



# 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

**MAY 05 2017**

VIA ELECTRONIC MAIL

Mr. Les Grober  
Deputy Director, Division of Water Rights  
State Water Resources Control Board  
P.O. Box 2000  
Sacramento, CA 95812

Subject: Monitoring and Reporting Program on Water Rights Order No. 90-5 (Water Rights)

Dear Mr. Grober:

For the month of April 2017, the temperature control point was set at Balls Ferry, per the June 2016, Sacramento River Temperature Plan.

During April 2017, the average daily water temperature compliance of 56.0 °F or less was met at the Balls Ferry compliance point on the Sacramento River. During the month of April 2017, the average monthly water temperature was 51.7 °F at Balls Ferry.

Enclosed is the monitoring report for April 2017, under Order No. 90-5. The report contains the following data:

<b>Station</b>	<b>Description</b>
Shasta Inlets (R-1) “	Water Temperature Profile Turbidity, monthly, ntu
Shasta Dam (R-2) “	Water Temperature, daily average, degrees F Turbidity, ntu, monthly
Shasta Dam (R-2a)	Flow, average daily, cfs
Keswick (R-3) “	Water Temperature, daily average, degrees F Turbidity, ntu, monthly
Keswick (R-3a)	Flow, average daily, cfs
Spring Creek Power plant (R-4) “	Water Temperature, daily average, degrees F Turbidity, ntu, monthly Flow, average daily cfs

<b>Station</b>	<b>Description</b>
Control Point (R-5) Control Point	Water Temperature, daily average, degrees F Turbidity, ntu, monthly
Sacramento at Delta (R-6)	Water Temperature, monthly, degrees F Turbidity, ntu, monthly
McCloud (R-7) “	Water Temperature, monthly, degrees F Turbidity, ntu, monthly
Pit River (R-8) “	Water Temperature, monthly, degrees F Turbidity, ntu, monthly
Lewiston (R-9)	Water Temperature, daily average, degrees F
Lewiston (R-9a)	Flow, average daily, cfs

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Please contact Ms. Randi Field at 916-979-2066, should you have any questions regarding this data.

Sincerely,



Elizabeth Kiteck  
Chief, Water Operations

Enclosures

cc: Mr. Kenneth Emanuel  
Division of Water Rights  
State Water Resources Control Board  
P.O. Box 2000  
Sacramento, CA 95812  
(w/encl)

Central Valley Operations Office  
 \*Data obtained from the California Data Exchange Center  
 \*\*Data calculated by the Central Valley Operations Office  
 \*\*\*Measurements taken by the Northern CA Area Office Personnel  
**Water Temperature Data in Degrees F**  
**April 2017**

Req. Sampling Frequency - Daily Average (Reading indicates daily average)							Req. Sampling Frequency - Monthly		
Date	Sta 2 Shd*	Sta 3 Kwk*	Sta 4 Spp**	Sta 5 Bsf**	Sta9 Lws*		Sta 6 Dit***	Sta 7 Mss***	Sta 8 Pmn***
1	50.2	50.9	48.8	52.6	47.0				
2	50.6	51.0	48.5	53.5	48.0				
3	50.5	51.0	48.5	52.8	47.7				
4	50.1	51.0	48.6	52.7	48.4				
5	49.9	50.7	48.7	52.4	47.8				
6	49.9	50.5	48.6	51.7	48.0				
7	48.3	50.1	48.6	52.6	47.8				
8	49.5	49.3	48.9	51.7	46.9				
9	49.7	49.9	48.8	51.7	46.6				
10	49.9	50.2	48.9	52.1	46.6				
11	49.9	50.3	49.0	51.5	46.4				
12	49.2	50.2	48.8	51.5	46.4				
13	49.3	49.5	48.9	50.6	46.0				
14	49.7	49.6	49.1	50.2	45.9				
15	50.0	50.0	49.2	50.7	46.3				
16	49.8	50.0	49.1	50.6	46.2				
17	49.6	49.7	49.2	50.4	46.3				
18	49.4	49.8	49.4	51.1	46.0				
19	49.6	49.7	49.4	50.8	45.7		48.2		
20	49.8	49.8	49.2	51.1	46.6				
21	50.2	50.1	49.2	51.2	48.0				
22	50.1	50.2	49.3	51.4	47.8				
23	50.0	50.1	49.7	51.3	47.6				
24	49.7	49.8	49.4	50.9	48.2				
25	50.0	49.8	49.9	50.6	47.0				
26	50.3	50.4	49.7	51.2	44.9				52.8
27	51.0	50.7	49.9	51.9	44.5			47.9	
28	51.7	51.6	50.0	52.7	44.7				
29	52.1	52.0	50.0	53.5	44.7				
30	52.0	52.7	50.1	54.6	45.1				

Control Point: 4/1-4/30 BSF @ 56.0 DAT

Cross Channel Gate Operation:  
 April 01-30 closed

**Measurements taken by the Northern CA Area Office Personnel  
April 2017**

<b>TEMPERATURE</b>						
Sampling Frequency						
Every two weeks May 1 through November 30.						
Lake Elev MSL	Sample 1 4/11/2017 Temperature Degrees F	Sample 2 4/25/2017 Temperature Degrees F	Sample 3 Temperature Degrees F	Sample 4 Temperature Degrees F	Sample 5 Temperature Degrees F	
	(400 Feet Upstream of Dam)					
	<b>Time: 9:00</b>	<b>Time: 11:00</b>				
625	44.7	44.8				
650	44.7	44.8				
675	44.7	44.8				
700	44.8	44.9				
725	44.9	45.0				
750	45.0	45.0				
775	45.2	45.2				
800	45.4	45.5				
825	45.7	45.7				
850	46.0	46.0				
875	46.2	46.2				
900	46.7	47.1				
925	47.3	47.6				
950	47.6	47.9				
975	48.1	49.0				
1000	51.1	51.4				
1025	52.6	52.6				
1050	52.8	53.4				
Lake Surface	53.0 @ 1057.85	54.6 @ 1057.53				

<b>TURBIDITY</b>						
Sampling Frequency						
Monthly, except weekly May 1 through Sep 30, when turbidity at Station 2 is equal to or greater than 10 NTU						
Lake Elev MSL	Sample 1 4/11/2017 Turbidity ntu	Sample 2 4/25/2017 Turbidity ntu	Sample 3 Turbidity ntu	Sample 4 Turbidity ntu	Sample 5 Turbidity ntu	
	(400 Feet Upstream of Dam)					
	<b>Time: 9:00</b>	<b>Time: 11:00</b>				
625	27.5	24.9				
650	27.8	24.8				
675	28.4	24.9				
700	28.9	24.9				
725	29.3	24.7				
750	29.9	24.7				
775	31.0	24.5				
800	32.3	25.3				
825	33.0	24.9				
850	31.6	23.1				
875	28.7	21.8				
900	24.1	15.8				
925	17.8	14.2				
950	14.5	12.3				
975	13.4	10.4				
1000	10.0	6.8				
1025	9.3	6.4				
1050	9.2	6.2				
Lake Surface	8.6 @ 1057.85	5.9 @ 1057.53				

Central Valley Operations Office  
 Measurements taken by the Northern CA Area Office Personnel

**Summary of Turbidity and Dissolved Oxygen Water Sampling  
 April 2017**

Turbidity Measurements, NTU

Sampling Frequency

Monthly, except weekly from May 1 through September 30, when turbidity at Station 2 is equal to or greater than 10 NTU.

**Station**

	R-2	R-3a	R-4	R-5	R-6	R-7	R-8	
	Shasta Dam		Spring					
	Discharge	Keswick	Creek PP		Sacramento	McCloud	Pit	
Day	at Bridge	Discharge	Discharge	Clear Creek	River (DLT)	River	River	
7				12.9				
13			2.3					
18		14.3						
19					5.3			
26							4.8	
27	8.6					2.0		

Dissolved Oxygen, mg/l

Sampling Frequency

Every two weeks from May 1 through September 30; samples to be taken before 1000 hours.

**Station**

	R-2	R-3	R-5	
	Shasta Dam			Hour
	Discharge	Keswick		Time Sample
Day	at Bridge	Discharge	Clear Creek	Taken
7			12.0	10:48
18		13.6		11:30
27	11.1			10:45

Control Point: 4/1-4/30 BSF @ 56.0 DAT

**SHASTA LAKE, DAM AND POWERPLANT**

**GENERATION RELEASE, CFS**

QG

**WATER YEAR OCTOBER 2016 TO SEPTEMBER 2017**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6,289	4,929	4,122	5,765	18,164	18,613	9,138					
2	6,463	4,805	4,181	5,467	18,257	19,433	8,916					
3	6,942	4,257	4,630	4,764	18,708	18,909	8,346					
4	6,469	4,132	4,570	3,401	18,806	18,656	8,960					
5	6,546	3,985	4,123	3,865	18,609	19,005	8,875					
6	5,865	4,666	4,054	4,285	18,763	18,880	8,577					
7	4,953	4,429	4,088	8,401	18,323	18,041	7,181					
8	6,060	4,387	4,979	11,517	17,804	17,999	8,741					
9	6,069	3,948	5,086	9,821	15,665	16,282	8,620					
10	5,860	3,670	4,720	9,158	15,331	13,566	8,816					
11	6,325	4,016	4,126	12,026	17,378	11,446	8,366					
12	6,275	4,279	3,453	18,778	17,716	9,556	10,318					
13	5,812	4,781	3,964	17,022	18,573	7,667	13,679					
14	6,180	4,605	3,960	18,722	18,464	8,523	13,615					
15	5,544	4,948	1,657	18,490	18,653	7,245	13,502					
16	6,164	5,005	2,446	18,236	18,669	6,079	13,779					
17	6,027	4,610	2,801	18,215	19,050	6,497	14,001					
18	5,192	4,023	2,871	17,665	19,430	6,412	13,659					
19	4,812	4,247	2,656	17,799	18,887	6,703	13,857					
20	5,304	4,378	3,422	18,125	18,688	6,592	14,202					
21	5,789	4,357	7,632	18,065	18,948	5,997	14,493					
22	5,733	4,673	7,859	18,584	19,369	4,845	15,458					
23	5,549	4,642	9,317	18,517	19,679	6,213	15,228					
24	5,367	4,159	9,866	17,848	19,804	6,131	16,893					
25	4,817	4,461	9,186	18,354	19,768	5,675	16,436					
26	4,817	4,341	9,346	17,930	19,346	6,851	17,351					
27	4,791	4,427	8,207	18,390	19,604	7,480	16,969					
28	4,057	4,238	8,682	18,457	19,393	7,390	12,334					
29	3,861	4,423	9,191	18,487		9,551	11,642					
30	5,475	4,779	8,429	18,146		9,117	10,678					
31	4,387		7,462	18,566		8,778						
<b>TOTAL</b>	<b>173,794</b>	<b>132,600</b>	<b>171,086</b>	<b>442,866</b>	<b>519,849</b>	<b>334,132</b>	<b>362,630</b>					
<b>MEAN</b>	<b>5,606</b>	<b>4,420</b>	<b>5,519</b>	<b>14,286</b>	<b>18,566</b>	<b>10,778</b>	<b>12,088</b>					
<b>MAX</b>	<b>6,942</b>	<b>5,005</b>	<b>9,866</b>	<b>18,778</b>	<b>19,804</b>	<b>19,433</b>	<b>17,351</b>					
<b>MIN</b>	<b>3,861</b>	<b>3,670</b>	<b>1,657</b>	<b>3,401</b>	<b>15,331</b>	<b>4,845</b>	<b>7,181</b>					
<b>WATER YEAR TOTALS</b>												
<b>TOTAL</b>	<b>2,136,957</b>											
<b>DAILY MEAN</b>	<b>10,080</b>											
<b>DAILY MAX</b>	<b>19,804</b>											
<b>DAILY MIN</b>	<b>1,657</b>											
	<b>02/24/2017</b>											
	<b>12/15/2016</b>											

UNITED STATES DEPARTMENT OF THE INTERIOR  
 U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA  
**KESWICK DAM, RESERVOIR, AND POWERPLANT**

RUN DATE: May 5, 2017

QT

TOTAL RELEASE, CFS

WATER YEAR OCTOBER 2016 TO SEPTEMBER 2017

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7,368	4,950	4,816	6,179	21,870	66,365	8,737					
2	7,366	5,147	4,832	5,978	21,947	56,516	8,627					
3	7,349	5,023	4,842	5,304	22,318	47,139	8,665					
4	7,021	4,831	4,840	4,756	22,445	40,147	8,689					
5	7,013	4,841	4,841	4,776	22,619	33,474	8,694					
6	6,764	4,841	4,841	4,792	27,729	28,177	8,691					
7	6,751	4,841	4,838	9,531	25,848	23,006	9,050					
8	6,756	4,840	4,835	13,032	21,361	18,958	8,812					
9	6,751	4,854	4,840	13,339	17,284	15,948	8,770					
10	6,510	4,866	4,839	13,479	38,612	13,659	8,698					
11	6,505	4,866	4,837	16,048	49,030	12,190	8,937					
12	6,537	4,866	4,841	32,098	59,280	10,960	11,281					
13	6,545	4,865	4,840	32,404	67,438	9,632	17,654					
14	6,542	4,863	4,842	32,383	73,966	9,401	20,955					
15	6,519	4,779	4,997	32,056	65,398	8,109	22,556					
16	6,515	4,865	4,946	31,833	46,123	7,997	22,460					
17	6,519	4,866	4,889	31,987	53,728	7,928	22,451					
18	6,232	4,864	4,891	28,724	45,624	7,857	25,572					
19	6,222	4,866	4,890	25,912	45,427	7,697	26,855					
20	6,225	4,862	4,870	25,968	26,418	7,697	26,377					
21	5,770	4,865	9,706	26,456	29,828	7,702	26,352					
22	5,495	4,864	9,852	25,898	57,422	7,816	26,899					
23	5,493	4,864	9,753	25,617	66,552	8,942	28,032					
24	5,444	4,866	9,762	25,936	68,035	9,091	28,046					
25	5,346	4,861	9,760	25,424	68,631	9,141	22,653					
26	4,888	4,814	9,762	26,751	68,906	8,887	18,492					
27	4,887	4,815	9,825	26,226	68,287	8,886	15,477					
28	4,889	4,810	9,839	22,215	68,444	8,889	12,929					
29	4,889	4,816	9,836	21,646		8,891	11,190					
30	4,864	4,816	8,527	21,790		8,889	10,065					
31	4,864		7,175	21,762		8,679						
<b>TOTAL</b>	<b>190,839</b>	<b>145,987</b>	<b>201,004</b>	<b>640,300</b>	<b>1,270,570</b>	<b>528,670</b>	<b>492,666</b>					
<b>MEAN</b>	<b>6,156</b>	<b>4,866</b>	<b>6,484</b>	<b>20,655</b>	<b>45,378</b>	<b>17,054</b>	<b>16,422</b>					
<b>MAX</b>	<b>7,368</b>	<b>5,147</b>	<b>9,852</b>	<b>32,404</b>	<b>73,966</b>	<b>66,365</b>	<b>28,046</b>					
<b>MIN</b>	<b>4,864</b>	<b>4,779</b>	<b>4,816</b>	<b>4,756</b>	<b>17,284</b>	<b>7,697</b>	<b>8,627</b>					

WATER YEAR TOTALS

<b>TOTAL</b>	<b>3,470,036</b>
<b>DAILY MEAN</b>	<b>16,368</b>
<b>DAILY MAX</b>	<b>73,966</b> 02/14/2017
<b>DAILY MIN</b>	<b>4,756</b> 01/04/2017

UNITED STATES DEPARTMENT OF THE INTERIOR  
 U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA  
**LEWISTON DAM, LAKE, AND JUDGE FRANCIS CARR POWERPLANT**

RUN DATE: May 5, 2017

**QR**

**RELEASE TO RIVER, CFS**

**WATER YEAR OCTOBER 2016 TO SEPTEMBER 2017**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	466	313	310	306	290	325	316					
2	461	320	311	307	290	324	315					
3	440	319	307	310	291	312	315					
4	440	317	304	315	291	313	315					
5	448	316	306	312	291	316	1,037					
6	450	316	305	313	292	316	1,511					
7	450	314	306	313	298	315	1,519					
8	446	302	306	318	296	311	1,522					
9	447	311	306	318	296	314	1,517					
10	449	303	308	316	312	312	1,528					
11	463	304	309	314	320	313	1,534					
12	465	304	308	316	318	317	1,540					
13	455	302	308	315	315	316	1,515					
14	451	321	308	320	324	315	1,508					
15	447	313	313	324	333	316	1,509					
16	445	310	311	327	334	317	1,507					
17	408	313	311	324	335	316	1,507					
18	330	314	312	326	334	317	1,511					
19	301	313	309	326	339	315	1,336					
20	301	312	307	326	338	313	757					
21	300	313	303	324	335	315	393					
22	302	311	306	326	334	316	539					
23	305	309	308	325	337	316	1,643					
24	306	307	308	334	338	317	2,988					
25	305	311	307	333	330	318	6,006					
26	317	313	306	317	293	320	9,629					
27	321	311	307	317	290	317	11,029					
28	309	311	306	317	326	316	11,129					
29	308	311	307	313		317	10,032					
30	309	310	307	290		317	8,000					
31	308		306	290		316						
<b>TOTAL</b>	<b>11,953</b>	<b>9,342</b>	<b>9,536</b>	<b>9,832</b>	<b>8,820</b>	<b>9,798</b>	<b>85,507</b>					
<b>MEAN</b>	<b>386</b>	<b>311</b>	<b>308</b>	<b>317</b>	<b>315</b>	<b>316</b>	<b>2,850</b>					
<b>MAX</b>	<b>466</b>	<b>321</b>	<b>313</b>	<b>334</b>	<b>339</b>	<b>325</b>	<b>11,129</b>					
<b>MIN</b>	<b>300</b>	<b>302</b>	<b>303</b>	<b>290</b>	<b>290</b>	<b>311</b>	<b>315</b>					

**WATER YEAR TOTALS**

<b>TOTAL</b>	<b>144,788</b>
<b>DAILY MEAN</b>	<b>683</b>
<b>DAILY MAX</b>	<b>11,129</b> 04/28/2017
<b>DAILY MIN</b>	<b>290</b> 01/30/2017



UNITED STATES DEPARTMENT OF THE INTERIOR  
 U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA  
**WHISKEYTOWN DAM, LAKE, AND SPRING CREEK POWERPLANT**

RUN DATE: May 5, 2017

**QG**

**GENERATION RELEASE, CFS**

**WATER YEAR OCTOBER 2016 TO SEPTEMBER 2017**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	746	18	14	15	2,665	3,513	14					
2	349	14	293	223	3,047	3,534	852					
3	276	530	14	602	2,256	1,058	1,105					
4	454	481	14	859	2,033	1,051	932					
5	309	519	14	25	1,680	865	1,190					
6	808	14	62	14	1,487	1,038	806					
7	1,036	14	220	683	2,028	1,645	2,093					
8	398	31	215	1,255	2,004	1,694	808					
9	292	471	16	3,051	1,108	1,792	912					
10	292	654	130	3,570	2,697	1,838	779					
11	365	183	14	3,354	3,004	1,474	873					
12	417	180	414	866	2,117	1,412	839					
13	380	23	393	1,641	1,928	1,460	660					
14	14	166	583	444	2,495	695	1,057					
15	362	35	2,090	854	1,143	1,934	1,468					
16	417	86	2,161	190	1,315	1,692	1,193					
17	658	164	1,723	422	1,250	1,372	1,037					
18	1,086	170	1,674	1,069	14	1,368	681					
19	802	193	1,821	702	1,130	1,366	1,262					
20	730	135	703	1,405	2,702	1,441	833					
21	295	14	519	1,482	2,415	1,659	572					
22	16	336	475	719	2,484	3,192	130					
23	14	511	122	857	2,156	2,446	67					
24	14	238	315	1,272	2,104	2,875	219					
25	14	311	152	819	2,096	3,250	38					
26	19	171	200	1,322	3,615	2,855	163					
27	191	280	1,049	1,116	3,767	1,701	141					
28	14	344	353	997	3,505	1,713	903					
29	14	14	164	2,235	44	668	668					
30	14	14	82	2,514	199	422	422					
31	989		25	2,320		239						
<b>TOTAL</b>	<b>11,785</b>	<b>6,314</b>	<b>16,024</b>	<b>36,897</b>	<b>60,245</b>	<b>52,415</b>	<b>22,717</b>					
<b>MEAN</b>	<b>380</b>	<b>210</b>	<b>517</b>	<b>1,190</b>	<b>2,152</b>	<b>1,691</b>	<b>757</b>					
<b>MAX</b>	<b>1,086</b>	<b>654</b>	<b>2,161</b>	<b>3,570</b>	<b>3,767</b>	<b>3,534</b>	<b>2,093</b>					
<b>MIN</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>44</b>	<b>14</b>					
<b>WATER YEAR TOTALS</b>												
<b>TOTAL</b>			<b>206,397</b>									
<b>DAILY MEAN</b>			<b>974</b>									
<b>DAILY MAX</b>			<b>3,767</b>				<b>02/27/2017</b>					
<b>DAILY MIN</b>			<b>14</b>				<b>10/14/2016</b>					