

2000 Operations Plan Update for the CALFED Ops Group

Operational Objectives

- ❑ Avoid a low point problem with San Luis Reservoir.
- ❑ Meet CVP/SWP allocation commitments.
- ❑ Facilitate the VAMP by adjusting exports for 31 days starting April 15.
- ❑ Implement b(2) actions without impacts to the SWP..
- ❑ Avoid water supply impacts to SWP associated with delta smelt biological opinion objective.
- ❑ Settle the 1999 SWP impact account. Water to be released during the summer (90%) or next fall (50%) from CVP storage.

Actions planned May

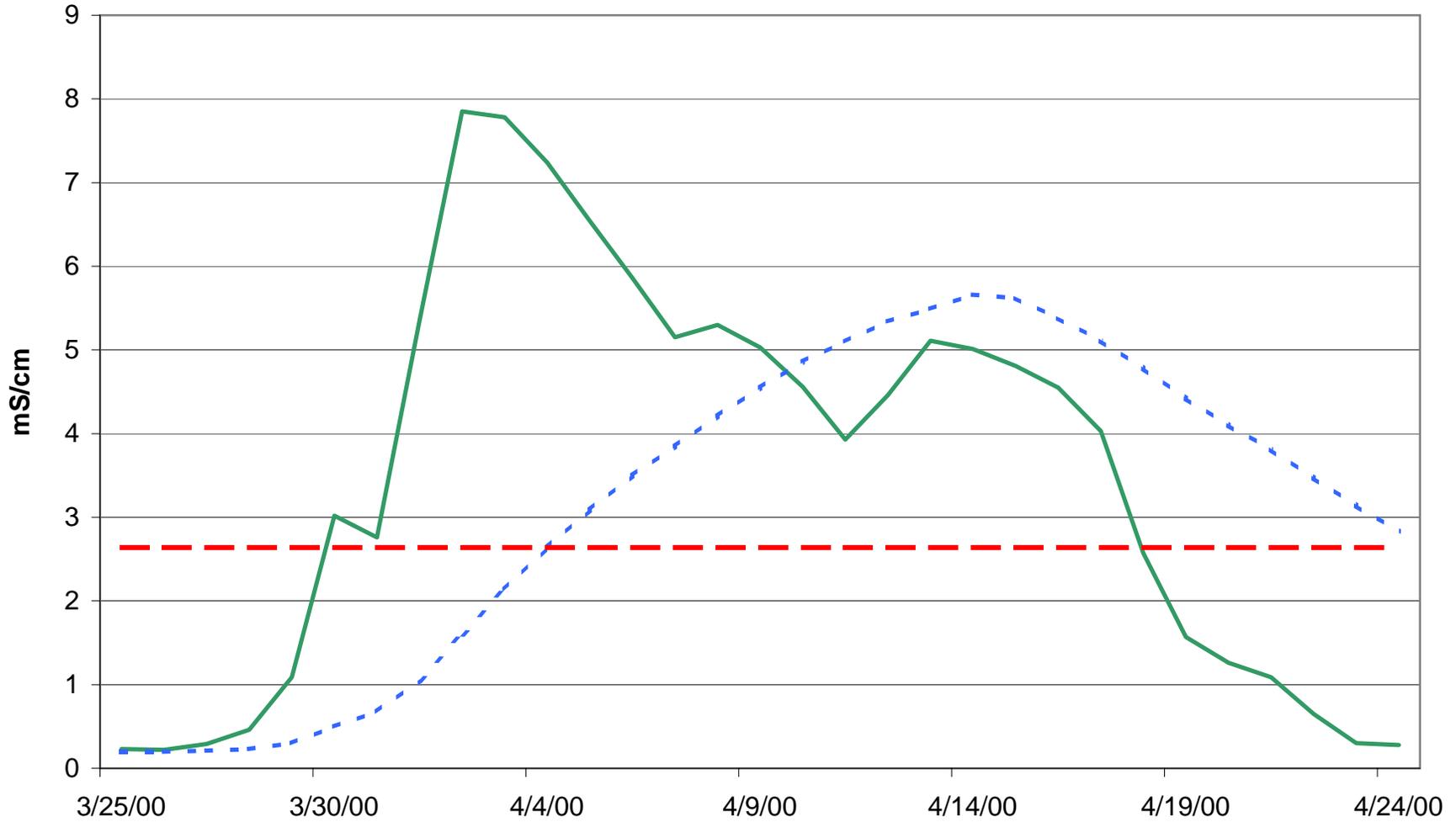
- ❑ Meet the Port Chicago X2 standard for 8-15 days.
Requires changes in reservoir releases.
This action will cost 180-340 TAF in additional reservoir releases.
- ❑ Continue to implement the VAMP.
5,700 cfs Vernalis flow.
Exports are expected to remain at combined 2,250 cfs
- ❑ Implement additional b(2) export cuts.
Propose to curtail exports for an additional 15 days after VAMP. SWP will not participate in the additional cut.

Issues/Concerns

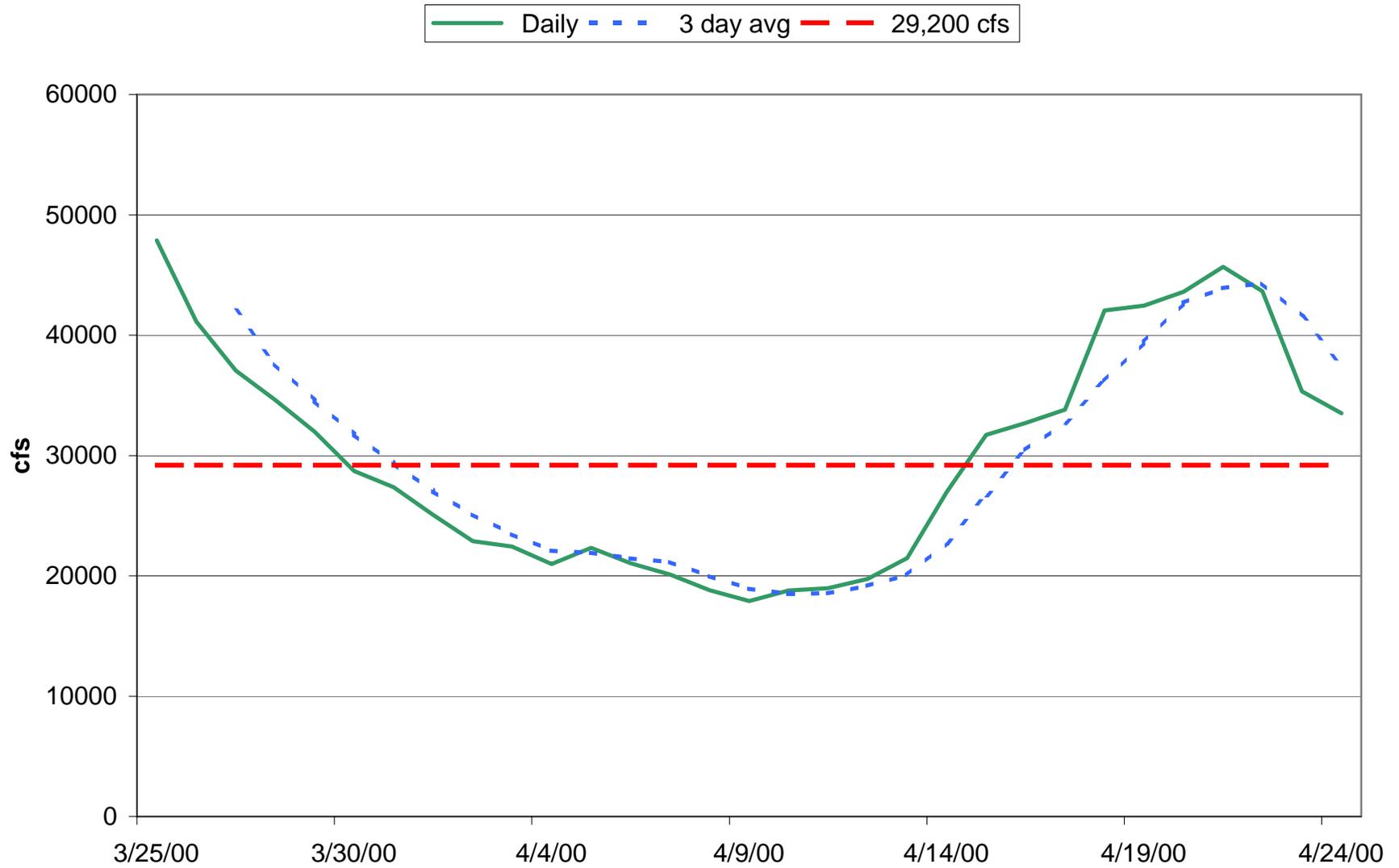
- ❑ The 500 cfs additional pumping tool is NOT included in this Plan since permits for its use have not been issued yet.
- ❑ Lower SWP allocation may result in less water available for DOI purchase.
- ❑ As conditions become wetter, less SWP capacity will be available to move CVC supplies in the summer months.
- ❑ This plan shifts makeup pumping to a time when Delta water quality will be worse than in the spring.
- ❑ This plan shifts makeup pumping to time of concern for spring-run chinook.
High exports are planned for the fall during a time when the DCC gates could be closed to protect spring-run chinook.
- ❑ This plan does not include export reductions due to delta smelt take in May.

X2 -- EC at Port Chicago

— mdEC - - - 14dm - - - 2.64 mS/cm



X2 -- Net Delta Outflow Index



Year 2000 CVP and SWP Water Supply Impact and Recovery Plan

Based on Apr 1 - 90% Exceedence Hydrology													Impact Summary
Apr 1 -14	Apr 15-30	May 1-15	May 16-31	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan-01		

SWP													
b(2) - WQCP													
SWP Export Impacts (b(2) 2000)		0	0										0
SWP delta smelt Export Impacts		-39 ¹	0 ¹										-39
SWP Export Makeup (b(2) 2000)													0
SWP delta smelt Export Makeup						14 ³	25 ³						39
Oroville Storage Changes		14 ²				-14 ³							0

SWP Export from AFRP						40	54						94
Negotiated 1999 SWP Makeup						48 ⁴	22 ⁴						70

CVP													
b(2) - WQCP													
Cumulative CVP Storage Changes (Oct - Jan)													-6
CVP Flow Impacts (Feb.-Sep)	-9	-9	42	43	9	52	65	57					279
CVP Export Impacts		-23	-23	-77	-35	-2	-2	-2					-259

WQCP - Base													
Cumulative CVP Storage Changes (Oct - Jan)													0
CVP Flow Impacts (Feb.-Sep)	148	148	-53	-54	9	5	-85	-82					35
CVP Export Impacts		-82	-33		77	-9	-107	-101					-287

CVP Water Supply Augmentation Actions													
Use of JPOD													0
Water Purchases south of the Delta					65			10					75

¹ Impacts for dropping SWP exports from 50% of Vernalis flow to the delta smelt biological opinion objective.

² Only some of the reduced SWP export can be backed into Oroville. The rest is lost because of excess Delta conditions from April 17 - ??.

³ The additional pumping in July and August accomplished without using the additional 500 CFS at Banks.

⁴ Additional SWP export supported by CVP upstream releases in July and August. The 70 TAF was negotiated between DOI and DWR for 1999 make up.

Special Note: CVP b(2) impacts include Oct '99 - Mar '00. Impacts for Oct '00 - Jan '01 are not included in this table.

Projected Delta Operations and Conditions.

Case: Includes b(2) and Delta Smelt BO Actions

Hydrology:	90% Exceedence								90% Exceedence					
	Apr-00		May-00		Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
	1-14	15-30	1-15	16-31										
E/I Ratio	30%	7%	11%	22%	31%	45%	54%	59%	57%	53%	65%	65%	35%	35%
Delta Outflow	18,470 cfs	27,420 cfs	16,360 cfs	11,850 cfs	9,754 cfs	8,000 cfs	5,008 cfs	4,000 cfs	4,000 cfs	4,504 cfs	4,759 cfs	5,295 cfs	8,456 cfs	8,331 cfs
Tracy Export	4,000 cfs	750 cfs	750 cfs	750 cfs	3,613 cfs	4,407 cfs	4,489 cfs	4,285 cfs	4,066 cfs	4,201 cfs	4,147 cfs	4,147 cfs	2,269 cfs	2,407 cfs
CVP @ Banks	0 cfs	358 cfs	358 cfs	370 cfs	195 cfs	0 cfs	0 cfs	0 cfs	0 cfs	0 cfs				
Banks Export	4,600 cfs	1,500 cfs	1,500 cfs	3,100 cfs	2,454 cfs	5,660 cfs	6,326 cfs	5,916 cfs	4,538 cfs	2,487 cfs	5,416 cfs	4,472 cfs	2,269 cfs	2,407 cfs
Total Export	8,600 cfs	2,250 cfs	2,250 cfs	3,850 cfs	6,067 cfs	10,425 cfs	11,173 cfs	10,571 cfs	8,799 cfs	6,689 cfs	9,563 cfs	8,620 cfs	4,538 cfs	4,814 cfs
Sac @ Freeport	25,200 cfs		14,600 cfs		17,800 cfs	21,700 cfs	19,300 cfs	16,500 cfs	13,300 cfs	10,800 cfs	13,000 cfs	11,600 cfs	10,600 cfs	11,300 cfs
SJ @ Vernalis	3,097 cfs	5,701 cfs	5,700 cfs	2,792 cfs	1,620 cfs	1,280 cfs	1,230 cfs	1,210 cfs	1,530 cfs	1,360 cfs	1,390 cfs	1,420 cfs	1,850 cfs	1,830 cfs
Oroville Storage	---	2,912 TAF	---	3,034 TAF	2,812 TAF	2,345 TAF	1,925 TAF	1,663 TAF	1,395 TAF	1,336 TAF	1,249 TAF	1,351 TAF	1,501 TAF	1,705 TAF
Oroville Release	6,277 cfs		2,000 cfs		4,900 cfs	7,953 cfs	7,382 cfs	5,849 cfs	4,800 cfs	2,450 cfs	3,659 cfs	1,250 cfs	1,250 cfs	1,050 cfs
Shasta Storage	---	3,903 TAF	---	3,937 TAF	3,634 TAF	3,102 TAF	2,668 TAF	2,532 TAF	2,397 TAF	2,341 TAF	2,307 TAF	2,392 TAF	2,577 TAF	2,891 TAF
Keswick Release	7,886 cfs		8,000 cfs		12,400 cfs	15,000 cfs	12,652 cfs	7,300 cfs	6,122 cfs	5,097 cfs	5,000 cfs	4,000 cfs	3,750 cfs	3,750 cfs
Folsom Storage	---	704 TAF	---	762 TAF	724 TAF	590 TAF	528 TAF	463 TAF	394 TAF	333 TAF	281 TAF	253 TAF	288 TAF	385 TAF
Nimbus Release	4,290 cfs		3,000 cfs		3,000 cfs	3,656 cfs	2,500 cfs	2,501 cfs	1,750 cfs	1,750 cfs	1,750 cfs	1,500 cfs	1,250 cfs	1,250 cfs
CVP SL Storage	---	869 TAF	---	601 TAF	390 TAF	195 TAF	38 TAF	100 TAF	191 TAF	293 TAF	501 TAF	699 TAF	716 TAF	682 TAF
SWP SL Storage	---	973 TAF	---	766 TAF	433 TAF	251 TAF	146 TAF	200 TAF	261 TAF	226 TAF	383 TAF	449 TAF	363 TAF	391 TAF

Based on CVP's ap9050b2.xls

Year 2000 CVP and SWP Water Supply Impact and Recovery Plan

Based on Apr 1 - 50% Exceedence Hydrology									90% Fall				Impact Summary
Apr 1 -14	Apr 15-30	May 1-15	May 16-31	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan-01		

SWP												
b(2) - WQCP												
SWP Export Impacts (b(2) 2000)		-12 ¹	-11 ¹									-23
SWP delta smelt Export Impacts		-41 ²	-20 ²									-61
SWP Export Makeup (b(2) 2000)												0
SWP delta smelt Export Makeup						26 ⁴	9 ⁴	26 ⁴				61
Oroville Storage Changes		14 ³	20 ³			-26 ⁴	-9 ⁴	-26 ⁴				-27

SWP Export from AFRP										41		41
Negotiated 1999 SWP Makeup									70 ⁵			70

CVP												
b(2) - WQCP												
Cumulative CVP Storage Changes (Oct - Jan)												-6
CVP Flow Impacts (Feb.-Sep)	13	13	-4	-5	44	66	64	28				248
CVP Export Impacts		-11	-11	-115	-25	-4	-4	-4				-269

WQCP - Base												
Cumulative CVP Storage Changes (Oct - Jan)												0
CVP Flow Impacts (Feb.-Sep)	79	79	55	56	-65	-93	-98	-21				-8
CVP Export Impacts		-85	-9		58	-1	-100	-98				-284

CVP Water Supply Augmentation Actions												
Use of JPOD												0
Water Purchases south of the Delta					65			10				75

¹ Impacts for dropping SWP export from delta smelt BO objective to b(2) objective. Makeup has not been identified.

² Impacts for dropping SWP exports from 50% of Vernalis flow to the delta smelt biological opinion objective.

³ Only some of the reduced SWP export can be backed into Oroville. The rest is lost because of excess Delta conditions from April 17 - ??.

⁴ The additional pumping in July, August, and September is done using capacity that had been reserved for CVC pumping. This reclaimed capacity is supported by additional releases from Oroville. This operational flexibility represents makeup for the portion of the cost of dropping exports to meet delta smelt biological that was backed into upstream storage. Oroville storage is impacted by the amount of excess water lost in April.

⁵ Additional SWP export supported by CVP upstream releases in October. The 70 TAF was negotiated between DOI and DWR for 1999 make up.

⁶ Note to B2IT: Potential means of making up State b(2) costs during pulse flow, 1) State exports greater than its share of E/I at the end of May. 2) June E/I relaxation.

Special Note: CVP b(2) impacts include Oct '99 - Mar '00. Impacts for Oct '00 - Jan '01 are not included in this table.

Projected Delta Operations and Conditions.

Case: Includes b(2) and Delta Smelt BO Actions

Hydrology:	50% Exceedence								90% Exceedence					
	Apr-00		May-00		Jun-00	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01
	1-14	15-30	1-15	16-31										
E/I Ratio	26%	7%	8%	23%	33%	46%	54%	58%	61%	57%	65%	64%	35%	35%
Delta Outflow	22,160 cfs	30,440 cfs	22,190 cfs	16,330 cfs	11,357 cfs	8,004 cfs	4,959 cfs	4,364 cfs	4,000 cfs	4,504 cfs	4,577 cfs	5,350 cfs	8,952 cfs	8,777 cfs
Tracy Export	3,546 cfs	1,125 cfs	1,125 cfs	750 cfs	3,613 cfs	4,472 cfs	4,472 cfs	4,285 cfs	4,066 cfs	4,033 cfs	4,147 cfs	4,147 cfs	2,647 cfs	2,814 cfs
CVP @ Banks	0 cfs	276 cfs	0 cfs	0 cfs	0 cfs	0 cfs	0 cfs	0 cfs	0 cfs					
Banks Export	4,600 cfs	1,125 cfs	1,125 cfs	4,700 cfs	3,865 cfs	6,680 cfs	6,408 cfs	6,680 cfs	6,196 cfs	4,134 cfs	5,318 cfs	4,619 cfs	2,143 cfs	2,277 cfs
Total Export	8,146 cfs	2,250 cfs	2,250 cfs	5,450 cfs	7,478 cfs	11,153 cfs	11,157 cfs	10,965 cfs	10,262 cfs	8,168 cfs	9,465 cfs	8,766 cfs	4,790 cfs	5,090 cfs
Sac @ Freeport	28,300 cfs		20,200 cfs		19,700 cfs	22,100 cfs	18,900 cfs	17,000 cfs	14,800 cfs	12,400 cfs	12,800 cfs	11,900 cfs	11,300 cfs	12,000 cfs
SJ @ Vernalis	3,313 cfs	5,700 cfs	5,700 cfs	3,044 cfs	2,690 cfs	1,640 cfs	1,550 cfs	1,480 cfs	1,550 cfs	1,360 cfs	1,390 cfs	1,420 cfs	1,850 cfs	1,830 cfs
Oroville Storage	---	3,143 TAF	---	3,279 TAF	3,070 TAF	2,588 TAF	2,190 TAF	1,938 TAF	1,670 TAF	1,611 TAF	1,521 TAF	1,624 TAF	1,773 TAF	1,976 TAF
Oroville Release	5,143 cfs		3,561 cfs		4,975 cfs	8,781 cfs	7,447 cfs	6,101 cfs	4,802 cfs	2,450 cfs	3,691 cfs	1,250 cfs	1,250 cfs	1,050 cfs
Shasta Storage	---	4,169 TAF	---	4,306 TAF	4,062 TAF	3,584 TAF	3,248 TAF	3,154 TAF	2,960 TAF	2,881 TAF	2,877 TAF	2,962 TAF	3,132 TAF	3,432 TAF
Keswick Release	7,700 cfs		8,100 cfs		11,532 cfs	14,077 cfs	11,357 cfs	6,896 cfs	7,068 cfs	5,471 cfs	4,500 cfs	4,000 cfs	4,000 cfs	4,000 cfs
Folsom Storage	---	755 TAF	---	856 TAF	875 TAF	759 TAF	685 TAF	629 TAF	528 TAF	396 TAF	327 TAF	284 TAF	291 TAF	357 TAF
Nimbus Release	4,500 cfs		4,500 cfs		3,500 cfs	3,500 cfs	2,852 cfs	2,500 cfs	2,281 cfs	2,946 cfs	2,000 cfs	1,750 cfs	1,750 cfs	1,750 cfs
CVP SL Storage	---	866 TAF	---	610 TAF	399 TAF	186 TAF	23 TAF	62 TAF	142 TAF	233 TAF	441 TAF	639 TAF	677 TAF	668 TAF
SWP SL Storage	---	951 TAF	---	769 TAF	500 TAF	358 TAF	238 TAF	326 TAF	489 TAF	552 TAF	702 TAF	777 TAF	685 TAF	704 TAF

Based on CVP's ap9050b2.xls