

TURLOCK IRRIGATION DISTRICT

333 EAST CANAL DRIVE
POST OFFICE BOX 949
TURLOCK, CALIFORNIA 95381
(209) 883-8300

Don Pedro Dam and
Powerhouse

October 19, 2009

Tim Heyne
California Dept. of Fish and Game
P.O. Box 10
La Grange, CA 95329

Deborah Giglio
U.S. Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

Maria Rea
National Marine Fisheries Service
650 Capitol Mall, Suite 8-300
Sacramento, CA 95814-4708

RE: Project 2299 – Update of Water Year Classification Index and Flow Schedule

Dear Fishery Agency representatives:

The 1996 FERC Order, Amended Article 37, contained a Water Year Classification Index for determining the volume of scheduled stream flows for each fish flow year. The classifications were based on the San Joaquin Basin 60-20-20 Indices for water years 1906-1995. The order stated, "60-20-20 index numbers used each year shall be updated to incorporate subsequent water years pursuant to standard Department of Water Resources (DWR) procedures so as to maintain approximately the same frequency distribution of water year types." The index is now updated to incorporate water years through 2009 (Table 1). While the frequency distribution remains the same, some index numbers may change slightly with each annual update to maintain the frequency distribution.

Since the flow schedule letter of May 5, 2009, TID provided e-mail transmittals on basin index updates and corresponding Article 37 volumes as follows:

- May 15, 2009 based on DWR forecast update of May 12
- May 29, 2009 based on DWR forecast update of May 26
- July 22, 2009 based on DWR forecast update of July 21

On August 18, 2009, TID sent you by e-mail the final Index (2,733,195) and corresponding Article 37 volume (175,791 AF) as shown in Table 2. That amount was 24,569 AF more than initially scheduled in April due to wetter conditions which resulted in a "Median Below Normal" year type. After that notification, phone and e-mail coordination continued with your agencies that included:

- September 3, 2009 e-mail – TID provided a draft schedule utilizing 175,791 AF
- September 16, 2009 e-mail – USFWS provided a draft schedule focusing on allocation of part of the additional water to the fall pulse flow (in coordination with other pulse flows in the basin) and following base flows



- September 30, 2009 e-mail – TID provided a schedule for the remainder of the fish flow year utilizing the USFWS flow proposal, indicating that 10,558 AF remained to be allocated
- September 30, 2009 e-mail – USFWS requested refinements to the schedule that scheduled additional water through December 31
- October 1, 2009 e-mail - USFWS identified that water still remained to be allocated for the January 1 – April 14 period
- October 9, 2009 e-mail – TID confirmed following no further input that the USFWS schedule would be implemented, including the fall pulse flow from October 12-23 followed by 225 cfs through December 31 and 200 cfs for the January 1-April 14 period

Attached is the current flow schedule (Table 3) using the latest values provided by the USFWS in the above coordination process. Further coordination will be needed in determining the disposition of the remaining unallocated volume of 7,049 AF.

If you have any questions, please contact Wes Monier at 209-883-8321.

Sincerely,



Robert M. Nees
Director of Water Resources and Regulatory Affairs

C: Larry Weis - TID
Allen Short – MID
Michael Carlin – CCSF
FERC Secretary

TABLE 1
DETERMINATION OF WATER YEAR CLASSIFICATION THRESHOLDS
Water Year Classification

Water Year Classification	Cumulative Occurrence	2006	2007	2008	2009
Critical Water Year and Below	0.0%	1,476	1,476	1,476	1,476
Median Critical Water Year	6.4%	1,476	1,476	1,476	1,476
Intermediate Critical Dry Water Year	14.4%	2,002	1,973	1,973	1,973
Median Dry	20.5%	2,187	2,183	2,183	2,183
Intermediate Dry-Below Normal	31.3%	2,441	2,403	2,403	2,403
Median Below Normal	40.4%	2,720	2,720	2,698	2,720
* Intermediate Below Normal-Above Normal	50.7%	3,183	3,139	3,139	3,080
Median Above Normal	66.2%	3,689	3,689	3,689	3,669
Intermediate Above Normal-Wet	71.3%	4,028	3,903	3,903	3,903
Median Wet/Maximum	86.7%	4,730	4,730	4,730	4,730
	100.0%				

* Maximum index value for fish flow year is not to go above value shown in this row.

Table 2

SAN JOAQUIN VALLEY WATER YEAR HYDROLOGIC CLASSIFICATION **602020 INDEX**

YEAR	APRIL-JULY RUNOFF (AF)					OCTOBER-MARCH RUNOFF (AF)					602020 INDEX	TUOLUMNE RIVER MINIMUM FLOW REQUIREMENT
	STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL	STANISLAUS	TUOLUMNE	MERCED	FRIANT	TOTAL		
Feb 1 Forecast												
Dry	200,000	400,000	180,000	400,000	1,180,000	150,000	305,000	130,000	210,000	795,000	1,279,196	94,000
Average	500,000	890,000	430,000	910,000	2,730,000	270,000	470,000	220,000	340,000	1,300,000	2,310,196	136,167
Wet	960,000	1,680,000	900,000	1,730,000	5,270,000	450,000	735,000	380,000	550,000	2,115,000	3,997,196	300,923
Feb 10 Update												
Dry	210,000	420,000	190,000	430,000	1,250,000	150,000	305,000	130,000	210,000	795,000	1,321,196	94,000
Average	490,000	870,000	430,000	910,000	2,700,000	270,000	470,000	220,000	340,000	1,300,000	2,292,196	134,941
Wet	930,000	1,610,000	850,000	1,660,000	5,050,000	450,000	735,000	380,000	550,000	2,115,000	3,865,196	300,923
Feb 17 Update												
Dry	260,000	540,000	260,000	530,000	1,590,000	150,000	305,000	130,000	210,000	795,000	1,525,196	104,383
Average	520,000	940,000	470,000	960,000	2,890,000	270,000	470,000	220,000	340,000	1,300,000	2,406,196	142,728
Wet	940,000	1,630,000	850,000	1,650,000	5,070,000	450,000	735,000	380,000	550,000	2,115,000	3,877,196	300,923
Feb 24 Update												
Dry	300,000	600,000	300,000	580,000	1,780,000	150,000	305,000	130,000	210,000	795,000	1,639,196	107,599
Average	540,000	960,000	500,000	990,000	2,990,000	270,000	470,000	220,000	340,000	1,300,000	2,466,196	147,305
Wet	940,000	1,610,000	840,000	1,620,000	5,010,000	450,000	735,000	380,000	550,000	2,115,000	3,841,196	300,923
Mar 1 Forecast												
Dry	350,000	670,000	320,000	620,000	1,960,000	230,000	410,000	190,000	285,000	1,115,000	1,811,196	112,452
Average	560,000	980,000	500,000	980,000	3,020,000	270,000	465,000	225,000	355,000	1,315,000	2,673,196	148,907
Wet	950,000	1,600,000	850,000	1,570,000	4,970,000	350,000	570,000	290,000	455,000	1,665,000	3,727,196	300,923
Mar 10 Update												
Dry	460,000	870,000	390,000	750,000	2,470,000	230,000	410,000	190,000	285,000	1,115,000	2,117,196	124,219
Average	650,000	1,150,000	550,000	1,060,000	3,410,000	270,000	465,000	225,000	355,000	1,315,000	2,721,196	172,091
Wet	1,000,000	1,700,000	870,000	1,570,000	5,140,000	350,000	570,000	290,000	455,000	1,665,000	3,829,196	300,923
Mar 17 Update												
Dry	480,000	880,000	390,000	750,000	2,500,000	230,000	410,000	190,000	285,000	1,115,000	2,135,196	125,118
Average	640,000	1,130,000	530,000	1,030,000	3,330,000	270,000	465,000	225,000	355,000	1,315,000	2,673,196	163,095
Wet	960,000	1,630,000	820,000	1,490,000	4,900,000	350,000	570,000	290,000	455,000	1,665,000	3,685,196	300,923
Mar 24 Update												
Dry	510,000	910,000	410,000	780,000	2,610,000	230,000	410,000	190,000	285,000	1,115,000	2,201,196	128,744
Average	650,000	1,130,000	530,000	1,030,000	3,340,000	270,000	465,000	225,000	355,000	1,315,000	2,679,196	163,553
Wet	940,000	1,580,000	800,000	1,430,000	4,750,000	350,000	570,000	290,000	455,000	1,665,000	3,595,196	300,923
Apr 1 Forecast												
Dry	500,000	890,000	420,000	760,000	2,570,000	340,000	545,000	250,000	375,000	1,510,000	2,256,196	132,489
Average	620,000	1,080,000	500,000	960,000	3,330,000	340,000	545,000	250,000	375,000	1,510,000	2,672,196	159,205
Wet	870,000	1,470,000	760,000	1,300,000	4,400,000	340,000	545,000	250,000	375,000	1,510,000	3,354,196	300,923
Apr 14 Update												
Dry	510,000	950,000	450,000	810,000	2,720,000	340,000	545,000	250,000	375,000	1,510,000	2,346,196	138,618
Average	620,000	1,090,000	530,000	980,000	3,220,000	340,000	545,000	250,000	375,000	1,510,000	2,646,196	161,036
Wet	810,000	1,380,000	710,000	1,250,000	4,150,000	340,000	545,000	250,000	375,000	1,510,000	3,204,196	300,923
Apr 21 Update												
Dry	500,000	930,000	440,000	790,000	2,660,000	340,000	545,000	250,000	375,000	1,510,000	2,310,196	136,167
Average	600,000	1,050,000	510,000	950,000	3,110,000	340,000	545,000	250,000	375,000	1,510,000	2,580,196	156,001
Wet	750,000	1,290,000	660,000	1,180,000	3,880,000	340,000	545,000	250,000	375,000	1,510,000	3,042,196	271,055
Apr 28 Update												
Dry	490,000	910,000	430,000	770,000	2,600,000	340,000	545,000	250,000	375,000	1,510,000	2,274,196	133,715
Average	590,000	1,020,000	490,000	920,000	3,020,000	340,000	545,000	250,000	375,000	1,510,000	2,526,196	151,882
Wet	710,000	1,210,000	610,000	1,110,000	3,640,000	340,000	545,000	250,000	375,000	1,510,000	2,898,196	226,660
May 1 Forecast												
Dry	490,000	910,000	420,000	750,000	2,570,000	340,000	545,000	250,000	375,000	1,510,000	2,256,196	132,489
Average	580,000	1,010,000	480,000	900,000	2,970,000	340,000	545,000	250,000	375,000	1,510,000	2,496,196	149,594
Wet	680,000	1,180,000	590,000	1,070,000	3,520,000	340,000	545,000	250,000	375,000	1,510,000	2,826,196	204,463
May 12 Update												
Dry	570,000	1,030,000	490,000	850,000	2,940,000	340,000	545,000	250,000	375,000	1,510,000	2,478,196	148,220
Average	640,000	1,110,000	540,000	970,000	3,260,000	340,000	545,000	250,000	375,000	1,510,000	2,670,196	162,866
Wet	720,000	1,260,000	630,000	1,100,000	3,710,000	340,000	545,000	250,000	375,000	1,510,000	2,940,196	239,609
May 19 Update												
Dry	580,000	1,040,000	500,000	870,000	2,990,000	340,000	545,000	250,000	375,000	1,510,000	2,508,196	150,509
Average	640,000	1,110,000	540,000	970,000	3,260,000	340,000	545,000	250,000	375,000	1,510,000	2,670,196	162,866
Wet	710,000	1,240,000	610,000	1,080,000	3,640,000	340,000	545,000	250,000	375,000	1,510,000	2,898,196	226,660
May 26 Update												
Dry	580,000	1,000,000	490,000	880,000	2,950,000	340,000	545,000	250,000	375,000	1,510,000	2,484,196	148,678
Average	630,000	1,100,000	530,000	950,000	3,210,000	340,000	545,000	250,000	375,000	1,510,000	2,640,196	160,578
Wet	690,000	1,210,000	580,000	1,030,000	3,510,000	340,000	545,000	250,000	375,000	1,510,000	2,820,196	202,613
June 2 Forecast												
Dry	580,000	1,000,000	500,000	890,000	2,970,000	339,493	545,114	252,434	375,366	1,512,407	2,496,677	149,630
Average	630,000	1,100,000	530,000	950,000	3,210,000	339,493	545,114	252,434	375,366	1,512,407	2,640,677	160,615
Wet	680,000	1,200,000	570,000	1,020,000	3,470,000	339,493	545,114	252,434	375,366	1,512,407	2,796,677	195,362
June 09 Update												
Dry	590,000	1,010,000	510,000	910,000	3,020,000	339,493	545,114	252,434	375,366	1,512,407	2,526,677	151,919
Average	630,000	1,100,000	540,000	970,000	3,240,000	339,493	545,114	252,434	375,366	1,512,407	2,658,677	161,988
Wet	670,000	1,190,000	580,000	1,040,000	3,480,000	339,493	545,114	252,434	375,366	1,512,407	2,802,677	197,212
July 21 Meeting With DWR												
Average	658,081	1,111,727	555,524	1,050,095	3,375,427	339,493	545,114	252,434	375,366	1,512,407	2,741,456	178,338
Final Numbers as Reported by DWR												
Average	655,894	1,104,952	561,036	1,042,315	3,364,197	339,493	545,114	252,434	375,366	1,512,407	2,733,195	175,791

TABLE 3
Tuolumne River Flow Schedule
SCHEDULE FOR 2009 - 20010 Fish Flow Year

DATE		Number of DAYS	Base Flow			Pulse Flows			Interpolation Flow			Other Adjusted Flow			Total FERC Flow	
			CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	AF	ACCUM. A.F.	CFS	ACCUM. A.F.
15-Apr-2009	15-Apr-2009	1	180	357	357	0	0	0	0	0	0	0	0	0	180	357
16-Apr-2009	16-Apr-2009	1	180	357	714	10	20	20	0	0	0	0	0	0	190	734
17-Apr-2009	17-Apr-2009	1	180	357	1,071	80	159	179	0	0	0	0	0	0	260	1,250
18-Apr-2009	18-Apr-2009	1	180	357	1,428	210	417	595	0	0	0	0	0	0	390	2,023
19-Apr-2009	19-Apr-2009	1	180	357	1,785	350	694	1,289	100	198	198	0	0	0	630	3,273
20-Apr-2009	20-Apr-2009	1	180	357	2,142	360	714	2,003	100	198	397	0	0	0	640	4,542
21-Apr-2009	21-Apr-2009	1	180	357	2,499	360	714	2,717	100	198	595	0	0	0	640	5,812
22-Apr-2009	22-Apr-2009	1	180	357	2,856	360	714	3,431	100	198	793	0	0	0	640	7,081
23-Apr-2009	23-Apr-2009	1	180	357	3,213	360	714	4,145	100	198	992	0	0	0	640	8,350
24-Apr-2009	24-Apr-2009	1	180	357	3,570	360	714	4,860	100	198	1190	0	0	0	640	9,620
25-Apr-2009	25-Apr-2009	1	180	357	3,927	360	714	5,574	100	198	1388	0	0	0	640	10,889
26-Apr-2009	26-Apr-2009	1	180	357	4,284	360	714	6,288	100	198	1587	0	0	0	640	12,159
27-Apr-2009	27-Apr-2009	1	180	357	4,641	360	714	7,002	100	198	1785	0	0	0	640	13,428
28-Apr-2009	28-Apr-2009	1	180	357	4,998	180	357	7,359	100	198	1983	0	0	0	460	14,340
29-Apr-2009	29-Apr-2009	1	180	357	5,355	180	357	7,716	100	198	2182	0	0	0	460	15,253
30-Apr-2009	30-Apr-2009	1	180	357	5,712	180	357	8,073	100	198	2380	0	0	0	460	16,165
01-May-2009	01-May-2009	1	180	357	6,069	180	357	8,430	100	198	2579	0	0	0	460	17,078
02-May-2009	02-May-2009	1	180	357	6,426	180	357	8,787	100	198	2777	0	0	0	460	17,990
03-May-2009	03-May-2009	1	180	357	6,783	180	357	9,144	100	198	2975	0	0	0	460	18,902
04-May-2009	04-May-2009	1	180	357	7,140	180	357	9,501	100	198	3174	0	0	0	460	19,815
05-May-2009	05-May-2009	1	180	357	7,498	300	595	10,096	100	198	3372	0	0	0	580	20,965
06-May-2009	06-May-2009	1	180	357	7,855	500	992	11,088	100	198	3570	0	0	0	780	22,512
07-May-2009	07-May-2009	1	180	357	8,212	700	1,388	12,476	0	0	3570	0	0	0	880	24,258
08-May-2009	08-May-2009	1	180	357	8,569	700	1,388	13,864	0	0	3570	0	0	0	880	26,003
09-May-2009	09-May-2009	1	180	357	8,926	750	1,488	15,352	0	0	3570	0	0	0	930	27,848
10-May-2009	10-May-2009	1	180	357	9,283	750	1,488	16,840	0	0	3570	0	0	0	930	29,693
11-May-2009	11-May-2009	1	180	357	9,640	750	1,488	18,327	0	0	3570	0	0	0	930	31,537
12-May-2009	12-May-2009	1	180	357	9,997	750	1,488	19,815	0	0	3570	0	0	0	930	33,382
13-May-2009	13-May-2009	1	180	357	10,354	750	1,488	21,302	0	0	3570	0	0	0	930	35,226
14-May-2009	14-May-2009	1	180	357	10,711	750	1,488	22,790	0	0	3570	0	0	0	930	37,071
15-May-2009	15-May-2009	1	180	357	11,068	750	1,488	24,278	0	0	3570	0	0	0	930	38,916
16-May-2009	16-May-2009	1	180	357	11,425	750	1,488	25,765	0	0	3570	0	0	0	930	40,760
17-May-2009	17-May-2009	1	180	357	11,782	750	1,488	27,253	0	0	3570	0	0	0	930	42,605
18-May-2009	18-May-2009	1	180	357	12,139	700	1,388	28,641	0	0	3570	0	0	0	880	44,350
19-May-2009	19-May-2009	1	180	357	12,496	700	1,388	30,030	0	0	3570	0	0	0	880	46,096
20-May-2009	20-May-2009	1	180	357	12,853	650	1,289	31,319	0	0	3570	0	0	0	830	47,742
21-May-2009	21-May-2009	1	180	357	13,210	500	992	32,311	0	0	3570	0	0	0	680	49,091
22-May-2009	22-May-2009	1	180	357	13,567	400	793	33,104	0	0	3570	0	0	0	580	50,241
23-May-2009	23-May-2009	1	180	357	13,924	300	595	33,699	0	0	3570	0	0	0	480	51,193
24-May-2009	24-May-2009	1	180	357	14,281	300	595	34,294	0	0	3570	0	0	0	480	52,145
25-May-2009	25-May-2009	1	180	357	14,638	200	397	34,691	0	0	3570	0	0	0	380	52,899
26-May-2009	26-May-2009	1	180	357	14,995	200	397	35,088	0	0	3570	0	0	0	380	53,653
27-May-2009	27-May-2009	1	180	357	15,352	200	397	35,484	0	0	3570	0	0	0	380	54,407
28-May-2009	28-May-2009	1	180	357	15,709	125	248	35,732	0	0	3570	0	0	0	305	55,012
29-May-2009	29-May-2009	1	180	357	16,066	125	248	35,980	0	0	3570	0	0	0	305	55,617
30-May-2009	30-May-2009	1	180	357	16,423	85	169	36,149	0	0	3570	0	0	0	265	56,142
31-May-2009	31-May-2009	1	180	357	16,780	85	169	36,317	0	0	3570	0	0	0	265	56,668
01-Jun-2009	01-Jun-2009	1	75	149	16,929	0	0	36,317	190	377	3947	0	0	0	265	57,193
02-Jun-2009	02-Jun-2009	1	75	149	17,078	0	0	36,317	190	377	4324	0	0	0	265	57,719
03-Jun-2009	07-Jun-2009	5	75	744	17,821	0	0	36,317	135	1,339	5663	0	0	0	210	59,802
08-Jun-2009	15-Jun-2009	8	75	1,190	19,012	0	0	36,317	30	476	6139	0	0	0	105	61,468
16-Jun-2009	30-Jun-2009	15	75	2,231	21,243	0	0	36,317	0	0	6139	0	0	0	75	63,699
01-Jul-2009	31-Jul-2009	31	75	4,612	25,855	0	0	36,317	0	0	6139	0	0	0	75	68,311
01-Aug-2009	31-Aug-2009	31	75	4,612	30,466	0	0	36,317	0	0	6139	0	0	0	75	72,922
01-Sep-2009	10-Sep-2009	10	75	1,488	31,954	0	0	36,317	20	397	6536	0	0	0	95	74,807
11-Sep-2009	13-Sep-2009	3	75	446	32,400	0	0	36,317	20	119	6655	0	0	0	95	75,372
14-Sep-2009	30-Sep-2009	17	75	2,529	34,929	0	0	36,317	20	674	7329	0	0	0	95	78,575
01-Oct-2009	11-Oct-2009	11	200	4,364	39,293	0	0	36,317	0	0	7329	0	0	0	200	82,939
12-Oct-2009	12-Oct-2009	1	200	397	39,689	175	347	36,664	0	0	7329	0	0	0	375	83,683
13-Oct-2009	13-Oct-2009	1	200	397	40,086	250	496	37,160	0	0	7329	0	0	0	450	84,575
14-Oct-2009	14-Oct-2009	1	200	397	40,483	400	793	37,954	0	0	7329	0	0	0	600	85,765
15-Oct-2009	15-Oct-2009	1	200	397	40,879	500	992	38,945	0	0	7329	0	0	0	700	87,154
16-Oct-2009	20-Oct-2009	5	175	1,736	42,615	525	5,207	44,152	0	0	7329	0	0	0	700	94,096
21-Oct-2009	21-Oct-2009	1	175	347	42,962	425	843	44,995	0	0	7329	0	0	0	600	95,286
22-Oct-2009	22-Oct-2009	1	175	347	43,309	275	545	45,540	0	0	7329	0	0	0	450	96,179
23-Oct-2009	23-Oct-2009	1	175	347	43,656	65	129	45,669	0	0	7329	0	0	0	240	96,655
24-Oct-2009	31-Oct-2009	8	175	2,777	46,433	0	0	45,669	25	401	7730	25	397	397	225	100,229
01-Nov-2009	16-Nov-2009	16	175	5,554	51,987	0	0	45,669	25	802	8532	25	793	1,190	225	107,378
17-Nov-2009	30-Nov-2009	14	175	4,860	56,846	0	0	45,669	25	702	9234	25	694	1,884	225	113,634
01-Dec-2009	31-Dec-2009	31	175	10,760	67,607	0	0	45,669	25	1,554	10788	25	1,537	3,421	225	127,486
01-Jan-2010	31-Jan-2010	31	175	10,760	78,367	0	0	45,669	0	0	10788	25	1,537	4,959	200	139,783
01-Feb-2010	28-Feb-2010	28	175	9,719	88,086	0	0	45,669	0	0	10788	25	1,388	6,347	200	150,890
01-Mar-2010	31-Mar-2010	31	175	10,760	98,846	0	0	45,669	0	0	10788	25	1,537	7,884	200	163,188
01-Apr-2010	14-Apr-2010	14	175	4,860	103,706	0	0	45,669	0	0	10788	25	694	8,579	200	168,742

No. of days 365 (April 15 through April 14)

1 cfs day = 1.983471 acre-feet (af)

Notes: 1. Based on 60-20-20 Index

2. The pulse flows are a target that represents a daily average.