



# APPENDIX A

APPENDIX A

## Hydrology & Operation Plans

**APPENDIX A-1, TABLE 1**  
**VAMP Daily Operation Plan, March 17, 2004 (A) • Low**

Target Flow Period: April 15–May 15 • Flow Target: 3,200 cfs

	San Joaquin River near Vernalis					Merced River at Cressey					Tuolumne River at LaGrange				Stanislaus River below Goodwin				Maintain Priority Flow Level M=Merced T=Tuol. S=Stan.	
	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	Cum. VAMP Suppl. Flow	VAMP Flow	SJR above Merced R. (2-day lag)	Ungaged Flow above Vernalis	Existing Flow	MelD VAMP Suppl. Flow	Exch Contr VAMP Suppl. Flow	VAMP Flow (3-day lag)	Desired FERC Pulse	Existing Flow – Adjusted FERC Pulse	VAMP Suppl. Flow	VAMP Flow (2-day lag)	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow		VAMP Flow (2-day lag)
	(cfs)	(cfs)	(cfs)	(TAF)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)		(cfs)
Apr 01					349	300	250			250	500	500		500	765				765	
Apr 02					346	300	250			250	500	500		500	765				765	
Apr 03					342	300	250			250	500	500		500	765				765	
Apr 04	2,161			2,161	339	300	250			250	500	500		500	765				765	
Apr 05	2,157			2,157	335	300	250			250	500	500		500	765				765	
Apr 06	2,154			2,154	332	300	250			250	500	500		500	765				765	
Apr 07	2,150			2,150	328	300	250			250	500	500		500	765				765	
Apr 08	2,147			2,147	325	300	250			250	500	500		500	765				765	
Apr 09	2,143			2,143	321	300	250			250	500	500		500	765				765	
Apr 10	2,140			2,140	318	300	250			250	500	500		500	765				765	
Apr 11	2,136			2,136	314	300	250	150		400	500	500		500	765				765	
Apr 12	2,133			2,133	311	300	250	400	90	740	500	500		500	765				765	
Apr 13	2,129	0		2,129	307	300	250	560	90	900	700	1,030	170	1,200	400	200	0		600	
Apr 14	2,126	150		2,276	304	300	250	560	90	900	700	1,030	170	1,200	400	100	0		500	
Apr 15	2,287	860	0	1.71	3,147	300	300	250	590	90	930	700	1,030	170	1,200	400	100	0	500	
Apr 16	2,284	920	0	3.53	3,204	297	300	250	600	80	930	700	1,030	170	1,200	400	100	0	500	
Apr 17	2,280	920	0	5.36	3,200	293	300	250	600	80	930	700	1,030	170	1,200	400	100	0	500	
Apr 18	2,277	950	0	7.24	3,227	290	300	250	600	80	930	700	1,030	170	1,200	400	100	0	500	
Apr 19	2,273	950	0	9.12	3,223	286	300	250	600	80	930	700	1,030	170	1,200	400	100	0	500	
Apr 20	2,270	950	0	11.01	3,220	283	300	250	600	80	930	700	1,030	170	1,200	400	100	0	500	
Apr 21	2,266	950	0	12.89	3,216	279	300	250	600	80	930	700	1,040	160	1,200	400	100	0	500	
Apr 22	2,263	950	0	14.78	3,213	276	300	250	600	80	930	700	980	160	1,140	400	100	0	500	
Apr 23	2,269	940	0	16.64	3,209	272	300	250	600	80	930	700	640	160	800	600	150	0	750	
Apr 24	2,206	940	0	18.51	3,146	269	300	250	270	80	600	700	440	160	600	1,000	150	0	1,150	
Apr 25	2,062	990	0	20.47	3,052	265	300	250	270	80	600	700	440	160	600	1,200	300	0	1,500	
Apr 26	2,259	990	0	22.43	3,249	262	300	250	270	80	600	700	440	160	600	1,200	300	0	1,500	
Apr 27	2,455	810	0	24.04	3,265	258	300	250	270	80	600	700	440	160	600	1,200	300	0	1,500	
Apr 28	2,452	810	0	25.65	3,262	255	300	250	270	80	600	700	440	160	600	1,200	300	0	1,500	
Apr 29	2,448	810	0	27.25	3,258	251	300	250	270	80	600	700	440	160	600	1,200	300	0	1,500	
Apr 30	2,445	810	0	28.86	3,255	248	300	250	270	80	600	700	440	160	600	1,200	300	0	1,500	
May 01	2,441	810	0	30.47	3,251	244	300	250	270	80	600	700	440	160	600	1,200	300	0	1,500	
May 02	2,438	810	0	32.07	3,248	241	300	250	530	80	860	700	440	160	600	1,200	300	0	1,500	
May 03	2,434	810	0	33.68	3,244	237	300	250	570	80	900	700	440	160	600	1,200	0	0	1,200	
May 04	2,431	810	0	35.29	3,241	234	300	250	920	80	1,250	700	640	160	800	900	0	0	900	
May 05	2,427	770	0	36.81	3,197	230	300	250	970	80	1,300	700	640	160	800	600	0	0	600	
May 06	2,324	810	0	38.42	3,134	227	300	250	970	80	1,300	700	640	160	800	400	100	0	500	
May 07	2,020	1,160	0	40.72	3,180	223	300	250	970	80	1,300	700	640	160	800	400	100	0	500	
May 08	1,817	1,310	0	43.32	3,127	220	300	250	970	80	1,300	700	640	160	800	400	200	0	600	
May 09	1,813	1,310	0	45.92	3,123	216	300	250	970	80	1,300	700	640	160	800	400	200	0	600	
May 10	1,810	1,410	0	48.71	3,220	213	300	250	920	80	1,250	700	640	160	800	400	200	0	600	
May 11	1,806	1,410	0	51.51	3,216	209	300	250	870	80	1,200	700	640	160	800	400	300	0	700	
May 12	1,803	1,410	0	54.31	3,213	206	300	250	670	80	1,000	700	640	160	800	400	300	0	700	
May 13	1,799	1,460	0	57.20	3,259	202	300	250	250		500	700	640	160	800	400	300	0	700	
May 14	1,796	1,410	0	60.00	3,206	199	300	250			250	500	500		500	565			565	
May 15	1,792	1,210	0	62.40	3,002	195	300	250			250	500	500		500	565			565	
May 16	1,814	250		2,064	192	300	250				250	500	500		500	565			565	
May 17	1,810	0		1,810	188	300	250				250	500	500		500	565			565	
May 18	1,807	0		1,807	185	300	250				250	500	500		500	565			565	
May 19	1,803	0		1,803	181	300	250				250	500	500		500	565			565	
May 20	1,800	0		1,800	178	300	250				250	500	500		500	565			565	
May 21	1,796	0		1,796	174	300	250				250	500	500		500	565			565	
May 22	1,793	0		1,793	171	300	250				250	500	500		500	565			565	
May 23	1,789	0		1,789	167	300	250				250	500	500		500	565			565	
May 24	1,786	0		1,786	164	300	250				250	500	500		500	565			565	
May 25	1,782	0		1,782	160	300	250				250	500	500		500	565			565	
May 26	1,779	0		1,779	157	300	250				250	500	500		500	565			565	
May 27	1,775	0		1,775	153	300	250				250	500	500		500	565			565	
May 28	1,772	0		1,772	150	300	250				250	500	500		500	565			565	
May 29	1,768	0		1,768	146	300	250				250	500	500		500	565			565	
May 30	1,765	0		1,765	143	300	250				250	500	500		500	565			565	
May 31	1,761	0		1,761	139	300	250				250	500	500		500	565			565	
<b>VAMP Period</b>																				
Avg. (cfs):	2,185	1,015		3,200	255	300	250	594	81	925	700	700	163	863	681	177	0		858	
Suppl. Water (TAF)		62.40						36.50	5.00				10.00		10.91					

Target flow period

**APPENDIX A-1, TABLE 2**  
**VAMP Daily Operation Plan, March 17, 2004 (B) • High**

Target Flow Period: April 15–May 15 • Flow Target: 4,450 cfs

	San Joaquin River near Vernalis					Merced River at Cressey					Tuolumne River at LaGrange				Stanislaus River below Goodwin				Maintain Priority Flow Level M=Merced T=Tuol. S=Stan.	
	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	Cum. VAMP Suppl. Flow	VAMP Flow	SJR above Merced R. (2-day lag)	Ungaged Flow above Vernalis	Existing Flow	MeID VAMP Suppl. Flow	Exch Contr VAMP Supp. Flow	VAMP Flow (3-day lag)	Desired FERC Pulse	Existing Flow – Adjusted FERC Pulse	VAMP Suppl. Flow	VAMP Flow (2-day lag)	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow		VAMP Flow (2-day lag)
	(cfs)	(cfs)	(cfs)	(TAF)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)		(cfs)
Apr 01					667	800	250			250	500	500		500	1,191				1,191	
Apr 02					662	800	250			250	500	500		500	1,191				1,191	
Apr 03					658	800	250			250	500	500		500	1,191				1,191	
Apr 04	3,403			3,403	653	800	250			250	500	500		500	1,191				1,191	
Apr 05	3,399			3,399	648	800	250			250	500	500		500	1,191				1,191	
Apr 06	3,394			3,394	643	800	250			250	500	500		500	1,191				1,191	
Apr 07	3,389			3,389	638	800	250			250	500	500		500	1,191				1,191	
Apr 08	3,384			3,384	634	800	250			250	500	500		500	1,191				1,191	
Apr 09	3,379			3,379	629	800	250			250	500	500		500	1,191				1,191	
Apr 10	3,375			3,375	624	800	250			250	500	500		500	1,191				1,191	
Apr 11	3,370			3,370	619	800	250			250	500	500		500	1,191				1,191	
Apr 12	3,365			3,365	614	800	250	400	90	740	500	500		500	1,191				1,191	
Apr 13	3,360	0		3,360	610	800	250	600	90	940	1,000	1,070	25	1,095	500	700	0	1,200		
Apr 14	3,355	0		3,355	605	800	250	600	90	940	1,000	1,070	30	1,100	500	500	0	1,000		
Apr 15	3,230	1,215	0	2.41	4,445	600	800	250	600	90	940	1,000	1,070	30	1,100	500	500	0	1,000	
Apr 16	3,225	1,220	0	4.83	4,445	595	800	250	515	80	845	1,000	1,080	20	1,100	500	500	0	1,000	
Apr 17	3,220	1,220	0	7.25	4,440	590	800	250	260	80	590	1,000	980	20	1,000	900	300	0	1,200	
Apr 18	3,225	1,210	0	9.65	4,435	586	800	250	260	80	590	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 19	3,520	915	0	11.46	4,435	581	800	250	260	80	590	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 20	4,116	360	0	12.18	4,476	576	800	250	260	80	590	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 21	4,111	360	0	12.89	4,471	571	800	250	260	80	590	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 22	4,106	360	0	13.61	4,466	566	800	250	260	80	590	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 23	4,101	360	0	14.32	4,461	562	800	250	270	80	600	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 24	4,096	360	0	15.03	4,456	557	800	250	270	80	600	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 25	4,092	360	0	15.75	4,452	552	800	250	270	80	600	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 26	4,087	370	0	16.48	4,457	547	800	250	270	80	600	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 27	4,082	370	0	17.22	4,452	542	800	250	280	80	610	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 28	4,077	370	0	17.95	4,447	538	800	250	300	80	630	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 29	4,072	370	0	18.68	4,442	533	800	250	300	80	630	1,000	980	20	1,000	1,500	0	0	1,500	
Apr 30	4,068	380	0	19.44	4,448	528	800	250	300	80	630	1,000	980	20	1,000	1,500	0	0	1,500	
May 01	4,063	400	0	20.23	4,463	523	800	250	320	80	650	1,000	980	20	1,000	1,500	0	0	1,500	
May 02	4,058	400	0	21.02	4,458	518	800	250	320	80	650	1,000	980	20	1,000	1,500	0	0	1,500	
May 03	4,053	400	0	21.82	4,453	514	800	250	320	80	650	1,000	980	20	1,000	1,500	0	0	1,500	
May 04	4,048	420	0	22.65	4,468	509	800	250	320	80	650	1,000	980	20	1,000	1,500	0	0	1,500	
May 05	4,044	420	0	23.48	4,464	504	800	250	320	80	650	1,000	980	20	1,000	1,500	0	0	1,500	
May 06	4,039	420	0	24.32	4,459	499	800	250	320	80	650	1,000	980	20	1,000	1,500	0	0	1,500	
May 07	4,034	420	0	25.15	4,454	494	800	250	630	80	960	1,000	980	20	1,000	1,500	0	0	1,500	
May 08	4,029	420	0	25.98	4,449	490	800	250	770	80	1,100	1,000	980	20	1,000	1,160	40	0	1,200	
May 09	4,024	420	0	26.82	4,444	485	800	250	770	80	1,100	1,000	980	20	1,000	860	160	0	1,020	
May 10	3,680	770	0	28.34	4,450	480	800	250	770	80	1,100	1,000	980	20	1,000	500	520	0	1,020	
May 11	3,375	1,030	0	30.39	4,405	475	800	250	670	80	1,000	1,000	1,030	20	1,050	500	520	0	1,020	
May 12	3,010	1,390	0	33.14	4,400	470	800	250	540	80	870	1,000	1,080	20	1,100	500	600	0	1,100	
May 13	3,055	1,390	0	35.90	4,445	466	800	250			250	1,000	1,080	20	1,100	500	700	0	1,200	
May 14	3,100	1,370	0	38.62	4,470	461	800	250			250	500	500		500	1,191			1,191	
May 15	3,096	1,340	0	41.28	4,436	456	800	250			250	500	500		500	1,191			1,191	
May 16	3,202	0			3,202	451	800	250			250	500	500		500	1,191			1,191	
May 17	3,197	0			3,197	446	800	250			250	500	500		500	1,191			1,191	
May 18	3,192	0			3,192	442	800	250			250	500	500		500	1,191			1,191	
May 19	3,187	0			3,187	437	800	250			250	500	500		500	1,191			1,191	
May 20	3,183	0			3,183	432	800	250			250	500	500		500	1,191			1,191	
May 21	3,178	0			3,178	427	800	250			250	500	500		500	1,191			1,191	
May 22	3,173	0			3,173	422	800	250			250	500	500		500	1,191			1,191	
May 23	3,168	0			3,168	418	800	250			250	500	500		500	1,191			1,191	
May 24	3,163	0			3,163	413	800	250			250	500	500		500	1,191			1,191	
May 25	3,159	0			3,159	408	800	250			250	500	500		500	1,191			1,191	
May 26	3,154	0			3,154	403	800	250			250	500	500		500	1,191			1,191	
May 27	3,149	0			3,149	398	800	250			250	500	500		500	1,191			1,191	
May 28	3,144	0			3,144	394	800	250			250	500	500		500	1,191			1,191	
May 29	3,139	0			3,139	389	800	250			250	500	500		500	1,191			1,191	
May 30	3,135	0			3,135	384	800	250			250	500	500		500	1,191			1,191	
May 31	3,130	0			3,130	379	800	250			250	500	500		500	1,191			1,191	
<b>VAMP Period</b>																				
Avg. (cfs):	3,779	671		4,450	538	300	250	407	81	738	1,000	1,000	21	1,021	1,191	163	0	1,354		
Suppl. Water (TAF)		41.28						25.00	5.00				1.28			10.00				

Target flow period

**APPENDIX A-1, TABLE 3**  
**VAMP Daily Operation Plan, March 30, 2004 (A) • Low**

Target Flow Period: April 15–May 15 • Flow Target: 3,200 cfs

	San Joaquin River near Vernalis					Merced River at Cressey					Tuolumne River at LaGrange				Stanislaus River below Goodwin				Maintain Priority Flow Level M=Merced T=Tuol. S=Stan.	
	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	Cum. VAMP Suppl. Flow	VAMP Flow	SJR above Merced R. (2-day lag)	Ungaged Flow above Vernalis	Existing Flow	MeID VAMP Suppl. Flow	Exch Contr VAMP Suppl. Flow	VAMP Flow (3-day lag)	Desired FERC Pulse	Existing Flow – Adjusted FERC Pulse	VAMP Suppl. Flow	VAMP Flow (2-day lag)	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow		VAMP Flow (2-day lag)
	(cfs)	(cfs)	(cfs)	(TAF)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)		(cfs)
Apr 01					349	300	250				250	500	500		500	765			765	
Apr 02					346	300	250				250	500	500		500	765			765	
Apr 03					342	300	250				250	500	500		500	765			765	
Apr 04	2,161			2,161	339	300	250				250	500	500		500	765			765	
Apr 05	2,157			2,157	335	300	250				250	500	500		500	765			765	
Apr 06	2,154			2,154	332	300	250				250	500	500		500	765			765	
Apr 07	2,150			2,150	328	300	250				250	500	500		500	765			765	
Apr 08	2,147			2,147	325	300	250				250	500	500		500	765			765	
Apr 09	2,143			2,143	321	300	250				250	500	500		500	765			765	
Apr 10	2,140			2,140	318	300	250				250	500	500		500	765			765	
Apr 11	2,136			2,136	314	300	250				250	500	500		500	765			765	
Apr 12	2,133			2,133	311	300	250	60	90	400	500	500	500		500	765			765	
Apr 13	2,129	0		2,129	307	300	250	60	90	400	650	1,030	170	1,200	400	600	0	1,000		
Apr 14	2,126	0		2,126	304	300	250	60	90	400	650	1,030	170	1,200	400	600	0	1,000		
Apr 15	2,287	920	0	1.82	3,207	300	300	250	60	90	400	650	1,030	170	1,200	400	600	0	1,000	
Apr 16	2,284	920	0	3.65	3,204	297	300	250	320	80	650	650	1,030	170	1,200	400	600	0	1,000	
Apr 17	2,280	920	0	5.47	3,200	293	300	250	620	80	950	650	1,030	170	1,200	400	350	0	750	
Apr 18	2,277	920	0	7.30	3,197	290	300	250	620	80	950	650	1,030	170	1,200	400	100	0	500	
Apr 19	2,273	920	0	9.12	3,193	286	300	250	620	80	950	650	1,030	170	1,200	400	100	0	500	
Apr 20	2,270	970	0	11.05	3,240	283	300	250	620	80	950	650	1,030	170	1,200	400	100	0	500	
Apr 21	2,266	970	0	12.97	3,236	279	300	250	620	80	950	650	1,040	160	1,200	400	100	0	500	
Apr 22	2,263	970	0	14.90	3,233	276	300	250	620	80	950	650	1,040	160	1,200	400	100	0	500	
Apr 23	2,269	960	0	16.80	3,229	272	300	250	620	80	950	650	790	160	950	600	90	0	690	
Apr 24	2,266	960	0	18.70	3,226	269	300	250	570	80	900	650	540	160	700	1,000	0	0	1,000	
Apr 25	2,212	950	0	20.59	3,162	265	300	250	320	80	650	650	390	160	550	1,200	0	0	1,200	
Apr 26	2,359	860	0	22.29	3,219	262	300	250	320	80	650	650	340	160	500	1,200	300	0	1,500	
Apr 27	2,405	810	0	23.90	3,215	258	300	250	320	80	650	650	340	160	500	1,200	300	0	1,500	
Apr 28	2,352	860	0	25.61	3,212	255	300	250	320	80	650	650	340	160	500	1,200	300	0	1,500	
Apr 29	2,348	860	0	27.31	3,208	251	300	250	320	80	650	650	340	160	500	1,200	300	0	1,500	
Apr 30	2,345	860	0	29.02	3,205	248	300	250	320	80	650	650	340	160	500	1,200	300	0	1,500	
May 01	2,341	860	0	30.72	3,201	244	300	250	320	80	650	650	340	160	500	1,200	300	0	1,500	
May 02	2,338	860	0	32.43	3,198	241	300	250	620	80	950	650	340	160	500	1,200	300	0	1,500	
May 03	2,334	860	0	34.14	3,194	237	300	250	690	80	1,020	650	340	160	500	1,200	0	0	1,200	
May 04	2,331	860	0	35.84	3,191	234	300	250	1,020	80	1,350	650	540	160	700	900	0	0	900	
May 05	2,327	860	0	37.55	3,187	230	300	250	1,070	80	1,400	650	540	160	700	600	0	0	600	
May 06	2,224	930	0	39.39	3,154	227	300	250	1,070	80	1,400	650	540	160	700	400	200	0	600	
May 07	1,920	1,260	0	41.89	3,180	223	300	250	1,070	80	1,400	650	540	160	700	400	200	0	600	
May 08	1,717	1,510	0	44.89	3,227	220	300	250	1,070	80	1,400	650	540	160	700	400	200	0	600	
May 09	1,713	1,510	0	47.88	3,223	216	300	250	1,070	80	1,400	650	540	160	700	400	200	0	600	
May 10	1,710	1,510	0	50.88	3,220	213	300	250	1,070	80	1,400	650	540	160	700	400	200	0	600	
May 11	1,706	1,510	0	53.87	3,216	209	300	250	1,070	80	1,400	650	540	160	700	400	200	0	600	
May 12	1,703	1,510	0	56.87	3,213	206	300	250	870	80	1,200	650	540	160	700	400	200	0	600	
May 13	1,699	1,510	0	59.86	3,209	202	300	250	350		600	650	540	160	700	400	200	0	600	
May 14	1,696	1,510	0	62.86	3,206	199	300	250	50		300	500	500		500	565			565	
May 15	1,692	1,310	0	65.45	3,002	195	300	250			250	500	500		500	565			565	
May 16	1,814	350			2,164	192	300	250			250	500	500		500	565			565	
May 17	1,810	50			1,860	188	300	250			250	500	500		500	565			565	
May 18	1,807	0			1,807	185	300	250			250	500	500		500	565			565	
May 19	1,803	0			1,803	181	300	250			250	500	500		500	565			565	
May 20	1,800	0			1,800	178	300	250			250	500	500		500	565			565	
May 21	1,796	0			1,796	174	300	250			250	500	500		500	565			565	
May 22	1,793	0			1,793	171	300	250			250	500	500		500	565			565	
May 23	1,789	0			1,789	167	300	250			250	500	500		500	565			565	
May 24	1,786	0			1,786	164	300	250			250	500	500		500	565			565	
May 25	1,782	0			1,782	160	300	250			250	500	500		500	565			565	
May 26	1,779	0			1,779	157	300	250			250	500	500		500	565			565	
May 27	1,775	0			1,775	153	300	250			250	500	500		500	565			565	
May 28	1,772	0			1,772	150	300	250			250	500	500		500	565			565	
May 29	1,768	0			1,768	146	300	250			250	500	500		500	565			565	
May 30	1,765	0			1,765	143	300	250			250	500	500		500	565			565	
May 31	1,761	0			1,761	139	300	250			250	500	500		500	565			565	
<b>VAMP Period</b>																				
Avg. (cfs):	2,135	1,065			3,200	255	300	250	594	81	925	650	650	163	813	681	227	0	908	
Suppl. Water (TAF)		65.45							36.50	5.00				10.00		13.96				

Target flow period

**APPENDIX A-1, TABLE 4**  
**VAMP Daily Operation Plan, March 30, 2004 (B) • High**

Target Flow Period: April 15–May 15 • Flow Target: 4,450 cfs

	San Joaquin River near Vernalis							Merced River at Cressey				Tuolumne River at LaGrange				Stanislaus River below Goodwin				Maintain Priority Flow Level M=Merced T=Tuol. S=Stan.
	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	Cum. VAMP Suppl. Flow	VAMP Flow	SJR above Merced R. (2-day lag)	Ungaged Flow above Vernalis	Existing Flow	MeID VAMP Suppl. Flow	Exch Contr VAMP Suppl. Flow	VAMP Flow (3-day lag)	Desired FERC Pulse	Existing Flow – Adjusted FERC Pulse	VAMP Suppl. Flow	VAMP Flow (2-day lag)	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	VAMP Flow (2-day lag)	
	(cfs)	(cfs)	(cfs)	(TAF)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	
Apr 01					667	800	250				250	500	500		500	1,191			1,191	
Apr 02					662	800	250				250	500	500		500	1,191			1,191	
Apr 03					658	800	250				250	500	500		500	1,191			1,191	
Apr 04	3,403			3,403	653	800	250				250	500	500		500	1,191			1,191	
Apr 05	3,399			3,399	648	800	250				250	500	500		500	1,191			1,191	
Apr 06	3,394			3,394	643	800	250				250	500	500		500	1,191			1,191	
Apr 07	3,389			3,389	638	800	250				250	500	500		500	1,191			1,191	
Apr 08	3,384			3,384	634	800	250				250	500	500		500	1,191			1,191	
Apr 09	3,379			3,379	629	800	250				250	500	500		500	1,191			1,191	
Apr 10	3,375			3,375	624	800	250				250	500	500		500	1,191			1,191	
Apr 11	3,370			3,370	619	800	250				250	500	500		500	1,191			1,191	
Apr 12	3,365			3,365	614	800	250	50	90	390	500	500		500	1,191			1,191		
Apr 13	3,360	0		3,360	610	800	250	50	90	390	1,000	1,325	25	1,350	500	800	0	1,300		
Apr 14	3,355	0		3,355	605	800	250	50	90	390	1,000	1,325	25	1,350	500	800	0	1,300		
Apr 15	3,485	965	0	1.91	600	800	250	50	90	390	1,000	1,325	25	1,350	500	800	0	1,300		
Apr 16	3,480	965	0	3.83	595	800	250	320	80	650	1,000	1,325	25	1,350	500	800	0	1,300		
Apr 17	3,475	965	0	5.74	590	800	250	320	80	650	1,000	945	30	975	900	400	0	1,300		
Apr 18	3,470	965	0	7.66	586	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 19	3,485	830	0	9.30	581	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 20	4,086	420	0	10.14	576	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 21	4,081	420	0	10.97	571	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 22	4,076	420	0	11.80	566	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 23	4,071	420	0	12.63	562	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 24	4,066	420	0	13.47	557	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 25	4,062	420	0	14.30	552	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 26	4,057	420	0	15.13	547	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 27	4,052	420	0	15.97	542	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 28	4,047	420	0	16.80	538	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 29	4,042	420	0	17.63	533	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
Apr 30	4,038	420	0	18.47	528	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
May 01	4,033	420	0	19.30	523	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
May 02	4,028	420	0	20.13	518	800	250	320	80	650	1,000	950	20	970	1,500	0	0	1,500		
May 03	4,023	420	0	20.97	514	800	250	420	80	750	1,000	950	20	970	1,500	0	0	1,500		
May 04	4,018	420	0	21.80	509	800	250	420	80	750	1,000	880	20	900	1,500	0	0	1,500		
May 05	4,014	420	0	22.63	504	800	250	420	80	750	1,000	880	20	900	1,500	0	0	1,500		
May 06	3,939	520	0	23.66	499	800	250	420	80	750	1,000	880	20	900	1,500	0	0	1,500		
May 07	3,934	520	0	24.69	494	800	250	755	80	1,085	1,000	880	20	900	1,500	0	0	1,500		
May 08	3,929	520	0	25.73	490	800	250	920	80	1,250	1,000	880	20	900	1,160	0	0	1,160		
May 09	3,924	520	0	26.76	485	800	250	920	80	1,250	1,000	1,030	20	1,050	860	0	0	860		
May 10	3,580	855	0	28.45	480	800	250	920	80	1,250	1,000	1,030	20	1,050	500	360	0	860		
May 11	3,425	1,020	0	30.48	475	800	250	920	80	1,250	1,000	1,030	20	1,050	500	360	0	860		
May 12	3,060	1,380	0	33.21	470	800	250	850	80	1,180	1,000	1,030	20	1,050	500	360	0	860		
May 13	3,055	1,380	0	35.95	466	800	250	400		650	1,000	1,030	20	1,050	500	360	0	860		
May 14	3,050	1,380	0	38.69	461	800	250	50		300	500	500		500	1,191			1,191		
May 15	3,046	1,310	0	41.29	456	800	250			250	500	500		500	1,191			1,191		
May 16	3,202	400			451	800	250			250	500	500		500	1,191			1,191		
May 17	3,197	50			446	800	250			250	500	500		500	1,191			1,191		
May 18	3,192	0			442	800	250			250	500	500		500	1,191			1,191		
May 19	3,187	0			437	800	250			250	500	500		500	1,191			1,191		
May 20	3,183	0			432	800	250			250	500	500		500	1,191			1,191		
May 21	3,178	0			427	800	250			250	500	500		500	1,191			1,191		
May 22	3,173	0			422	800	250			250	500	500		500	1,191			1,191		
May 23	3,168	0			418	800	250			250	500	500		500	1,191			1,191		
May 24	3,163	0			413	800	250			250	500	500		500	1,191			1,191		
May 25	3,159	0			408	800	250			250	500	500		500	1,191			1,191		
May 26	3,154	0			403	800	250			250	500	500		500	1,191			1,191		
May 27	3,149	0			398	800	250			250	500	500		500	1,191			1,191		
May 28	3,144	0			394	800	250			250	500	500		500	1,191			1,191		
May 29	3,139	0			389	800	250			250	500	500		500	1,191			1,191		
May 30	3,135	0			384	800	250			250	500	500		500	1,191			1,191		
May 31	3,130	0			379	800	250			250	500	500		500	1,191			1,191		
<b>VAMP Period</b>																				
Avg. (cfs):	3,778	671		4,450	538	300	250	407	81	738	1,000	1,000	21	1,021	1,191	163	0	1,354		
Suppl. Water (TAF)		41.29						25.00	5.00				1.29			10.00				

Target flow period

**APPENDIX A-1, TABLE 5**  
**VAMP Daily Operation Plan, April 9, 2004**

Target Flow Period: April 15–May 15 • Flow Target: 3,200 cfs

bold numbers: observed real-time

	San Joaquin River near Vernalis					Merced River at Cressey					Tuolumne River at LaGrange				Stanislaus River below Goodwin					Maintain Priority Flow Level M=Merced T=Tuol. S=Stan.	
	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	Cum. VAMP Suppl. Flow	VAMP Flow	SJR above Merced R. (2-day lag)	Ungaged Flow above Vernalis	Existing Flow	MeID VAMP Suppl. Flow	Exch Contr VAMP Suppl. Flow	VAMP Flow (3-day lag)	Desired FERC Pulse	Existing Flow – Adjusted FERC Pulse	VAMP Suppl. Flow	VAMP Flow (2-day lag)	Existing Flow	Existing Flow (re- shaped)	VAMP Suppl. Flow	Other Suppl. Flow		VAMP Flow (2-day lag)
	(cfs)	(cfs)	(cfs)	(TAF)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)		(cfs)
Apr 01	2,290			2,310	495	1,131	224			224	500	1,110		1,110	707	215			215		
Apr 02	2,680			2,710	424	802	209			209	500	1,090		1,090	707	226			226		
Apr 03	2,890			2,910	390	826	205			205	500	1,100		1,100	707	225			225		
Apr 04	2,890			2,890	392	926	218			218	500	1,100		1,100	707	222			222		
Apr 05	2,849			2,849	385	925	206			206	500	980		980	707	228			228		
Apr 06	2,700			2,700	362	781	199			199	500	819		819	707	226			226		
Apr 07	2,380			2,380	335	569	194			194	500	837		837	707	226			226		
Apr 08	2,190			2,189	326	576	196			196	500	833		833	707	225			225		
Apr 09	2,146			2,146	318	549	250			250	500	500		500	707	707			707		
Apr 10	2,117			2,117	315	539	250			250	500	500		500	707	707			707		
Apr 11	2,251			2,251	312	530	250			250	500	500		500	707	707			707		
Apr 12	2,292			2,292	309	520	250	200	0	450	500	500		500	707	707			707		
Apr 13	2,279	0		2,279	306	510	250	200	0	450	725	700	340	1,040	707	350	200	0	550	T	
Apr 14	2,266	0		2,266	303	500	250	200	0	450	725	900	500	1,400	707	350	200	0	550	T	
Apr 15	2,106	740	0	1.47	2,846	300	500	250	200	0	450	700	900	500	1,400	707	350	200	0	550	T
Apr 16	2,303	900	0	3.25	3,203	297	500	250	200	0	450	700	900	500	1,400	707	350	200	0	550	T
Apr 17	2,300	900	0	5.04	3,200	293	500	250	225	0	475	700	900	500	1,400	707	350	200	0	550	T
Apr 18	2,297	900	0	6.82	3,197	290	500	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 19	2,293	900	0	8.61	3,193	286	500	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 20	2,290	925	0	10.44	3,215	283	500	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 21	2,286	950	0	12.33	3,236	279	500	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 22	2,283	950	0	14.21	3,233	276	500	250	250	0	500	700	900	300	1,200	707	600	200	0	800	T
Apr 23	2,279	950	0	16.10	3,229	272	500	250	300	0	550	700	900	0	900	707	950	100	0	1,050	T,S
Apr 24	2,526	750	0	17.58	3,276	269	500	250	350	0	600	700	650	0	650	707	1,150	100	0	1,250	S
Apr 25	2,872	350	0	18.28	3,222	265	500	250	350	0	600	700	600	0	600	707	1,150	100	0	1,250	S
Apr 26	2,819	400	0	19.07	3,219	262	500	250	350	0	600	700	600	0	600	707	1,150	100	0	1,250	S
Apr 27	2,765	450	0	19.96	3,215	258	500	250	350	0	600	700	600	0	600	707	1,150	100	0	1,250	S
Apr 28	2,762	450	0	20.86	3,212	255	500	250	350	0	600	700	600	0	600	707	1,150	100	0	1,250	S
Apr 29	2,758	450	0	21.75	3,208	251	500	250	375	0	625	700	600	0	600	707	1,150	100	0	1,250	S
Apr 30	2,755	450	0	22.64	3,205	248	500	250	400	0	650	700	600	0	600	707	1,150	100	0	1,250	S
May 01	2,751	450	0	23.53	3,201	244	500	250	550	0	800	700	600	0	600	565	1,150	100	0	1,250	S
May 02	2,748	475	0	24.48	3,223	241	500	250	500	250	1,000	700	600	0	600	565	1,060	40	0	1,100	S,M
May 03	2,744	500	0	25.47	3,244	237	500	250	850	200	1,300	700	600	0	600	565	900	0	0	900	M
May 04	2,651	590	0	26.64	3,241	234	500	250	850	200	1,300	700	600	0	600	565	600	0	0	600	M
May 05	2,487	750	0	28.13	3,237	230	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 06	2,184	1,050	0	30.21	3,234	227	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 07	1,980	1,250	0	32.69	3,230	223	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 08	1,977	1,250	0	35.17	3,227	220	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 09	1,973	1,250	0	37.65	3,223	216	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 10	1,970	1,250	0	40.13	3,220	213	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 11	1,966	1,250	0	42.60	3,216	209	500	250	350	500	1,100	700	600	0	600	565	400	200	0	600	M
May 12	1,963	1,250	0	45.08	3,213	206	500	250	150	170	570	700	600	200	800	565	400	200	0	600	M
May 13	1,959	1,250	0	47.56	3,209	202	500	250	250	250	250	700	600	200	800	565	400	500	0	900	
May 14	1,956	1,250	0	50.04	3,206	199	500	250	250	250	250	575	500	500	500	565	565	535	1,100		
May 15	1,952	1,020	0	52.07	2,972	195	500	250	250	250	250	450	500	500	500	565	565	935	1,500		
May 16	2,014	0		2,549	192	500	250	250	250	250	250	325	500	500	500	565	565	935	1,500		
May 17	2,010	0		2,945	189	500	250	250	250	250	250	225	500	500	500	565	565	935	1,500		
May 18	2,007	0		2,942	186	500	250	250	250	250	250	150	500	500	500	565	565	935	1,500		
May 19	2,004	0		2,939	183	500	250	250	250	250	250	150	500	500	500	565	565	935	1,500		
May 20	2,001	0		2,936	180	500	250	250	250	250	250	500	500	500	500	565	565	935	1,500		
May 21	1,998	0		2,933	177	500	250	250	250	250	250	500	500	500	500	565	565	935	1,500		
May 22	1,995	0		2,930	174	500	250	250	250	250	250	500	500	500	500	565	565	935	1,500		
May 23	1,992	0		2,927	171	500	250	250	250	250	250	500	500	500	500	565	565	335	900		
May 24	1,989	0		2,924	168	500	250	250	250	250	250	500	500	500	500	565	565	35	600		
May 25	1,986	0		2,321	165	500	250	250	250	250	250	500	500	500	500	565	565		565		
May 26	1,983	0		2,018	162	500	250	250	250	250	250	500	500	500	500	565	565		565		
May 27	1,980	0		1,980	159	500	250	250	250	250	250	500	500	500	500	565	565		565		
May 28	1,977	0		1,977	156	500	250	250	250	250	250	500	500	500	500	565	565		565		
May 29	1,974	0		1,974	153	500	250	250	250	250	250	500	500	500	500	565	565		565		
May 30	1,971	0		1,971	150	500	250	250	250	250	250	500	500	500	500	565	565		565		
May 31	1,968	0		1,968	147	500	250	250	250	250	250	500	500	500	500	565	565		565		
<b>VAMP Period</b>																					
Avg. (cfs):	2,353	847		3,200	254	300	250	440	81	772	702	702	163	864	647	647	163	0	913		
Suppl. Water (TAF)		52.07						27.07	5.00				10.00			39.79					

Target flow period  
 Period of desired flow stability

**APPENDIX A-1, TABLE 6**  
**VAMP Daily Operation Plan, April 13, 2004**

Target Flow Period: April 15–May 15 • Flow Target: 3,200 cfs

bold numbers: observed real-time

	San Joaquin River near Vernalis							Merced River at Cressey				Tuolumne River at LaGrange				Stanislaus River below Goodwin					Maintain Priority Flow Level M=Merced T=Tuol. S=Stan.
	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	Cum. VAMP Suppl. Flow	VAMP Flow	SJR above Merced R. (2-day lag)	Ungaged Flow above Vernalis	Existing Flow	MeID VAMP Suppl. Flow	Exch Contr VAMP Supp. Flow	VAMP Flow (3-day lag)	Desired FERC Pulse	Existing Flow – Adjusted FERC Pulse	VAMP Suppl. Flow	VAMP Flow (2-day lag)	Existing Flow	Existing Flow (re- shaped)	VAMP Suppl. Flow	Other Suppl. Flow	VAMP Flow (2-day lag)	
	(cfs)	(cfs)	(cfs)	(TAF)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	
Apr 01	2,290				2,310	495	1,131	224			224	500	1,110		1,110	707	215			215	
Apr 02	2,680				2,710	424	802	209			209	500	1,090		1,090	707	226			226	
Apr 03	2,890				2,910	390	826	205			205	500	1,100		1,100	707	225			225	
Apr 04	2,890				2,890	392	926	218			218	500	1,100		1,100	707	222			222	
Apr 05	2,849				2,849	385	925	206			206	500	980		980	707	228			228	
Apr 06	2,700				2,700	362	781	199			199	500	819		819	707	226			226	
Apr 07	2,380				2,380	335	569	194			194	500	837		837	707	226			226	
Apr 08	2,190				2,189	326	576	196			196	500	833		833	707	228			228	
Apr 09	2,120				2,118	319	521	192			192	500	823		823	707	227			227	
Apr 10	2,060				2,060	315	479	194			194	500	820		820	707	227			227	
Apr 11	2,090				2,090	289	525	212			212	500	817		817	707	232			232	
Apr 12	2,150				2,150	292	596	250	166	0	416	500	819		819	707	231			231	
Apr 13	2,042	0			2,042	306	510	250	200	0	450	700	700	340	1,040	707	350	200	0	550	T
Apr 14	2,054	0			2,054	303	500	250	200	0	450	700	900	500	1,400	707	350	200	0	550	T
Apr 15	2,106	706	0	1.40	2,812	300	500	250	200	0	450	700	900	500	1,400	707	350	200	0	550	T
Apr 16	2,303	900	0	3.19	3,203	297	500	250	200	0	450	700	900	500	1,400	707	350	200	0	550	T
Apr 17	2,300	900	0	4.97	3,200	293	500	250	225	0	475	700	900	500	1,400	707	350	200	0	550	T
Apr 18	2,297	900	0	6.76	3,197	290	500	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 19	2,293	900	0	8.54	3,193	286	500	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 20	2,290	925	0	10.38	3,215	283	500	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 21	2,286	950	0	12.26	3,236	279	500	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 22	2,283	950	0	14.14	3,233	276	500	250	250	0	500	700	850	300	1,150	707	600	200	0	800	T
Apr 23	2,279	950	0	16.03	3,229	272	500	250	300	0	550	700	900	0	900	707	950	100	0	1,050	T,S
Apr 24	2,476	750	0	17.52	3,226	269	500	250	350	0	600	700	650	0	650	707	1,150	100	0	1,250	S
Apr 25	2,872	350	0	18.21	3,222	265	500	250	350	0	600	700	600	0	600	707	1,150	100	0	1,250	S
Apr 26	2,819	400	0	19.00	3,219	262	500	250	350	0	600	700	600	0	600	707	1,150	100	0	1,250	S
Apr 27	2,765	450	0	19.90	3,215	258	500	250	375	0	625	700	600	0	600	707	1,150	100	0	1,250	S
Apr 28	2,762	450	0	20.79	3,212	255	500	250	375	0	625	700	600	0	600	707	1,150	100	0	1,250	S
Apr 29	2,758	450	0	21.68	3,208	251	500	250	375	0	625	700	600	0	600	707	1,150	100	0	1,250	S
Apr 30	2,755	475	0	22.62	3,230	248	500	250	400	0	650	700	600	0	600	707	1,150	100	0	1,250	S
May 01	2,751	475	0	23.57	3,226	244	500	250	550	0	800	700	600	0	600	565	1,150	100	0	1,250	S
May 02	2,748	475	0	24.51	3,223	241	500	250	500	250	1,000	700	600	0	600	565	1,060	40	0	1,100	S,M
May 03	2,744	500	0	25.50	3,244	237	500	250	850	200	1,300	700	600	0	600	565	900	0	0	900	M
May 04	2,651	590	0	26.67	3,241	234	500	250	850	200	1,300	700	600	0	600	565	600	0	0	600	M
May 05	2,487	750	0	28.16	3,237	230	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 06	2,184	1,050	0	30.24	3,234	227	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 07	1,980	1,250	0	32.72	3,230	223	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 08	1,977	1,250	0	35.20	3,227	220	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 09	1,973	1,250	0	37.68	3,223	216	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 10	1,970	1,250	0	40.16	3,220	213	500	250	850	200	1,300	700	600	0	600	565	400	200	0	600	M
May 11	1,966	1,250	0	42.64	3,216	209	500	250	350	500	1,100	700	600	0	600	565	400	200	0	600	M
May 12	1,963	1,250	0	45.12	3,213	206	500	250	150	170	570	700	600	200	800	565	400	200	0	600	M
May 13	1,959	1,250	0	47.60	3,209	202	500	250			250	700	600	200	800	565	400	500	0	900	
May 14	1,956	1,250	0	50.07	3,206	199	500	250			250	575	500		500	565	565		535	1,100	
May 15	1,952	1,020	0	52.10	2,972	195	500	250			250	450	500		500	565	565		935	1,500	
May 16	2,014	0			2,549	192	500	250			250	325	500		500	565	565		935	1,500	
May 17	2,010	0			2,945	189	500	250			250	225	500		500	565	565		935	1,500	
May 18	2,007	0			2,942	186	500	250			250	150	500		500	565	565		935	1,500	
May 19	2,004	0			2,939	183	500	250			250	150	500		500	565	565		935	1,500	
May 20	2,001	0			2,936	180	500	250			250	500	500		500	565	565		935	1,500	
May 21	1,998	0			2,933	177	500	250			250	500	500		500	565	565		935	1,500	
May 22	1,995	0			2,930	174	500	250			250	500	500		500	565	565		935	1,500	
May 23	1,992	0			2,927	171	500	250			250	500	500		500	565	565		335	900	
May 24	1,989	0			2,924	168	500	250			250	500	500		500	565	565		35	600	
May 25	1,986	0			2,321	165	500	250			250	500	500		500	565	565			565	
May 26	1,983	0			2,018	162	500	250			250	500	500		500	565	565			565	
May 27	1,980	0			1,980	159	500	250			250	500	500		500	565	565			565	
May 28	1,977	0			1,977	156	500	250			250	500	500		500	565	565			565	
May 29	1,974	0			1,974	153	500	250			250	500	500		500	565	565			565	
May 30	1,971	0			1,971	150	500	250			250	500	500		500	565	565			565	
May 31	1,968	0			1,968	147	500	250			250	500	500		500	565	565			565	
<b>VAMP period</b>																					
Avg. (cfs):	2,353	847			3,199	254	300	250	441	81	772	700	700	163	863	647	647	163	0	913	
Suppl. Water (TAF)		52.10							27.11	5.00				10.00		39.79					

Target flow period  
 Period of desired flow stability

**APPENDIX A-1, TABLE 7**  
**VAMP Daily Operation Plan, April 20, 2004**

Target Flow Period: April 15–May 15 • Flow Target: 3,200 cfs

bold numbers: observed real-time

	San Joaquin River near Vernalis					Merced River at Cressey				Tuolumne River at LaGrange				Stanislaus River below Goodwin					Maintain Priority Flow Level M=Merced T=Tuol. S=Stan.		
	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	Cum. VAMP Suppl. Flow	VAMP Flow	SJR above Merced R. (2-day lag)	Ungaged Flow above Vernalis	Existing Flow	MelD VAMP Suppl. Flow	Exch Contr VAMP Suppl. Flow	VAMP Flow (3-day lag)	Desired FERC Pulse	Existing Flow – Adjusted FERC Pulse	VAMP Suppl. Flow	VAMP Flow (2-day lag)	Existing Flow	Existing Flow (re- shaped)	VAMP Suppl. Flow		Other Suppl. Flow	VAMP Flow (2-day lag)
	(cfs)	(cfs)	(cfs)	(TAF)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)		(cfs)	(cfs)
Apr 01	<b>2,290</b>				<b>2,310</b>	<b>495</b>	<b>1,131</b>	<b>224</b>		<b>224</b>	500	<b>1,110</b>		<b>1,110</b>	707	<b>215</b>			<b>215</b>		
Apr 02	<b>2,680</b>				<b>2,710</b>	<b>424</b>	<b>802</b>	<b>209</b>		<b>209</b>	500	<b>1,090</b>		<b>1,090</b>	707	<b>226</b>			<b>226</b>		
Apr 03	<b>2,890</b>				<b>2,910</b>	<b>390</b>	<b>826</b>	<b>205</b>		<b>205</b>	500	<b>1,100</b>		<b>1,100</b>	707	<b>225</b>			<b>225</b>		
Apr 04	<b>2,890</b>				<b>2,890</b>	<b>392</b>	<b>926</b>	<b>218</b>		<b>218</b>	500	<b>1,100</b>		<b>1,100</b>	707	<b>222</b>			<b>222</b>		
Apr 05	<b>2,849</b>				<b>2,849</b>	<b>385</b>	<b>925</b>	<b>206</b>		<b>206</b>	500	<b>980</b>		<b>980</b>	707	<b>228</b>			<b>228</b>		
Apr 06	<b>2,700</b>				<b>2,700</b>	<b>362</b>	<b>781</b>	<b>199</b>		<b>199</b>	500	<b>819</b>		<b>819</b>	707	<b>226</b>			<b>226</b>		
Apr 07	<b>2,380</b>				<b>2,380</b>	<b>335</b>	<b>569</b>	<b>194</b>		<b>194</b>	500	<b>837</b>		<b>837</b>	707	<b>226</b>			<b>226</b>		
Apr 08	<b>2,190</b>				<b>2,189</b>	<b>326</b>	<b>576</b>	<b>196</b>		<b>196</b>	500	<b>833</b>		<b>833</b>	707	<b>228</b>			<b>228</b>		
Apr 09	<b>2,120</b>				<b>2,118</b>	<b>319</b>	<b>521</b>	<b>192</b>		<b>192</b>	500	<b>823</b>		<b>823</b>	707	<b>227</b>			<b>227</b>		
Apr 10	<b>2,060</b>				<b>2,060</b>	<b>315</b>	<b>479</b>	<b>194</b>		<b>194</b>	500	<b>820</b>		<b>820</b>	707	<b>227</b>			<b>227</b>		
Apr 11	<b>2,090</b>				<b>2,090</b>	<b>289</b>	<b>525</b>	<b>212</b>		<b>212</b>	500	<b>817</b>		<b>817</b>	707	<b>232</b>			<b>232</b>		
Apr 12	<b>2,150</b>				<b>2,150</b>	<b>292</b>	<b>596</b>	<b>250</b>	<b>166</b>	<b>0</b>	<b>416</b>	500	<b>819</b>		<b>819</b>	707	<b>231</b>		<b>231</b>		
Apr 13	<b>2,080</b>	<b>0</b>			<b>2,080</b>	<b>259</b>	<b>548</b>	<b>250</b>	<b>202</b>	<b>0</b>	<b>452</b>	700	700	<b>360</b>	<b>1,060</b>	707	350	<b>57</b>	<b>0</b>	<b>407</b>	T
Apr 14	<b>2,039</b>	<b>0</b>			<b>2,039</b>	<b>278</b>	<b>485</b>	<b>250</b>	<b>191</b>	<b>0</b>	<b>441</b>	700	900	<b>480</b>	<b>1,380</b>	707	350	<b>202</b>	<b>0</b>	<b>552</b>	T
Apr 15	1,787	583	<b>0</b>	1.16	<b>2,370</b>	<b>274</b>	<b>228</b>	<b>250</b>	<b>197</b>	<b>0</b>	<b>447</b>	700	900	<b>480</b>	<b>1,380</b>	707	350	<b>205</b>	<b>0</b>	<b>555</b>	T
Apr 16	1,736	884	<b>0</b>	2.91	<b>2,620</b>	<b>255</b>	<b>-42</b>	<b>250</b>	<b>184</b>	<b>0</b>	<b>434</b>	700	900	<b>500</b>	<b>1,400</b>	707	350	<b>204</b>	<b>0</b>	<b>554</b>	T
Apr 17	1,834	876	<b>0</b>	4.65	<b>2,710</b>	<b>286</b>	<b>60</b>	<b>250</b>	<b>190</b>	<b>0</b>	<b>440</b>	700	900	<b>540</b>	<b>1,440</b>	707	350	<b>205</b>	<b>0</b>	<b>555</b>	T
Apr 18	2,029	901	<b>0</b>	6.43	<b>2,930</b>	<b>308</b>	<b>274</b>	<b>250</b>	<b>221</b>	<b>0</b>	<b>471</b>	700	900	<b>540</b>	<b>1,440</b>	707	350	<b>204</b>	<b>0</b>	<b>554</b>	T
Apr 19	2,171	929	<b>0</b>	8.28	<b>3,100</b>	<b>325</b>	<b>385</b>	<b>250</b>	<b>236</b>	<b>0</b>	<b>486</b>	700	900	<b>519</b>	<b>1,419</b>	707	350	<b>204</b>	<b>0</b>	<b>554</b>	T
Apr 20	2,208	934	<b>0</b>	10.13	3,142	283	400	250	250	0	500	700	900	500	1,400	707	350	200	0	550	T
Apr 21	2,225	944	<b>0</b>	12.00	3,169	279	400	250	250	0	500	700	900	500	1,400	707	350	300	0	650	T
Apr 22	2,183	936	<b>0</b>	13.86	3,119	276	400	250	250	0	500	700	850	300	1,150	707	600	300	0	900	T
Apr 23	2,179	1,050	<b>0</b>	15.94	3,229	272	400	250	350	0	600	700	900	<b>0</b>	<b>900</b>	707	950	200	<b>0</b>	<b>1,150</b>	T,S
Apr 24	2,376	850	<b>0</b>	17.63	3,226	269	400	250	500	0	750	700	650	<b>0</b>	<b>650</b>	707	1,150	100	<b>0</b>	<b>1,250</b>	S
Apr 25	2,772	450	<b>0</b>	18.52	3,222	265	400	250	600	0	850	700	600	<b>0</b>	<b>600</b>	707	1,150	100	<b>0</b>	<b>1,250</b>	S
Apr 26	2,719	450	<b>0</b>	19.41	3,169	262	400	250	600	0	850	700	600	<b>0</b>	<b>600</b>	707	1,150	100	<b>0</b>	<b>1,250</b>	S
Apr 27	2,665	600	<b>0</b>	20.60	3,265	258	400	250	600	0	850	700	600	<b>0</b>	<b>600</b>	707	1,150	100	<b>0</b>	<b>1,250</b>	S
Apr 28	2,662	700	<b>0</b>	21.99	3,362	255	400	250	600	0	850	700	600	<b>0</b>	<b>600</b>	707	1,150	100	<b>0</b>	<b>1,250</b>	S
Apr 29	2,658	700	<b>0</b>	23.38	3,358	251	400	250	600	0	850	700	600	<b>0</b>	<b>600</b>	707	1,150	100	<b>0</b>	<b>1,250</b>	S
Apr 30	2,655	700	<b>0</b>	24.77	3,355	248	400	250	650	0	900	700	600	<b>0</b>	<b>600</b>	707	1,150	100	<b>0</b>	<b>1,250</b>	S
May 01	2,651	700	<b>0</b>	26.16	3,351	244	400	250	800	<b>0</b>	1,050	700	600	<b>0</b>	<b>600</b>	565	1,150	50	<b>0</b>	<b>1,200</b>	S
May 02	2,648	700	<b>0</b>	27.54	3,348	241	400	250	700	250	1,200	700	600	<b>0</b>	<b>600</b>	565	1,060	<b>0</b>	<b>0</b>	<b>1,060</b>	S,M
May 03	2,644	700	<b>0</b>	28.93	3,344	237	400	250	1,050	200	1,500	700	600	<b>0</b>	<b>600</b>	565	900	<b>0</b>	<b>0</b>	<b>900</b>	M
May 04	2,551	800	<b>0</b>	30.52	3,351	234	400	250	1,050	200	1,500	700	600	<b>0</b>	<b>600</b>	565	600	<b>0</b>	<b>0</b>	<b>600</b>	M
May 05	2,387	950	<b>0</b>	32.40	3,337	230	400	250	1,050	200	1,500	700	600	<b>0</b>	<b>600</b>	565	400	200	<b>0</b>	<b>600</b>	M
May 06	2,084	1,250	<b>0</b>	34.88	3,334	227	400	250	1,050	200	1,500	700	600	<b>0</b>	<b>600</b>	565	400	200	<b>0</b>	<b>600</b>	M
May 07	1,880	1,450	<b>0</b>	37.76	3,330	223	400	250	1,050	200	1,500	700	600	<b>0</b>	<b>600</b>	565	400	200	<b>0</b>	<b>600</b>	M
May 08	1,877	1,450	<b>0</b>	40.64	3,327	220	400	250	1,050	200	1,500	700	600	<b>0</b>	<b>600</b>	565	400	200	<b>0</b>	<b>600</b>	M
May 09	1,873	1,450	<b>0</b>	43.51	3,323	216	400	250	1,050	200	1,500	700	600	<b>0</b>	<b>600</b>	565	400	200	<b>0</b>	<b>600</b>	M
May 10	1,870	1,450	<b>0</b>	46.39	3,320	213	400	250	1,050	200	1,500	700	600	<b>0</b>	<b>600</b>	565	400	200	<b>0</b>	<b>600</b>	M
May 11	1,866	1,450	<b>0</b>	49.26	3,316	209	400	250	500	500	1,250	700	600	<b>0</b>	<b>600</b>	565	400	200	<b>0</b>	<b>600</b>	M
May 12	1,863	1,450	<b>0</b>	52.14	3,313	206	400	250	300	170	720	700	600	160	760	565	400	200	<b>0</b>	<b>600</b>	M
May 13	1,859	1,450	<b>0</b>	55.02	3,309	202	400	250	150		400	700	600	160	760	565	400	410	<b>0</b>	<b>810</b>	
May 14	1,856	1,360	<b>0</b>	57.71	3,216	199	400	250		250	575	500		500	565	565		535	1,100		
May 15	1,852	1,040	<b>0</b>	59.78	2,892	195	400	250		250	450	500		500	565	565		935	1,500		
May 16	1,914	150	535		2,599	192	400	250		250	325	500		500	565	565		935	1,500		
May 17	1,910	<b>0</b>	935		2,845	189	400	250		250	225	500		500	565	565		935	1,500		
May 18	1,907	<b>0</b>	935		2,842	186	400	250		250	150	500		500	565	565		935	1,500		
May 19	1,904	<b>0</b>	935		2,839	183	400	250		250	150	500		500	565	565		935	1,500		
May 20	1,901	<b>0</b>	935		2,836	180	400	250		250	500	500		500	565	565		935	1,500		
May 21	1,898	<b>0</b>	935		2,833	177	400	250		250	500	500		500	565	565		935	1,500		
May 22	1,895	<b>0</b>	935		2,830	174	400	250		250	500	500		500	565	565		935	1,500		
May 23	1,892	<b>0</b>	935		2,827	171	400	250		250	500	500		500	565	565		335	900		
May 24	1,889	<b>0</b>	935		2,824	168	400	250		250	500	500		500	565	565		35	600		
May 25	1,886	<b>0</b>	335		2,221	165	400	250		250	500	500		500	565	565			565		
May 26	1,883	<b>0</b>	35		1,918	162	400	250		250	500	500		500	565	565			565		
May 27	1,880	<b>0</b>	<b>0</b>		1,880	159	400	250		250	500	500		500	565	565			565		
May 28	1,877	<b>0</b>	<b>0</b>		1,877	156	400	250		250	500	500		500	565	565			565		
May 29	1,874	<b>0</b>	<b>0</b>		1,874	153	400	250		250	500	500		500	565	565			565		
May 30	1,871	<b>0</b>	<b>0</b>		1,871	150	400	250		250	500	500		500	565	565			565		
May 31	1,868	<b>0</b>	<b>0</b>																		



**APPENDIX A-1, TABLE 8**  
**VAMP Daily Operation Plan, May 3, 2004**

Target Flow Period: April 15–May 15 • Flow Target: 3,200 cfs

bold numbers: observed real-time

	San Joaquin River near Vernalis							Merced River at Cressey				Tuolumne River at LaGrange				Stanislaus River below Goodwin					Maintain Priority Flow Level M=Merced T=Tuol. S=Stan.
	Existing Flow	VAMP Suppl. Flow	Other Suppl. Flow	Cum. VAMP Suppl. Flow	VAMP Flow	SJR above Merced R. (2-day lag)	Ungaged Flow above Vernalis	Existing Flow	MeID VAMP Suppl. Flow	Exch Contr VAMP Suppl. Flow	VAMP Flow (3-day lag)	Desired FERC Pulse	Existing Flow – Adjusted FERC Pulse	VAMP Suppl. Flow	VAMP Flow (2-day lag)	Existing Flow	Existing Flow (re- shaped)	VAMP Suppl. Flow	Other Suppl. Flow	VAMP Flow (2-day lag)	
	(cfs)	(cfs)	(cfs)	(TAF)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	
Apr 01	2,290				2,310	495	1,131	224			224	500	1,110		1,110	707	215			215	
Apr 02	2,680				2,710	424	802	209			209	500	1,090		1,090	707	226			226	
Apr 03	2,890				2,910	390	826	205			205	500	1,100		1,100	707	225			225	
Apr 04	2,890				2,890	392	926	218			218	500	1,100		1,100	707	222			222	
Apr 05	2,849				2,849	385	925	206			206	500	980		980	707	228			228	
Apr 06	2,700				2,700	362	781	199			199	500	819		819	707	226			226	
Apr 07	2,380				2,380	335	569	194			194	500	837		837	707	226			226	
Apr 08	2,190				2,189	326	576	196			196	500	833		833	707	228			228	
Apr 09	2,120				2,118	319	521	192			192	500	823		823	707	227			227	
Apr 10	2,060				2,060	315	479	194			194	500	820		820	707	227			227	
Apr 11	2,090				2,090	289	525	212			212	500	817		817	707	232			232	
Apr 12	2,150				2,150	292	596	250	166	0	416	500	819		819	707	231			231	
Apr 13	2,080	0			2,080	259	548	250	202	0	452	700	700	360	1,060	707	350	57	0	407	T
Apr 14	2,039	0			2,039	278	485	250	191	0	441	700	900	480	1,380	707	350	202	0	552	T
Apr 15	1,787	583	0	1.16	2,370	274	228	250	197	0	447	700	900	480	1,380	707	350	205	0	555	T
Apr 16	1,736	884	0	2.91	2,620	255	-42	250	184	0	434	700	900	500	1,400	707	350	204	0	554	T
Apr 17	1,834	876	0	4.65	2,710	286	60	250	190	0	440	700	900	540	1,440	707	350	205	0	555	T
Apr 18	2,029	901	0	6.43	2,930	308	274	250	221	0	471	700	900	540	1,440	707	350	204	0	554	T
Apr 19	2,171	929	0	8.28	3,100	325	385	250	236	0	486	700	900	519	1,419	707	350	204	0	554	T
Apr 20	2,156	934	0	10.13	3,090	350	348	250	232	0	482	700	900	529	1,429	707	350	205	0	555	T
Apr 21	2,156	944	0	12.00	3,100	341	331	250	241	0	491	700	900	540	1,440	707	350	299	0	649	T
Apr 22	2,200	970	0	13.93	3,170	336	350	250	242	0	492	700	850	410	1,260	707	600	300	0	900	T
Apr 23	2,099	1,071	0	16.05	3,170	288	258	250	346	0	596	700	900	83	983	707	950	198	0	1,148	T,S
Apr 24	2,199	951	0	17.94	3,150	238	163	250	610	0	860	700	650	58	708	707	1,150	102	0	1,252	S
Apr 25	2,717	523	0	18.97	3,240	244	329	250	669	0	919	700	600	29	629	707	1,150	100	0	1,250	S
Apr 26	2,834	506	0	19.98	3,340	274	546	250	639	0	889	700	600	38	638	707	1,150	104	0	1,254	S
Apr 27	2,581	739	0	21.44	3,320	266	337	250	596	0	846	700	600	44	644	707	1,150	102	0	1,252	S
Apr 28	2,499	811	0	23.05	3,310	259	225	250	624	0	874	700	600	31	631	707	1,150	102	0	1,252	S
Apr 29	2,495	785	0	24.61	3,280	260	229	250	637	0	887	700	600	27	627	707	1,150	101	0	1,251	S
Apr 30	2,571	729	0	26.05	3,300	252	312	250	720	0	970	700	600	27	627	707	1,150	105	0	1,255	S
May 01	2,498	752	0	27.55	3,250	256	238	250	918	0	1,168	700	600	28	628	565	1,150	46	0	1,196	S
May 02	2,481	769	0	29.07	3,250	288	229	250	875	250	1,375	700	600	27	627	565	1,160	2	0	1,062	S,M
May 03	2,556	794	0	30.65	3,350	237	300	250	1,050	200	1,500	700	600	0	600	565	900	0	0	900	M
May 04	2,498	947	0	32.52	3,445	234	300	250	1,050	200	1,500	700	600	0	600	565	600	50	0	650	M
May 05	2,287	1,125	0	34.76	3,412	230	300	250	1,050	200	1,500	700	600	0	600	565	400	250	0	650	M
May 06	1,984	1,300	0	37.33	3,284	227	300	250	1,050	200	1,500	700	600	0	600	565	400	250	0	650	M
May 07	1,780	1,500	0	40.31	3,280	223	300	250	1,050	200	1,500	700	600	0	600	565	400	250	0	650	M
May 08	1,777	1,500	0	43.29	3,277	220	300	250	1,050	200	1,500	700	600	0	600	565	400	250	0	650	M
May 09	1,773	1,500	0	46.26	3,273	216	300	250	1,050	200	1,500	700	600	0	600	565	400	250	0	650	M
May 10	1,770	1,500	0	49.24	3,270	213	300	250	1,050	200	1,500	700	600	0	600	565	400	250	0	650	M
May 11	1,766	1,500	0	52.21	3,266	209	300	250	650	500	1,400	700	600	0	600	565	400	250	0	650	M
May 12	1,763	1,500	0	55.19	3,263	206	300	250	380	170	800	700	600	0	600	565	400	400	0	800	M
May 13	1,759	1,500	0	58.16	3,259	202	300	250	150		400	700	600	0	600	565	400	650	0	1,050	
May 14	1,756	1,550	0	61.24	3,306	199	300	250			250	575	500		500	565	565		535	1,100	
May 15	1,752	1,200	0	63.62	2,952	195	300	250			250	450	500		500	565	565		935	1,500	
May 16	1,814	150	535		2,499	192	300	250			250	325	500		500	565	565		935	1,500	
May 17	1,810	0	935		2,745	189	300	250			250	225	500		500	565	565		935	1,500	
May 18	1,807	0	935		2,742	186	300	250			250	150	500		500	565	565		935	1,500	
May 19	1,804	0	935		2,739	183	300	250			250	150	500		500	565	565		935	1,500	
May 20	1,801	0	935		2,736	180	300	250			250	500	500		500	565	565		935	1,500	
May 21	1,798	0	935		2,733	177	300	250			250	500	500		500	565	565		935	1,500	
May 22	1,795	0	935		2,730	174	300	250			250	500	500		500	565	565		935	1,500	
May 23	1,792	0	935		2,727	171	300	250			250	500	500		500	565	565		335	900	
May 24	1,789	0	935		2,724	168	300	250			250	500	500		500	565	565		35	600	
May 25	1,786	0	335		2,121	165	300	250			250	500	500		500	565	565			565	
May 26	1,783	0	35		1,818	162	300	250			250	500	500		500	565	565			565	
May 27	1,780	0	0		1,780	159	300	250			250	500	500		500	565	565			565	
May 28	1,777	0	0		1,777	156	300	250			250	500	500		500	565	565			565	
May 29	1,774	0	0		1,774	153	300	250			250	500	500		500	565	565			565	
May 30	1,771	0	0		1,771	150	300	250			250	500	500		500	565	565			565	
May 31	1,768	0	0		1,768	147	300	250			250	500	500		500	565	565			565	
<b>VAMP period</b>																					
Avg. (cfs):	2,137	1,035			3,172	260	300	250	592	81	924	700	700	171	871	647	647	190	0	913	
Suppl. Water (TAF)		63.62							36.43	5.00				10.49		39.79					

Target flow period  
 Period of desired flow stability

**APPENDIX A-2, TABLE 1**

**2004 Vernalis Adaptive Management Plan (VAMP)**

**Final Accounting of Supplemental Water Contributions**

*Target Flow Period: April 15–May 15 • Flow Target: 3,200 cfs*

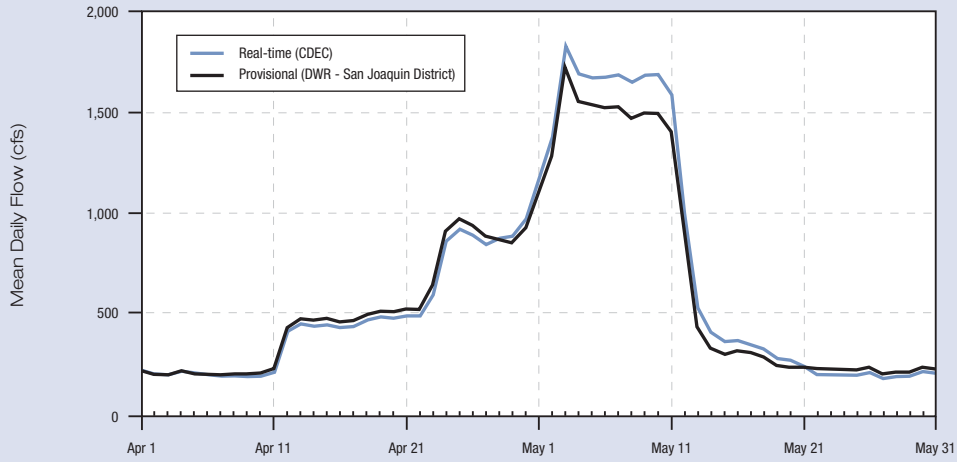
	Merced R. at Cressey (3 Day Travel Time to Vernalis)			Tuolumne R. below LaGrange Dam (2 Day Travel Time to Vernalis)			Stanislaus R. below Goodwin Dam (2 Day Travel Time to Vernalis)			Upper SJR	Vernalis Unengaged	San Joaquin River at Vernalis		
	Existing Flow	Observed Flow	VAMP Suppl. Water	Existing Flow	Observed Flow	VAMP Suppl. Water	Existing Flow	Observed Flow	VAMP Suppl. Water	Observed Flow	Observed Flow	Existing Flow	Observed Flow	VAMP Suppl. Water
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
Apr 01	217	217		1,110	1,110		226	226		531	690	2,290	2,290	
Apr 02	201	201		1,090	1,090		231	231		457	755	2,680	2,680	
Apr 03	200	200		1,100	1,100		230	230		424	785	2,890	2,890	
Apr 04	215	215		1,100	1,100		230	230		426	895	2,890	2,890	
Apr 05	205	205		980	980		233	233		423	894	2,849	2,849	
Apr 06	202	202		820	820		233	233		400	744	2,700	2,700	
Apr 07	199	199		837	837		233	233		385	529	2,380	2,380	
Apr 08	203	203		833	833		235	235		368	522	2,180	2,180	
Apr 09	202	202		823	823		233	233		358	453	2,110	2,110	
Apr 10	208	208		820	820		227	227		364	415	2,050	2,050	
Apr 11	229	229		817	817		232	232		332	453	2,070	2,070	
Apr 12	250	432	182	819	819		231	231		336	527	2,140	2,140	
Apr 13	250	473	223	700	1,060	360	350	407	57	311	461	2,050	2,050	
Apr 14	250	468	218	900	1,380	480	350	552	202	321	424	2,039	2,039	
Apr 15	250	477	227	900	1,380	480	350	555	205	304	160	1,771	2,370	599
Apr 16	250	460	210	900	1,400	500	350	554	204	289	(106)	1,715	2,620	905
Apr 17	250	467	217	900	1,440	540	350	555	205	326	3	1,807	2,710	903
Apr 18	250	497	247	900	1,440	540	350	554	204	340	210	1,999	2,930	931
Apr 19	250	510	260	900	1,419	519	350	554	204	358	319	2,145	3,100	955
Apr 20	250	509	259	900	1,429	529	350	555	205	393	289	2,129	3,090	961
Apr 21	250	520	270	900	1,440	540	350	649	299	382	272	2,130	3,100	970
Apr 22	250	523	273	900	1,260	360	600	900	300	392	283	2,176	3,170	994
Apr 23	250	643	393	900	983	83	950	1,148	198	350	190	2,072	3,170	1,098
Apr 24	250	907	657	650	708	58	1,150	1,252	102	307	78	2,220	3,150	930
Apr 25	250	967	717	600	629	29	1,150	1,250	100	310	236	2,686	3,240	554
Apr 26	250	935	685	600	638	38	1,150	1,254	104	348	430	2,787	3,340	553
Apr 27	250	883	633	600	644	44	1,150	1,252	102	359	224	2,534	3,320	786
Apr 28	250	865	615	600	631	31	1,150	1,252	102	345	103	2,451	3,310	859
Apr 29	250	853	603	600	627	27	1,150	1,251	101	348	90	2,449	3,280	831
Apr 30	250	925	675	600	627	27	1,150	1,255	105	350	189	2,534	3,300	766
May 01	250	1,110	860	600	628	28	1,150	1,196	46	365	159	2,507	3,250	743
May 02	250	1,280	1,030	600	627	27	1,060	1,062	2	424	165	2,515	3,250	735
May 03	250	1,720	1,470	600	629	29	900	900	0	380	236	2,601	3,350	749
May 04	250	1,550	1,300	600	633	33	600	673	73	400	117	2,451	3,340	889
May 05	250	1,530	1,280	600	635	35	400	651	251	400	181	2,311	3,370	1,059
May 06	250	1,520	1,270	600	632	32	400	654	254	369	(166)	1,684	3,260	1,576
May 07	250	1,520	1,270	600	632	32	400	651	251	359	(26)	1,624	3,210	1,586
May 08	250	1,470	1,220	600	633	33	400	650	250	350	(5)	1,614	3,180	1,566
May 09	250	1,490	1,240	600	636	36	400	650	250	330	118	1,727	3,280	1,553
May 10	250	1,490	1,240	600	637	37	400	652	252	330	227	1,827	3,380	1,553
May 11	250	1,400	1,150	600	639	39	400	652	252	370	234	1,814	3,320	1,506
May 12	250	874	624	600	637	37	400	799	399	470	131	1,711	3,240	1,529
May 13	250	433		600	639	39	400	1,050	650	556	59	1,679	3,210	1,531
May 14	250	332		602	602		565	1,256		447	(246)	1,474	3,060	1,586
May 15	250	304		481	481		565	1,504		375	(219)	1,587	2,900	1,313
May 16	250	318		358	358		565	1,501		313	121	2,859	2,859	
May 17	250	308		257	257		565	1,508		304	208	2,900	2,900	
May 18	250	288		196	196		565	1,505		310	343	2,819	2,819	
May 19	245	245		200	200		565	1,247		307	273	2,660	2,660	
May 20	237	237		200	200		565	943		290	161	2,480	2,480	
May 21	237	237		201	201		565	708		253	248	2,290	2,290	
May 22	230	230		202	202		508	508		222	392	2,070	2,070	
May 23	230	230		204	204		502	502		232	551	1,950	1,950	
May 24	227	227		203	203		450	450		229	701	1,870	1,870	
May 25	225	225		207	207		403	403		243	582	1,750	1,750	
May 26	233	233		206	206		403	403		285	558	1,670	1,670	
May 27	204	204		207	207		403	403		321	540	1,620	1,620	
May 28	212	212		208	208		403	403		292	501	1,620	1,620	
May 29	215	215		207	207		402	402		286	456	1,620	1,620	
May 30	233	233		209	209		400	400		293	573	1,680	1,680	
May 31	225	225		173	173		404	404		276	612	1,719	1,719	
Avg. (cfs):	250	944		702	883		647	838		362	127	2,088	3,155	
Suppl. Water (acre-feet)			42,680[a]			11,151			11,760					65,591

[a] includes San Joaquin River Exchange Contractors Water Authority supplemental water contribution of 5,000 acre-feet.

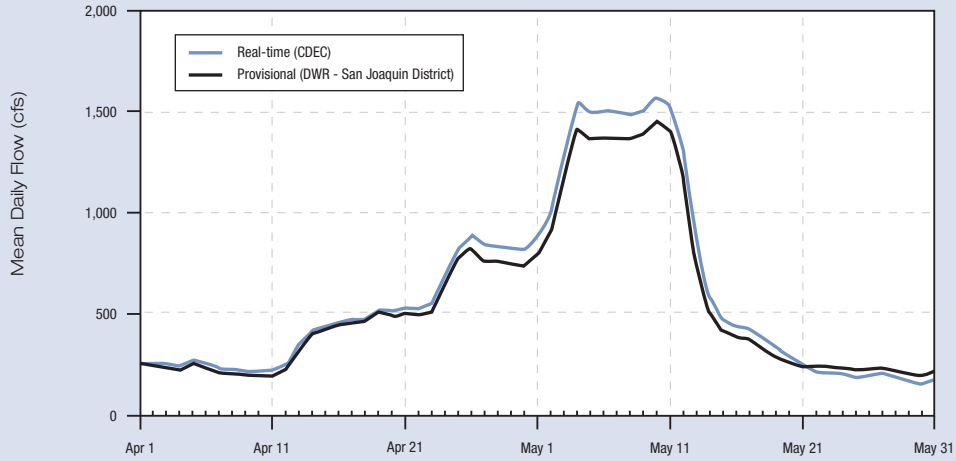
**Observed Flow Sources:** Merced River at Cressey (CA DWR B05155): California DWR, San Joaquin District (6/22/04) • Tuolumne River below LaGrange Dam near LaGrange (USGS 11289650): USGS (7/2/04) • Stanislaus River below Goodwin Dam: USBR, Goodwin Reservoir Daily Operations Report –OID/SSJID/Tri-Dams (5/20/04 and 6/18/04) • San Joaquin River near Vernalis (USGS 11303500): USGS (7/2/04)

### A-3. Comparison of "Real-time" and Provisional Flows

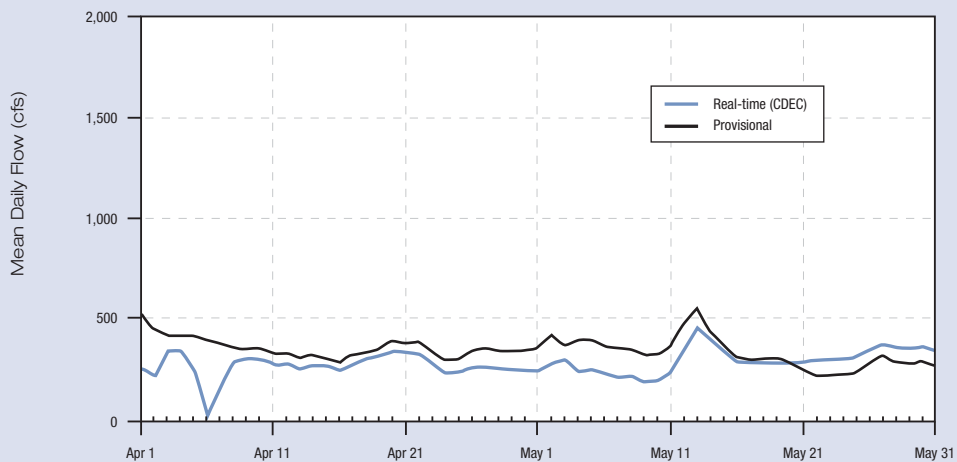
#### Merced River at Cressey



#### Merced River near Stevinson

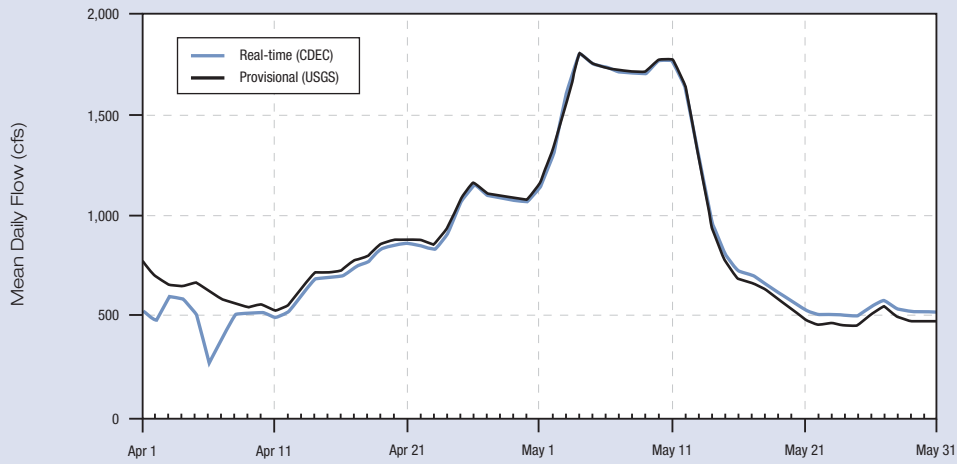


#### San Joaquin River above Merced River

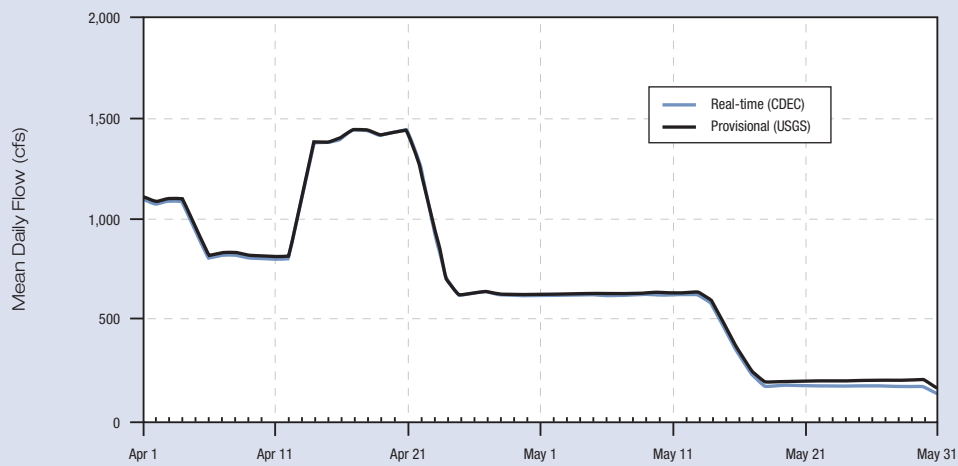


### A-3. Comparison of "Real-time" and Provisional Flows

#### San Joaquin River near Newman

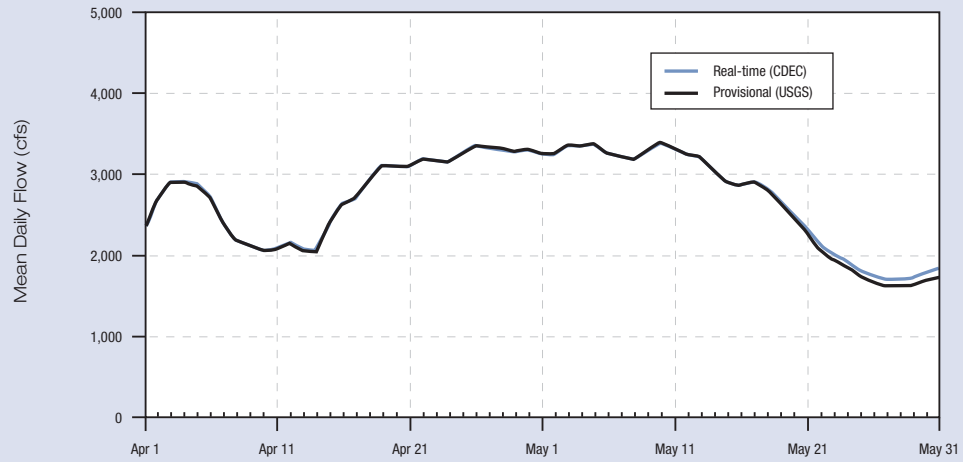


#### Tuolumne River below LaGrange Dam

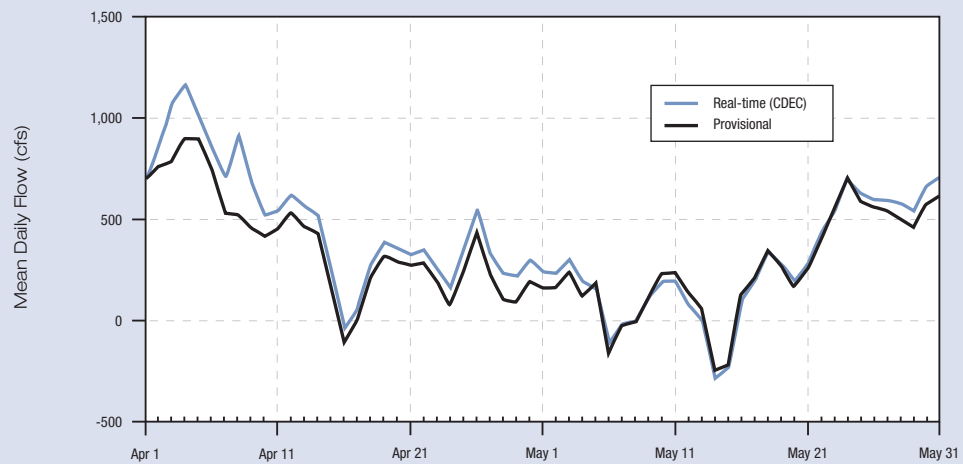


### A-3. Comparison of "Real-time" and Provisional Flows

#### San Joaquin River near Vernalis



#### Ungaged Flow in San Joaquin River near Vernalis



**A-4 MERCED IRRIGATION DISTRICT**  
**SJRA Fall 2004 Water Transfer • Daily Summary (FINAL)**

	SCHEDULED				OBSERVED				
	Base Flow	Transfer Water		Target Flow (see Note 1)	Observed Flow Merced River at Shaffer Bridge (PG&E)	Observed Flow Merced R at Cressey (DWR)	Observed Flow for Transfer (see Note 1)	Transfer Water	
		Daily Flow Rate	Cumulative Volume					Daily Flow Rate	Cumulative Volume
(cfs)	(cfs)	(acre-feet)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(acre-feet)	
(1)	(2)	(3)	(4)=(1) + (2)	(5)	(6)	(7)	(8)=(7)-(1)	(9)	
Oct 01	30	125	248	155	158	117	158	128	254
Oct 02	30	125	496	155	171	139	171	141	534
Oct 03	30	125	744	155	174	141	174	144	819
Oct 04	30	125	992	155	173	142	173	143	1,103
Oct 05	30	125	1,240	155	177	151	177	147	1,394
Oct 06	30	125	1,488	155	172	147	172	142	1,676
Oct 07	30	125	1,736	155	170	140	170	140	1,954
Oct 08	30	125	1,983	155	161	128	161	131	2,214
Oct 09	30	125	2,231	155	176	138	176	146	2,503
Oct 10	30	125	2,479	155	210	171	210	180	2,860
Oct 11	30	125	2,727	155	208	171	208	178	3,213
Oct 12	30	125	2,975	155	247	208	247	217	3,644
Oct 13	30	125	3,223	155	252	215	252	222	4,084
Oct 14	30	125	3,471	155	232	198	232	202	4,485
Oct 15	30	125	3,719	155	226	196	226	196	4,873
Oct 16	85	125	3,967	210	220	193	220	135	5,141
Oct 17	85	175	4,314	260	290	252	290	205	5,548
Oct 18	85	300	4,909	385	534	403	403	318	6,179
Oct 19	85	505	5,911	590	810	577	577	492	7,154
Oct 20	85	505	6,912	590	884	639	639	554	8,253
Oct 21	85	505	7,914	590	793	588	588	503	9,251
Oct 22	85	503	8,912	588	775	572	572	487	10,217
Oct 23	85	500	9,903	585	780	574	574	489	11,187
Oct 24	85	300	10,499	385	548	452	452	367	11,915
Oct 25	85	200	10,895	285	385	348	348	263	12,436
Oct 26	85	135	11,163	220	322	308	308	32	12,500
Oct 27	85	135	11,431	220	338	308	308		
Oct 28	85	135	11,699	220	274	264	274		
Oct 29	85	135	11,966	220	255	246	255		
Oct 30	85	135	12,234	220	255	244	255		
Oct 31	85	135	12,502	220	255	240	255		

[a] The Technical Appendix to the San Joaquin River Group Division Agreement states that "[T]he Merced River at Shaffer Bridge...will be used for flows between 0 and 300 cfs. ...[F]or the flows above 300 cfs, measurements will be provided at the gage on the Merced River located near Cressey.

**A-5 MERCED IRRIGATION DISTRICT**  
**SJRA Fall 2003 Water Transfer · Daily Summary (FINAL)**

	SCHEDULED				OBSERVED				
	Base Flow	Transfer Water		Target Flow (see Note 1)	Observed Flow Merced River at Shaffer Bridge (PG&E)	Observed Flow Merced R at Cressey (DWR)	Observed Flow for Transfer (see Note 1)	Transfer Water	
		Daily Flow Rate	Cumulative Volume					Daily Flow Rate	Cumulative Volume
(cfs)	(cfs)	(acre-feet)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(acre-feet)	
(1)	(2)	(3)	(4)=(1) + (2)	(5)	(6)	(7)	(8)=(7)-(1)	(9)	
Oct 01	30	70	139	100	109	90	109	79	157
Oct 02	30	70	278	100	118	94	118	88	331
Oct 03	30	125	526	155	144	119	144	114	557
Oct 04	30	125	774	155	157	136	157	127	809
Oct 05	30	125	1,021	155	161	141	161	131	1,069
Oct 06	30	125	1,269	155	162	137	162	132	1,331
Oct 07	30	125	1,517	155	156	131	156	126	1,581
Oct 08	30	125	1,765	155	157	134	157	127	1,833
Oct 09	30	125	2,013	155	172	149	172	142	2,114
Oct 10	30	125	2,261	155	194	174	194	164	2,440
Oct 11	30	125	2,509	155	205	188	205	175	2,787
Oct 12	30	125	2,757	155	202	190	202	172	3,128
Oct 13	30	125	3,005	155	203	179	203	173	3,471
Oct 14	30	125	3,253	155	204	182	204	174	3,816
Oct 15	30	125	3,501	155	204	188	204	174	4,161
Oct 16	85	125	3,749	210	247	236	247	162	4,483
Oct 17	85	185	4,116	270	322	301	301	216	4,911
Oct 18	85	315	4,740	400	471	389	389	304	5,514
Oct 19	85	515	5,762	600	739	554	554	469	6,444
Oct 20	85	515	6,783	600	755	586	586	501	7,438
Oct 21	85	515	7,805	600	734	579	579	494	8,418
Oct 22	85	515	8,826	600	791	615	615	530	9,469
Oct 23	85	515	9,848	600	768	610	610	525	10,510
Oct 24	85	315	10,473	400	566	495	495	410	11,324
Oct 25	85	215	10,899	300	442	412	412	327	11,972
Oct 26	85	135	11,167	220	323	332	332	247	12,462
Oct 27	85	135	11,435	220	294	304	294	19	12,500
Oct 28	85	135	11,702	220	292	297	292		
Oct 29	85	135	11,970	220	287	292	287		
Oct 30	85	135	12,238	220	252	269	252		
Oct 31	85	135	12,506	220	232	248	232		

[a] The Technical Appendix to the San Joaquin River Group Division Agreement states that "[T]he Merced River at Shaffer Bridge... will be used for flows between 0 and 300 cfs. ...[F]or the flows above 300 cfs, measurements will be provided at the gage on the Merced River located near Cressey.