	357	282

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	530	463	407	514	480	740	1,069	1,421	807	379	379	356	271
1950	BN	530	475	463	686	447	522	1,127	1,522	1,072	420	399	380	281
1951	AN	513	206	1,962	3,950	3,887	3,072	1,643	1,213	864	622	594	558	629
1952	W	645	525	600	971	615	3,998	4,806	5,055	3,986	3,580	637	642	1,115
1953	BN	685	479	517	1,371	1,443	1,443	1,047	974	1,391	544	453	413	374
1954	BN	465	400	391	397	385	1,186	1,769	1,457	622	398	399	382	326
1955	D	473	385	420	702	365	486	794	1,194	981	363	373	354	229
1956	W	400	372	441	5,679	4,335	3,560	2,423	1,821	2,736	2,780	701	585	887
1957	BN	702	478	491	518	797	1,546	1,084	1,236	1,361	424	428	418	361
1958	W	489	380	432	561	844	4,519	6,374	4,863	4,664	2,571	692	659	1,281
1959	D	758	519	581	624	1,954	1,998	805	791	467	374	353	372	356
1960	C	466	364	307	362	513	485	800	989	548	301	315	334	200
1961	C	315	330	282	337	346	392	555	716	410	261	276	248	145
1962	BN	303	314	323	314	941	510	1,307	1,177	1,499	383	416	421	323
1963	AN	466	273	315	425	1,113	364	1,446	1,737	1,556	552	520	525	370
1964	D	548	381	400	518	747	526	737	1,051	756	281	288	293	229
1965	W	343	266	234	4,586	3,711	3,400	3,514	1,460	1,600	568	583	490	809
1966	BN	590	429	932	1,295	2,210	1,579	1,005	1,155	289	271	262	255	368
1967	W	394	267	318	582	414	1,706	4,636	3,885	6,079	6,352	653	759	1,004
1968	D	650	449	485	515	879	1,717	825	937	474	375	358	342	291
1969	W	401	367	288	1,517	5,624	4,123	5,386	6,786	7,110	3,661	479	623	1,727
1970	AN	1,289	761	1,105	6,185	2,753	3,267	1,349	1,337	1,129	457	380	438	583
1971	BN	676	503	532	524	456	1,361	1,047	1,135	1,405	358	370	371	325
1972	D	520	322	524	367	341	592	742	1,119	739	301	306	297	213
1973	AN	317	451	522	524	826	1,088	1,731	2,130	1,344	509	529	525	427
1974	W	560	540	1,003	3,021	1,922	3,971	2,891	1,825	2,405	891	495	670	778
1975	W	1,070	1,088	789	642	2,807	3,824	2,672	1,893	2,055	1,112	576	688	789
1976	C	1,369	812	584	543	509	604	610	680	283	270	295	290	161

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	289	307	322	295	308	338	411	418	455	195	187	166	115
1978	W	222	243	251	432	706	1,077	1,405	5,421	4,876	440	466	447	812
1979	AN	398	710	611	1,511	3,824	4,445	2,260	5,734	1,059	573	645	529	1,036
1980	W	612	813	877	2,281	6,927	3,963	2,720	2,046	4,677	3,352	587	829	1,208
1981	D	748	775	519	692	579	1,803	1,220	1,067	508	346	368	354	311
1982	W	441	421	600	541	6,507	5,797	9,332	6,347	4,430	3,527	712	2,296	1,927
1983	W	3,090	3,106	5,342	5,471	6,892	16,297	5,182	7,861	3,919	6,121	2,996	1,991	2,410
1984	AN	1,157	5,440	7,479	4,359	3,576	3,478	1,602	1,743	1,109	583	617	612	688
1985	D	743	974	430	489	609	660	1,015	1,109	454	366	387	372	230
1986	W	337	363	356	284	2,445	8,232	3,157	3,233	3,262	563	561	675	1,223
1987	C	1,171	1,300	566	596	523	711	652	660	299	282	285	266	170
1988	C	244	259	254	305	260	342	534	693	329	200	210	190	130
1989	C	199	220	245	244	243	927	1,039	1,044	696	213	223	220	238
1990	C	215	245	232	236	275	423	739	592	379	225	241	225	144
1991	C	216	239	223	208	235	546	605	1,093	992	208	221	201	209
1992	C	212	239	217	224	479	374	773	615	422	194	195	188	159
1993	W	216	208	217	781	580	1,038	1,126	2,052	2,095	1,906	346	417	414
1994	C	586	448	413	399	490	420	655	894	400	213	221	199	171
1995	W	233	218	223	518	576	6,940	4,890	9,474	4,718	8,190	1,918	804	1,613
1996	W	763	451	430	918	6,116	5,065	3,122	2,636	2,648	641	503	546	1,169
1997	W	592	565	6,298	17,925	3,886	3,498	1,253	1,763	1,129	524	506	499	681
1998	W	698	337	431	899	7,010	5,276	4,091	5,533	6,614	6,585	537	691	1,691
1999	AN	965	506	673	2,199	5,167	3,981	2,223	1,851	1,465	523	521	519	865
2000	AN	596	442	344	433	2,643	3,917	2,238	1,753	1,219	513	711	734	706
2001	D	692	465	418	518	400	1,557	943	1,327	349	318	334	313	276
2002	D	327	243	383	427	284	459	1,012	1,210	750	304	346	309	223
2003	BN	320	247	294	264	241	403	836	1,691	1,250	253	303	282	266

Table 26. LSJR Alternative 2 End-of-Month Storage at New Exchequer on the Merced River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	469	457	482	505	647	735	776	924	1,024	910	770	700
1923	AN	669	669	675	675	675	674	746	870	898	830	738	698
1924	C	669	660	652	647	639	610	608	610	549	484	429	398
1925	BN	373	379	385	391	477	506	598	730	730	646	556	506
1926	D	475	467	462	456	501	497	566	524	494	454	403	358
1927	AN	323	311	316	305	323	350	351	464	493	459	435	447
1928	BN	452	447	460	473	485	468	440	484	462	420	390	389
1929	C	361	348	334	323	323	319	325	312	303	317	332	310
1930	C	277	263	250	239	228	193	204	211	225	260	293	298
1931	C	270	262	252	247	252	249	279	319	301	270	246	226
1932	AN	201	190	252	285	427	466	494	598	670	601	506	452
1933	D	408	394	383	382	381	380	388	420	490	431	361	324
1934	C	292	279	281	298	329	361	399	408	396	356	325	304
1935	AN	279	284	292	356	393	454	657	804	890	800	699	642
1936	AN	608	601	592	615	675	735	844	966	977	894	770	700
1937	W	675	663	666	673	675	735	819	970	1,013	910	770	700
1938	W	657	647	675	675	675	735	845	970	1,024	910	770	700
1939	D	675	675	675	672	675	689	734	728	652	546	451	411
1940	AN	388	376	366	477	598	709	820	962	964	856	751	692
1941	W	651	638	675	675	675	735	845	970	1,024	910	770	700
1942	W	673	672	675	675	675	723	822	953	1,024	910	770	700
1943	W	658	675	675	675	675	735	845	965	987	907	770	700
1944	BN	658	646	637	641	671	714	712	801	808	720	618	563
1945	AN	523	541	556	565	675	735	798	917	960	885	770	700
1946	AN	675	675	675	675	675	708	760	878	862	766	666	613
1947	D	585	604	634	645	669	675	685	722	660	556	461	410
1948	BN	385	379	369	366	354	331	370	474	546	463	369	318
1949	BN	282	268	259	253	257	296	355	470	484	411	341	302

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	265	254	243	265	312	324	405	495	518	435	350	304
1951	AN	276	517	675	675	675	723	770	813	794	693	590	532
1952	W	495	487	530	675	675	735	845	970	1,024	910	770	700
1953	BN	657	648	659	675	675	661	686	686	705	622	517	459
1954	BN	416	404	394	396	426	484	558	644	606	502	395	340
1955	D	296	283	283	296	302	294	306	413	457	401	338	302
1956	W	266	252	621	675	675	725	807	967	1,024	910	770	700
1957	BN	667	660	653	650	673	657	651	725	761	657	553	492
1958	W	466	458	463	479	550	689	845	970	1,024	910	770	700
1959	D	659	645	632	637	675	666	698	697	637	527	429	411
1960	C	374	358	344	336	375	391	450	510	493	421	355	319
1961	C	285	276	274	266	268	268	314	367	374	340	310	290
1962	BN	263	250	244	238	385	422	534	599	655	579	478	417
1963	AN	381	366	354	379	520	540	601	725	796	732	638	584
1964	D	560	580	583	588	584	556	558	599	586	507	428	384
1965	W	358	361	568	635	675	693	767	865	947	906	770	700
1966	BN	659	675	675	675	675	692	736	780	701	582	478	426
1967	W	385	381	477	521	557	679	845	970	1,024	910	770	700
1968	D	675	665	661	662	675	671	687	705	654	547	458	410
1969	W	381	388	409	675	675	735	845	970	1,024	910	770	700
1970	AN	675	675	675	675	675	735	747	826	822	723	623	568
1971	BN	533	536	570	603	625	626	632	703	743	659	564	511
1972	D	472	463	486	499	518	522	525	581	574	480	396	367
1973	AN	345	340	356	409	522	617	685	896	949	852	760	700
1974	W	675	675	675	675	675	735	813	970	1,024	910	770	700
1975	W	672	663	662	673	675	735	763	908	1,024	910	770	700
1976	C	675	675	673	662	662	634	625	634	571	490	430	405
1977	C	375	357	341	328	309	281	276	275	275	245	216	194
1978	W	165	148	165	262	395	561	740	948	1,024	910	770	700

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	675	675	668	675	675	735	802	970	977	877	770	700
1980	W	669	659	658	675	675	735	812	944	1,024	910	770	700
1981	D	657	636	625	627	634	648	676	711	659	548	452	400
1982	W	375	402	448	562	675	735	845	970	1,024	910	770	700
1983	W	675	675	675	675	675	735	820	970	1,024	910	770	700
1984	AN	640	675	675	675	675	725	751	866	851	766	673	621
1985	D	598	604	609	612	629	640	680	719	660	548	449	400
1986	W	368	366	380	406	675	735	845	970	1,024	910	770	700
1987	C	660	642	627	616	620	622	644	652	593	506	433	393
1988	C	364	361	355	365	369	375	415	452	441	392	344	316
1989	C	286	274	271	265	273	333	402	445	426	366	316	296
1990	C	280	274	265	264	269	289	348	385	377	347	317	298
1991	C	273	259	243	229	214	281	302	373	415	371	323	296
1992	C	274	267	260	257	302	323	391	421	381	353	315	295
1993	W	273	263	266	437	522	644	743	965	1,024	910	770	700
1994	C	675	660	650	643	655	647	650	670	624	527	447	405
1995	W	389	393	400	585	641	735	845	970	1,024	910	770	700
1996	W	654	639	648	675	675	735	840	970	982	897	770	700
1997	W	673	675	675	675	675	735	789	905	888	790	694	641
1998	W	598	589	588	671	675	735	845	970	1,024	910	770	700
1999	AN	670	669	675	675	675	683	706	829	839	733	630	575
2000	AN	530	520	507	546	675	735	812	947	936	820	714	660
2001	D	639	629	621	617	630	680	702	764	669	545	439	400
2002	D	365	358	389	414	432	450	502	577	557	463	382	342
2003	BN	306	320	335	359	376	395	416	545	566	465	378	327

Table 27. LSJR Alternative 2 Monthly Average Flow at Stevinson on the Merced River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	356	318	436	432	829	629	417	1,356	2,504	1,285	799	359	342
1923	AN	280	254	1,020	1,217	963	277	531	937	526	130	(0)	2	191
1924	C	385	335	332	346	352	304	225	296	44	11	19	82	73
1925	BN	351	369	375	378	639	433	605	849	494	87	60	53	180
1926	D	299	304	325	325	286	296	729	563	161	(0)	(0)	101	122
1927	AN	338	272	263	331	493	283	602	963	760	107	75	66	185
1928	BN	420	302	339	311	452	517	477	670	229	150	83	49	141
1929	C	364	347	337	358	385	342	262	628	326	2	31	89	116
1930	C	350	322	309	311	325	326	397	446	376	(0)	(0)	92	112
1931	C	345	335	322	332	358	318	249	299	67	25	1	119	77
1932	AN	350	313	425	419	650	386	440	904	844	80	19	84	193
1933	D	401	336	333	376	321	356	296	433	602	17	(0)	72	120
1934	C	386	333	355	416	419	337	309	182	111	53	(0)	48	80
1935	AN	358	339	359	530	378	487	924	1,047	867	153	97	125	222
1936	AN	450	360	335	378	3,535	538	736	973	548	79	469	339	373
1937	W	453	374	367	366	4,359	1,139	548	1,774	645	295	728	345	492
1938	W	442	351	1,893	1,288	4,875	4,657	1,416	3,169	4,447	2,143	1,096	502	1,101
1939	D	566	405	358	393	566	474	508	329	114	80	88	122	118
1940	AN	426	374	368	523	469	481	612	992	471	116	101	142	182
1941	W	430	377	1,041	1,287	3,065	1,751	749	2,955	2,272	1,662	1,012	420	639
1942	W	483	397	1,308	1,474	1,666	520	622	920	2,599	1,547	952	414	373
1943	W	489	420	728	2,119	1,917	3,022	775	950	511	189	802	384	427
1944	BN	458	409	386	364	451	354	269	813	447	148	146	122	140
1945	AN	438	439	396	391	1,570	708	524	859	692	179	444	316	256
1946	AN	571	795	1,806	1,014	774	483	649	852	383	140	126	145	186
1947	D	473	384	403	392	385	344	350	559	171	77	101	150	108
1948	BN	398	347	348	338	337	335	360	768	729	153	97	101	152

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	430	354	336	352	371	373	477	771	376	92	118	135	142
1950	BN	414	344	344	378	353	399	578	758	420	133	127	169	150
1951	AN	402	352	1,835	1,683	1,591	459	437	572	350	157	113	139	199
1952	W	428	367	410	657	1,263	1,811	1,164	3,524	2,992	1,841	1,164	526	648
1953	BN	451	378	284	938	675	377	403	397	531	111	123	143	141
1954	BN	445	355	353	356	392	322	571	725	249	138	128	174	135
1955	D	402	342	359	487	392	359	218	631	460	101	120	158	123
1956	W	410	336	83	3,440	1,936	485	518	1,038	2,230	1,851	1,084	518	369
1957	BN	434	372	359	361	384	397	296	651	592	166	151	174	139
1958	W	462	331	355	431	671	721	2,098	3,409	2,665	1,649	1,080	591	575
1959	D	466	345	332	345	424	363	397	364	171	137	148	158	102
1960	C	400	324	333	347	411	364	420	478	215	132	159	130	113
1961	C	367	315	337	322	348	339	282	309	148	94	56	99	85
1962	BN	344	291	309	310	631	925	665	670	689	224	179	177	214
1963	AN	429	312	326	326	623	476	440	872	706	248	191	205	186
1964	D	438	347	348	354	334	348	255	455	272	144	120	164	100
1965	W	389	306	478	1,730	471	362	555	842	813	228	1,301	533	182
1966	BN	453	752	757	1,002	671	358	534	592	236	237	197	173	141
1967	W	392	316	350	358	374	546	716	2,520	4,079	3,989	1,448	715	495
1968	D	470	361	280	332	645	379	316	394	228	227	209	230	117
1969	W	378	381	384	1,956	4,145	1,416	2,010	5,379	4,045	2,323	1,159	613	1,008
1970	AN	565	328	531	2,886	1,211	779	327	709	427	227	219	203	204
1971	BN	468	325	309	375	334	350	329	595	605	227	186	171	132
1972	D	461	336	373	144	338	303	295	543	323	221	229	(0)	108
1973	AN	394	362	382	424	839	552	440	1,239	676	204	184	304	223
1974	W	565	932	1,039	1,637	817	978	541	1,180	700	715	966	483	252
1975	W	446	300	359	257	2,139	933	329	1,015	1,764	1,032	972	430	363
1976	C	847	373	312	342	337	326	293	302	234	205	232	221	89

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	450	271	300	323	304	281	186	219	207	137	109	128	71
1978	W	370	243	300	466	774	611	786	1,229	3,589	2,543	1,252	1,275	417
1979	AN	229	541	391	1,670	1,879	1,366	444	1,156	521	233	302	342	317
1980	W	519	324	342	4,027	4,472	1,352	578	930	1,666	2,153	1,157	478	531
1981	D	635	348	394	429	405	486	410	517	232	199	200	193	122
1982	W	465	355	364	434	1,601	2,184	4,845	3,215	1,838	2,158	1,331	1,073	819
1983	W	1,088	1,910	2,243	3,604	4,363	5,959	1,284	2,798	7,273	5,863	2,392	1,008	1,290
1984	AN	1,276	1,599	3,495	1,850	1,543	484	434	862	383	262	275	260	220
1985	D	591	288	284	396	393	382	494	556	248	267	237	198	124
1986	W	500	345	358	330	1,804	4,031	824	1,581	1,320	835	1,038	639	573
1987	C	514	366	368	331	330	399	319	309	163	161	167	185	91
1988	C	420	290	325	327	283	275	313	348	185	128	124	133	84
1989	C	342	224	272	254	260	353	538	429	245	90	71	117	109
1990	C	378	253	277	260	305	236	383	283	183	98	83	86	83
1991	C	323	208	245	249	207	361	272	598	487	72	29	35	116
1992	C	310	239	247	241	311	300	440	342	230	102	57	47	97
1993	W	219	263	300	634	399	511	608	1,249	1,923	1,388	1,016	546	281
1994	C	459	319	284	265	331	205	292	381	145	(0)	56	17	80
1995	W	264	277	267	561	336	4,219	936	2,861	5,050	4,805	1,644	421	810
1996	W	534	329	315	636	2,956	1,520	662	1,586	528	160	617	384	432
1997	W	387	974	3,439	9,859	2,091	1,013	568	904	383	120	111	115	291
1998	W	389	286	306	344	5,092	2,005	1,138	904	4,972	4,554	1,464	677	825
1999	AN	549	332	356	772	1,973	381	430	917	518	145	193	130	246
2000	AN	358	295	268	275	844	1,009	558	898	437	146	109	90	225
2001	D	356	446	342	339	341	372	363	699	223	94	110	72	120
2002	D	277	353	340	399	257	259	508	579	286	71	38	31	113
2003	BN	278	266	303	277	237	252	376	878	571	46	35	53	139

This page intentionallay left blank

LSJR Alternative 3 (40% Unimpaired Flow)

Table 28. LSJR Alternative 3 End-of-Month Storage at New Melones on the Stanislaus River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	951	960	990	1,015	1,098	1,167	1,134	1,242	1,366	1,273	1,175	1,097
1923	AN	1,022	1,039	1,108	1,170	1,210	1,219	1,224	1,264	1,252	1,178	1,079	1,038
1924	C	985	978	993	1,006	1,011	984	951	899	870	852	833	842
1925	BN	825	838	859	876	969	1,020	1,024	1,075	1,056	985	889	844
1926	D	790	784	788	791	838	862	889	867	843	807	779	771
1927	AN	745	765	823	870	960	1,010	1,076	1,135	1,173	1,119	1,060	1,041
1928	BN	1,005	1,040	1,067	1,084	1,126	1,230	1,212	1,230	1,158	1,050	958	913
1929	C	866	873	883	890	905	910	906	864	848	825	806	802
1930	C	785	790	804	827	856	906	885	841	846	815	786	773
1931	C	757	776	788	800	809	805	767	704	691	679	662	662
1932	AN	636	648	704	738	808	827	812	891	957	953	917	894
1933	D	847	848	869	881	891	904	882	858	856	825	795	782
1934	C	754	766	788	812	841	860	819	767	752	737	722	717
1935	AN	712	714	716	742	760	808	888	1,004	1,059	1,017	966	939
1936	AN	895	906	922	995	1,129	1,169	1,220	1,288	1,306	1,209	1,112	1,063
1937	W	1,005	1,003	1,017	1,035	1,104	1,201	1,231	1,315	1,318	1,194	1,095	1,021
1938	W	949	955	1,040	1,115	1,256	1,401	1,531	1,709	1,855	1,797	1,708	1,647
1939	D	1,590	1,587	1,600	1,619	1,635	1,652	1,562	1,442	1,361	1,276	1,202	1,171
1940	AN	1,125	1,118	1,129	1,233	1,317	1,413	1,481	1,552	1,519	1,406	1,311	1,257
1941	W	1,199	1,198	1,236	1,289	1,356	1,453	1,465	1,595	1,652	1,571	1,477	1,399
1942	W	1,332	1,331	1,379	1,470	1,538	1,524	1,605	1,711	1,792	1,740	1,642	1,577
1943	W	1,512	1,539	1,572	1,723	1,808	1,973	2,066	2,101	2,095	1,991	1,895	1,821
1944	BN	1,751	1,749	1,757	1,764	1,782	1,816	1,724	1,627	1,571	1,463	1,361	1,301
1945	AN	1,268	1,302	1,327	1,363	1,441	1,514	1,489	1,539	1,566	1,480	1,382	1,335
1946	AN	1,292	1,320	1,352	1,416	1,472	1,506	1,528	1,593	1,560	1,452	1,359	1,312
1947	D	1,255	1,271	1,291	1,306	1,326	1,325	1,273	1,198	1,159	1,093	1,037	1,014
1948	BN	992	999	1,009	1,017	1,023	1,045	1,037	1,000	1,039	969	898	862
1949	BN	824	828	842	851	860	902	867	869	876	834	798	781

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	737	730	741	792	847	902	877	946	1,017	981	940	928
1951	AN	898	1,177	1,569	1,679	1,769	1,847	1,840	1,846	1,793	1,681	1,584	1,528
1952	W	1,464	1,479	1,533	1,667	1,728	1,770	1,800	1,972	2,100	2,068	1,973	1,902
1953	BN	1,818	1,822	1,842	1,895	1,927	1,875	1,830	1,745	1,764	1,693	1,599	1,542
1954	BN	1,491	1,495	1,508	1,523	1,543	1,564	1,502	1,524	1,454	1,341	1,243	1,187
1955	D	1,131	1,140	1,158	1,188	1,209	1,231	1,218	1,138	1,114	1,048	988	955
1956	W	912	928	1,178	1,438	1,553	1,556	1,582	1,683	1,755	1,681	1,584	1,524
1957	BN	1,444	1,446	1,461	1,480	1,516	1,543	1,439	1,422	1,411	1,304	1,215	1,156
1958	W	1,094	1,099	1,106	1,156	1,213	1,294	1,449	1,624	1,719	1,651	1,555	1,485
1959	D	1,410	1,413	1,427	1,453	1,502	1,531	1,472	1,362	1,284	1,192	1,113	1,106
1960	C	1,051	1,047	1,054	1,062	1,103	1,125	1,100	1,047	1,019	972	935	904
1961	C	843	865	886	894	904	923	913	881	851	827	806	799
1962	BN	767	779	792	801	864	903	877	888	899	864	812	778
1963	AN	744	757	783	837	909	964	1,004	1,117	1,187	1,144	1,087	1,067
1964	D	1,025	1,054	1,073	1,108	1,128	1,141	1,104	1,050	1,031	980	938	907
1965	W	873	899	1,131	1,336	1,416	1,469	1,526	1,605	1,640	1,563	1,489	1,425
1966	BN	1,346	1,380	1,390	1,427	1,461	1,481	1,431	1,417	1,327	1,220	1,134	1,075
1967	W	1,020	1,031	1,112	1,215	1,274	1,311	1,394	1,487	1,652	1,693	1,606	1,548
1968	D	1,481	1,492	1,507	1,529	1,575	1,616	1,522	1,435	1,364	1,271	1,192	1,137
1969	W	1,105	1,134	1,148	1,444	1,619	1,685	1,824	1,953	2,047	1,988	1,884	1,807
1970	AN	1,753	1,763	1,812	1,970	1,970	1,997	1,949	1,934	1,908	1,788	1,681	1,628
1971	BN	1,572	1,601	1,668	1,725	1,763	1,736	1,694	1,672	1,671	1,580	1,481	1,425
1972	D	1,372	1,387	1,435	1,471	1,495	1,492	1,376	1,352	1,293	1,207	1,130	1,095
1973	AN	1,061	1,077	1,113	1,229	1,351	1,440	1,410	1,439	1,436	1,318	1,217	1,169
1974	W	1,132	1,179	1,223	1,337	1,416	1,516	1,604	1,689	1,717	1,623	1,524	1,460
1975	W	1,409	1,420	1,444	1,472	1,521	1,625	1,592	1,569	1,666	1,573	1,490	1,422
1976	C	1,360	1,376	1,396	1,405	1,418	1,401	1,336	1,256	1,185	1,128	1,087	1,059
1977	C	1,024	1,031	1,035	1,029	1,017	992	948	912	902	863	829	820
1978	W	773	768	791	870	931	1,009	1,074	1,105	1,124	1,061	969	938

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	862	875	894	961	1,050	1,134	1,140	1,177	1,125	1,014	922	879
1980	W	838	856	873	1,179	1,370	1,452	1,485	1,535	1,585	1,546	1,452	1,393
1981	D	1,338	1,337	1,358	1,405	1,417	1,460	1,426	1,342	1,251	1,160	1,090	1,061
1982	W	1,034	1,097	1,234	1,439	1,629	1,794	2,000	2,061	2,096	2,029	1,936	1,932
1983	W	1,927	1,970	1,970	1,970	1,970	2,030	2,090	2,137	2,385	2,300	2,130	2,000
1984	AN	1,970	1,970	1,970	1,970	1,970	1,990	1,930	1,919	1,871	1,776	1,692	1,651
1985	D	1,622	1,661	1,701	1,717	1,755	1,789	1,722	1,623	1,520	1,408	1,319	1,279
1986	W	1,250	1,261	1,279	1,358	1,652	1,904	1,953	1,972	1,978	1,860	1,767	1,718
1987	C	1,662	1,669	1,686	1,685	1,693	1,727	1,607	1,447	1,351	1,279	1,223	1,197
1988	C	1,148	1,138	1,136	1,142	1,151	1,141	1,091	1,021	993	964	944	922
1989	C	880	871	872	871	881	915	864	824	811	783	764	785
1990	C	786	800	825	836	852	861	822	784	765	748	751	757
1991	C	738	738	758	756	748	784	785	762	733	715	704	717
1992	C	707	705	726	737	776	805	786	741	717	696	679	673
1993	W	657	659	661	808	885	985	1,011	1,066	1,122	1,050	994	950
1994	C	895	920	957	983	1,003	994	969	925	904	875	857	852
1995	W	809	821	858	1,043	1,115	1,314	1,418	1,563	1,683	1,761	1,699	1,652
1996	W	1,600	1,605	1,643	1,721	1,816	1,935	1,958	2,045	2,033	1,914	1,833	1,772
1997	W	1,731	1,768	1,970	1,970	1,970	1,992	1,936	1,915	1,837	1,714	1,623	1,572
1998	W	1,515	1,530	1,559	1,674	1,847	1,921	1,960	2,012	2,119	2,161	2,097	2,000
1999	AN	1,967	1,970	1,970	1,970	1,970	2,002	1,991	1,950	1,926	1,831	1,753	1,716
2000	AN	1,676	1,679	1,696	1,755	1,811	1,833	1,827	1,798	1,747	1,640	1,560	1,529
2001	D	1,502	1,516	1,549	1,562	1,590	1,615	1,590	1,496	1,400	1,290	1,198	1,145
2002	D	1,082	1,086	1,126	1,172	1,188	1,228	1,193	1,130	1,069	1,010	962	944
2003	BN	908	929	985	1,039	1,068	1,089	1,078	1,018	1,002	948	904	885

Table 29. LSJR Alternative 3 Monthly Average Flow at Ripon on the Stanislaus River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	763	259	310	322	771	567	1,877	2,723	2,149	800	500	800	485
1923	AN	1,400	354	403	356	396	490	1,755	2,264	1,058	534	463	469	359
1924	C	1,200	318	262	273	238	375	460	540	256	324	352	358	113
1925	BN	800	348	304	297	1,102	758	1,705	2,250	1,123	385	413	419	414
1926	D	1,000	320	262	267	533	477	1,349	840	268	335	363	369	207
1927	AN	1,000	455	288	314	1,167	821	1,691	2,035	1,552	385	413	419	433
1928	BN	1,200	348	304	295	334	1,590	1,390	1,508	435	385	413	419	318
1929	C	1,000	302	280	295	225	283	665	1,261	651	324	352	358	186
1930	C	800	263	94	308	346	671	1,227	1,090	887	324	352	358	253
1931	C	800	248	94	275	284	410	614	588	256	324	352	358	129
1932	AN	800	248	383	330	918	718	1,294	2,363	1,897	385	413	419	432
1933	D	1,200	266	94	315	230	238	666	1,083	1,295	335	363	369	211
1934	C	1,000	263	311	316	324	648	663	443	320	324	352	358	144
1935	AN	800	302	288	348	339	430	1,999	2,328	1,580	562	413	419	401
1936	AN	1,200	260	225	344	1,433	965	1,865	2,081	1,250	534	463	469	455
1937	W	1,200	266	262	327	792	621	1,048	2,058	864	800	500	800	322
1938	W	1,400	309	336	321	1,268	1,945	1,897	3,357	2,496	800	513	800	658
1939	D	1,400	356	280	294	238	476	1,562	1,337	481	435	463	469	246
1940	AN	1,000	266	225	371	1,203	1,667	1,897	2,184	1,011	534	463	469	479
1941	W	1,200	384	368	447	778	905	1,928	2,435	1,354	800	500	800	444
1942	W	1,400	588	383	317	742	1,802	1,537	2,095	1,975	800	552	800	490
1943	W	1,400	383	268	129	850	1,750	1,826	1,768	1,338	800	551	800	452
1944	BN	1,400	381	394	418	452	468	1,860	1,676	822	515	485	474	317
1945	AN	1,000	378	385	390	1,318	608	1,403	2,086	1,489	665	525	504	411
1946	AN	1,200	329	1,071	545	487	712	1,523	1,895	864	468	489	480	329
1947	D	1,200	343	347	397	369	568	885	1,100	428	356	368	379	201
1948	BN	1,000	341	292	362	352	332	1,006	1,972	1,593	514	414	389	317

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	1,000	337	325	324	389	376	1,236	1,708	733	386	384	365	267
1950	BN	1,000	320	330	345	526	593	1,644	2,115	1,251	399	380	386	368
1951	AN	1,000	403	519	580	814	758	1,662	1,539	703	435	424	395	327
1952	W	1,200	281	223	397	737	1,641	2,146	3,668	2,377	957	696	800	638
1953	BN	1,400	434	423	504	593	1,674	1,405	2,054	1,553	688	509	513	438
1954	BN	1,005	325	316	351	317	925	1,740	1,665	593	428	418	391	316
1955	D	1,000	269	302	481	266	365	918	1,392	930	322	331	342	233
1956	W	1,000	290	357	841	709	1,720	1,681	2,247	1,659	800	542	800	484
1957	BN	1,400	294	281	341	439	751	1,745	1,818	1,264	484	463	462	361
1958	W	1,000	353	336	327	843	1,635	2,023	3,481	2,058	800	644	800	604
1959	D	1,400	360	403	434	475	523	964	815	422	356	375	393	191
1960	C	1,000	337	316	337	424	653	1,064	1,004	469	330	336	326	218
1961	C	875	305	307	333	384	324	680	731	359	229	243	247	148
1962	BN	800	282	286	294	684	476	1,756	1,574	1,335	420	386	388	348
1963	AN	1,000	343	304	353	1,556	407	980	2,536	1,376	505	426	422	408
1964	D	1,200	348	286	354	401	371	953	1,102	660	347	354	368	210
1965	W	1,000	338		449	742	541	1,744	1,683	1,371	800	530	800	363
1966	BN	1,400	325	696	386	467	610	1,279	1,008	372	340	336	335	224
1967	W	1,000	282	271	276	583	1,622	1,526	3,098	3,188	1,021	640	800	603
1968	D	1,400	260	288	380	661	577	1,842	1,429	535	393	409	406	303
1969	W	1,000	319	339	506	1,304	2,074	2,254	3,752	2,189	872	717	800	695
1970	AN	1,400	446	273	2,362	2,925	1,971	1,736	1,670	1,282	541	538	592	566
1971	BN	1,200	269	280	336	511	1,816	1,744	1,867	1,405	641	550	570	442
1972	D	1,206	248	181	349	333	954	1,755	1,485	523	401	403	400	305
1973	AN	1,000	300	306	310	922	788	1,925	2,609	1,086	540	477	538	439
1974	W	1,200	235	766	269	473	1,164	1,956	2,166	1,257	800	508	800	422
1975	W	1,400	335	444	343	511	801	1,980	2,246	1,921	800	582	800	448
1976	C	1,400	471	297	361	370	370	903	750	310	293	315	310	162

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	800	275	263	286	364	395	519	464	205	211	229	174	116
1978	W	800	213	226	343	778	1,285	1,590	2,265	1,798	800	500	800	463
1979	AN	1,400	377	320	210	778	973	1,294	2,341	892	426	425	413	377
1980	W	1,200	322	165	198	1,787	783	2,024	1,848	1,594	800	554	800	480
1981	D	1,400	385	305	371	321	501	1,034	1,007	360	413	347	378	194
1982	W	1,000	263	291	455	2,370	1,824	2,766	2,726	1,604	800	677	887	671
1983	W	1,400	1,934	3,175	4,217	5,177	6,223	1,710	3,233	4,189	3,770	2,664	3,050	1,220
1984	AN	1,538	3,453	5,126	2,177	2,262	1,912	1,808	1,926	1,277	572	626	746	550
1985	D	1,200	340	225	335	441	513	1,750	1,530	566	315	405	495	288
1986	W	1,000	383	311	311	3,832	2,016	1,793	1,789	1,269	800	500	800	629
1987	C	1,400	310	411	357	248	384	1,694	1,366	472	360	374	344	250
1988	C	858	238	270	295	243	360	847	715	268	267	251	288	146
1989	C	800	248	267	281	249	1,155	1,544	1,034	620	358	352	377	277
1990	C	800	257	248	267	282	534	890	559	339	244	262	257	156
1991	C	800	469	249	242	383	508	628	1,147	687	235	247	229	201
1992	C	800	379	239	241	501	461	830	561	296	205	208	192	159
1993	W	800	216	225	354	778	1,154	1,269	2,008	1,228	986	500	800	386
1994	C	1,400	247	232	239	261	361	648	941	251	247	221	235	148
1995	W	1,043	228	242	609	720	2,393	1,645	2,791	2,741	800	500	800	620
1996	W	1,400	270	272	343	1,919	1,843	1,542	2,034	1,105	800	500	800	506
1997	W	1,400	464	314	10,555	3,736	2,234	1,511	1,707	1,123	800	500	800	607
1998	W	1,400	257	247	324	1,801	1,903	1,708	1,996	3,035	800	500	1,636	622
1999	AN	1,400	842	1,127	1,621	3,452	1,835	1,476	2,282	1,370	439	476	478	614
2000	AN	1,200	250	241	327	1,314	1,777	1,522	1,774	1,137	455	443	435	452
2001	D	1,200	264	243	308	389	559	806	1,164	315	307	276	298	194
2002	D	1,000	220	286	314	396	614	1,324	1,300	603	307	340	328	254
2003	BN	1,000	233	262	249	396	625	1,042	2,114	1,217	344	312	292	325

Table 30. LSJR Alternative 3 End-of-Month Storage at New Don Pedro on the Tuolumne River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	1,313	1,294	1,323	1,355	1,523	1,666	1,713	1,815	2,030	1,910	1,766	1,659
1923	AN	1,594	1,573	1,655	1,690	1,690	1,690	1,713	1,689	1,675	1,591	1,452	1,397
1924	C	1,348	1,330	1,320	1,315	1,319	1,315	1,306	1,243	1,181	1,125	1,078	1,056
1925	BN	1,060	1,076	1,144	1,202	1,327	1,406	1,509	1,539	1,528	1,414	1,278	1,206
1926	D	1,163	1,151	1,157	1,163	1,233	1,316	1,373	1,354	1,270	1,152	1,062	1,016
1927	AN	987	1,026	1,076	1,127	1,256	1,349	1,418	1,446	1,519	1,425	1,284	1,208
1928	BN	1,180	1,209	1,244	1,260	1,321	1,438	1,459	1,528	1,437	1,269	1,141	1,069
1929	C	1,015	1,005	1,003	1,002	1,021	1,060	1,092	1,039	1,084	1,012	952	916
1930	C	895	883	927	962	1,016	1,065	1,049	1,033	1,064	993	936	908
1931	C	892	895	935	949	993	1,002	949	871	808	735	686	669
1932	AN	653	648	829	984	1,176	1,298	1,337	1,327	1,323	1,331	1,252	1,207
1933	D	1,162	1,140	1,145	1,146	1,183	1,215	1,235	1,234	1,175	1,097	1,023	985
1934	C	948	937	961	1,008	1,073	1,177	1,161	1,120	1,071	998	948	930
1935	AN	922	936	979	1,156	1,283	1,385	1,556	1,518	1,509	1,379	1,237	1,149
1936	AN	1,114	1,104	1,099	1,165	1,435	1,603	1,683	1,676	1,727	1,613	1,466	1,382
1937	W	1,334	1,312	1,311	1,317	1,547	1,690	1,713	1,679	1,750	1,561	1,417	1,308
1938	W	1,238	1,204	1,439	1,512	1,690	1,690	1,690	1,730	2,004	1,910	1,779	1,683
1939	D	1,642	1,619	1,635	1,649	1,689	1,690	1,657	1,607	1,478	1,327	1,214	1,182
1940	AN	1,168	1,162	1,231	1,398	1,611	1,690	1,713	1,649	1,673	1,490	1,344	1,255
1941	W	1,204	1,187	1,292	1,478	1,689	1,690	1,690	1,637	1,736	1,691	1,549	1,438
1942	W	1,370	1,335	1,420	1,581	1,690	1,690	1,713	1,765	1,939	1,910	1,767	1,661
1943	W	1,589	1,603	1,651	1,690	1,690	1,690	1,713	1,859	1,930	1,793	1,646	1,525
1944	BN	1,456	1,415	1,408	1,413	1,487	1,578	1,576	1,545	1,488	1,354	1,222	1,148
1945	AN	1,122	1,168	1,216	1,255	1,468	1,657	1,713	1,655	1,693	1,614	1,464	1,375
1946	AN	1,373	1,404	1,615	1,690	1,690	1,690	1,690	1,625	1,599	1,417	1,266	1,179
1947	D	1,133	1,149	1,182	1,207	1,248	1,267	1,243	1,288	1,233	1,136	1,060	1,024
1948	BN	1,030	1,031	1,073	1,095	1,099	1,175	1,243	1,243	1,229	1,122	1,009	949
1949	BN	919	907	907	909	932	1,115	1,127	1,121	1,088	986	906	867

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	834	828	832	876	1,025	1,166	1,210	1,146	1,160	1,049	954	913
1951	AN	911	1,325	1,690	1,690	1,690	1,690	1,713	1,573	1,502	1,337	1,202	1,119
1952	W	1,078	1,076	1,191	1,431	1,616	1,690	1,690	1,895	2,030	1,910	1,778	1,679
1953	BN	1,598	1,552	1,570	1,663	1,690	1,690	1,667	1,637	1,652	1,591	1,461	1,386
1954	BN	1,341	1,339	1,344	1,363	1,403	1,492	1,490	1,539	1,474	1,310	1,179	1,107
1955	D	1,058	1,056	1,075	1,120	1,176	1,277	1,335	1,315	1,211	1,111	1,029	993
1956	W	964	962	1,527	1,690	1,690	1,690	1,713	1,714	1,912	1,890	1,749	1,648
1957	BN	1,585	1,538	1,535	1,542	1,591	1,624	1,559	1,570	1,606	1,443	1,307	1,233
1958	W	1,212	1,202	1,220	1,255	1,394	1,636	1,690	1,910	2,030	1,910	1,775	1,680
1959	D	1,600	1,548	1,531	1,568	1,688	1,690	1,672	1,596	1,447	1,288	1,166	1,164
1960	C	1,117	1,107	1,136	1,149	1,258	1,296	1,322	1,297	1,198	1,110	1,049	1,024
1961	C	1,007	1,007	1,095	1,112	1,136	1,144	1,107	1,033	946	880	835	817
1962	BN	801	796	827	846	1,005	1,113	1,119	1,162	1,278	1,242	1,161	1,121
1963	AN	1,104	1,099	1,116	1,167	1,300	1,345	1,434	1,511	1,596	1,534	1,399	1,327
1964	D	1,300	1,347	1,363	1,393	1,420	1,429	1,433	1,404	1,343	1,234	1,151	1,110
1965	W	1,099	1,123	1,553	1,690	1,690	1,690	1,713	1,672	1,667	1,615	1,530	1,427
1966	BN	1,341	1,384	1,487	1,532	1,624	1,669	1,641	1,645	1,515	1,374	1,265	1,212
1967	W	1,173	1,205	1,361	1,474	1,559	1,690	1,690	1,880	2,030	1,910	1,790	1,686
1968	D	1,605	1,558	1,556	1,569	1,618	1,680	1,636	1,621	1,524	1,374	1,269	1,208
1969	W	1,183	1,211	1,302	1,690	1,690	1,690	1,690	1,930	2,030	1,910	1,772	1,670
1970	AN	1,648	1,637	1,690	1,690	1,690	1,690	1,674	1,663	1,606	1,460	1,327	1,249
1971	BN	1,203	1,244	1,331	1,410	1,476	1,557	1,550	1,540	1,532	1,417	1,286	1,216
1972	D	1,173	1,178	1,225	1,288	1,342	1,340	1,315	1,301	1,279	1,179	1,109	1,075
1973	AN	1,058	1,071	1,157	1,301	1,464	1,604	1,627	1,699	1,672	1,493	1,353	1,270
1974	W	1,250	1,337	1,419	1,565	1,642	1,690	1,713	1,842	1,926	1,788	1,641	1,541
1975	W	1,510	1,497	1,500	1,518	1,647	1,690	1,713	1,697	1,866	1,742	1,620	1,513
1976	C	1,496	1,488	1,507	1,495	1,493	1,465	1,447	1,345	1,271	1,192	1,153	1,143
1977	C	1,130	1,125	1,151	1,155	1,160	1,122	1,061	1,009	920	852	808	791
1978	W	777	774	832	993	1,140	1,314	1,469	1,580	1,761	1,782	1,641	1,592

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	1,494	1,477	1,477	1,579	1,690	1,690	1,690	1,717	1,702	1,534	1,393	1,315
1980	W	1,287	1,287	1,308	1,690	1,690	1,690	1,713	1,838	1,960	1,910	1,780	1,689
1981	D	1,614	1,578	1,575	1,595	1,629	1,690	1,701	1,618	1,511	1,356	1,249	1,192
1982	W	1,185	1,290	1,443	1,669	1,690	1,690	1,713	1,876	2,003	1,910	1,790	1,700
1983	W	1,660	1,690	1,690	1,690	1,690	1,295	1,264	1,271	1,696	1,910	1,790	1,700
1984	AN	1,660	1,690	1,690	1,690	1,690	1,690	1,635	1,563	1,536	1,392	1,248	1,163
1985	D	1,144	1,176	1,221	1,224	1,268	1,347	1,323	1,352	1,281	1,160	1,076	1,038
1986	W	1,029	1,050	1,127	1,207	1,547	1,690	1,713	1,884	2,001	1,867	1,723	1,635
1987	C	1,589	1,566	1,552	1,533	1,539	1,585	1,542	1,454	1,372	1,272	1,201	1,166
1988	C	1,156	1,155	1,198	1,267	1,327	1,326	1,286	1,212	1,162	1,093	1,045	1,024
1989	C	1,008	1,016	1,051	1,090	1,125	1,170	1,149	1,190	1,171	1,051	965	961
1990	C	988	985	1,012	1,029	1,070	1,074	1,020	1,013	981	911	860	842
1991	C	831	827	855	863	859	906	913	894	937	887	849	831
1992	C	834	833	863	882	949	994	987	1,024	972	937	881	847
1993	W	832	826	873	1,095	1,233	1,414	1,505	1,738	1,860	1,784	1,635	1,523
1994	C	1,444	1,392	1,383	1,385	1,404	1,408	1,374	1,341	1,282	1,193	1,133	1,105
1995	W	1,084	1,104	1,151	1,424	1,499	1,690	1,713	1,630	1,974	1,910	1,790	1,688
1996	W	1,606	1,547	1,574	1,654	1,690	1,690	1,713	1,974	2,030	1,876	1,727	1,622
1997	W	1,561	1,572	1,690	1,690	1,690	1,690	1,634	1,783	1,791	1,598	1,456	1,372
1998	W	1,295	1,246	1,248	1,422	1,690	1,690	1,713	1,714	1,988	1,910	1,784	1,678
1999	AN	1,638	1,619	1,660	1,690	1,690	1,690	1,718	1,647	1,699	1,558	1,423	1,349
2000	AN	1,287	1,273	1,262	1,351	1,534	1,674	1,701	1,842	1,850	1,671	1,532	1,456
2001	D	1,442	1,426	1,419	1,424	1,455	1,537	1,541	1,568	1,437	1,292	1,184	1,132
2002	D	1,098	1,108	1,184	1,253	1,297	1,330	1,288	1,363	1,331	1,202	1,106	1,054
2003	BN	1,023	1,059	1,118	1,197	1,240	1,266	1,295	1,268	1,301	1,172	1,077	1,026

Table 31. LSJR Alternative 3 Monthly Average Flow at Modesto on the Tuolumne River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	724	599	597	603	1,195	1,033	3,189	4,099	5,583	1,760	600	1,000	904
1923	AN	1,000	1,000	620	1,599	2,125	1,459	3,252	3,389	2,144	600	586	597	737
1924	C	737	605	580	579	601	597	934	1,360	366	356	362	366	232
1925	BN	428	442	440	427	1,635	1,080	2,353	3,500	2,366	405	410	421	653
1926	D	552	500	476	464	727	833	2,568	1,978	598	404	410	418	402
1927	AN	484	449	452	456	1,606	1,041	2,366	2,953	3,200	581	588	595	666
1928	BN	733	615	613	601	611	2,231	1,775	2,914	1,028	403	408	423	518
1929	C	552	495	477	468	498	644	995	2,459	1,512	358	361	376	368
1930	C	439	466	438	436	504	956	1,654	1,789	1,923	369	371	381	410
1931	C	462	453	449	437	465	448	1,035	1,360	368	359	364	367	221
1932	AN	429	437	430	427	1,669	1,119	1,647	3,409	3,583	602	588	591	686
1933	D	741	630	591	582	612	604	1,149	1,633	2,864	409	413	427	410
1934	C	544	501	481	464	648	976	1,250	969	639	356	361	366	268
1935	AN	438	445	437	436	771	891	3,126	3,454	3,435	587	585	600	700
1936	AN	736	609	597	593	2,448	1,347	2,642	3,383	2,622	590	585	595	745
1937	W	735	621	600	590	1,696	2,360	3,656	3,544	2,305	1,200	600	1,000	812
1938	W	1,000	1,000	611	603	4,080	7,992	5,665	5,398	4,346	3,198	600	1,000	1,646
1939	D	1,000	1,000	602	593	625	1,914	1,896	1,405	497	409	417	420	381
1940	AN	487	470	440	434	1,738	4,685	4,070	3,715	2,339	650	534	541	998
1941	W	645	526	755	683	1,380	5,090	4,622	3,774	3,147	1,200	638	1,000	1,084
1942	W	1,000	1,000	641	849	1,636	2,886	4,310	4,330	3,679	1,710	755	1,000	1,010
1943	W	1,000	1,000	626	3,223	3,424	6,406	3,999	2,708	1,995	1,200	600	1,000	1,107
1944	BN	1,000	1,000	626	650	752	878	1,169	2,966	1,795	439	425	372	456
1945	AN	529	453	389	529	2,197	1,073	2,039	2,960	3,106	713	654	585	676
1946	AN	684	466	656	1,679	3,189	3,405	2,339	3,175	1,781	662	620	593	827
1947	D	663	576	675	615	609	885	1,291	2,290	746	322	347	333	350
1948	BN	480	454	398	393	412	475	1,486	2,836	2,917	514	427	357	489

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	530	463	407	514	480	800	2,138	2,843	1,613	379	379	356	474
1950	BN	530	475	463	686	893	833	2,212	3,044	2,144	420	399	380	547
1951	AN	513	206	2,166	3,984	3,930	3,091	1,747	2,426	1,728	622	594	558	764
1952	W	645	525	600	971	911	2,796	4,806	5,055	3,986	3,580	637	1,000	1,058
1953	BN	1,000	1,000	517	639	963	1,443	1,815	1,685	2,783	544	453	413	519
1954	BN	465	400	391	397	735	1,386	2,346	2,914	1,244	398	399	382	519
1955	D	473	385	420	702	439	540	968	2,387	1,963	363	373	354	379
1956	W	400	372	441	4,963	4,392	3,560	2,423	3,136	3,367	1,200	701	1,000	1,009
1957	BN	1,000	1,000	491	518	893	1,002	1,163	2,472	2,722	424	428	418	494
1958	W	489	380	432	561	1,147	1,504	5,471	4,863	4,664	2,571	692	1,000	1,058
1959	D	1,000	1,000	581	624	835	2,050	1,506	1,509	934	374	353	372	410
1960	C	466	364	307	362	828	969	1,600	1,978	1,096	301	315	334	389
1961	C	315	330	282	337	346	462	1,109	1,431	820	261	276	248	250
1962	BN	303	314	323	314	1,678	904	2,615	2,355	2,998	383	416	421	628
1963	AN	466	273	315	425	2,226	729	1,667	3,474	3,112	552	520	525	666
1964	D	548	381	400	518	485	526	1,136	2,101	1,512	281	288	293	347
1965	W	343	266	234	3,616	3,761	3,400	3,514	2,304	2,524	1,200	600	1,000	919
1966	BN	1,000	1,000	435	555	549	950	2,010	2,309	578	271	262	255	385
1967	W	394	267	318	582	719	2,065	4,636	3,885	6,079	6,352	653	1,000	1,043
1968	D	1,000	1,000	485	515	932	800	1,257	1,874	948	375	358	342	349
1969	W	401	367	288	2,481	5,652	4,123	5,386	6,786	7,110	3,661	600	1,000	1,728
1970	AN	1,000	1,000	679	6,185	2,753	3,267	1,349	2,674	2,259	457	380	438	733
1971	BN	676	503	532	524	677	950	1,304	2,270	2,810	358	370	371	480
1972	D	520	322	524	367	542	1,184	1,049	2,238	1,479	301	306	297	392
1973	AN	317	451	522	524	1,340	1,125	1,741	4,261	2,689	509	529	525	669
1974	W	560	540	688	639	542	3,185	2,891	3,269	2,661	1,200	600	1,000	757
1975	W	1,070	1,088	789	642	944	3,125	2,672	3,238	3,426	1,200	600	1,000	807
1976	C	1,000	1,000	584	543	509	604	672	1,360	283	270	295	290	207

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	289	307	322	295	308	338	531	690	706	195	187	166	154
1978	W	222	243	251	432	1,178	1,797	1,985	3,514	4,876	1,200	600	1,000	800
1979	AN	1,000	1,000	611	1,015	1,823	4,445	2,260	5,734	2,117	573	645	529	988
1980	W	612	813	877	1,275	6,927	3,963	2,720	2,892	3,808	3,352	600	1,000	1,208
1981	D	1,000	1,000	519	692	579	1,185	1,633	2,134	1,015	346	368	354	394
1982	W	441	421	600	541	6,494	5,797	9,332	6,347	4,430	3,527	712	2,296	1,926
1983	W	3,090	3,106	5,342	5,471	6,892	16,297	5,182	7,861	6,531	3,607	2,996	1,991	2,565
1984	AN	1,157	5,440	7,479	4,359	3,576	3,478	1,602	3,487	2,218	583	617	612	861
1985	D	743	974	430	489	609	820	2,030	2,218	907	366	387	372	395
1986	W	337	363	356	284	4,164	5,902	3,157	3,297	3,199	1,200	600	1,000	1,175
1987	C	1,171	1,300	566	596	523	711	1,304	1,321	437	282	285	266	258
1988	C	244	259	254	305	396	683	1,069	1,386	659	200	210	190	253
1989	C	199	220	245	244	439	1,854	2,077	2,088	1,391	213	223	220	473
1990	C	215	245	232	236	382	846	1,479	1,184	672	225	241	225	274
1991	C	216	239	223	208	235	1,093	1,210	2,186	1,983	208	221	201	405
1992	C	212	239	217	224	647	748	1,546	1,229	436	194	195	188	277
1993	W	216	208	217	781	934	1,671	1,813	3,305	2,836	1,200	600	1,000	634
1994	C	1,000	1,000	413	399	490	703	1,311	1,789	800	213	221	199	306
1995	W	233	218	223	518	1,029	6,449	4,890	9,474	4,866	8,047	1,918	1,000	1,617
1996	W	1,000	1,000	430	538	5,498	5,065	3,122	3,090	2,181	1,200	600	1,000	1,133
1997	W	1,000	1,000	4,381	17,925	3,886	3,498	1,458	2,761	1,769	1,200	600	1,000	793
1998	W	1,000	1,000	431	899	2,617	5,276	4,091	5,533	6,614	6,585	600	1,000	1,447
1999	AN	1,000	1,000	289	1,709	5,167	3,981	2,223	3,702	2,931	523	521	519	1,066
2000	AN	596	442	344	433	1,926	1,646	2,245	3,506	2,165	513	711	734	690
2001	D	692	465	418	518	432	1,164	1,526	2,654	370	318	334	313	372
2002	D	327	243	383	427	569	917	2,023	2,420	1,499	304	346	309	446
2003	BN	320	247	294	264	468	807	1,465	3,383	2,501	253	303	282	520

Table 32. LSJR Alternative 3 End-of-Month Storage at New Exchequer on the Merced River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	469	457	482	505	644	735	763	870	999	910	770	694
1923	AN	638	613	652	675	675	671	718	795	799	728	624	573
1924	C	543	535	526	521	513	499	509	520	486	453	424	405
1925	BN	383	389	395	401	481	505	561	642	613	530	440	391
1926	D	360	351	347	340	376	383	427	385	384	386	368	339
1927	AN	310	298	304	293	288	301	275	345	345	318	296	305
1928	BN	311	306	318	332	344	304	274	311	314	313	315	330
1929	C	309	296	283	272	273	273	278	248	241	281	317	304
1930	C	276	263	250	238	228	189	188	182	189	242	288	299
1931	C	274	266	256	251	256	253	269	290	268	238	213	194
1932	AN	168	157	219	253	376	411	427	498	544	486	394	340
1933	D	300	286	276	275	274	282	299	330	395	369	326	302
1934	C	274	262	264	281	313	342	369	372	360	329	304	286
1935	AN	262	267	275	340	377	434	586	673	712	620	513	452
1936	AN	420	412	403	426	593	649	720	790	773	683	577	516
1937	W	493	482	485	492	667	735	803	943	967	851	726	647
1938	W	587	555	675	675	675	735	845	970	1,024	910	770	694
1939	D	654	631	632	630	637	661	699	697	644	569	498	467
1940	AN	448	437	427	538	635	719	796	883	859	746	636	573
1941	W	533	520	594	646	675	735	842	970	1,024	910	770	690
1942	W	645	621	675	675	675	723	804	906	1,024	910	770	693
1943	W	635	634	655	675	675	735	825	916	924	823	704	627
1944	BN	568	537	528	532	563	597	589	643	640	570	483	435
1945	AN	398	416	431	440	565	624	657	726	730	654	555	493
1946	AN	475	499	584	616	628	660	680	753	720	623	523	468
1947	D	441	459	490	501	525	542	560	600	568	508	448	414
1948	BN	392	387	378	374	364	350	377	451	503	447	375	334
1949	BN	302	288	280	274	279	313	357	438	445	391	335	302

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	268	257	247	269	311	327	387	450	469	410	345	307
1951	AN	281	522	675	675	675	720	749	767	739	646	546	489
1952	W	453	446	488	635	675	735	845	970	1,024	910	770	696
1953	BN	631	597	609	660	672	664	679	673	681	621	535	486
1954	BN	447	435	425	428	458	500	557	619	590	512	427	382
1955	D	342	329	330	342	349	345	351	427	454	411	357	325
1956	W	291	278	646	675	675	725	792	919	1,024	910	770	700
1957	BN	649	622	615	612	635	629	619	668	689	608	521	469
1958	W	444	436	441	458	529	662	845	970	1,024	910	770	699
1959	D	638	597	584	589	628	632	661	665	624	546	474	462
1960	C	431	416	402	395	434	451	492	531	512	452	395	362
1961	C	331	322	320	312	314	314	343	377	375	341	311	291
1962	BN	264	251	245	239	357	395	474	509	536	473	384	328
1963	AN	295	279	268	293	399	420	456	528	559	498	407	354
1964	D	330	350	354	358	355	346	366	417	429	397	356	330
1965	W	306	309	517	584	626	644	702	774	832	778	694	630
1966	BN	576	604	627	650	666	685	718	750	695	605	524	483
1967	W	447	444	540	583	620	720	845	970	1,024	910	770	700
1968	D	654	619	615	616	646	651	666	685	653	574	508	471
1969	W	443	450	472	675	675	735	845	970	1,024	910	770	700
1970	AN	660	632	653	675	675	735	731	767	737	638	539	485
1971	BN	449	452	486	519	541	546	545	592	613	549	470	424
1972	D	388	380	402	416	435	445	455	505	509	448	391	371
1973	AN	352	348	365	417	527	611	653	788	801	705	613	560
1974	W	541	587	635	675	675	735	797	929	964	863	753	683
1975	W	639	609	608	619	675	735	753	867	989	905	770	696
1976	C	675	655	653	642	642	625	627	635	592	532	487	467
1977	C	440	421	406	393	375	347	341	337	331	300	271	249
1978	W	220	203	220	316	448	596	751	921	1,024	910	770	700

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	642	627	621	675	675	735	777	880	857	758	657	596
1980	W	565	556	554	675	675	735	792	892	981	910	770	693
1981	D	639	592	580	582	590	608	631	663	629	552	484	445
1982	W	422	450	496	611	675	735	845	970	1,024	910	770	700
1983	W	675	675	675	675	675	735	819	970	1,024	910	770	700
1984	AN	640	675	675	675	675	716	716	779	741	657	564	513
1985	D	490	496	500	504	521	539	577	617	586	514	448	413
1986	W	387	384	399	426	675	735	832	953	1,012	910	770	700
1987	C	642	598	583	573	576	581	602	613	579	518	466	436
1988	C	408	405	400	410	415	423	449	471	457	417	377	352
1989	C	323	312	309	303	311	356	403	429	408	360	319	301
1990	C	286	281	272	271	276	288	325	344	328	299	269	250
1991	C	225	211	195	181	166	219	242	304	348	337	313	298
1992	C	277	271	264	261	302	322	371	390	358	342	313	296
1993	W	276	266	269	440	518	624	705	888	978	910	770	700
1994	C	674	643	633	626	637	633	636	651	622	555	498	467
1995	W	454	458	465	651	675	735	838	970	1,024	910	770	689
1996	W	627	584	593	643	675	735	820	953	949	845	727	653
1997	W	608	627	675	675	675	735	772	861	832	718	606	539
1998	W	482	457	455	539	675	735	845	950	1,024	910	770	700
1999	AN	654	626	638	672	675	682	684	760	747	644	546	490
2000	AN	445	436	423	462	574	652	699	784	750	632	521	461
2001	D	441	430	423	419	432	476	505	569	525	457	395	371
2002	D	343	337	368	394	411	427	467	526	514	448	389	359
2003	BN	328	342	358	382	399	413	425	520	533	460	394	353

Table 33. LSJR Alternative 3 Monthly Average Flow at Stevinson on the Merced River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	356	318	436	432	880	589	625	2,035	2,017	876	799	466	367
1923	AN	682	676	470	853	963	328	955	1,685	937	200	200	200	290
1924	C	385	335	332	346	352	304	450	592	87	11	19	82	107
1925	BN	351	369	375	378	763	501	1,210	1,698	988	87	60	53	308
1926	D	299	304	325	325	454	358	1,459	1,125	323	(0)	(0)	101	222
1927	AN	338	272	263	331	930	533	1,134	1,814	1,432	200	200	200	349
1928	BN	420	302	339	311	452	1,034	955	1,340	457	150	83	49	256
1929	C	364	347	337	358	385	342	524	1,256	652	2	31	89	190
1930	C	350	322	309	311	325	475	793	891	753	(0)	(0)	92	194
1931	C	345	335	322	332	358	318	497	598	134	25	1	119	114
1932	AN	350	313	425	419	982	477	818	1,680	1,567	200	200	200	331
1933	D	401	336	333	376	321	356	592	865	1,203	17	(0)	72	200
1934	C	386	333	355	416	419	423	618	364	222	53	(0)	48	122
1935	AN	358	339	359	530	378	540	1,785	2,022	1,674	200	200	200	384
1936	AN	450	360	335	378	1,660	611	1,384	1,828	1,030	200	200	200	389
1937	W	415	374	367	366	1,221	1,021	822	1,952	968	498	494	504	357
1938	W	727	709	398	1,288	4,875	4,657	1,416	3,169	4,447	2,143	1,096	600	1,101
1939	D	800	800	333	393	482	474	1,015	657	215	80	88	122	170
1940	AN	426	374	368	523	901	924	1,174	1,904	903	200	200	200	349
1941	W	430	377	435	424	2,559	1,751	797	2,909	2,272	1,662	1,012	580	611
1942	W	786	782	477	1,474	1,666	520	933	1,381	1,816	1,547	952	524	373
1943	W	748	732	378	1,801	1,917	3,022	1,104	1,425	766	520	510	515	491
1944	BN	733	724	386	364	451	527	538	1,626	894	148	146	122	244
1945	AN	438	439	396	391	1,302	722	1,030	1,688	1,361	200	200	200	363
1946	AN	458	400	420	491	551	511	1,243	1,633	734	200	200	200	280
1947	D	473	384	403	392	385	403	699	1,119	343	77	101	150	177
1948	BN	398	347	348	338	337	335	719	1,535	1,459	153	97	101	264

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	430	354	336	352	371	507	955	1,542	753	92	118	135	248
1950	BN	414	344	344	378	439	399	1,156	1,516	840	133	127	169	261
1951	AN	402	352	1,919	1,686	1,594	531	829	1,086	663	200	200	200	277
1952	W	428	367	410	619	584	1,811	1,164	3,524	2,992	1,841	1,164	600	609
1953	BN	800	800	284	353	452	377	807	794	1,062	111	123	143	208
1954	BN	445	355	353	356	392	644	1,143	1,451	497	138	128	174	248
1955	D	402	342	359	487	392	359	437	1,262	921	101	120	158	202
1956	W	410	336	83	3,859	1,938	485	776	1,556	1,447	1,844	1,084	518	369
1957	BN	724	711	359	361	384	410	592	1,301	1,183	166	151	174	232
1958	W	462	331	355	431	671	815	1,653	3,409	2,665	1,649	1,080	600	554
1959	D	800	800	332	345	403	363	793	729	343	137	148	158	157
1960	C	400	324	333	347	411	397	840	956	430	132	159	130	182
1961	C	367	315	337	322	348	339	565	618	296	94	56	99	129
1962	BN	344	291	309	310	1,145	925	1,331	1,340	1,378	224	179	177	364
1963	AN	429	312	326	326	1,244	476	879	1,740	1,409	248	200	205	342
1964	D	438	347	348	354	334	348	511	911	544	144	120	164	159
1965	W	389	306	478	1,730	447	362	832	1,264	1,220	455	452	442	247
1966	BN	665	548	380	623	391	423	1,069	1,184	316	237	197	173	203
1967	W	392	316	350	358	374	900	1,403	2,525	4,079	3,989	1,448	715	558
1968	D	800	800	280	332	340	379	632	787	336	227	209	230	149
1969	W	378	381	384	2,985	4,149	1,416	2,010	5,379	4,045	2,323	1,159	613	1,009
1970	AN	800	800	196	2,529	1,211	779	598	1,418	854	227	219	203	289
1971	BN	468	325	309	375	334	384	659	1,190	1,210	227	186	171	227
1972	D	461	336	373	144	338	533	538	1,086	645	221	229	(0)	189
1973	AN	394	362	382	424	897	745	877	2,468	1,346	204	200	200	380
1974	W	457	166	249	999	817	978	812	1,591	1,023	497	489	489	312
1975	W	698	656	359	257	1,165	933	494	1,522	1,664	546	895	498	344
1976	C	781	709	312	342	337	326	329	605	234	205	232	221	110

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	450	271	300	323	304	281	208	254	309	137	109	128	81
1978	W	370	243	300	466	799	917	1,180	1,844	3,140	2,543	1,252	1,275	471
1979	AN	763	786	391	897	1,879	1,366	876	2,209	1,029	233	200	200	438
1980	W	519	324	342	2,338	4,472	1,352	905	1,457	1,521	1,456	1,157	600	574
1981	D	800	800	394	429	405	486	820	1,034	464	199	200	193	192
1982	W	465	355	364	434	2,480	2,184	4,845	3,215	1,838	2,158	1,331	1,073	867
1983	W	1,088	1,910	2,243	3,604	4,363	5,959	1,300	2,783	7,273	5,863	2,392	1,008	1,290
1984	AN	1,276	1,599	3,495	1,850	1,543	631	867	1,724	766	262	275	260	331
1985	D	591	288	284	396	393	384	988	1,112	383	267	237	198	195
1986	W	500	345	358	330	2,165	4,031	1,035	1,658	1,236	636	1,038	639	605
1987	C	800	800	368	331	330	399	639	618	168	161	167	185	129
1988	C	420	290	325	327	283	312	625	696	370	128	124	133	137
1989	C	342	224	272	254	260	625	1,076	859	491	90	71	117	199
1990	C	378	253	277	260	305	364	766	566	323	98	83	86	139
1991	C	323	208	245	249	207	625	544	1,197	975	72	29	35	214
1992	C	310	239	247	241	376	332	881	683	273	102	57	47	153
1993	W	219	263	300	634	540	766	913	1,874	1,412	643	1,016	546	331
1994	C	471	602	284	265	331	260	585	761	289	(0)	56	17	133
1995	W	264	277	267	561	911	4,768	1,055	2,747	5,050	4,805	1,644	600	876
1996	W	800	800	315	261	2,398	1,520	993	1,547	792	479	465	459	433
1997	W	686	670	2,672	9,859	2,091	1,013	852	1,356	575	379	375	377	347
1998	W	611	564	306	344	2,703	2,005	1,138	1,236	4,631	4,554	1,464	677	693
1999	AN	800	800	246	217	1,929	424	837	1,785	1,007	200	200	200	353
2000	AN	358	295	268	275	1,136	721	1,066	1,715	835	200	200	200	328
2001	D	356	446	342	339	341	559	726	1,399	223	94	110	72	196
2002	D	277	353	340	399	257	384	1,015	1,158	571	71	38	31	203
2003	BN	278	266	303	277	245	403	753	1,756	1,143	46	35	53	259

This page intentionallay left blank

LSJR Alternative 4 (60% Unimpaired Flow)

Table 34. LSJR Alternative 4 End-of-Month Storage at New Melones on the Stanislaus River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	951	960	990	1,015	1,077	1,128	1,098	1,117	1,181	1,105	1,021	951
1923	AN	881	901	974	1,039	1,071	1,073	1,072	1,070	1,065	1,034	970	950
1924	C	908	909	930	949	957	932	889	826	802	790	775	787
1925	BN	770	784	805	823	885	920	888	901	902	891	843	826
1926	D	788	791	802	810	848	861	853	821	807	789	777	779
1927	AN	757	779	836	884	942	972	1,003	1,034	1,070	1,068	1,050	1,057
1928	BN	1,029	1,070	1,102	1,124	1,160	1,220	1,179	1,183	1,140	1,077	1,022	1,000
1929	C	964	976	991	1,002	1,019	1,017	1,000	930	903	891	882	884
1930	C	870	876	890	914	933	966	925	868	869	860	848	844
1931	C	833	853	866	878	889	888	836	758	750	743	730	733
1932	AN	709	721	777	810	854	857	824	859	905	942	941	941
1933	D	905	912	934	947	958	968	942	900	877	866	852	849
1934	C	826	841	863	887	908	907	851	790	774	764	753	752
1935	AN	748	750	752	778	787	823	848	918	960	959	941	934
1936	AN	897	913	931	1,007	1,102	1,117	1,115	1,134	1,138	1,070	995	959
1937	W	909	913	932	955	1,006	1,084	1,087	1,112	1,116	1,029	959	903
1938	W	840	853	945	1,025	1,135	1,263	1,332	1,400	1,467	1,411	1,323	1,263
1939	D	1,207	1,204	1,217	1,236	1,253	1,263	1,203	1,147	1,123	1,097	1,073	1,068
1940	AN	1,037	1,037	1,049	1,156	1,208	1,255	1,288	1,301	1,256	1,164	1,085	1,040
1941	W	987	990	1,033	1,089	1,137	1,202	1,215	1,259	1,271	1,189	1,096	1,020
1942	W	954	953	1,001	1,092	1,140	1,179	1,213	1,252	1,272	1,192	1,099	1,035
1943	W	972	998	1,032	1,184	1,246	1,353	1,388	1,380	1,351	1,250	1,161	1,089
1944	BN	1,019	1,018	1,026	1,035	1,053	1,091	1,080	1,003	1,003	984	956	942
1945	AN	924	967	1,000	1,043	1,090	1,150	1,097	1,102	1,114	1,062	994	965
1946	AN	931	966	1,005	1,074	1,133	1,151	1,139	1,168	1,144	1,078	1,018	992
1947	D	945	968	995	1,015	1,034	1,039	1,007	944	942	929	918	923
1948	BN	907	916	927	937	947	974	955	886	923	902	872	863
1949	BN	835	846	862	874	888	922	872	842	852	838	826	824

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	787	783	795	847	888	925	852	858	897	868	833	824
1951	AN	795	1,076	1,468	1,579	1,647	1,700	1,693	1,675	1,600	1,489	1,392	1,337
1952	W	1,274	1,289	1,343	1,477	1,517	1,567	1,532	1,590	1,647	1,624	1,536	1,467
1953	BN	1,384	1,394	1,420	1,481	1,520	1,533	1,452	1,394	1,392	1,351	1,282	1,240
1954	BN	1,197	1,207	1,225	1,245	1,261	1,267	1,186	1,207	1,178	1,133	1,092	1,071
1955	D	1,032	1,049	1,074	1,111	1,130	1,152	1,150	1,058	1,044	1,019	994	981
1956	W	950	967	1,217	1,477	1,573	1,576	1,590	1,612	1,627	1,505	1,408	1,349
1957	BN	1,270	1,272	1,287	1,305	1,329	1,345	1,268	1,232	1,236	1,188	1,146	1,115
1958	W	1,065	1,079	1,093	1,148	1,187	1,268	1,381	1,442	1,473	1,402	1,307	1,238
1959	D	1,163	1,167	1,181	1,207	1,243	1,266	1,218	1,143	1,108	1,078	1,050	1,062
1960	C	1,023	1,029	1,040	1,053	1,085	1,098	1,064	1,010	1,000	985	975	961
1961	C	909	932	954	963	977	991	969	923	894	881	870	870
1962	BN	842	853	866	876	920	948	887	879	880	879	855	839
1963	AN	812	828	854	910	939	982	987	999	1,011	955	884	855
1964	D	814	846	868	904	924	946	927	873	867	857	850	843
1965	W	814	841	1,074	1,279	1,339	1,373	1,406	1,427	1,413	1,337	1,264	1,201
1966	BN	1,122	1,156	1,166	1,204	1,237	1,249	1,188	1,190	1,155	1,111	1,075	1,048
1967	W	1,010	1,026	1,113	1,221	1,269	1,290	1,361	1,356	1,423	1,464	1,378	1,321
1968	D	1,254	1,266	1,280	1,303	1,330	1,358	1,317	1,263	1,226	1,181	1,141	1,112
1969	W	1,089	1,121	1,139	1,436	1,576	1,642	1,712	1,723	1,750	1,693	1,589	1,513
1970	AN	1,460	1,470	1,519	1,790	1,882	1,909	1,861	1,800	1,750	1,630	1,524	1,471
1971	BN	1,416	1,445	1,512	1,569	1,593	1,615	1,566	1,523	1,490	1,416	1,329	1,283
1972	D	1,234	1,252	1,303	1,341	1,360	1,345	1,293	1,261	1,225	1,181	1,140	1,128
1973	AN	1,101	1,118	1,156	1,273	1,370	1,437	1,404	1,363	1,348	1,255	1,173	1,136
1974	W	1,105	1,157	1,207	1,303	1,374	1,434	1,501	1,511	1,498	1,405	1,307	1,244
1975	W	1,193	1,204	1,229	1,256	1,292	1,370	1,340	1,248	1,295	1,220	1,151	1,092
1976	C	1,035	1,055	1,078	1,090	1,107	1,110	1,084	1,031	999	984	974	968
1977	C	943	951	956	952	943	921	882	850	839	806	776	770
1978	W	725	720	743	822	862	906	940	960	1,003	1,026	1,003	1,009

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	956	978	1,005	1,079	1,151	1,210	1,190	1,181	1,141	1,075	1,018	996
1980	W	965	989	1,011	1,321	1,465	1,490	1,530	1,513	1,507	1,403	1,307	1,248
1981	D	1,194	1,192	1,213	1,261	1,266	1,297	1,259	1,188	1,136	1,099	1,074	1,073
1982	W	1,054	1,121	1,260	1,467	1,591	1,722	1,841	1,815	1,800	1,734	1,643	1,639
1983	W	1,635	1,766	1,925	1,970	1,970	2,030	2,065	2,011	2,133	2,232	2,130	2,000
1984	AN	1,970	1,970	1,970	1,970	1,970	1,990	1,930	1,861	1,801	1,706	1,623	1,582
1985	D	1,553	1,592	1,632	1,648	1,682	1,707	1,634	1,553	1,487	1,416	1,359	1,338
1986	W	1,319	1,337	1,361	1,446	1,638	1,819	1,835	1,800	1,763	1,646	1,553	1,505
1987	C	1,450	1,457	1,474	1,473	1,477	1,502	1,443	1,340	1,282	1,243	1,215	1,208
1988	C	1,168	1,160	1,158	1,166	1,168	1,151	1,110	1,052	1,031	1,019	1,013	1,000
1989	C	962	954	955	955	962	964	887	839	832	831	835	863
1990	C	869	884	910	922	939	933	871	820	795	784	791	800
1991	C	781	782	802	801	793	813	798	743	699	686	681	697
1992	C	688	687	708	719	744	757	714	656	642	627	615	613
1993	W	599	601	603	750	806	864	861	876	936	917	911	897
1994	C	857	887	929	959	980	961	918	845	823	800	787	785
1995	W	743	756	793	978	1,030	1,151	1,218	1,308	1,396	1,541	1,536	1,524
1996	W	1,491	1,506	1,548	1,630	1,672	1,791	1,770	1,781	1,743	1,626	1,546	1,485
1997	W	1,445	1,483	1,690	1,970	1,970	1,992	1,936	1,904	1,827	1,703	1,613	1,562
1998	W	1,504	1,520	1,549	1,663	1,786	1,850	1,855	1,842	1,847	1,889	1,826	1,780
1999	AN	1,747	1,757	1,785	1,860	1,933	1,965	1,942	1,828	1,761	1,666	1,589	1,552
2000	AN	1,513	1,516	1,533	1,592	1,610	1,652	1,612	1,531	1,483	1,390	1,321	1,297
2001	D	1,273	1,289	1,325	1,339	1,369	1,381	1,352	1,271	1,237	1,195	1,158	1,139
2002	D	1,093	1,103	1,149	1,199	1,210	1,235	1,183	1,111	1,066	1,044	1,028	1,031
2003	BN	1,005	1,028	1,085	1,139	1,159	1,167	1,142	1,049	1,030	1,012	998	998

Table 35. LSJR Alternative 4 Monthly Average Flow at Ripon on the Stanislaus River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	763	259	310	322	1,156	902	1,877	4,333	3,419	800	500	800	701
1923	AN	1,400	354	403	356	594	727	2,019	3,361	1,571	484	413	419	498
1924	C	1,200	318	262	267	282	375	695	817	256	324	352	358	146
1925	BN	800	348	304	297	1,653	1,149	2,582	3,408	1,701	385	413	419	627
1926	D	1,000	320	262	267	799	734	2,075	1,292	394	335	363	369	316
1927	AN	1,000	455	288	314	1,750	1,257	2,588	3,115	2,375	385	413	419	661
1928	BN	1,200	348	304	295	501	2,413	2,109	2,289	660	385	413	419	483
1929	C	1,000	302	280	295	248	426	1,001	1,898	981	324	352	358	275
1930	C	800	263	94	308	519	1,015	1,855	1,649	1,341	374	402	408	383
1931	C	820	248	94	281	263	376	927	887	256	324	352	358	163
1932	AN	800	248	383	330	1,377	1,099	1,980	3,616	2,902	385	413	419	660
1933	D	1,200	266	94	315	230	358	1,033	1,679	2,008	385	413	419	319
1934	C	1,000	263	311	322	486	976	999	667	420	324	352	358	212
1935	AN	800	302	288	348	508	658	3,058	3,560	2,417	562	413	419	613
1936	AN	1,200	260	225	344	2,149	1,466	2,833	3,161	1,899	534	463	469	690
1937	W	1,200	266	262	327	1,188	1,024	1,639	3,395	1,425	800	500	800	520
1938	W	1,400	309	336	321	1,901	2,230	2,919	5,166	3,840	800	513	800	963
1939	D	1,400	356	280	294	238	691	1,728	1,028	425	385	413	419	247
1940	AN	1,000	266	225	364	1,805	2,525	2,540	3,310	1,532	534	463	469	705
1941	W	1,200	384	368	447	1,167	1,429	1,928	3,843	2,137	830	500	800	631
1942	W	1,400	588	383	317	1,113	951	2,330	3,205	3,022	1,298	502	800	636
1943	W	1,400	383	268	122	1,275	2,702	2,819	2,479	1,760	800	501	800	662
1944	BN	1,400	381	394	411	445	653	1,073	2,453	1,204	465	435	424	352
1945	AN	1,000	378	385	384	1,977	908	2,011	3,115	2,224	665	475	454	609
1946	AN	1,200	329	1,071	539	529	1,066	2,280	2,837	1,293	418	439	430	482
1947	D	1,200	343	347	391	486	874	1,307	1,692	596	356	368	379	298
1948	BN	1,000	341	292	362	352	361	1,530	3,000	2,423	514	414	389	462

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	1,000	337	325	324	389	575	1,888	2,609	1,119	386	384	365	396
1950	BN	1,000	320	330	345	789	902	2,501	3,218	1,903	399	380	386	559
1951	AN	1,000	403	519	580	1,221	1,171	1,668	1,928	1,087	435	424	395	422
1952	W	1,200	281	223	397	1,106	1,514	3,234	5,529	3,583	852	596	800	902
1953	BN	1,400	334	323	378	465	711	2,102	1,869	2,323	638	459	463	448
1954	BN	1,000	325	316	345	475	1,370	2,578	2,466	879	378	368	341	468
1955	D	1,000	269	302	475	400	504	984	2,137	1,427	322	331	342	328
1956	W	1,000	290	357	841	1,064	1,720	1,882	3,535	2,611	1,593	542	800	652
1957	BN	1,400	294	281	341	659	1,128	1,745	2,732	1,899	484	463	462	491
1958	W	1,000	353	336	327	1,264	1,635	2,734	5,329	3,151	855	644	800	849
1959	D	1,400	360	403	434	713	806	1,416	1,065	651	356	375	393	278
1960	C	1,000	337	316	337	636	984	1,605	1,515	708	330	336	326	328
1961	C	875	305	307	333	338	430	1,043	1,121	550	229	243	247	209
1962	BN	800	282	286	294	1,026	724	2,667	2,390	2,027	420	386	388	528
1963	AN	1,000	343	304	353	2,334	625	1,505	3,892	2,112	505	426	422	623
1964	D	1,200	348	286	354	401	458	1,155	1,677	1,004	297	304	318	283
1965	W	1,000	338		449	1,113	867	2,131	2,652	2,194	800	530	800	536
1966	BN	1,400	325	696	386	467	938	1,968	1,552	394	340	336	335	320
1967	W	1,000	282	271	276	875	1,869	1,734	4,701	4,838	1,021	640	800	844
1968	D	1,400	260	288	380	991	843	1,394	1,509	678	343	359	356	325
1969	W	1,000	319	339	506	1,955	2,074	3,417	5,687	3,319	872	717	800	987
1970	AN	1,400	446	273	528	1,275	1,971	1,736	2,425	1,690	541	538	592	545
1971	BN	1,200	269	280	336	767	1,064	1,897	2,332	2,107	591	500	520	490
1972	D	1,184	248	181	342	449	1,410	1,196	2,194	733	351	353	350	362
1973	AN	1,000	300	306	304	1,383	1,198	2,073	3,965	1,651	540	477	538	616
1974	W	1,200	235	766	610	691	1,815	2,316	3,376	1,960	800	508	800	612
1975	W	1,400	335	444	343	767	1,266	1,980	3,550	3,037	800	582	800	637
1976	C	1,400	471	297	361	370	395	713	910	260	243	265	260	159

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	800	275	263	280	364	395	516	464	304	211	229	174	122
1978	W	800	213	226	343	1,167	1,956	2,366	3,447	2,737	800	500	800	701
1979	AN	1,400	377	320	204	1,167	1,493	1,987	3,593	1,370	426	425	413	577
1980	W	1,200	322	165	198	2,681	1,705	1,908	2,934	2,531	1,867	604	800	704
1981	D	1,400	385	305	377	432	767	1,586	1,544	551	413	347	378	293
1982	W	1,000	263	291	455	3,554	2,387	4,222	4,161	2,447	800	677	887	997
1983	W	1,400	454	588	3,488	5,177	6,223	2,128	4,872	6,313	800	1,560	3,050	1,472
1984	AN	1,538	3,453	5,126	2,177	2,262	1,912	1,808	2,870	1,478	572	626	746	620
1985	D	1,200	340	225	335	519	770	2,075	1,667	566	315	405	495	336
1986	W	1,000	383	311	311	5,747	3,164	2,343	2,689	1,991	800	500	800	937
1987	C	1,400	310	411	357	313	559	1,018	891	309	310	324	294	186
1988	C	800	238	270	289	365	552	847	776	387	267	251	288	176
1989	C	800	248	267	281	324	1,744	2,330	1,561	936	358	352	377	416
1990	C	800	257	248	267	282	804	1,341	842	510	244	262	257	227
1991	C	800	469	249	242	383	771	954	1,742	1,043	235	247	229	295
1992	C	800	379	239	241	751	714	1,287	870	221	205	208	192	230
1993	W	800	216	225	354	1,167	1,915	2,106	3,331	2,038	1,100	500	800	634
1994	C	1,400	247	232	239	313	559	1,005	1,458	389	247	221	235	224
1995	W	1,043	228	242	609	1,080	3,743	2,572	4,365	4,287	800	500	800	967
1996	W	1,400	270	272	343	2,879	1,859	2,279	3,260	1,564	800	500	800	709
1997	W	1,400	464	215	6,009	3,736	2,234	1,513	1,879	1,123	800	500	800	617
1998	W	1,400	257	247	324	2,701	2,079	2,278	3,069	4,752	800	500	800	885
1999	AN	1,400	732	674	407	2,128	1,835	1,684	3,485	2,093	439	476	478	670
2000	AN	1,200	250	241	327	1,971	1,488	2,134	2,716	1,230	405	393	385	572
2001	D	1,200	264	243	302	389	871	1,257	1,815	315	307	276	298	280
2002	D	1,000	220	286	314	594	946	2,040	2,002	929	307	340	328	391
2003	BN	1,000	233	262	249	594	937	1,563	3,171	1,825	344	312	292	487

Table 36. LSJR Alternative 4 End-of-Month Storage at New Don Pedro on the Tuolumne River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	1,313	1,294	1,323	1,355	1,485	1,592	1,686	1,644	1,778	1,694	1,551	1,445
1923	AN	1,381	1,360	1,441	1,536	1,607	1,634	1,699	1,594	1,544	1,490	1,374	1,331
1924	C	1,288	1,272	1,264	1,259	1,266	1,271	1,251	1,164	1,121	1,086	1,055	1,043
1925	BN	1,048	1,064	1,133	1,192	1,272	1,323	1,374	1,327	1,301	1,246	1,155	1,111
1926	D	1,081	1,073	1,080	1,089	1,141	1,213	1,217	1,188	1,144	1,087	1,043	1,025
1927	AN	1,010	1,051	1,102	1,156	1,243	1,307	1,320	1,292	1,311	1,261	1,153	1,097
1928	BN	1,074	1,104	1,141	1,158	1,208	1,263	1,276	1,322	1,274	1,183	1,113	1,078
1929	C	1,042	1,035	1,036	1,038	1,060	1,085	1,106	1,012	1,042	1,009	978	960
1930	C	946	937	982	1,019	1,061	1,090	1,053	1,017	1,032	1,003	979	970
1931	C	961	966	1,008	1,024	1,069	1,073	1,009	910	864	817	789	783
1932	AN	772	768	951	1,107	1,252	1,345	1,369	1,307	1,262	1,338	1,312	1,300
1933	D	1,271	1,254	1,261	1,265	1,304	1,331	1,348	1,326	1,220	1,181	1,139	1,119
1934	C	1,091	1,083	1,108	1,156	1,206	1,283	1,247	1,195	1,146	1,096	1,062	1,054
1935	AN	1,050	1,064	1,108	1,286	1,393	1,470	1,554	1,455	1,405	1,338	1,245	1,187
1936	AN	1,160	1,153	1,150	1,218	1,421	1,550	1,561	1,476	1,481	1,402	1,282	1,215
1937	W	1,173	1,153	1,153	1,160	1,337	1,513	1,602	1,474	1,506	1,360	1,248	1,159
1938	W	1,099	1,067	1,303	1,378	1,602	1,690	1,690	1,656	1,789	1,818	1,688	1,592
1939	D	1,552	1,528	1,544	1,559	1,597	1,638	1,596	1,556	1,475	1,389	1,327	1,316
1940	AN	1,316	1,314	1,386	1,556	1,690	1,690	1,713	1,554	1,532	1,374	1,247	1,170
1941	W	1,123	1,108	1,214	1,401	1,570	1,690	1,690	1,505	1,497	1,453	1,312	1,203
1942	W	1,136	1,100	1,185	1,346	1,466	1,559	1,648	1,699	1,753	1,757	1,615	1,509
1943	W	1,438	1,452	1,500	1,690	1,690	1,690	1,713	1,760	1,761	1,625	1,479	1,358
1944	BN	1,289	1,249	1,241	1,247	1,316	1,389	1,396	1,341	1,305	1,251	1,181	1,143
1945	AN	1,128	1,177	1,227	1,269	1,424	1,582	1,601	1,479	1,455	1,411	1,288	1,215
1946	AN	1,217	1,249	1,461	1,594	1,690	1,690	1,656	1,544	1,530	1,415	1,316	1,260
1947	D	1,227	1,246	1,282	1,309	1,341	1,349	1,315	1,321	1,277	1,216	1,168	1,149
1948	BN	1,159	1,162	1,205	1,228	1,235	1,307	1,352	1,294	1,243	1,189	1,115	1,080
1949	BN	1,059	1,050	1,052	1,056	1,083	1,246	1,224	1,162	1,117	1,054	1,003	983

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	959	955	961	1,006	1,132	1,252	1,259	1,145	1,147	1,090	1,037	1,016
1951	AN	1,019	1,435	1,690	1,690	1,690	1,690	1,695	1,545	1,495	1,407	1,330	1,283
1952	W	1,254	1,255	1,373	1,615	1,690	1,690	1,690	1,768	1,811	1,839	1,707	1,608
1953	BN	1,528	1,482	1,500	1,593	1,635	1,669	1,612	1,561	1,528	1,505	1,404	1,346
1954	BN	1,310	1,310	1,316	1,336	1,359	1,418	1,392	1,412	1,377	1,284	1,209	1,171
1955	D	1,139	1,140	1,162	1,210	1,257	1,347	1,393	1,336	1,217	1,164	1,117	1,100
1956	W	1,083	1,083	1,650	1,690	1,690	1,690	1,704	1,592	1,675	1,654	1,515	1,414
1957	BN	1,352	1,305	1,302	1,309	1,333	1,363	1,319	1,309	1,343	1,264	1,192	1,155
1958	W	1,143	1,139	1,159	1,198	1,305	1,495	1,637	1,730	1,805	1,770	1,636	1,541
1959	D	1,462	1,410	1,393	1,430	1,527	1,597	1,581	1,521	1,413	1,326	1,259	1,272
1960	C	1,243	1,237	1,269	1,285	1,375	1,398	1,400	1,349	1,254	1,206	1,174	1,167
1961	C	1,157	1,158	1,247	1,266	1,284	1,283	1,231	1,134	1,049	1,010	985	979
1962	BN	968	964	996	1,016	1,130	1,211	1,141	1,117	1,150	1,122	1,047	1,010
1963	AN	994	990	1,007	1,058	1,130	1,154	1,202	1,195	1,218	1,190	1,081	1,023
1964	D	1,001	1,049	1,066	1,097	1,122	1,142	1,165	1,133	1,090	1,052	1,024	1,017
1965	W	1,014	1,040	1,473	1,690	1,690	1,690	1,713	1,582	1,482	1,432	1,347	1,245
1966	BN	1,160	1,203	1,305	1,351	1,428	1,454	1,415	1,416	1,342	1,279	1,229	1,213
1967	W	1,193	1,228	1,387	1,503	1,568	1,659	1,690	1,764	1,869	1,910	1,790	1,686
1968	D	1,605	1,558	1,556	1,569	1,591	1,637	1,593	1,571	1,501	1,409	1,348	1,313
1969	W	1,297	1,327	1,421	1,690	1,690	1,690	1,690	1,805	1,925	1,910	1,772	1,670
1970	AN	1,648	1,637	1,690	1,690	1,690	1,690	1,679	1,626	1,546	1,447	1,349	1,292
1971	BN	1,256	1,298	1,387	1,468	1,517	1,574	1,553	1,514	1,472	1,409	1,318	1,272
1972	D	1,239	1,247	1,296	1,361	1,403	1,386	1,363	1,321	1,298	1,244	1,208	1,195
1973	AN	1,185	1,200	1,287	1,433	1,561	1,669	1,656	1,643	1,586	1,460	1,360	1,302
1974	W	1,286	1,375	1,459	1,607	1,678	1,690	1,713	1,730	1,726	1,589	1,443	1,344
1975	W	1,314	1,301	1,304	1,321	1,425	1,539	1,628	1,499	1,554	1,436	1,319	1,216
1976	C	1,200	1,192	1,212	1,199	1,197	1,193	1,183	1,078	1,038	1,003	994	1,001
1977	C	996	993	1,020	1,026	1,034	1,011	955	901	815	774	750	745
1978	W	735	733	793	955	1,064	1,173	1,261	1,334	1,540	1,655	1,587	1,571

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	1,496	1,483	1,486	1,591	1,690	1,690	1,672	1,684	1,615	1,457	1,324	1,251
1980	W	1,224	1,225	1,246	1,666	1,690	1,690	1,700	1,726	1,775	1,858	1,728	1,637
1981	D	1,563	1,526	1,523	1,543	1,571	1,635	1,634	1,543	1,471	1,384	1,328	1,302
1982	W	1,303	1,411	1,566	1,690	1,690	1,690	1,713	1,874	1,943	1,910	1,790	1,700
1983	W	1,660	1,690	1,690	1,690	1,690	1,295	1,264	1,271	1,493	1,856	1,790	1,700
1984	AN	1,660	1,690	1,690	1,690	1,690	1,690	1,650	1,531	1,501	1,425	1,333	1,280
1985	D	1,267	1,302	1,350	1,356	1,395	1,452	1,392	1,391	1,333	1,257	1,206	1,189
1986	W	1,187	1,209	1,288	1,369	1,588	1,690	1,713	1,776	1,792	1,659	1,516	1,429
1987	C	1,384	1,360	1,346	1,328	1,334	1,368	1,326	1,253	1,217	1,179	1,155	1,148
1988	C	1,146	1,149	1,194	1,265	1,317	1,303	1,244	1,150	1,107	1,066	1,040	1,032
1989	C	1,021	1,030	1,067	1,107	1,132	1,129	1,087	1,115	1,110	1,048	1,006	1,015
1990	C	1,046	1,048	1,076	1,095	1,130	1,119	1,041	1,014	987	945	915	908
1991	C	901	899	927	937	935	951	945	893	911	900	889	889
1992	C	895	897	928	949	999	1,023	981	1,005	980	975	942	921
1993	W	910	906	954	1,177	1,284	1,399	1,406	1,475	1,493	1,420	1,273	1,163
1994	C	1,085	1,033	1,023	1,026	1,040	1,040	998	946	920	891	877	876
1995	W	863	885	935	1,210	1,255	1,525	1,643	1,630	1,812	1,910	1,790	1,688
1996	W	1,606	1,547	1,574	1,654	1,690	1,690	1,713	1,859	1,839	1,686	1,538	1,434
1997	W	1,374	1,385	1,690	1,690	1,690	1,690	1,600	1,666	1,635	1,471	1,352	1,282
1998	W	1,212	1,165	1,168	1,343	1,558	1,686	1,713	1,714	1,906	1,910	1,784	1,678
1999	AN	1,638	1,619	1,660	1,690	1,690	1,690	1,706	1,543	1,532	1,418	1,304	1,241
2000	AN	1,187	1,174	1,164	1,254	1,383	1,475	1,447	1,503	1,483	1,349	1,244	1,190
2001	D	1,178	1,165	1,160	1,166	1,186	1,237	1,224	1,239	1,178	1,118	1,076	1,063
2002	D	1,048	1,061	1,140	1,212	1,244	1,255	1,190	1,243	1,228	1,164	1,117	1,096
2003	BN	1,082	1,120	1,181	1,262	1,295	1,304	1,318	1,239	1,259	1,195	1,149	1,128

Table 37. LSJR Alternative 4 Monthly Average Flow at Modesto on the Tuolumne River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	724	599	597	603	1,875	1,622	2,408	6,434	6,964	1,200	600	1,000	1,157
1923	AN	1,000	1,000	620	619	853	1,103	2,682	5,084	3,217	600	586	597	779
1924	C	737	605	580	579	601	597	1,402	2,039	366	356	362	366	302
1925	BN	428	442	440	427	2,452	1,620	3,529	5,250	3,549	405	410	421	980
1926	D	552	500	476	464	1,091	1,249	3,852	2,966	897	404	410	418	602
1927	AN	484	449	452	456	2,409	1,561	3,549	4,430	4,800	581	588	595	999
1928	BN	733	615	613	601	855	3,347	2,662	4,372	1,543	403	408	423	774
1929	C	552	495	477	468	498	966	1,492	3,688	2,269	358	361	376	538
1930	C	439	466	438	436	756	1,434	2,480	2,683	2,884	369	371	381	614
1931	C	462	453	449	437	486	644	1,553	2,039	494	359	364	367	314
1932	AN	429	437	430	427	2,503	1,678	2,470	5,113	5,374	602	588	591	1,028
1933	D	741	630	591	582	612	800	1,724	2,449	4,295	409	413	427	592
1934	C	544	501	481	464	972	1,464	1,875	1,454	958	356	361	366	402
1935	AN	438	445	437	436	1,156	1,337	4,689	5,181	5,153	587	585	600	1,051
1936	AN	736	609	597	593	3,672	2,020	3,963	5,074	3,932	590	585	595	1,117
1937	W	735	621	600	590	2,683	1,857	2,705	5,607	3,646	1,200	600	1,000	986
1938	W	1,000	1,000	611	603	3,276	6,567	5,665	6,595	6,739	1,200	600	1,000	1,729
1939	D	1,000	1,000	602	593	648	1,405	2,843	2,108	746	409	417	420	466
1940	AN	487	470	440	434	3,154	5,983	4,184	5,572	3,509	650	534	541	1,350
1941	W	645	526	755	683	2,169	3,145	4,622	5,931	4,945	1,200	638	1,000	1,248
1942	W	1,000	1,000	641	849	1,447	1,372	3,206	4,346	5,689	1,200	755	1,000	961
1943	W	1,000	1,000	626	761	3,424	6,406	3,999	4,318	3,182	1,200	600	1,000	1,277
1944	BN	1,000	1,000	626	650	834	1,317	1,654	4,450	2,692	439	425	372	661
1945	AN	529	453	389	529	3,295	1,610	2,864	4,440	4,658	713	654	585	1,003
1946	AN	684	466	656	759	1,478	3,483	3,509	4,762	2,672	662	620	593	957
1947	D	663	576	675	615	864	1,327	1,936	3,435	1,119	322	347	333	523
1948	BN	480	454	398	393	412	712	2,228	4,254	4,376	514	427	357	722

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	530	463	407	514	480	1,200	3,206	4,264	2,420	379	379	356	697
1950	BN	530	475	463	686	1,340	1,249	3,317	4,567	3,217	420	399	380	821
1951	AN	513	206	3,985	4,018	3,972	3,184	2,561	3,640	2,591	622	594	558	947
1952	W	645	525	600	971	2,889	3,998	4,806	7,127	5,530	1,200	637	1,000	1,465
1953	BN	1,000	1,000	517	639	681	1,044	2,722	2,527	4,174	544	453	413	668
1954	BN	465	400	391	397	1,102	2,078	3,519	4,372	1,865	398	399	382	778
1955	D	473	385	420	702	659	810	1,452	3,581	2,944	363	373	354	568
1956	W	400	372	441	6,985	4,426	3,560	2,579	4,957	5,323	1,200	701	1,000	1,249
1957	BN	1,000	1,000	491	518	1,340	1,503	1,744	3,708	4,084	424	428	418	742
1958	W	489	380	432	561	1,784	2,340	3,998	6,928	5,447	1,200	692	1,000	1,231
1959	D	1,000	1,000	581	624	1,253	1,161	2,259	2,264	1,402	374	353	372	498
1960	C	466	364	307	362	1,241	1,454	2,400	2,966	1,644	301	315	334	584
1961	C	315	330	282	337	497	693	1,664	2,147	1,230	261	276	248	374
1962	BN	303	314	323	314	2,517	1,356	3,922	3,532	4,497	383	416	421	941
1963	AN	466	273	315	425	3,338	1,093	2,501	5,211	4,669	552	520	525	1,000
1964	D	548	381	400	518	542	732	1,704	3,152	2,269	281	288	293	506
1965	W	343	266	234	2,348	3,816	3,400	3,514	3,765	4,124	1,200	600	1,000	1,107
1966	BN	1,000	1,000	435	555	810	1,425	3,015	3,464	867	271	262	255	577
1967	W	394	267	318	582	1,133	2,724	4,114	5,776	6,843	3,745	653	1,000	1,238
1968	D	1,000	1,000	485	515	1,398	1,200	1,886	2,810	1,422	375	358	342	524
1969	W	401	367	288	4,445	5,697	4,123	5,386	8,816	6,794	1,956	600	1,000	1,837
1970	AN	1,000	1,000	679	6,185	2,753	3,317	1,623	4,011	3,388	457	380	438	902
1971	BN	676	503	532	524	1,016	1,425	1,956	3,406	4,215	358	370	371	721
1972	D	520	322	524	367	814	1,776	1,573	3,357	2,218	301	306	297	588
1973	AN	317	451	522	524	2,009	1,688	2,612	6,391	4,033	509	529	525	1,004
1974	W	560	540	688	639	694	3,771	2,891	5,093	4,147	1,200	600	1,000	1,002
1975	W	1,070	1,088	789	642	1,406	1,975	1,603	5,131	5,430	1,200	600	1,000	933
1976	C	1,000	1,000	584	543	509	693	1,008	2,039	403	270	295	290	281

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	289	307	322	295	308	338	797	1,034	1,059	195	187	166	212
1978	W	222	243	251	432	1,884	2,873	3,175	5,226	5,947	1,200	600	1,000	1,145
1979	AN	1,000	1,000	611	1,015	2,039	4,455	2,622	6,108	3,176	573	645	529	1,108
1980	W	612	813	877	667	6,510	3,963	2,934	4,508	5,052	1,200	600	1,000	1,371
1981	D	1,000	1,000	519	692	681	1,229	2,450	3,201	1,523	346	368	354	547
1982	W	441	421	600	2,255	6,917	5,797	9,332	6,383	5,396	2,562	712	2,296	2,010
1983	W	3,090	3,106	5,342	5,471	6,892	16,297	5,182	7,861	9,946	1,200	2,123	1,991	2,768
1984	AN	1,157	5,440	7,479	4,359	3,576	3,593	2,047	5,230	3,327	583	617	612	1,068
1985	D	743	974	430	489	745	1,229	3,045	3,327	1,361	366	387	372	584
1986	W	337	363	356	284	6,382	6,567	3,157	5,053	4,903	1,200	600	1,000	1,549
1987	C	1,171	1,300	566	596	523	966	1,956	1,981	655	282	285	266	366
1988	C	244	259	254	305	595	1,025	1,603	2,078	988	200	210	190	379
1989	C	199	220	245	244	659	2,781	3,116	3,132	2,087	213	223	220	710
1990	C	215	245	232	236	573	1,269	2,218	1,776	1,008	225	241	225	411
1991	C	216	239	223	208	235	1,639	1,815	3,279	2,975	208	221	201	600
1992	C	212	239	217	224	970	1,122	2,319	1,844	469	194	195	188	404
1993	W	216	208	217	781	1,513	2,708	2,939	5,357	4,597	1,200	600	1,000	1,028
1994	C	1,000	1,000	413	399	573	1,054	1,966	2,683	1,200	213	221	199	450
1995	W	233	218	223	518	1,605	5,245	3,604	8,333	7,592	5,424	1,918	1,000	1,590
1996	W	1,000	1,000	430	538	5,498	5,065	3,122	4,963	3,464	1,200	600	1,000	1,325
1997	W	1,000	1,000	1,329	17,925	3,886	3,588	2,389	4,524	2,898	1,200	600	1,000	1,029
1998	W	1,000	1,000	431	899	3,578	3,196	4,029	5,533	7,976	5,274	600	1,000	1,450
1999	AN	1,000	1,000	289	1,709	5,167	4,019	2,642	5,552	4,396	523	521	519	1,294
2000	AN	596	442	344	433	2,889	2,469	3,368	5,260	3,247	513	711	734	1,035
2001	D	692	465	418	518	648	1,747	2,289	3,981	555	318	334	313	557
2002	D	327	243	383	427	853	1,376	3,035	3,630	2,249	304	346	309	670
2003	BN	320	247	294	264	702	1,210	2,198	5,074	3,751	253	303	282	779

Table 38. LSJR Alternative 4 End-of-Month Storage at New Exchequer on the Merced River in TAF from 1922–2003

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1922	W	469	457	482	505	616	688	695	731	792	722	595	511
1923	AN	449	416	455	503	528	523	550	598	604	569	495	455
1924	C	431	423	415	410	404	390	389	385	352	323	297	279
1925	BN	258	264	270	276	335	353	396	456	442	407	357	325
1926	D	301	293	289	283	307	314	326	273	289	321	327	308
1927	AN	283	272	278	268	235	238	209	279	298	343	378	412
1928	BN	420	416	430	444	454	386	339	348	353	370	386	406
1929	C	388	375	362	352	353	348	341	279	258	306	348	337
1930	C	310	297	285	273	263	213	194	167	161	224	277	292
1931	C	268	260	250	245	250	247	248	251	226	195	171	152
1932	AN	127	116	178	211	304	331	356	424	479	486	446	416
1933	D	387	374	364	365	364	371	375	384	420	401	364	342
1934	C	316	303	306	323	351	367	375	367	349	318	293	275
1935	AN	251	256	264	329	357	399	501	568	615	590	536	500
1936	AN	472	465	457	481	597	635	672	708	686	628	548	499
1937	W	477	466	469	477	613	682	726	808	812	706	586	507
1938	W	445	408	534	583	675	735	810	901	990	910	770	694
1939	D	654	631	632	630	637	656	681	679	642	592	542	518
1940	AN	501	491	482	593	663	718	767	809	777	686	593	539
1941	W	501	489	563	616	675	735	811	923	966	910	770	689
1942	W	643	618	675	675	675	712	759	811	876	821	703	622
1943	W	561	555	577	675	675	735	787	826	807	703	579	497
1944	BN	434	399	390	393	422	446	445	484	494	468	418	386
1945	AN	354	372	388	397	485	525	543	587	584	546	476	428
1946	AN	414	438	523	556	568	592	605	657	640	586	520	479
1947	D	457	476	507	518	540	552	565	587	565	527	484	458
1948	BN	437	432	424	421	411	404	419	461	491	459	406	374
1949	BN	345	331	324	318	323	345	374	421	422	386	343	318

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1950	BN	287	276	266	288	318	330	370	406	423	389	344	314
1951	AN	290	531	675	675	675	706	727	737	719	662	589	545
1952	W	514	506	549	675	675	735	811	930	1,009	910	770	696
1953	BN	631	597	609	660	672	671	679	672	673	643	580	542
1954	BN	507	495	486	489	513	539	577	615	593	541	476	440
1955	D	405	393	393	406	413	413	415	461	473	443	400	374
1956	W	342	328	675	675	675	713	753	825	880	844	734	659
1957	BN	604	571	564	561	581	580	576	608	626	581	524	485
1958	W	462	455	460	478	544	644	800	926	989	910	770	699
1959	D	638	597	584	589	616	621	641	644	616	563	510	504
1960	C	477	463	449	442	472	483	509	534	518	476	433	407
1961	C	378	369	368	360	362	362	374	389	378	344	314	294
1962	BN	267	254	248	242	329	369	422	441	457	427	363	319
1963	AN	290	275	264	290	362	380	404	450	473	448	386	346
1964	D	324	344	348	353	350	346	357	388	393	371	337	315
1965	W	291	294	502	569	608	624	681	760	833	826	739	668
1966	BN	608	625	648	671	675	686	709	729	691	631	575	543
1967	W	512	509	605	650	675	735	831	919	990	910	770	700
1968	D	654	619	615	616	636	643	656	669	648	592	545	517
1969	W	491	498	520	675	675	735	829	970	1,024	910	770	700
1970	AN	660	632	653	675	675	720	718	739	718	655	585	544
1971	BN	513	517	551	584	602	603	598	625	634	595	536	499
1972	D	467	459	482	495	514	517	521	550	549	503	457	441
1973	AN	424	420	437	489	575	635	654	721	703	618	533	484
1974	W	466	512	560	645	670	729	766	845	848	742	626	549
1975	W	500	461	460	470	540	596	599	662	731	650	538	461
1976	C	439	414	412	401	401	397	402	411	389	352	324	310
1977	C	286	268	253	240	223	195	183	172	158	128	101	80
1978	W	52	35	52	148	251	363	473	606	741	802	702	673

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1979	AN	612	597	590	668	675	735	756	803	766	684	598	544
1980	W	515	506	504	675	675	735	758	800	832	814	709	632
1981	D	579	531	520	522	529	549	565	590	570	523	479	450
1982	W	429	458	504	619	675	735	845	933	948	910	770	700
1983	W	675	675	675	675	675	735	779	875	974	910	770	700
1984	AN	640	675	675	675	675	703	699	736	706	653	587	547
1985	D	526	533	538	541	559	569	593	618	595	546	497	471
1986	W	447	444	459	486	666	735	794	851	865	766	654	587
1987	C	529	485	470	459	463	471	491	505	490	454	423	402
1988	C	377	374	369	380	385	389	402	414	401	375	345	325
1989	C	298	287	284	278	287	317	348	368	353	328	304	291
1990	C	277	272	264	263	268	269	283	285	260	231	201	182
1991	C	158	144	128	114	99	132	141	167	184	176	154	139
1992	C	119	113	106	102	133	143	170	174	147	138	115	102
1993	W	82	73	76	246	309	393	458	616	707	697	627	572
1994	C	532	493	484	477	489	485	489	501	493	460	429	410
1995	W	400	404	412	598	637	735	797	902	1,019	910	770	689
1996	W	627	584	593	643	675	735	789	871	843	733	609	527
1997	W	475	487	675	675	675	735	761	827	802	702	600	532
1998	W	473	439	438	522	675	735	812	866	976	910	770	700
1999	AN	654	626	638	672	675	679	677	728	720	655	588	546
2000	AN	508	499	487	527	604	661	687	743	714	631	549	502
2001	D	482	472	465	461	475	504	522	560	529	482	437	418
2002	D	392	387	418	444	455	462	486	525	514	469	426	404
2003	BN	376	390	407	431	441	447	452	512	516	470	425	395

Table 39. LSJR Alternative 4 Monthly Average Flow at Stevinson on the Merced River in cfs and February–June Flow Volume in TAF

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1922	W	356	318	436	432	1,381	896	981	3,192	3,164	600	600	600	575
1923	AN	800	800	470	444	504	510	1,486	2,622	1,458	200	200	200	396
1924	C	385	335	332	346	352	304	676	888	131	11	19	82	142
1925	BN	351	369	375	378	1,145	751	1,815	2,547	1,482	87	60	53	463
1926	D	299	304	325	325	681	537	2,188	1,688	484	(0)	(0)	101	334
1927	AN	338	272	263	331	1,423	816	1,735	2,777	2,191	200	200	200	534
1928	BN	420	302	339	311	501	1,552	1,432	2,010	686	150	83	49	374
1929	C	364	347	337	358	385	459	786	1,883	978	2	31	89	270
1930	C	350	322	309	311	325	712	1,190	1,337	1,129	(0)	(0)	92	282
1931	C	345	335	322	332	358	318	746	898	202	25	1	119	151
1932	AN	350	313	425	419	1,510	734	1,258	2,584	2,411	200	200	200	509
1933	D	401	336	333	376	321	420	887	1,298	1,805	17	(0)	72	284
1934	C	386	333	355	416	486	634	928	546	333	53	(0)	48	175
1935	AN	358	339	359	530	528	820	2,709	3,070	2,542	200	200	200	581
1936	AN	450	360	335	378	2,543	937	2,120	2,801	1,578	200	200	200	596
1937	W	415	374	367	366	1,931	1,011	1,300	3,087	1,531	600	600	600	528
1938	W	800	800	302	486	3,233	4,657	2,000	3,735	3,860	1,589	1,096	600	1,044
1939	D	800	800	333	393	482	693	1,523	986	323	80	88	122	240
1940	AN	426	374	368	523	1,370	1,405	1,786	2,896	1,374	200	200	200	531
1941	W	430	377	435	424	2,015	1,751	1,315	3,175	2,464	717	1,012	600	640
1942	W	800	800	427	1,474	1,666	702	1,492	2,209	2,710	600	600	600	522
1943	W	800	800	378	523	1,917	3,022	1,751	2,260	1,215	600	600	600	608
1944	BN	800	800	386	364	490	790	807	2,439	1,341	148	146	122	355
1945	AN	438	439	396	391	1,965	1,090	1,555	2,546	2,053	200	200	200	547
1946	AN	458	400	420	491	551	778	1,892	2,485	1,117	200	200	200	410
1947	D	473	384	403	392	432	605	1,049	1,678	514	77	101	150	257
1948	BN	398	347	348	338	337	335	1,079	2,303	2,188	153	97	101	376

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1949	BN	430	354	336	352	371	761	1,432	2,313	1,129	92	118	135	362
1950	BN	414	344	344	378	659	517	1,734	2,274	1,260	133	127	169	386
1951	AN	402	352	2,068	1,689	1,597	811	1,266	1,659	1,013	200	200	200	376
1952	W	428	367	410	979	1,269	1,811	1,735	3,626	2,568	1,603	1,164	600	663
1953	BN	800	800	284	353	452	400	1,210	1,190	1,593	111	123	143	290
1954	BN	445	355	353	356	519	966	1,714	2,176	746	138	128	174	368
1955	D	402	342	359	487	392	359	655	1,893	1,381	101	120	158	281
1956	W	410	336	449	4,319	1,940	678	1,227	2,459	2,286	600	600	600	513
1957	BN	800	800	359	361	443	615	887	1,952	1,775	166	151	174	341
1958	W	462	331	355	431	758	1,345	2,114	3,391	2,515	1,080	1,080	600	609
1959	D	800	800	332	345	605	537	1,190	1,093	514	137	148	158	235
1960	C	400	324	333	347	574	595	1,260	1,434	645	132	159	130	271
1961	C	367	315	337	322	348	339	847	927	444	94	56	99	174
1962	BN	344	291	309	310	1,718	925	1,996	2,010	2,067	224	179	177	518
1963	AN	429	312	326	326	1,867	595	1,319	2,612	2,115	248	200	205	505
1964	D	438	347	348	354	334	348	766	1,366	817	144	120	164	219
1965	W	389	306	478	1,730	494	505	1,248	1,895	1,830	569	568	566	358
1966	BN	771	746	380	623	610	634	1,603	1,776	474	237	197	173	306
1967	W	392	316	350	358	588	1,538	1,894	3,125	3,807	3,431	1,448	715	659
1968	D	800	800	280	332	501	468	948	1,181	504	227	209	230	217
1969	W	378	381	384	3,769	4,153	1,416	2,279	5,120	4,045	2,323	1,159	613	1,009
1970	AN	800	800	196	2,529	1,211	1,064	897	2,127	1,281	227	219	203	393
1971	BN	468	325	309	375	421	576	988	1,786	1,815	227	186	171	335
1972	D	461	336	373	144	355	800	807	1,630	968	221	229	(0)	275
1973	AN	394	362	382	424	1,347	1,119	1,317	3,708	2,021	204	200	200	570
1974	W	457	166	249	252	384	987	1,244	2,437	1,568	600	600	600	399
1975	W	800	800	359	257	928	1,009	786	2,422	2,647	600	600	600	467
1976	C	800	800	312	342	337	326	494	907	234	205	232	221	139

Year	WYT	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Feb-Jun [Taf]
1977	C	450	271	300	323	304	281	313	381	464	137	109	128	104
1978	W	370	243	300	466	1,317	1,511	1,944	3,039	3,381	600	600	600	670
1979	AN	800	800	391	515	1,753	1,378	1,320	3,328	1,550	233	200	200	557
1980	W	519	324	342	1,527	4,474	1,352	1,483	2,387	2,493	600	600	600	724
1981	D	800	800	394	429	405	507	1,230	1,552	696	199	200	193	264
1982	W	465	355	364	434	2,633	2,184	4,845	3,824	2,486	930	1,331	1,073	952
1983	W	1,088	1,910	2,243	3,604	4,363	5,959	1,963	3,683	6,535	5,048	2,392	1,008	1,341
1984	AN	1,276	1,599	3,495	1,850	1,543	947	1,301	2,586	1,149	262	275	260	452
1985	D	591	288	284	396	393	576	1,482	1,669	575	267	237	198	282
1986	W	500	345	358	330	3,406	3,899	1,677	2,686	2,002	600	600	600	813
1987	C	800	800	368	331	330	399	958	927	252	161	167	185	172
1988	C	420	290	325	327	283	468	938	1,044	555	128	124	133	198
1989	C	342	224	272	254	260	937	1,613	1,288	736	90	71	117	291
1990	C	378	253	277	260	305	546	1,149	849	484	98	83	86	200
1991	C	323	208	245	249	207	937	817	1,795	1,462	72	29	35	315
1992	C	310	239	247	241	563	498	1,321	1,025	315	102	57	47	223
1993	W	219	263	300	634	810	1,149	1,369	2,810	2,117	529	529	529	496
1994	C	706	743	284	265	331	390	877	1,142	434	(0)	56	17	191
1995	W	264	277	267	561	636	4,158	1,747	3,184	3,994	4,726	1,644	600	828
1996	W	800	800	315	261	2,398	1,521	1,529	2,382	1,219	600	600	600	541
1997	W	800	800	390	9,859	2,091	1,070	1,278	2,035	862	509	507	508	434
1998	W	722	703	306	344	2,400	2,005	1,698	2,052	4,038	3,779	1,464	677	724
1999	AN	800	800	246	217	1,929	642	1,268	2,702	1,525	200	200	200	479
2000	AN	358	295	268	275	1,730	1,098	1,624	2,612	1,271	200	200	200	500
2001	D	356	446	342	339	341	839	1,089	2,098	333	94	110	72	284
2002	D	277	353	340	399	378	576	1,523	1,737	857	71	38	31	305
2003	BN	278	266	303	277	367	605	1,129	2,635	1,714	46	35	53	389