



United States Department of the Interior

BUREAU OF RECLAMATION
Central Valley Operations Office
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

IN REPLY
REFER TO:
CVO-400
WTR-4.10

APR 26 1996

Tom Howard
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95810-2000

Subject: Assumptions Regarding Central Valley Project Operations in
Operation Studies for the Implementation Plan for the Water
Quality Control Plan

Dear Mr. Howard:

On April 15, 1996 a meeting was held with you and Victoria Whitney and staff from the Department of Water Resources and Reclamation concerning the subject above. At this meeting there were a number of specific questions that were raised concerning the operation of the Central Valley Project in the two base studies that are being developed. This letter responds to those questions. The questions and responses are listed below.

The two base studies that were identified are:

- a. D-1485 without ESA
- b. Operations under the December 1994 Accord.

Questions:

1. Are there any elements of the 800,000 acre-feet in CVPIA that should be included in the base runs of the base runs?

Response: Study A should not contain any CVPIA actions. Study B should contain flow objectives below Keswick Dam on the Sacramento River, below Whiskeytown Dam on Clear Creek, and below Nimbus Dam on the American River. The objectives are found in the attached file CVPIA.FWQ. (To read and interpret this file, please refer to the instructions given in attached file CH4.WP6. If you have any questions, please call Derek Hilts at 916-979-2279.)

2. What is the criteria for the operation of New Melones Dam?

Response: We have attached to this letter the operation criteria to be used for New Melones for Study A and Study B. For Study A, use the criteria in column A of the attachment. For Study B we have included two sets of criteria (columns B and C). The criteria in column B does not contain provisions for Bay-Delta flows. The criteria in the column C does contain provisions for Bay-Delta flows. New Melones is currently being operated to meet Bay-Delta flows and the column C represents existing conditions.

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D-003464

3. What objectives should be included in each base study for the Sacramento River navigation requirement?

Response: Study A - 5000 cfs in non critical years and 4000 cfs in critical years.

Study B - Our present policy with respect to the flow requirement at the Navigation Control Point (NCP) for monthly simulation purposes calls for a variable level as a function of how severe the northern CVP deficiencies are. If no deficiencies are imposed then 5000 cfs is used. If 10-5% deficiencies on AG contractors (non-water rights) are imposed, then 4500 cfs is used. As deficiencies become more severe requirements continue to drop from 4000 cfs to 3500 cfs about 10% of the time. Water year 1977 is so extreme that for modelling purposes, 3500 cfs has been used. The lower levels are a result of ESA considerations, i.e., the desire to maintain a cold water pool in Shasta.

4. DWR in its modeling is relying on a memo from Mike Cowan (the then Chief of Water Resources Branch, MP-710) in 1989 to describe American River operations criteria. Is this still Reclamation's position?

Response: The 1989 criteria should not be used. The latest relationship, not incorporating CVPIA flow augmentation, is described below:

October, November and December minimum instream flow requirements below Nimbus Dam are based on Folsom Reservoir storage at the beginning of the water year. January and February minimum instream flow requirements below Nimbus Dam are based on Folsom Reservoir storage at the end of the preceding month. March through September minimum instream flow requirements below Nimbus Dam are based on Folsom Reservoir storage at the end of the preceding month plus the estimated inflow to Folsom Reservoir between the first of the month and the end of September.

In addition, stability criteria are applied in the fall and winter (November through March) when the previous month's release was below 3000 cfs. This criteria states the required flow in the current month cannot be less than 80 percent of the flow in the previous month. The thresholds of storage and storage plus inflow and their associated minimum flow requirements may be found in attached file, FWQ_800A.D22. (To read and interpret this file, please refer to the instructions given in attached file CH4.WP6. If you have any questions, please call Derek Hilts at the number above.)

5. What CVP demands should be used in the base runs?

Response: Attached to this letter is a summary of the 1995 level CVP demands used in CVP operation studies. This includes the full level 2 refuge demands. Please contact Ramona Swafford at 979-2274 for further information concerning these demands.

6. Should SWP wheeling for the CVP be included in the studies?

Response: Study A should include pumping for the May-June pumping restriction and other existing pumping (see below).

Study B should include existing pumping (see below) and other pumping that reflects WR 95-6 to the extent that such pumping can be defined.

7. Should Cross Valley pumping be included in the base studies?

Response: It is Reclamation's position that Cross Valley pumping should be included in both studies. This position is based on the fact that such pumping is taking place. Including it in Study B is a correct depiction of the existing conditions for operations under the December 1994 Accord.

If there are further questions, please contact John Renning at 979-2707.

Sincerely,



Lowell F. Ploss
Operations Manager

Attachments:

Table of New Melones Criteria
Summary of 1995 Level CVP Demands
Floppy disk with the following files:
1. FWQ_800A.D22
2. CH4.WP6
3. CVPIA.FWQ

cc: George Barnes
Hydrology and Operations Section
Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

PRIMARY OPERATING CRITERIA FOR NEW MELONES																											
	A 1995 Level of Development, D-1422 (500ppm) (Drought Management/Shared Resources Approach)	B 1995 Level of Development No Bay/Delta Flows, No CVPIA	C 1995 Level of Development Bay/Delta Flows, No CVPIA																								
Instream Flow ¹	98.3 TAF/yr + Dissolved Oxygen Releases ²	98-302 TAF based on 1987 Agreement+ DO Rel	98-302 TAF based on 1987 Agreement+ DO Rel																								
Criteria for Water Quality Releases	<table border="1"> <tr> <td><u>STOR +FRCINFLO</u>³</td> <td><u>Release</u></td> </tr> <tr> <td>0-1700 TAF</td> <td>70 TAF/yr</td> </tr> <tr> <td>1700-2000</td> <td>95 TAF/yr</td> </tr> <tr> <td>2000-2300</td> <td>140 TAF/yr</td> </tr> <tr> <td>2300-6000</td> <td>200 TAF/yr</td> </tr> </table>	<u>STOR +FRCINFLO</u> ³	<u>Release</u>	0-1700 TAF	70 TAF/yr	1700-2000	95 TAF/yr	2000-2300	140 TAF/yr	2300-6000	200 TAF/yr	<table border="1"> <tr> <td><u>STOR +FRCINFLO</u></td> <td><u>Release</u></td> </tr> <tr> <td>0-1700 TAF</td> <td>Relaxed 683/975 mg/l TDS</td> </tr> <tr> <td>1700-6000</td> <td>Meet 455/650 mg/l TDS</td> </tr> </table>	<u>STOR +FRCINFLO</u>	<u>Release</u>	0-1700 TAF	Relaxed 683/975 mg/l TDS	1700-6000	Meet 455/650 mg/l TDS	<table border="1"> <tr> <td><u>STOR +FRCINFLO</u></td> <td><u>Release</u></td> </tr> <tr> <td>0-1700 TAF</td> <td>Relaxed 683/975 mg/l TDS</td> </tr> <tr> <td>1700-6000</td> <td>Meet 455/650 mg/l TDS</td> </tr> </table>	<u>STOR +FRCINFLO</u>	<u>Release</u>	0-1700 TAF	Relaxed 683/975 mg/l TDS	1700-6000	Meet 455/650 mg/l TDS		
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Minimum New Melones Storage	Approximately 80 TAF	Approximately 80 TAF	Approximately 80 TAF																								
Channel Capacity Limits	1500 cfs below Goodwin Dam 8000 cfs below Goodwin Dam for Flood Releases	1500 cfs below Goodwin Dam 8000 cfs below Goodwin Dam for Flood Releases	1500 cfs below Goodwin Dam 8000 cfs below Goodwin Dam for Flood Releases																								
San Joaquin Quality above Stanislaus	Calculate using Modified Kratzer Equation w/ Westside returns based on Westside deliveries from appropriate PROSIM run	Calculate using Modified Kratzer Equation w/ Westside returns based on Westside deliveries from appropriate PROSIM run	Calculate using Modified Kratzer Equation w/ Westside returns based on Westside deliveries from appropriate PROSIM run																								

¹ Percent distribution for fish by month:

Low (98.3 -155 TAF): Oct (.04), Nov (.12), Dec (.08), Jan (.08), Feb (.07), Mar (.08), Apr (.29), May (.16), June (.02), Jul (.02), Aug (.02), Sep (.02)

High (156-302 TAF): (.05), (.058), (.06), (.06), (.054), (.06), (.289), (.175), (.048), (.050), (.050), (.048)

² June (15.2 TAF), July (16.3 TAF), Aug (17.4 TAF), Sep (14.8 TAF)

³ STOR + FRCINFLO = February end of month storage + March through September Forecasted Inflow

1995 LEVEL PROSIM DEMANDS IN ACRE-FEET ANNUALLY.
 REFUGES AT FIRM LEVEL 2 WITH CONVEYANCE LOSSES INCLUDED.
 DEMANDS ARE AT FULL CONTRACT LEVEL, UNLESS OTHERWISE NOTED.

PLEASE CONTACT RAMONA SWAFFORD, HYDROLOGIC MODELING GROUP, AT
 (916) 979-2274 WITH ANY QUESTIONS.

5 node	Contract Amount	Contract Number
Anderson Cottonwood ID	175000	3346A
Clear Creek CSD	15300	0489A
Bella Vista WD	24000	0851A
Shasta CSD	1000	0862A
Keswick CSD	500	1307A
Sac River Misc Users	2480	
Redding, City of	21000	2871A
Shasta Dam PUD	2750	W0715
Mountain Gate CSD	350	6998
Shasta County Water Agency	5000	3667A
Redding, City of/Buckeye	6140	5272A

6 node	Amount	Number
Sac River Misc Users	7053	

7 node	Amount	Number
Colusa Irrigation Company	1260	1086A
Meridian Farms WC	35000	838A
Pelger Mutual WC	8860	2073A
Reclamation District 1004	71400	0890A
Reclamation District 108	232000	0876A
Roberts Ditch	4440	935A
Sartain MWD	4712	2401A
Sutter MWC	267900	815A
Swinford Tract Irrigation Co.	450	2145A
Tisdale Irrigation & Drainage	9900	2781A
Sac River Misc Users	161325	
Sutter NWR	26111	
Gray Lodge WMA	30602	
Feather River WD export	20000	0171A
Sutter Butte MWC export	0	W0862 expired 9/30/90

Butte Slough WD export

0 W0863 expired 9/30/90

8 node

	Amount	Number
CC User - Corning WD	25300	6575
CC User - Elder Creek WD	0	0473A expired 2/95
CC User - Proberta WD	5500	7311
CC User - Thome's Creek WD	8400	5271A
Kirkwood WD	2100	W0056
Tehama WD	0	W0114 dissolved 12/94

9 node

	Amount	Number
Glenn Colusa ID	825000	0855A
Maxwell ID	17980	6078A
Princeton-Codora ID	67810	0849A
Provident ID	54730	0856A
Colusa, County of	60000	8130A
Colusa County WD	62200	0304A
Davis WD	4000	6001A
Dunnigan WD	19000	0399A
Glide WD	10500	W0040
Kanawha WD	45000	0466A
La Grande WD	5000	W0022
Orland-Artois WD	53000	8382A
Westside WD	25000	8222
Colusa Drain MWC	57637	W0693
Sacramento NWR	61867	
Delevan NWR	29267	
Colusa NWR	33333	

13 node

	Amount	Number
Sac River Misc Users	12065	
Natomas Central MWC	120200	8574A
Pleasant Grove-Verona MWC	26290	5520A

14 node

	Amount	Number
PCWA (current use)	10000	5082A
NAWR - San Juan Suburban WD	33000	0152A

NAWR - Folsom, City of	22000	5515A
NAWR - Folsom State Prison	4000	6508
San Juan Suburban WD	11200	0152A
EDID - 7312 (current use)	0	7312
EDID - 1357A (current use)	4000	1357A
Roseville (current use)	25000	3474A

15 node

	Amount	Number
Southern California Water Co.	10000	4816A
SMUD (Water Rights)	15000	5198A
SMUD (proj) (current use)	5000	
EBMUD (not currently in use)	0	5183A
Losses	5000	

16 node

	Amount	Number
Sacramento, City of (current)	50000	6497
Carmichael ID	15000	

17 node

	Amount	Number
Sac City-Sac Riv (current use)	40000	6497

28 node

	Amount	Number
City of Vallejo	16000	

29 node

	Amount	Number
Contra Costa WD (current use)	140000	3401

34 node

	Amount	Number
San Benito County WD	8250	W0130
San Benito County WD	35550	

Santa Clara Valley WD	119400	W0023
Santa Clara Valley WD	33100	
Pajaro Valley Wtr Mgmt Agency (no EIS yet, 1990 planned)	0	

35 node

	Amount	Number
San Luis Interim	0	
Westlands WD	1100000	495A
San Luis WD	60000	7773A
Panoche WD	67000	7864A
Pacheco WD	10080	4353A
Grassland WD	3500	3447A
CA, State of (Parks & Rec)	2250	4353A
Affonso/Los Banos Gravel Co.	250	W0151
Losses (SWP data handles this)	0	
Avenal, City of	3500	
Coalinga, City of	10000	
Huron, City of	3000	

37 node

	Amount	Number
CVC User - Ducor ID	400	8291
CVC User - Hope Valley	1908	
CVC User - Fresno, County of	3000	8292
CVC User - Hills Valley ID	3346	8466A
CVC User - Kern-Tulare ID	40000	8601
CVC User - Lower Tule River ID	31102	8237
CVC User - Pixley ID	31102	8238
CVC User - Rag Gulch WD	13300	8367
CVC User - Tri-Valley WD	1142	8565A
CVC User - Tulare, County of	3000	8293A
Kern NWR	11437	
Pixley NWR	0	

45 node

	Amount	Number
Plainview WD	20600	785
Tracy, City of	10000	7858A
Banta Carbona ID	25000	4305A
West Side ID	7500	W0045
Estimated Pro-rated Losses	5500	

47 node

	Amount	Number
Central California ID	216000	1144

Grassland via CCID	83823
Los Banos WMA	7501
Kesterson NWR via CCID	7647
Kesterson via Volta Wasteway	3500
Freitas - SJBAP	7053
Salt Slough - SJBAP	7859
China Island - SJBAP	8196
Volta WMA	13000
Grassland via Volta Wasteway	44118

48 node

	Amount	Number
Exchange Contractors	624000	1144
(Central California ID)	0	
(Firebaugh Canal WD)	0	
(Columbia Canal Company)	0	
(San Luis Canal Company)	0	
Sch. II W.R.. - Fresno Slough	866	4019A
Sch. II W.R.. - James ID	9700	0700A
Sch. II W.R.. - Traction Ranch	1332	7859A
Sch. II W.R.. - Tranquillity	20200	0701A
Sch. II W.R.. - Hughes, Melvin	93	3537A
Sch. II W.R.. - R.D. 1606	342	3802A
Sch. II W.R.. - Dudley	2280	4448A
Grassland WD	19118	
Los Banos WMA	7952	
San Luis NWR	25333	
Mendota WMA	27594	
West Gallo - SJBAP	14413	
East Gallo - SJBAP	0	

50 node

	Amount	Number
Sac River Misc Users	66067	
West Sacramento, City of	23600	W0187

51 node

	Amount	Number
Davis WD	5400	1458
Del Puerto WD	12060	922
Hospital WD	34105	923
Kern Canon WD	7700	924
Salado WD	9130	925
Sunflower WD	16625	1804
West Stanislaus WD	50000	1072
Mustang WD	14680	8103
Orestimba WD	15860	8091
Patterson WD (Water Rights)	6000	3598A
Patterson WD	16500	3598A
Foothill WD	10840	4323
Estimated Pro-rated Losses	10100	

52 node

	Amount	Number
Quinto WD	8620	8899
Romero WD	5190	7758
Centinella WD	2500	W0055
Estimated Pro-rated Losses	2900	

53 node

	Amount	Number
Panoche WD	27000	7864A
San Luis WD	65000	7773A
Broadview WD	27000	8092
Laguna WD	800	W0266
Eagle Field WD	4550	7754
Mercy Springs WD	13300	3365A
Oro Loma WD	4600	7823
Widren WD	2990	8018

54 node

	Amount	Number
Westlands WD (incl. Barcellos)	50000	495A
Fresno Slough WD	4000	4019A
James ID	35300	700A
Traction Ranch/F&G	2080	7859A
Tranquillity ID	13800	701A
Hughes, Melvin	70	3537A
R.D. 1606	228	3802A

55 node

	Amount	Number
Losses	101500	