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et al

State of California
State Water Resources Control Board
DIVISION OF WATER RIGHTS
P.O. Box 2000, Sacramento, CA 95812-2000
Info: (916) 341-5300, FAX: (916) 341-5400, Web:http://www.waterrights.ca.gov

PETITION FOR MODIFICATION OF WATER-RIGHT PERMITS

(Cal. Code Regs., title 23, §791(e))

Application Nos. 5632, 15204 & 15574 Permit Nos. 15026, 15027 & 15030

Present Holder and User of Water-Right Permits

Yuba County Water Agency	Curt Aikens		(530) 741-6278
Person or Company Name	Contact Person		Telephone No.
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Address	City	State	Zip Code

Authorized Agents

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2007 APR 27 PM 12:
STATE WATER RESOURCES CONTROL BOARD

Petition For Modification Of Water-Right Permits

The Yuba County Water Agency ("Agency") hereby petitions the State Water Resources Control Board ("State Water Board") under the provisions of California Code of Regulations, title 23, section 791(e) for an order modifying the water-right permits listed above by making the following changes to the State Water Board's Revised Water Right Decision 1644 ("RD-1644"):

1. The changes to paragraph 1 on pages 173-176 of RD-1644 that are shown in the attached Exhibit 7 (in "track changes") and Exhibit 8 (a "clean" draft with these changes incorporated);

2. The deletion of paragraphs 2, 3 and 10 on pages 176-179 and 181-183 of RD-1644; and

3. The changes to Appendix 1 of RD-1644 that are shown in the attached Exhibit 9.

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The Agency also requests that the State Water Board's order approving these changes find that implementing these changes and the Yuba Accord Fisheries Agreement described below together will provide a level of protection for fisheries resources in the Lower Yuba River during the term of the Yuba Accord Fisheries Agreement that is equivalent to or better than that which RD-1644 would provide.

These changes in Yuba's water-right permits are requested to implement the proposed Lower Yuba River Accord ("Yuba Accord"), which consists of: (a) the Proposed Lower Yuba River Fisheries Agreement ("Yuba Accord Fisheries Agreement") among the Agency, the California Department of Fish and Game, the South Yuba River Citizens League, Friends of the River, Trout Unlimited and The Bay Institute, which the Agency will implement long-term instream flows in the lower Yuba River and other provisions; (b) the proposed Yuba Accord Conjunctive Use Agreements, under which the Agency and the Agency's Member Units will implement programs to conjunctively use available surface water and groundwater supplies to ensure that local water supplies are not reduced to implement the Yuba Accord; (c) the proposed Yuba Accord Water Purchase Agreement among the Agency, the California Department of Water Resources ("DWR") and the United States Department of the Interior, Bureau of Reclamation ("Reclamation"), under which the Agency will transfer water, including water made available by the instream-flow schedules in the Yuba Accord Fisheries Agreement, on a long-term basis to DWR and Reclamation, and DWR and Reclamation will make payments to the Agency that the Agency will use to make payments to the River Management Fund under the Yuba Accord Fisheries Agreement, to Member Units under the Conjunctive Use Agreements, and to fund flood-control and water-supply projects in Yuba County; and (d) a modification of the 1966 Pacific Gas & Electric Company/Agency Power Purchase Contract so that the Agency can implement the Yuba Accord Fisheries Agreement, the Yuba Accord Conjunctive Use Agreements and the Yuba Accord Water Purchase Agreement.

Implementation of the proposed Yuba Accord will require approval of this petition for modification of water-right permits and the petition for long-term transfer that the Agency is filing concurrently with this petition. Under the Yuba Accord Fisheries Agreement, the Agency will be contractually obligated to operate the Yuba River Project to provide the minimum instream flows in the Lower Yuba River that are specified in Exhibits 1-5 to that agreement, copies of which are attached to this petition. Exhibit 6 to that agreement, a copy of which is attached to this petition, lists the predicted frequencies of occurance of these instream-flow schedules. These minimum instream flows will provide a level of protection of fish, wildlife and other instream beneficial uses that will be equivalent to or better than the level of protection that would be provided by the long-term instream-flow requirements in RD-1644. The State Water Board therefore can grant this petition for modification of water-right permits without unreasonably affecting fish, wildlife or other instream beneficial uses.

The Agency is the lead agency under the California Environmental Quality Act ("CEQA"), and Reclamation is the lead agency under the National Environmental Policy Act ("NEPA") for the proposed Yuba Accord. The Agency and Reclamation are preparing an Environmental Impact Report/Environmental Impact Statement ("EIR/EIS") for the proposed Yuba Accord. When this draft EIR/EIS is prepared, the Agency will provide a copy of it to the State Water Board, for it to review and comment on as a CEQA responsible agency.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: April 27, 2007, at Sacramento California.

By: _____

Alan B. Lilly, Authorized Agent for the Yuba County Water Agency

Exhibit 1. Instream Flow Requirements.

Marysville Gage (cfs)

Schedule	OCT		NOV	DEC	JAN	FEB	MAR	APR		MAY		JUN		JUL	AUG	SEP	Total Annual Volume (AF)
	1-15	16-31	1-30	1-31	1-31	1-29	1-31	1-15	16-30	1-15	16-31	1-15	16-30	1-31	1-31	1-30	
1	500	500	500	500	500	500	700	1000	1000	2000	2000	1500	1500	700	600	500	574200
2	500	500	500	500	500	500	700	700	800	1000	1000	800	500	500	500	500	429066
3	500	500	500	500	500	500	500	700	700	900	900	500	500	500	500	500	398722
4	400	400	500	500	500	500	500	600	900	900	800	400	400	400	400	400	361944
5	400	400	500	500	500	500	500	500	600	600	400	400	400	400	400	400	334818
6	350	350	350	350	350	350	350	350	500	500	400	300	150	150	150	350	232155

* Indicated flows represent average volumes for the specified time period. Actual flows may vary from the indicated flows according to established criteria.

* Indicated Schedule 6 flows do not include an additional 30 TAF available from groundwater substitution to be allocated according to established criteria.

Smartville Gage (cfs)

Schedule	OCT		NOV	DEC	JAN	FEB	MAR	APR		MAY		JUN		JUL	AUG	SEP	Total Annual Volume (AF)
	1-15	16-31	1-30	1-31	1-31	1-29	1-31	1-15	16-30	1-15	16-31	1-15	16-30	1-31	1-31	1-30	
A	700	700	700	700	700	700	700	700	-	-	-	-	-	-	-	700	-
B	600	600	600	550	550	550	550	600	-	-	-	-	-	-	-	500	-

* Schedule A used with Schedules 1, 2, 3 and 4 at Marysville.

* Schedule B used with Schedules 5 and 6 at Marysville.

Exhibit 2

FLOW SCHEDULE YEAR TYPES
BASED ON THE NORTH YUBA INDEX
FOR ESTABLISHING REQUIRED FLOWS IN THE LOWER YUBA RIVER FISHERIES AGREEMENT

The water year hydrologic classification for the Yuba River to determine the flow requirements of Yuba County Water Agency's water right permits shall be based on the North Yuba Index. Determinations of a year's flow schedule year type shall be made in February, March, April, and May and for any subsequent updates.

Flow Schedule Year Type	North Yuba Index Thousand Acre-Feet (TAF)
Schedule 1	Equal to or greater than 1400
Schedule 2	Equal to or greater than 1040 and less than 1400
Schedule 3	Equal to or greater than 920 and less than 1040
Schedule 4	Equal to or greater than 820 and less than 920
Schedule 5	Equal to or greater than 693 and less than 820
Schedule 6	Equal to or greater than 500 and less than 693
Conference Year	Less than 500

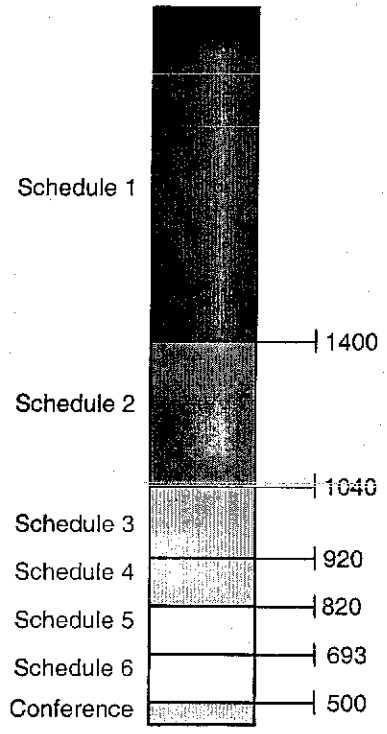

Exhibit 3. Dry Year Storage Adjustments To Instream-Flow Requirements

- In some dry years with Schedule 5 instream-flow requirements, the September 30 New Bullards Bar Reservoir storage may be very low.
- To ensure sufficient carryover storage in the event of a subsequent very dry year, a dry-year storage adjustment will be made.
- The dry-year storage adjustment will be made as follows:
  - If the September 30 New Bullards Bar Reservoir storage is less than 400,000 acre-feet, then the Marysville Gage instream-flow requirement will be 400 cfs from October 1 until the next February Bulletin 120 forecasts are available.
  - If the September 30 New Bullards Bar Reservoir storage is less than 450,000 acre-feet but greater than or equal to 400,000 acre-feet, then, the River Management Team may decide to adjust the Marysville Gage instream-flow requirement to 400 cfs from October 1 until the next February Bulletin 120 forecasts are available.
  - When the next February Bulletin 120 forecasts are available, the instream-flow requirements will be based on those forecasts.

EXHIBIT 4

DEFINITION OF THE
NORTH YUBA INDEX

The North Yuba Index is an indicator of the amount of water available in the North Yuba River at New Bullards Bar Reservoir that can be utilized to achieve flows on the Lower Yuba River through operations of New Bullards Bar Reservoir. The index is comprised of two components: (1) active storage in New Bullards Bar Reservoir at the commencement of the current water year and; (2) total inflow to New Bullards Bar Reservoir for the current water year, including diversions from the Middle Yuba River and Oregon Creek to New Bullards Bar Reservoir. The following is the definition of the index and the procedure for determining the index for each water year.

$$\text{North Yuba Index} = Sa^{NBB} + I^{NBB}$$

Where:

Sa^{NBB} = New Bullards Bar Reservoir Active Storage

The New Bullards Bar Reservoir Active Storage for determining the current year North Yuba Index equals the actual recorded amount of water in storage in New Bullards Bar Reservoir on September 30th of the previous water year minus the Federal Energy Regulatory Commission Project License minimum pool amount of 234,000 acre-ft.

and:

I^{NBB} = Forecasted Total Annual Inflow To New Bullards Bar Reservoir

The Forecasted Total Annual Inflow To New Bullards Bar Reservoir shall be based on actual inflow to date to New Bullards Bar Reservoir, including the diversions from the Middle Yuba River and Oregon Creek plus forecasted inflow for the remainder of the water year, where such forecast is based on the Department of Water Resources 50%-exceedance forecast of unimpaired flow contained in Bulletin-120 at the beginning of each month from February until May or June, with periodic updates. The procedure for determining the Forecasted Total Annual Inflow To New Bullards Bar Reservoir is described in Exhibit 5, which is entitled "*Procedure for Calculating the Forecasted Total Annual Inflow Into New Bullards Bar Reservoir*".

Determination of the North Yuba Index for a water year shall be made based on 50%-exceedance estimates of unimpaired runoff as published in California Department of Water Resources Bulletin 120 beginning in February and updated in March, April and May, and any subsequent updates. The year type for the preceding water year shall remain in effect until the initial forecast of unimpaired runoff for the current year is available.

Exhibit 5
Procedure for Calculating the Forecasted Total Annual Inflow Into New Bullards Bar Reservoir To Calculate North Yuba Index

The forecasted total inflow into New Bullards Bar Reservoir shall be calculated starting in February and updated periodically, but no less than monthly, until May. If a June updated Bulletin 120 forecast or any post May 1 update is published by the Department of Water Resources, then an updated forecast of total inflow to New Bullards Bar Reservoir shall be calculated as described below.

The forecasted total inflow into New Bullards Bar Reservoir is based on two main components: (1) the actual measured inflow into New Bullards Bar Reservoir to date; plus (2) the Bulletin 120 based calculation of forecasted inflow for the remainder of the water year. The following formula shall be used to calculate the forecasted total inflow to New Bullards Bar Reservoir (NBBR):

$$I^{NBB}\ (TAF) = \text{Total Actual Inflow to NBBR from October 1 to the end of Month}^{i-1} + \text{Forecasted Inflow from the beginning of Month}^{i} \text{ to September 30}$$

(Month^{i-1} is the previous month and Month^{i} is the current month)

Where:

Total actual inflow to NBBR is the calculated inflow based on a daily summation of inflow for the month as follows:

Total Actual Inflow to NBBR (TAF) = Monthly change in stored water (TAF) + Monthly outflow (TAF)

and where:

The forecasted inflow from the beginning of Month^{i} to September 30 is calculated using statistically derived linear coefficients applied to the measured inflow into New Bullards Bar reservoir and the Bulletin 120 published 50%-exceedance forecasts of unimpaired flow of the Yuba River at Goodyears Bar and at Smartville, and for the time periods identified in the following table:

Table 1. Coefficients For the Calculation of Forecasted New Bullards Bar Inflow (AF)

Forecast Month	Forecasted For:	Constant (C)	Total Actual Inflow to NBBR (C1)	Bulletin 120 Forecasted Smartville (C2)	Bulletin 120 Forecasted Goodyear's Bar (C3)
February	February	-2,146	0.01424	0.52533	
	March	-3,221	0.02458	0.54787	
	April-July	-30,416	0.01413	0.62473	-0.24081
	August-September	-	0.01593	0.64037	
March	March	-23,495	0.00596	0.55386	
	April-July	-31,134	0.01237	0.62162	-0.23266
	August-September	-	0.01473	0.59396	
April	April-July	-30,665	0.00547	0.61332	-0.19623
	August-September	-	0.01409	0.53241	
May	April-July	-31,652	0.01033	0.61645	-0.22353
	August-September	-	0.01298	0.50071	

For all subsequent forecast updates the May coefficients shall be used, with the forecasted Goodyears Bar runoff equaling 0.273 times the current forecasted Yuba River unimpaired flow at Smartville.

The following procedure shall be used to calculate the Forecasted New Bullards Bar Inflow:

The general formula for Forecasted New Bullards Bar Inflow is:

Forecasted NBB Inflow[i] = February NBB Inflow + March Inflow + April-July Inflow + August-September Inflow

Formula terms are only applicable as shown in Table 1. As an example, the March forecast does not include a term for forecasted February NBB Inflow. The following formulas shall be used to calculate the terms of the formula above using the corresponding coefficients from Table 1 *(Note terms are calculated in AF and the result is converted to TAF for use in the calculation of the Forecasted Total Inflow to New Bullards Bar (I^{NBB} (TAF))*:

February NBB Inflow = C + C1 x Total Actual Inflow to NBB + C2 x Forecasted Smartville$^{(February)}$

March NBB Inflow = C + C1 x Total Actual Inflow to NBB + C2 x Forecasted Smartville$^{(March)}$

April – July Inflow = C + C1 x Total Actual Inflow to NBB + C2 x Forecasted Smartville$^{(April - July)}$ + C3 x Forecasted Goodyears Bar$^{(April - July)}$

August - September Inflow = C1 x Total Actual Inflow to NBB + C2 x Forecasted Smartville$^{(August - September)}$

("Forecasted Smartville" is the DWR forecast for "Yuba River at Smartville Plus Deer Creek")

The May calculation of Forecasted NBB Inflow and subsequent updated calculations shall be reduced by the actual NBB inflow between April 1 and the calculation date.

Example calculation of the North Yuba Index for February 1, 2003:

Excerpt from February 2003 DWR Bulletin -120:

FEBRUARY 1, 2003 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet					
	HISTORICAL			FORECAST		
	50 Yr Avg	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg	80 % Probability Range
Yuba River						
North Yuba below Goodyears Bar	286	647	51	240	84%	
Yuba River at Smartville Plus Deer Creek	1,044	2,424	200	900	86%	510-1,560

FEBRUARY 1, 2003 FORECASTS (CONT'D)
WATER YEAR UNIMPAIRED RUNOFF

Unimpaired Runoff in 1,000 Acre-Feet													
HISTORICAL			DISTRIBUTION								FORECAST		
50 Yr Avg	Max of Record	Min of Record	Oct Thru Jan*	Feb	Mar	Apr	May	Jun	Jul	Aug & Sep	Water Year Forecasts	Pct of Avg	80% Probability Range
564	1,056	102											
2,459	4,926	369	675	255	300	360	380	130	30	30	2,160	88%	1,510-3260

*Unimpaired runoff in prior months based on measured flows

From the published Bulletin-120 information, and from historical gaged date for New Bullards Bar Reservoir, the North Yuba Index can be calculated as follows:

1) The end-of-September 2002 New Bullards Bar Reservoir Storage (from USGS gage number 11413515) is 532,088 acre-feet.

2) From end-of-October, November, December, and January New Bullards Bar storage figures and monthly reservoir releases (from USGS gages 11413510 and 11413520), the total inflow to New Bullards Bar between October 1, 2002 and January 31, 2003 is 387,302 acre-feet.

3) Using the B-120 information and the inflow to date, the forecasted February inflow is calculated as follows:

   Inflow = C + C1*(Oct-Jan Inflow) + C2*(B120 Forecasted Flow at Smartville for February)

   Forecasted February Inflow = -2,146 + 0.01424 (387,302) + 0.52533 (255,000) = 137,328 acre-feet

4) The forecasted March inflow is calculated as follows:

   Inflow = C + C1*(Oct-Jan inflow) + C2*(B120 Forecasted Flow at Smartville for March)

   Forecasted March Inflow = -3,221 + 0.02458 * (387,302) + 0.54787 * 300,000 = 170,660 acre-feet

5) The forecasted April-July inflow is calculated as follows:

   Inflow = C + C1*(Oct-Jan Inflow) + C2*(B120 Forecasted Flow at Smartville for April-July) + C3*(Forecasted Flow at Goodyear's Bar for April-July)

   Forecasted April-July Inflow = -30,416 + 0.01413 * (387,302) + 0.62473 * (900,000) + -0.24081 * (240,000) = 479,519 acre-feet

6) The August and September inflows are calculated as follows:

   Inflow = C1*(Oct-Jan Inflow) + C2*(Forecasted flow at Smartville for August and September)

   Forecasted August and September Inflow = 0.01593 * (387,302) + 0.64037 * (30,000) = 25,381 acre-feet

7) The North Yuba Index for 2003, as calculated for February 1, 2003, is:

Active NBB Storage + Actual Inflow (Oct – Jan) +forecasted Feb Inflow + forecasted Mar Inflow + forecasted Apr-Jul Inflow + forecasted Aug-Sept Inflow =

(532,088-234,000) + 387,302 + 137,328 + 170,660 + 479,519 + 25,381 = 1,498,278 acre-feet = **Index Number of 1498 which is a Schedule 1 year**

Example calculation of the North Yuba Index for May 1, 1999:

Excerpt from May 1999 DWR Bulletin -120:

May 1, 1999 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet					
	HISTORICAL			FORECAST		
	50 Yr Avg	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg	80 % Probability Range
Yuba River						
North Yuba below Goodyears Bar	286	647	51	330	115%	
Yuba River at Smartville Plus Deer Creek	1,029	2,424	200	1,200	117%	1,090-1,360

May 1, 1999 FORECASTS (CONT'D)
WATER YEAR UNIMPAIRED RUNOFF

Unimpaired Runoff in 1,000 Acre-Feet													
HISTORICAL			DISTRIBUTION								FORECAST		
50 Yr Avg	Max of Record	Min of Record	Oct Thru Jan*	Feb *	Mar *	Apr *	May	Jun	Jul	Aug & Sep	Water Year Forecasts	Pct of Avg	80% Probability Range
564	1,056	102											
2,337	4,926	369	720	520	350	305	510	310	75	55	2,845	122%	2,720-3,030

*Unimpaired runoff in prior months based on measured flows

From this information and historic information, the North Yuba Index can be calculated as follows:

1) The end-of-September 1998 New Bullards Bar Reservoir Storage (from USGS gage number 11413515) is 708,904 acre-feet.

2) From end-of-October, November, December, January, February, March and April New Bullards Bar storage and monthly reservoir releases (from USGS gages 11413510 and 11413520), the total inflow to New Bullards Bar between October 1, 1998 and April 30 1999 is 1,098,591 acre-feet.

3) Using the B-120 information and the inflow to date the forecasted April - July inflow is calculated as follows:

Inflow = C + C1*(Oct-April Inflow) + C2*(B120 Forecasted Flow at Smartville for April-July) + C3*(Forecasted Flow at Goodyear's Bar for April-July)

Forecasted April-July Inflow = -31,652 + 0.01033 * (1,098,591) + 0.61645 * (1,200,000) + -0.22353 * (55,000) = 707,142 acre-feet.

4) The August and September inflows are calculated as follows:

Inflow = C1*(Oct-April Inflow) + C2*(Forecasted flow at Smartville for August and September)

Forecasted August and September Inflow = 0.01298 * (1,098,591) + 0.50071 * (55,000) = 41,799 acre-feet

5) The North Yuba Index for May 1, 1999, is calculated as follows:

Active NBB Storage + Actual Inflow (Oct – April) + forecasted Apr-Jul Inflow + forecasted Aug-Sept Inflow – Actual April Inflow =

(708,904-234,000) + 1,098,591 + 707,142 + 41,799 – 182,647 = 2,139,789 acre-feet = **Index Number of 2140 which is a Schedule 1 year**

Exhibit 6. Predicted Occurrences of Flow Schedules

Schedule	North Yuba Index (TAF)	Percent Occurrence	Cumulative
1	≧1,400	56%	56%
2	1,040 to 1,400	22%	78%
3	920 to 1,040	7%	85%
4	820 to 920	5%	90%
5	693 to 820	5%	95%
6	500 to 693	4%	99%
Conference	<500	1%	100%

Exhibit 7. Proposed Changes To RD-1644, Pages 173-176, Paragraph 1 of Order to YCWA (Track Changes)

Yuba County Water Agency

Permits 15026, 15027, and 15030 of Yuba County Water Agency are amended to include the following terms:

1. For the protection of fish and other public trust resources in the lower Yuba River, permittee shall release or bypass sufficient water to maintain the following instream flows in the lower Yuba River. The minimum flow requirements shall be maintained as measured by a 5-day running average of average daily streamflows with instantaneous flows never less than 90 percent of the specified flow requirements.

    a. Effective immediately upon adoption of this order, ~~Beginning April 21 of 2006,~~ streamflow shall be maintained at or above the flows specified in the following table as measured at the USGS gaging installations at ~~Marysville and Smartville~~:

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[Replace with table on page 4]

~~Long-Term Instream Flow Requirements~~

~~Periods~~	~~Wet, Above Normal & Below Normal Years (cfs)~~		~~Dry Years (cfs)~~		~~Critical Years (cfs)~~		~~Extreme Critical Years* (cfs)~~	
	~~Smartville Gage~~	~~Marysville Gage~~	~~Smartville Gage~~	~~Marysville Gage~~	~~Smartville Gage~~	~~Marysville Gage~~	~~Smartville Gage~~	~~Marysville Gage~~
~~Sept. 15 - Oct 14~~	~~700~~	~~250~~	~~500~~	~~250~~	~~400~~	~~250~~	~~400~~	~~250~~
~~Oct 15 - Apr 20~~	~~700~~	~~500~~	~~600~~	~~400~~	~~600~~	~~400~~	~~600~~	~~400~~
~~Apr 21 - Apr 30~~	~~–~~	~~1,000~~	~~–~~	~~1,000~~	~~–~~	~~1,000~~	~~–~~	~~500~~
~~May 1 - May 31~~	~~–~~	~~1,500~~	~~–~~	~~1,500~~	~~–~~	~~1,100~~	~~–~~	~~500~~
~~Jun 1~~	~~–~~	~~1,050~~	~~–~~	~~1,050~~	~~–~~	~~800~~	~~–~~	~~500~~
~~Jun 2~~	~~–~~	~~800~~	~~–~~	~~800~~	~~–~~	~~800~~	~~–~~	~~500~~
~~Jun 3 - Jun 30~~	~~–~~	~~800~~	~~–~~	~~800~~	~~–~~	~~800~~	~~–~~	~~500~~
~~Jul 1~~	~~–~~	~~560~~	~~–~~	~~560~~	~~–~~	~~560~~	~~–~~	~~500~~
~~Jul 2~~	~~–~~	~~390~~	~~–~~	~~390~~	~~–~~	~~390~~	~~–~~	~~390~~
~~Jul 3~~	~~–~~	~~280~~	~~–~~	~~280~~	~~–~~	~~280~~	~~–~~	~~280~~
~~Jul 4 - Sept. 14~~	~~–~~	~~250~~	~~–~~	~~250~~	~~–~~	~~250~~	~~–~~	~~250~~

~~*"Extreme Critical" year classifications is defined as: Equal to or less than 540 TAF on the Yuba River Index scale.~~

b. For purposes of this order, wet, above normal, below normal, dry, ~~and~~ critical and conference water year types in the table above are as defined in the North Yuba ~~River~~ Index. (See Appendix 1.) ~~Extreme critical water years are defined as years when the Yuba River Index is predicted to be less than 540 thousand acre feet.~~ Determinations of water year classifications shall be made each year within 5 days for the release of the ~~February 1, March 1, April 1, and May 1 forecasts of unimpaired flow of~~ the Yuba River at Smartville published in California Department of Water Resources Bulletin 120 and any subsequent forecast published by the Department of Water Resources. The final year type for the preceding water year shall remain in effect until the February 1 forecast for the current year is available. If the water year type classification would change based on information available from any Department of Water Resources forecast, then the flow requirements in effect from the time the forecast is available shall remain in effect until the following forecast becomes available. Any changes in flows due to a change in water year classification shall be made in accordance with the criteria specified in permittee's Federal Power Act license. ~~condition 3 on pages 177 and 178 of Decision 1644.~~

c. ~~In order to avoid potential aggravation of the electrical energy crisis in California present in early 2001, the flows specified above in part "a". of this term shall come into effect on April 21, 2006. In the interim period, streamflow shall be maintained at or above the flows specified in the following table as measured at the USGS gaging installations at Marysville and Smartville.~~

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~~Interim~~ Instream Flow Requirements

Period	Wet & Above Normal Years (cfs)		Below Normal Years (cfs)		Dry Years (cfs)	
	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage
Sep15-Oct 14	700	250	550	250	500	250
Oct 15-Apr 20	700	500	700	500	600	400
Apr21-Apr 30	--	1,000	--	~~900~~800	--	400
May1-May 31	--	1,500	--	~~1,500~~1,000	--	500
Jun 1	--	1,050	--	~~1,050~~800	--	400
Jun 2-Jun 30	--	800	--	~~800~~800/500[1]	--	400
Jul 1	--	560	--	560	--	280
Jul 2	--	390	--	390	--	250
Jul 3	--	280	--	280	--	250
Jul 4-Sep 14	--	250	--	250	--	250

Period	Critical Years (cfs)		Conference Years
	Smartville Gage	Marysville Gage	
Sep 15-Oct 1	400	150	(See Note 3)
Oct 1-Oct 14	400	250	
Oct 15-Apr 20	600	~~400~~350	
Apr 21	--	280	
Apr22-Apr30	--	270	
May 1-May 31	--	270	
Jun 1-July 2	--	(See Note 2)	
July 3-Sep 14	--	100	

Table Notes:

1. June 2 - June 15/June 16 - June 30.
2. The interim instream flow requirements for June 1-30 of critical years shall be 245 cfs pursuant to the provisions of the agreement between Yuba County Water Agency and the Department of Fish and Game dated September 2, 1965, except if a lower flow is allowed pursuant to the provisions of the 1965 agreement. The minimum flow on July 2 shall be 70 percent of the flow on July 1.
3. The instream flow requirements for conference years shall be the applicable requirements specified in the agreement between Yuba County Water Agency and the Department of Fish and Game dated September 2, 1965, without the reductions authorized by section 1.6 of that agreement.

c. If, at any time during the term of the Lower Yuba River Fisheries Agreement among the Yuba County Water Agency, the California Department of Fish and Game, the South Yuba Citizens League, Friends of the River, Trout Unlimited and the Bay Institute, that agreement is terminated early (before the Federal Energy Regulatory Commission issues a new long-term license for the Yuba Development Project), then the following instream-flow requirements shall go into effect:

Marysville Gage (cfs)

Schedule	OCT		NOV	DEC	JAN	FEB	MAR	APR		MAY		JUN		JUL	AUG	SEP
	1-15	16-31	1-30	1-31	1-31	1-29	1-31	1-15	16-30	1-15	16-31	1-15	16-30	1-31	1-31	1-30
1	500	500	500	500	500	500	700	1000	1000	2000	2000	1500	1500	700	600	500
2	500	500	500	500	500	500	700	700	800	1000	1000	800	500	500	500	500
3	500	500	500	500	500	500	500	700	700	900	900	500	500	500	500	500
4	400	400	500	500	500	500	500	600	900	900	600	400	400	400	400	400
5	400	400	500	500	500	500	500	500	600	600	400	400	400	400	400	400
6	350	350	350	350	350	350	350	350	500	500	400	300	150	150	150	350

Smartville Gage (cfs)

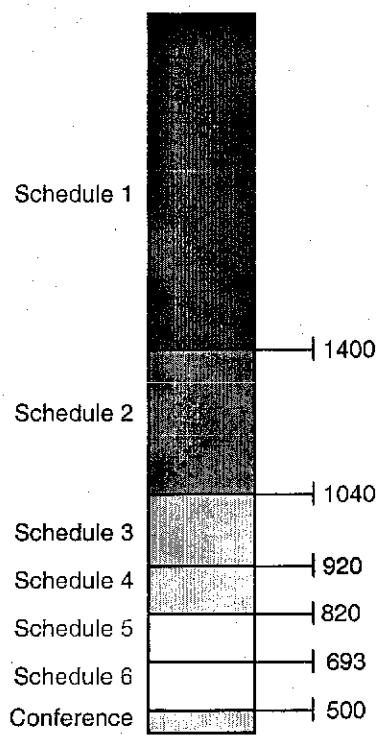
Schedule	OCT		NOV	DEC	JAN	FEB	MAR	APR		MAY		JUN		JUL	AUG	SEP
	1-15	16-31	1-30	1-31	1-31	1-29	1-31	1-15	16-30	1-15	16-31	1-15	16-30	1-31	1-31	1-30
A	700	700	700	700	700	700	700	700	-	-	-	-	-	-	-	700
B	600	600	600	550	550	550	550	600	-	-	-	-	-	-	-	500

* Schedule A used with Schedules 1, 2, 3 and 4 at Marysville.
* Schedule B used with Schedules 5 and 6 at Marysville.

Conference Year: applicable schedules specified in agreement between Yuba County Water Agency and the Department of Fish and Game dated September 2, 1965, without the reductions authorized by section 1.6 of that agreement.

The applicable schedules in these instream-flow requirements shall be determined by the following values of the North Yuba Index, subject to the following dry year storage adjustment:

Flow Schedule Year Type	North Yuba Index Thousand Acre-Feet (TAF)
Schedule 1	Equal to or greater than 1400
Schedule 2	Equal to or greater than 1040 and less than 1400
Schedule 3	Equal to or greater than 920 and less than 1040
Schedule 4	Equal to or greater than 820 and less than 920
Schedule 5	Equal to or greater than 693 and less than 820
Schedule 6	Equal to or greater than 500 and less than 693
Conference Year	Less than 500



Dry Year Storage Adjustment

- In some dry years with Schedule 5 instream-flow requirements, the September 30 New Bullards Bar Reservoir storage may be very low.
- To ensure sufficient carryover storage in the event of a subsequent very dry year, a dry-year storage adjustment will be made.
- The dry-year storage adjustment will be made as follows:
  - If the September 30 New Bullards Bar Reservoir storage is less than 400,000 acre-feet, then the Marysville Gage instream-flow requirement will be 400 cfs from October 1 until the next February Bulletin 120 forecasts are available.
  - If the September 30 New Bullards Bar Reservoir storage is less than 450,000 acre-feet but greater than or equal to 400,000 acre-feet, then, the Chief of the Division of Water Rights may, after receiving a request from permittee and giving other interested parties an opportunity to comment,

Dry Year Storage Adjustment

- In some dry years with Schedule 5 instream-flow requirements, the September 30 New Bullards Bar Reservoir storage may be very low.

- To ensure sufficient carryover storage in the event of a subsequent very dry year, a dry-year storage adjustment will be made.

- The dry-year storage adjustment will be made as follows:

  - If the September 30 New Bullards Bar Reservoir storage is less than 400,000 acre-feet, then the Marysville Gage instream-flow requirement will be 400 cfs from October 1 until the next February Bulletin 120 forecasts are available.

  - If the September 30 New Bullards Bar Reservoir storage is less than 450,000 acre-feet but greater than or equal to 400,000 acre-feet, then, the Chief of the Division of Water Rights may, after receiving a request from permittee and giving other interested parties an opportunity to comment, adjust the Marysville Gage instream-flow requirement to 400 cfs from October 1 until the next February Bulletin 120 forecasts are available.

    - When the next February Bulletin 120 forecasts are available, the instream-flow requirements will be based on those forecasts.

d. All of the preceding instream-flow requirements will be superseded and replaced by the instream-flow requirements in the new long-term Federal Power Act license that the Federal Energy Regulatory Commission issues for the Yuba River Development Project, when that new license goes into effect.

Exhibit 8. Proposed Changes To RD-1644, Pages 173-176, Paragraph 1 of Order to YCWA ("Clean" Draft)

Yuba County Water Agency

Permits 15026, 15027, and 15030 of Yuba County Water Agency are amended to include the following terms:

1. For the protection of fish and other public trust resources in the lower Yuba River, permittee shall release or bypass sufficient water to maintain the following instream flows in the lower Yuba River. The minimum flow requirements shall be maintained as measured by a 5-day running average of average daily streamflows with instantaneous flows never less than 90 percent of the specified flow requirements.

    a. Effective immediately upon adoption of this order, streamflow shall be maintained at or above the flows specified in the following table as measured at the USGS gaging installations at Marysville and Smartville:

///

///

Instream Flow Requirements

Period	Wet & Above Normal Years (cfs)		Below Normal Years (cfs)		Dry Years (cfs)	
	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage
Sep15-Oct 14	700	250	550	250	500	250
Oct 15-Apr 20	700	500	700	500	600	400
Apr21-Apr 30	--	1,000	--	800	--	400
May1-May 31	--	1,500	--	1,000	--	500
Jun 1	--	1,050	--	800	--	400
Jun 2-Jun 30	--	800	--	800/500'	--	400
Jul 1	--	560	--	560	--	280
Jul 2	--	390	--	390	--	250
Jul 3	--	280	--	280	--	250
Jul 4-Sep 14	--	250	--	250	--	250

Period	Critical Years (cfs)		Conference Years
	Smartville Gage	Marysville Gage	
Sep 15-Oct 1	400	150	(See Note 3)
Oct 1-Oct 14	400	250	
Oct 15-Apr 20	600	350	
Apr 21	--	280	
Apr22-Apr30	--	270	
May 1-May 31	--	270	
Jun 1-July 2	--	(See Note 2)	
July 3-Sep 14	--	100	

Table Notes:

1. June 2 - June 15/June 16 - June 30.
2. The interim instream flow requirements for June 1-30 of critical years shall be 245 cfs pursuant to the provisions of the agreement between Yuba County Water Agency and the Department of Fish and Game dated September 2, 1965, except if a lower flow is allowed pursuant to the provisions of the 1965 agreement. The minimum flow on July 2 shall be 70 percent of the flow on July 1.
3. The instream flow requirements for conference years shall be the applicable requirements specified in the agreement between Yuba County Water Agency and the Department of Fish and Game dated September 2, 1965, without the reductions authorized by section 1.6 of that agreement.

b. For purposes of this order, wet, above normal, below normal, dry, critical and conference water year types in the table above are as defined in the North Yuba Index. (See Appendix 1.) Determinations of water year classifications shall be made each year within 5 days for the release of the February 1, March 1, April 1, and May 1 forecasts of unimpaired flow of the Yuba River at Smartville published in California Department of Water Resources Bulletin 120 and any subsequent forecast published by the Department of Water Resources. The final year type for the preceding water year shall remain in effect until the February 1 forecast for the current year is available. If the water year type classification would

change based on information available from any Department of Water Resources forecast, then the flow requirements in effect from the time the forecast is available shall remain in effect until the following forecast becomes available. Any changes in flows due to a change in water year classification shall be made in accordance with the criteria specified in permittee's Federal Power Act license.

c. If, at any time during the term of the Lower Yuba River Fisheries Agreement among the Yuba County Water Agency, the California Department of Fish and Game, the South Yuba Citizens League, Friends of the River, Trout Unlimited and the Bay Institute, that agreement is terminated early (before the Federal Energy Regulatory Commission issues a new long-term Federal Power license for the Yuba River Development Project), then the following instream-flow requirements shall go into effect:

Marysville Gage (cfs)

Schedule	OCT		NOV	DEC	JAN	FEB	MAR	APR		MAY		JUN		JUL	AUG	SEP
	1-15	16-31	1-30	1-31	1-31	1-29	1-31	1-15	16-30	1-15	16-31	1-15	16-30	1-31	1-31	1-30
1	500	500	500	500	500	500	700	1000	1000	2000	2000	1500	1500	700	600	500
2	500	500	500	500	500	500	700	700	800	1000	1000	800	500	500	500	500
3	500	500	500	500	500	500	500	700	700	900	900	500	500	500	500	500
4	400	400	500	500	500	500	500	600	900	900	600	400	400	400	400	400
5	400	400	500	500	500	500	500	500	600	600	400	400	400	400	400	400
6	350	350	350	350	350	350	350	350	500	500	400	300	150	150	150	350

Smartville Gage (cfs)

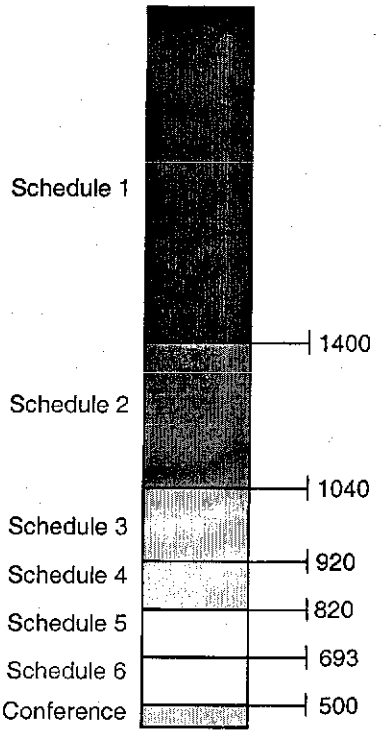
Schedule	OCT		NOV	DEC	JAN	FEB	MAR	APR		MAY		JUN		JUL	AUG	SEP
	1-15	16-31	1-30	1-31	1-31	1-29	1-31	1-15	16-30	1-15	16-31	1-15	16-30	1-31	1-31	1-30
A	700	700	700	700	700	700	700	700	-	-	-	-	-	-	-	700
B	600	600	600	550	550	550	550	600	-	-	-	-	-	-	-	500

* Schedule A used with Schedules 1, 2, 3 and 4 at Marysville.
* Schedule B used with Schedules 5 and 6 at Marysville.

Conference Year: applicable schedules specified in agreement between Yuba County Water Agency and the Department of Fish and Game dated September 2, 1965, without the reductions authorized by section 1.6 of that agreement.

The applicable schedules in these instream-flow requirements shall be determined by the following values of the North Yuba Index, subject to the following dry year storage adjustment:

Flow Schedule Year Type	North Yuba Index Thousand Acre-Feet (TAF)
Schedule 1	Equal to or greater than 1400
Schedule 2	Equal to or greater than 1040 and less than 1400
Schedule 3	Equal to or greater than 920 and less than 1040
Schedule 4	Equal to or greater than 820 and less than 920
Schedule 5	Equal to or greater than 693 and less than 820
Schedule 6	Equal to or greater than 500 and less than 693
Conference Year	Less than 500



Dry Year Storage Adjustment

- In some dry years with Schedule 5 instream-flow requirements, the September 30 New Bullards Bar Reservoir storage may be very low.
- To ensure sufficient carryover storage in the event of a subsequent very dry year, a dry-year storage adjustment will be made.
- The dry-year storage adjustment will be made as follows:

- If the September 30 New Bullards Bar Reservoir storage is less than 400,000 acre-feet, then the Marysville Gage instream-flow requirement will be 400 cfs from October 1 until the next February Bulletin 120 forecasts are available.
- If the September 30 New Bullards Bar Reservoir storage is less than 450,000 acre-feet but greater than or equal to 400,000 acre-feet, then, the Chief of the Division of Water Rights may, after receiving a request from

permittee and giving other interested parties an opportunity to comment, adjust the Marysville Gage instream-flow requirement to 400 cfs from October 1 until the next February Bulletin 120 forecasts are available.

- When the next February Bulletin 120 forecasts are available, the instream-flow requirements will be based on those forecasts.

d. All of the preceding instream-flow requirements will be superseded and replaced by the instream-flow requirements in the new long-term Federal Power Act license that the Federal Energy Regulatory Commission issues for the Yuba River Development Project, when that new license goes into effect.

Exhibit 9. Changes To Appendix 1 Of RD-1644

APPENDIX 1
DEFINITION OF YUBA RIVER INDEX

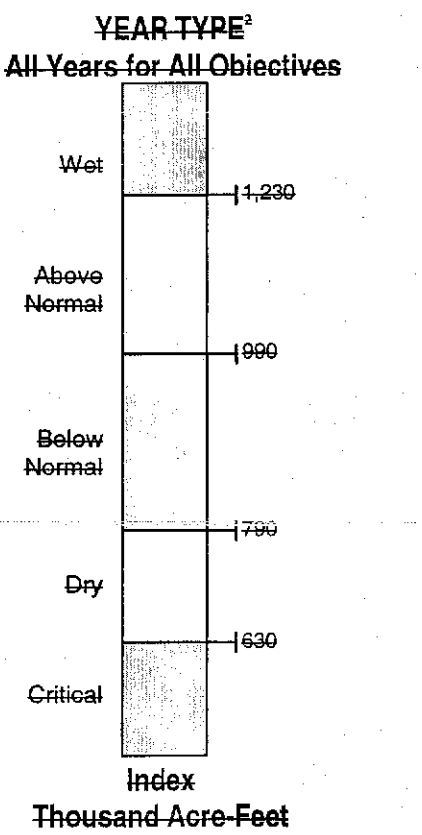
The water year hydrologic classification for the Yuba River shall be determined by the following equation:

INDEX = 0.5 X + 0.3 Y + 0.2 Z

Where **X** = Current year's April-July Yuba River unimpaired runoff
Y = Current year's October-March Yuba River unimpaired runoff
Z = Previous year's index.[2]

The Yuba River unimpaired runoff for the current water year (October 1 of the preceding calendar year through September 30 of the current calendar year), as published in California Department of Water Resources Bulletin 120, is a forecast of the unimpaired flow of the Yuba River at Smartville. Preliminary determinations of a year's classification shall be made in February, March, and April, with the final determination in May. These preliminary determinations shall be based on hydrologic conditions to date plus forecasts of future runoff, assuming normal precipitation for the remainder of the water year.

Classification	Index Thousand Acre-Feet (TAF)
Wet.....	Equal to or greater than 1,230
Above Normal ...	Greater than 990 and less than 1,230
Below Normal....	Equal to or less than 990 and greater than 790
Dry	Equal to or less than 790 and greater than 630
Critical.....	Equal to or less than 630



[2] A cap of 1,400 TAF is imposed on the previous year's index to account for required flood control reservoir releases during wet years.

[3] The year type for the preceding water year will remain in effect until the initial forecast of unimpaired runoff for the current year is available.

DEFINITION OF THE
NORTH YUBA INDEX

The North Yuba Index is an indicator of the amount of water available in the North Yuba River at New Bullards Bar Reservoir that can be utilized to achieve flows on the Lower Yuba River through operations of New Bullards Bar Reservoir. The index is comprised of two components: (1) active storage in New Bullards Bar Reservoir at the commencement of the current water year: and (2) total inflow to New Bullards Bar Reservoir for the current water year, including diversions from the Middle Yuba River and Oregon Creek to New Bullards Bar Reservoir. The following is the definition of the index and the procedure for determining the index for each water year.

$$\textbf{North Yuba Index} = Sa^{NBB} + I^{NBB}$$

Where:

Sa^{NBB} = New Bullards Bar Reservoir Active Storage

The New Bullards Bar Reservoir Active Storage for determining the current year North Yuba Index equals the actual recorded amount of water in storage in New Bullards Bar Reservoir on September 30th of the previous water year minus the Federal Energy Regulatory Commission Project License minimum pool amount of 234,000 acre-ft.

and:

I^{NBB} = Forecasted Total Annual Inflow To New Bullards Bar Reservoir

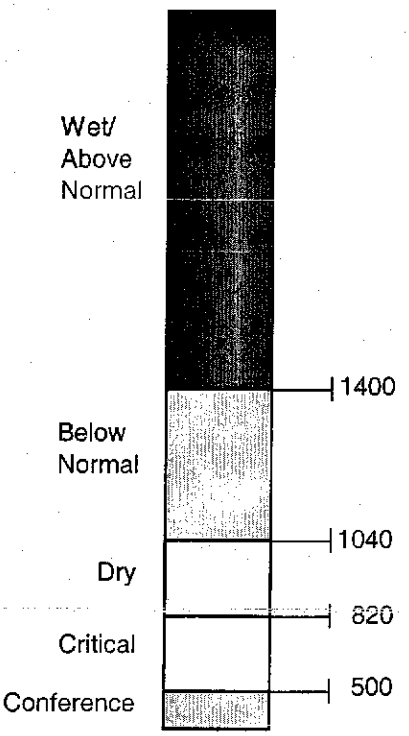
The Forecasted Total Annual Inflow To New Bullards Bar Reservoir shall be based on actual inflow to date to New Bullards Bar Reservoir, including the diversions from the Middle Yuba River and Oregon Creek plus forecasted inflow for the remainder of the water year, where such forecast is based on the Department of Water Resources 50%-exceedance forecast of unimpaired flow contained in Bulletin-120 at the beginning of each month from February until May or June, with periodic updates. The procedure for determining the Forecasted Total Annual Inflow To New Bullards Bar Reservoir is described in the section of this document entitled "*Procedure for Calculating the Forecasted Total Annual Inflow Into New Bullards Bar Reservoir*".

Determination of the North Yuba Index for a water year shall be made based on 50%-exceedance estimates of unimpaired runoff as published in California Department of Water Resources Bulletin 120 beginning in February and updated in March, April and May, and any subsequent updates. The year type for the preceding water year shall remain in effect until the initial forecast of unimpaired runoff for the current year is available.

YUBA RIVER WATER YEAR CLASSIFICATIONS
BASED ON THE NORTH YUBA INDEX
FOR ESTABLISHING REQUIRED FLOWS

The water year hydrologic classification for the Yuba River to determine the minimum instream flow requirements of Yuba County Water Agency's water right permits shall be based on the North Yuba Index. Determinations of a year's classification shall be made in February, March, April, and May and for any subsequent updates.

Year Type Classification	North Yuba Index Thousand Acre-Feet (TAF)
Wet and Above Normal	Equal to or greater than 1400
Below Normal	Equal to or greater than 1040 and less than 1400
Dry	Equal to or greater than 820 and less than 1040
Critical	Equal to or greater than 500 and less than 820
Conference Year	Less than 500



Procedure for Calculating the Forecasted Total Annual Inflow Into New Bullards Bar Reservoir

The forecasted total inflow into New Bullards Bar Reservoir shall be calculated starting in February and updated periodically, but no less than monthly, until May. If a June updated Bulletin 120 forecast or any post May 1 update is published by the Department of Water Resources, then an updated forecast of total inflow to New Bullards Bar Reservoir shall be calculated as described below.

The forecasted total inflow into New Bullards Bar Reservoir is based on two main components: (1) the actual measured inflow into New Bullards Bar Reservoir to date; plus (2) the Bulletin 120 based calculation of forecasted inflow for the remainder of the water year. The following formula shall be used to calculate the forecasted total inflow to New Bullards Bar Reservoir (NBBR):

$$I^{NBB}\ (TAF) = \text{Total Actual Inflow to NBBR from October 1 to the end of Month}^{i-1} + \text{Forecasted Inflow from the beginning of Month}^{i} \text{ to September 30}$$

(Month^{i-1} is the previous month and Month^{i} is the current month)

Where:

Total actual inflow to NBBR is the calculated inflow based on a daily summation of inflow for the month as follows:

Total Actual Inflow to NBBR (TAF) = Monthly change in stored water (TAF) + Monthly outflow (TAF)

and where:

The forecasted inflow from the beginning of Month^{i} to September 30 is calculated using statistically derived linear coefficients applied to the measured inflow into New Bullards Bar reservoir and the Bulletin 120 published 50%-exceedance forecasts of unimpaired flow of the Yuba River at Goodyears Bar and at Smartville, and for the time periods identified in the following table:

Table 1. Coefficients For the Calculation of Forecasted New Bullards Bar Inflow (AF)

Forecast Month	Forecasted For:	Constant (C)	Total Actual Inflow to NBBR (C1)	Bulletin 120 Forecasted Smartville (C2)	Bulletin 120 Forecasted Goodyear's Bar (C3)
February	February	-2,146	0.01424	0.52533	
	March	-3,221	0.02458	0.54787	
	April-July	-30,416	0.01413	0.62473	-0.24081
	August-September	-	0.01593	0.64037	
March	March	-23,495	0.00596	0.55386	
	April-July	-31,134	0.01237	0.62162	-0.23266
	August-September	-	0.01473	0.59396	
April	April-July	-30,665	0.00547	0.61332	-0.19623
	August-September	-	0.01409	0.53241	
May	April-July	-31,652	0.01033	0.61645	-0.22353

	August-September	-	0.01298	0.50071	

For all subsequent forecast updates the May coefficients shall be used, with the forecasted Goodyears Bar runoff equaling 0.273 times the current forecasted Yuba River unimpaired flow at Smartville.

The following procedure shall be used to calculate the Forecasted New Bullards Bar Inflow:

The general formula for Forecasted New Bullards Bar Inflow is:

Forecasted NBB Inflow[1] = February NBB Inflow + March Inflow + April-July Inflow + August-September Inflow

Formula terms are only applicable as shown in Table 1. As an example, the March forecast does not include a term for forecasted February NBB Inflow. The following formulas shall be used to calculate the terms of the formula above using the corresponding coefficients from Table 1 *(Note terms are calculated in AF and the result is converted to TAF for use in the calculation of the Forecasted Total Inflow to New Bullards Bar (I^{NBB} (TAF))*:

February NBB Inflow = C + C1 x Total Actual Inflow to NBB + C2 x Forecasted Smartville$^{(February)}$

March NBB Inflow = C + C1 x Total Actual Inflow to NBB + C2 x Forecasted Smartville$^{(March)}$

April – July Inflow = C + C1 x Total Actual Inflow to NBB + C2 x Forecasted Smartville$^{(April - July)}$ + C3 x Forecasted Goodyears Bar$^{(April - July)}$

August - September Inflow = C1 x Total Actual Inflow to NBB + C2 x Forecasted Smartville$^{(August - September)}$

("Forecasted Smartville" is the DWR forecast for "Yuba River at Smartville Plus Deer Creek")

The May calculation of Forecasted NBB Inflow and subsequent updated calculations shall be reduced by the actual NBB inflow between April 1 and the calculation date.

Example calculation of the North Yuba Index for February 1, 2003:

Excerpt from February 2003 DWR Bulletin -120:

FEBRUARY 1, 2003 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet					
	HISTORICAL			FORECAST		
	50 Yr Avg	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg	80 % Probability Range
Yuba River						
North Yuba below Goodyears Bar	286	647	51	240	84%	
Yuba River at Smartville Plus Deer Creek	1,044	2,424	200	900	86%	510-1,560

FEBRUARY 1, 2003 FORECASTS (CONT'D)
WATER YEAR UNIMPAIRED RUNOFF

Unimpaired Runoff in 1,000 Acre-Feet													
HISTORICAL			DISTRIBUTION								FORECAST		
50 Yr Avg	Max of Record	Min of Record	Oct Thru Jan*	Feb	Mar	Apr	May	Jun	Jul	Aug & Sep	Water Year Forecasts	Pct of Avg	80% Probability Range
564	1,056	102											
2,459	4,926	369	675	255	300	360	380	130	30	30	2,160	88%	1,510-3260

*Unimpaired runoff in prior months based on measured flows

From the published Bulletin-120 information, and from historical gaged date for New Bullards Bar Reservoir, the North Yuba Index can be calculated as follows:

1) The end-of-September 2002 New Bullards Bar Reservoir Storage (from USGS gage number 11413515) is 532,088 acre-feet.

2) From end-of-October, November, December, and January New Bullards Bar storage figures and monthly reservoir releases (from USGS gages 11413510 and 11413520), the total inflow to New Bullards Bar between October 1, 2002 and January 31, 2003 is 387,302 acre-feet.

3) Using the B-120 information and the inflow to date, the forecasted February inflow is calculated as follows:

   Inflow = C + C1*(Oct-Jan Inflow) + C2*(B120 Forecasted Flow at Smartville for February)

   Forecasted February Inflow = -2,146 + 0.01424 (387,302) + 0.52533 (255,000) = 137,328 acre-feet

4) The forecasted March inflow is calculated as follows:

   Inflow = C + C1*(Oct-Jan inflow) + C2*(B120 Forecasted Flow at Smartville for March)

   Forecasted March Inflow = -3,221 + 0.02458 * (387,302) + 0.54787 * 300,000 = 170,660 acre-feet

5) The forecasted April-July inflow is calculated as follows:

   Inflow = C + C1*(Oct-Jan Inflow) + C2*(B120 Forecasted Flow at Smartville for April-July) + C3*(Forecasted Flow at Goodyear's Bar for April-July)

   Forecasted April-July Inflow = -30,416 + 0.01413 * (387,302) + 0.62473 * (900,000) + -0.24081 * (240,000) = 479,519 acre-feet

6) The August and September inflows are calculated as follows:

   Inflow = C1*(Oct-Jan Inflow) + C2*(Forecasted flow at Smartville for August and September)

   Forecasted August and September Inflow = 0.01593 * (387,302) + 0.64037 * (30,000) = 25,381 acre-feet

7) The North Yuba Index for 2003, as calculated for February 1, 2003, is:

Active NBB Storage + Actual Inflow (Oct – Jan) +forecasted Feb Inflow + forecasted Mar Inflow + forecasted Apr-Jul Inflow + forecasted Aug-Sept Inflow =

(532,088-234,000) + 387,302 + 137,328 + 170,660 + 479,519 + 25,381 = 1,498,278 acre-feet = **Index Number of 1498 which is a Wet/Above Normal year**

Example calculation of the North Yuba Index for May 1, 1999:

Excerpt from May 1999 DWR Bulletin -120:

May 1, 1999 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet					
	HISTORICAL			FORECAST		
	50 Yr Avg	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg	80 % Probability Range
Yuba River						
North Yuba below Goodyears Bar	286	647	51	330	115%	
Yuba River at Smartville Plus Deer Creek	1,029	2,424	200	1,200	117%	1,090-1,360

May 1, 1999 FORECASTS (CONT'D)
WATER YEAR UNIMPAIRED RUNOFF

Unimpaired Runoff in 1,000 Acre-Feet													
HISTORICAL			DISTRIBUTION								FORECAST		
50 Yr Avg	Max of Record	Min of Record	Oct Thru Jan*	Feb *	Mar *	Apr *	May	Jun	Jul	Aug & Sep	Water Year Forecasts	Pct of Avg	80% Probability Range
564	1,056	102											
2,337	4,926	369	720	520	350	305	510	310	75	55	2,845	122%	2,720-3,030

*Unimpaired runoff in prior months based on measured flows

From this information and historic information, the North Yuba Index can be calculated as follows:

1) The end-of-September 1998 New Bullards Bar Reservoir Storage (from USGS gage number 11413515) is 708,904 acre-feet.

2) From end-of-October, November, December, January, February, March and April New Bullards Bar storage and monthly reservoir releases (from USGS gages 11413510 and 11413520), the total inflow to New Bullards Bar between October 1, 1998 and April 30 1999 is 1,098,591 acre-feet.

3) Using the B-120 information and the inflow to date the forecasted April - July inflow is calculated as follows:
Inflow = C + C1*(Oct-April Inflow) + C2*(B120 Forecasted Flow at Smartville for April-July) + C3*(Forecasted Flow at Goodyear's Bar for April-July)

Forecasted April-July Inflow = -31,652 + 0.01033 * (1,098,591) + 0.61645 * (1,200,000) + -0.22353 * (55,000) = 707,142 acre-feet.

4) The August and September inflows are calculated as follows:

Inflow = C1*(Oct-April Inflow) + C2*(Forecasted flow at Smartville for August and September)

Forecasted August and September Inflow = 0.01298 * (1,098,591) + 0.50071 * (55,000) = 41,799 acre-feet

5) The North Yuba Index for May 1, 1999, is calculated as follows:

Active NBB Storage + Actual Inflow (Oct – April) + forecasted Apr-Jul Inflow + forecasted Aug-Sept Inflow – Actual April Inflow =

(708,904-234,000) + 1,098,591 + 707,142 + 41,799 – 182,647 = 2,139,789 acre-feet = **Index Number of 2140 which is a Wet/Above Normal year**