



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 21 2016

VIA ELECTRONIC MAIL

Ms. Barbara Evoy
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

Dear Ms. Evoy:

For the month of March, the temperature control point was set at Clear Creek, per the recommendation of the Sacramento River Temperature Task Group.

During March 2016, the average daily water temperature compliance of 57.0° F or less was met at the Clear Creek compliance point on the Sacramento River. During the month of March 2016, the average monthly water temperature was 50.4° F at Clear Creek.

Enclosed is the monitoring report for March 2016, under Order No. 90-5. The report contains the following data:

Station	Description
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

Station	Description
Spring Creek Power plant (R-4) “	Water Temperature, daily average, degrees F Turbidity, ntu, monthly Flow, average daily cfs
Jellys Ferry (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

Please contact Ms. Thuy Washburn at 916-979-2193, 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
March 2016

Req. Sampling Frequency - Daily Average (Reading indicates daily average)							Control Pt 3/1 to 3/31			Req. Sampling Frequency - Monthly		
Date	Sta 2 Shd*	Sta 3 Kwk*	Sta 4 Spp**	Sta 5 Ccr**	Sta 9 Lws*	Sta 10 Nfh*	Sta 6 Dlt***	Sta 7 Mss***	Sta 8 Pmn***			
1	48.0	48.7	48.1	49.3	46.7	46.6						
2	48.0	48.8	48.2	49.9	47.7	47.9						
3	47.8	48.8	48.1	50.0	48.0	49.9						
4	47.8	49.0	48.1	49.8	47.6	48.8						
5	48.0	49.1	48.2	50.5	47.5	47.9						
6	48.8	49.5	48.1	50.3	46.8	45.7						
7	48.6	49.6	48.4	50.4	47.3	45.9						
8	48.1	49.2	49.2	49.4	47.0	45.0						
9	47.9	49.1	48.9	49.3	47.0	45.3						
10	47.7	49.0	48.7	49.9	47.7	46.9	46.5					
11	48.0	49.3	48.8	50.0	47.3	47.4						
12	48.4	49.5	49.0	49.7	46.4	46.0						
13	47.9	49.8	49.2	50.3	46.5	45.7						
14	48.6	50.0	49.3	50.8	47.1	46.7						
15	48.2	50.3	49.3	51.0	47.6	46.6						
16	48.5	50.6	49.4	51.6	48.1	47.6						
17	49.2	50.8	49.6	52.1	48.5	48.6						
18	49.2	50.3	49.5	50.7	48.8	49.2						
19	49.0	50.0	49.3	50.3	49.2	50.5						
20	48.6	49.5	49.2	49.8	48.6	50.0						
21	48.5	49.0	49.3	49.1	48.1	47.0						
22	48.5	48.9	49.4	49.1	48.6	47.0		45.9	48.6			
23	49.1	49.3	49.4	49.4	48.8	47.5						
24	49.4	49.9	49.4	50.2	49.4	49.5						
25	49.7	50.1	49.5	50.5	49.6	49.5						
26	50.3	50.4	49.6	50.8	49.7	49.6						
27	49.7	50.9	49.5	51.4	49.6	49.9						
28	50.0	50.8	49.7	51.4	49.2	48.0						
29	50.2	50.6	49.7	51.2	49.5	46.9						
30	49.9	51.0	50.3	51.9	50.4	48.4						
31	49.9	51.3	50.0	52.5	51.0	50.2						

Control Point: 56.0 degrees at Clear Creek from 4/1/2015 to 4/17/2015.
58.0 degrees at Clear Creek from 4/18/2015 to 5/14/2015.
56.0 degrees at Clear Creek from 5/15/2015 to 6/4/2015.
Target 57.0 degrees not to exceed 58.0 degrees at Clear Creek from 6/5/2015 to 3/31/2016.

Cross Channel Gate Operation:
 March 1-31 closed

**Measurements taken by the Northern CA Area Office Personnel
March 2016**

TEMPERATURE					
Sampling Frequency					
Every two weeks May 1 through November 30.					
Lake Elev	Sample 1	Sample 2	Sample 3	Sample 4	
MSL	3/8/2016	3/15/2016			
	Temperature	Temperature	Temperature	Temperature	Temperature
	Degrees F	Degrees F	Degrees F	Degrees F	Degrees F
	(400 Feet Upstream of Dam)				
	Time: 1100	Time: 1030	Time:	Time:	Time:
625	45.2	45.2			
650	45.2	45.3			
675	45.2	45.4			
700	45.3	45.5			
725	45.3	45.6			
750	45.6	45.7			
775	45.7	46.0			
800	46.1	46.5			
825	46.3	46.8			
850	46.5	47.1			
875	47.0	47.5			
900	47.6	48.1			
925	49.4	49.1			
950	49.9	49.2			
975	49.9	49.2			
1000	50.1	49.2			
1025		49.3			
1050					
Lake Surface	1010.45' @ 50.1	1037.85' @ 49.3			

TURBIDITY					
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	Sample 1	Sample 2	Sample 3	Sample 4	
MSL	3/8/2016	3/15/2016			
	Turbidity	Turbidity	Turbidity	Turbidity	Turbidity
	ntu	ntu	ntu	ntu	ntu
	(400 Feet Upstream of Dam)				
	Time: 1100	Time: 1030	Time:	Time:	Time:
625	8.8	7.4			
650	8.4	6.6			
675	7.6	6.0			
700	6.7	5.2			
725	6.3	4.9			
750	4.3	5.3			
775	5.4	5.8			
800	6.8	5.8			
825	6.0	5.0			
850	5.3	3.8			
875	3.8	3.4			
900	2.5	2.9			
925	2.1	2.2			
950	2.6	2.8			
975	2.6	2.9			
1000	3.1	2.9			
1025		3.0			
1050					
Lake Surface	1010.45' @ 2.9	1037.85' @ 3.0			

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

**Summary of Turbidity and Dissolved Oxygen Water Sampling
 March 2016**

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	Clear Creek			
	Discharge	Keswick	Creek PP	Control Point	Sacramento	McCloud	Pit
Day	at Bridge	Discharge	Discharge	3/1 to 3/31	River (DLT)	River	River
1		3.6					
3			0.7				
9	4.8			5.6			
10					163.5		
22						5.0	27.4

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	Hour
	Shasta Dam			Time Sample
	Discharge	Keswick		Taken
Day	at Bridge	Discharge	Clear Creek	
	No Requirement October through April.			

Temperature Control Point:
 56.0 degrees at Clear Creek from 4/1/2015 to 4/17/2015.
 58.0 degrees at Clear Creek from 4/18/2015 to 5/14/2015.
 56.0 degrees at Clear Creek from 5/15/2015 to 6/4/2015.
 Target 57.0 degrees not to exceed 58.0 degrees at Clear Creek from 6/5/2015 to 3/31/2016.

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

RUN DATE: April 7, 2016

QG

GENERATION RELEASE, CFS

WATER YEAR OCTOBER 2015 TO SEPTEMBER 2016

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5,701	4,248	4,120	2,851	1,110	2,381						
2	5,680	4,351	3,597	2,573	1,133	2,353						
3	5,648	5,011	4,233	2,570	2,192	1,546						
4	5,222	4,048	3,150	2,693	2,234	2,223						
5	5,649	4,740	2,511	2,020	2,166	2,079						
6	5,732	4,341	3,604	2,058	2,086	1,179						
7	6,419	4,456	3,756	2,175	2,413	2,407						
8	6,374	4,480	4,236	2,223	3,037	975						
9	5,750	4,508	3,565	2,199	3,452	1,198						
10	5,635	4,975	3,349	2,245	3,326	833						
11	5,559	4,165	3,288	2,621	2,713	560						
12	6,084	4,206	3,219	2,790	2,322	401						
13	5,843	4,281	3,129	1,760	2,756	551						
14	5,619	4,308	3,404	1,382	2,851	445						
15	4,995	4,018	3,847	1,851	2,723	1,262						
16	5,560	3,170	4,295	1,753	2,361	1,880						
17	5,747	4,073	4,139	827	2,110	3,097						
18	5,165	3,737	3,327	1,070	1,901	17,515						
19	5,503	3,900	3,626	1,098	3,150	17,239						
20	6,131	3,685	3,497	962	2,982	16,888						
21	4,776	3,481	2,724	109	3,242	17,088						
22	4,020	3,554	3,411	400	2,364	17,034						
23	4,646	3,593	3,556	762	2,668	14,719						
24	4,441	4,062	3,346	764	2,590	13,787						
25	4,711	4,045	3,848	867	2,725	11,638						
26	4,218	3,492	2,388	1,993	3,106	9,849						
27	4,444	3,605	2,222	1,784	2,704	6,758						
28	3,627	3,796	3,235	1,072	2,653	4,247						
29	4,538	3,572	2,967	1,077	3,002	4,327						
30	4,774	3,771	2,958	491		5,232						
31	4,687		2,974	393		5,651						
TOTAL	162,898	121,672	105,521	49,433	74,072	187,342						
MEAN	5,255	4,056	3,404	1,595	2,554	6,043						
MAX	6,419	5,011	4,295	2,851	3,452	17,515						
MIN	3,627	3,170	2,222	109	1,110	401						

WATER YEAR TOTALS

TOTAL	700,938
DAILY MEAN	3,830
DAILY MAX	17,515 03/18/2016
DAILY MIN	109 01/21/2016

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

RUN DATE: April 7, 2016

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TOTAL RELEASE, CFS

WATER YEAR OCTOBER 2015 TO SEPTEMBER 2016

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6,542	5,068	3,995	3,121	2,974	3,118						
2	6,544	4,685	3,996	3,121	2,973	3,118						
3	6,545	4,688	3,993	3,121	2,970	3,119						
4	6,543	4,702	3,997	3,119	2,969	3,091						
5	6,545	4,704	4,058	3,076	2,972	3,163						
6	6,544	4,704	4,208	3,080	2,994	3,161						
7	6,544	4,701	4,211	3,091	2,996	3,163						
8	6,536	4,704	4,213	3,086	2,992	3,109						
9	6,505	4,702	4,204	3,078	3,012	3,025						
10	6,534	4,701	4,161	3,051	3,067	3,091						
11	6,510	4,697	4,190	3,064	3,070	4,219						
12	6,511	4,505	4,192	3,065	3,051	4,514						
13	6,509	4,288	4,139	3,068	3,052	4,609						
14	6,506	4,290	4,137	3,033	3,055	4,504						
15	6,510	4,150	4,156	3,088	3,054	4,598						
16	6,509	3,953	4,162	3,120	3,055	4,692						
17	6,506	3,944	4,171	3,013	3,055	4,692						
18	6,498	4,039	4,171	2,994	3,050	18,000						
19	6,652	4,081	4,172	2,970	3,054	18,874						
20	6,188	4,035	4,171	2,981	3,055	18,591						
21	5,913	4,053	4,170	2,974	3,057	18,537						
22	5,732	4,054	4,153	2,973	3,052	18,558						
23	5,472	4,061	3,889	2,932	3,066	16,063						
24	5,467	4,054	3,632	2,961	3,092	13,226						
25	5,388	4,044	3,335	3,045	3,119	10,631						
26	5,164	4,017	3,079	3,047	3,121	8,552						
27	5,164	4,012	3,082	3,046	3,118	7,136						
28	5,166	4,005	3,092	3,046	3,119	4,890						
29	5,168	3,996	3,133	3,063	3,119	4,885						
30	4,866	3,996	3,101	3,044		4,936						
31	4,803		3,103	2,999		4,942						
TOTAL	188,584	129,643	120,466	94,470	88,333	230,807						
MEAN	6,083	4,321	3,886	3,047	3,046	7,445						
MAX	6,652	5,068	4,213	3,121	3,121	18,874						
MIN	4,803	3,944	3,079	2,932	2,969	3,025						

WATER YEAR TOTALS

TOTAL	852,303
DAILY MEAN	4,657
DAILY MAX	18,874 03/19/2016
DAILY MIN	2,932 01/23/2016

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

RUN DATE: April 7, 2016

QG

GENERATION RELEASE, CFS

WATER YEAR OCTOBER 2015 TO SEPTEMBER 2016

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	756	344	69	14	1,708	304						
2	669	363	16	14	1,480	450						
3	670	14	35	14	1,147	482						
4	593	14	1,064	14	144	116						
5	667	22	1,612	430	16	342						
6	589	30	14	1,011	14	687						
7	458	42	50	346	14	1,081						
8	375	33	109	656	14	1,761						
9	807	16	14	14	19	2,061						
10	788	34	45	14	514	1,908						
11	14	86	36	771	731	1,775						
12	511	87	22	351	348	1,888						
13	535	19	216	900	14	1,988						
14	571	17	361	1,220	189	1,964						
15	677	52	14	685	369	1,999						
16	811	18	14	207	342	1,930						
17	270	227	15	733	285	2,062						
18	597	24	277	792	14	2,043						
19	654	17	15	703	189	2,131						
20	664	57	14	1,960	247	2,133						
21	409	21	550	2,467	191	2,136						
22	865	20	401	1,325	360	2,141						
23	609	15	495	1,306	485	2,100						
24	803	16	71	753	40	380						
25	632	23	103	1,640	14	179						
26	800	14	14	1,362	14	160						
27	729	25	14	2,047	389	261						
28	788	14	14	1,903	273	704						
29	214	14	16	1,401	14	154						
30	188	15	14	2,144	14	14						
31	185	14	14	2,112	45	45						
TOTAL	17,898	1,683	5,718	29,309	9,578	37,379						
MEAN	577	56	184	945	330	1,206						
MAX	865	353	1,612	2,467	1,708	2,141						
MIN	14	14	14	14	14	14						
WATER YEAR TOTALS												
TOTAL						101,565						
DAILY MEAN						555						
DAILY MAX						2,467			01/21/2016			
DAILY MIN						14			10/11/2015			

