



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

DEC 11 2018

VIA ELECTRONIC MAIL

Mr. Erik Ekdahl
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. Ekdahl:

For the month of November 2018, the temperature control point was set at Balls Ferry, per the May 2018, Sacramento River Temperature Plan.

During the month, 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, the observed average monthly water temperature was 53.8°F at Balls Ferry.

Enclosed is the monitoring report for November 2018, under Order No. 90-5. Some directly measured information is not available due to issues with the telemetry system that records and transmits data from the station (this is the same issue United States Geological Survey is experiencing with Geostationary Operational Environmental Satellite system). Reclamation plans to recover communication as soon as possible. The report contains the following data as required:

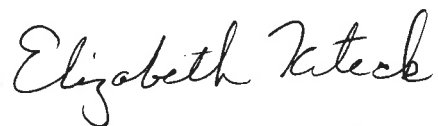
ID #	Station	Temperature*	Turbidity*	Dissolved Oxygen*	Flow*
1	Shasta Inlets	X	X		
2	Shasta Dam	X	X	X	
2a	Shasta Dam				X
3	Sacramento River below Keswick Dam	X		X	
3a	Keswick Dam		X		X
4	Spring Creek Power Plant	X	X		X
5	Temperature Control Point	X	X	X	
6	Sacramento River at Delta	X	X		

ID #	Station	Temperature*	Turbidity*	Dissolved Oxygen*	Flow*
7	McCloud River	X	X		
8	Pit River	X	X		
9	Trinity River below Lewiston Dam	X			
9a	Lewiston Dam				X
10	Trinity River at Douglas City Bridge	X			
11	Trinity River at confluence of North Fork	X			

*Monitoring frequency, period, and units are specified in enclosures

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: Ms. Alessia Siclari Melchor
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812

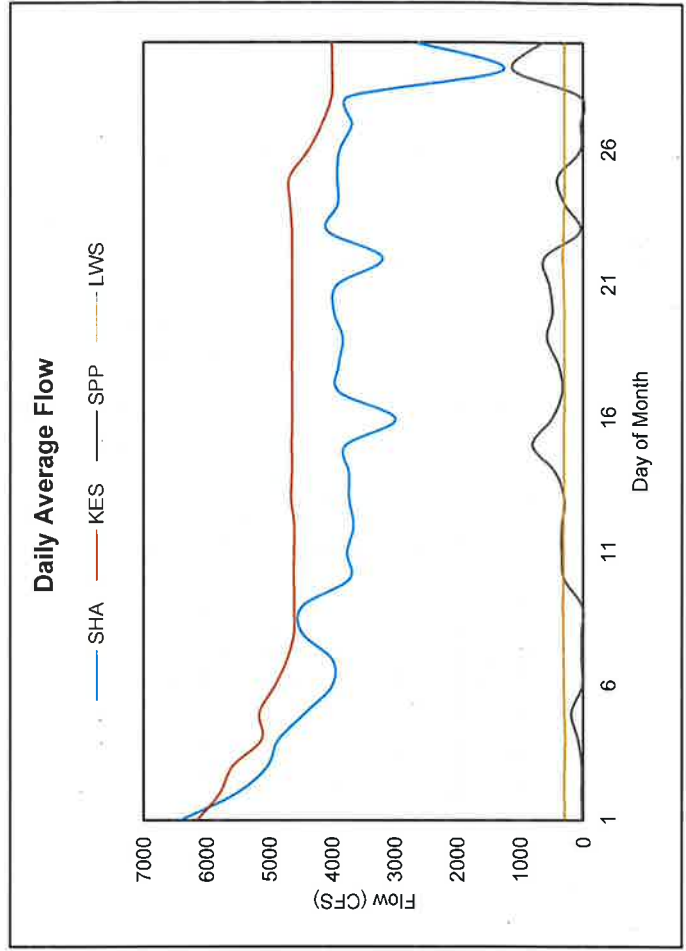
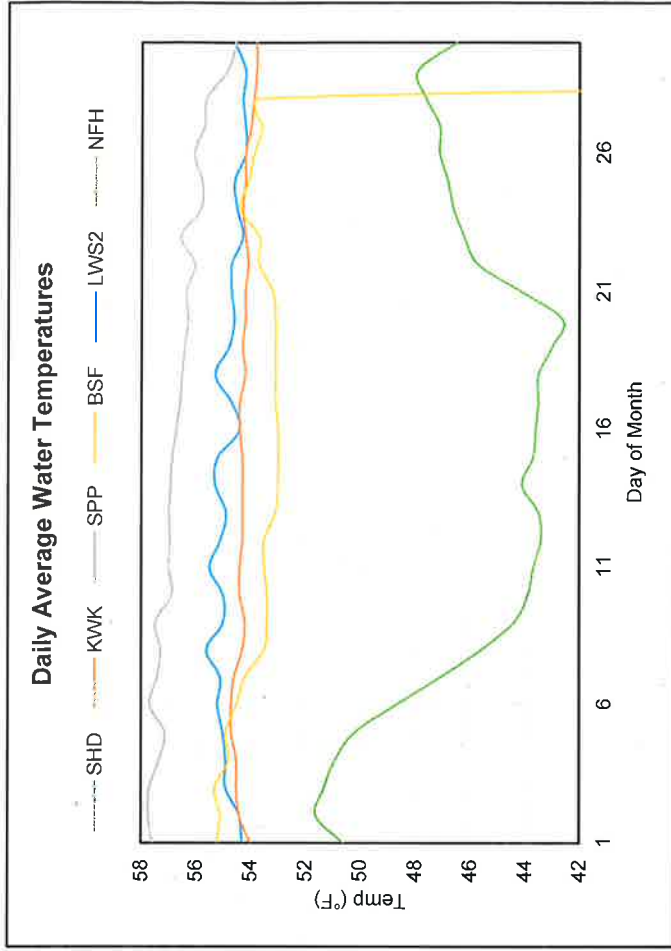
Mr. Vadim Demchuk
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812

Ms. Diane Riddle
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812
(w/encl)

90-5 Required Water Monitoring Data

November 2018

Daily Averages from Hourly Automated Observations												
Parameter	Temp (°F)										Flow (CFS)	
	2	3	4	5	9	11	2a	3a	4	9a	Max	Min
Site	SHD	KWK	SPP	BSF ¹	LWS ²	NFH	SHA	KES	SPP	LWS		
1	54.3	54.0	57.6	55.2	-	50.6	6418	6148	22	299		
2	54.4	54.4	57.7	55.1	-	51.6	5532	5790	25	300		
3	54.9	54.5	57.7	55.3	-	51.3	5038	5590	24	299		
4	54.9	54.5	57.4	54.8	-	50.9	4859	5122	82	286		
5	55.0	54.7	57.1	54.9	-	50.2	4430	5160	188	301		
6	55.2	54.7	57.7	54.5	-	48.7	3999	4915	16	308		
7	55.1	54.6	57.4	54.2	-	47.1	3991	4714	29	313		
8	55.6	54.3	57.3	53.5	-	45.6	4475	4604	26	318		
9	55.0	54.2	57.5	53.4	-	44.4	4472	4603	17	322		
10	55.0	54.4	56.9	53.4	-	43.9	3722	4608	301	311		
11	55.5	54.4	57.0	53.5	-	43.7	3751	4604	340	314		
12	55.1	54.3	57.0	53.5	-	43.4	3649	4600	337	314		
13	54.9	54.3	57.0	53.1	-	43.5	3714	4651	301	310		
14	55.3	54.3	56.9	53.0	-	44.1	3722	4631	447	303		
15	55.2	54.3	56.9	53.0	-	43.7	3773	4638	800	303		
16	54.4	54.4	56.7	53.0	-	43.6	2975	4630	493	303		
17	54.7	54.4	56.6	53.1	-	43.5	3871	4627	330	298		
18	55.3	54.2	56.5	53.1	-	43.5	3880	4633	387	297		
19	54.8	54.3	56.4	53.1	-	43.0	3812	4629	574	297		
20	54.6	54.2	56.3	53.1	-	42.6	3953	4628	480	297		
21	54.7	54.2	56.4	53.2	-	44.1	3897	4629	539	308		
22	54.7	54.1	56.1	53.7	-	45.7	3175	4626	613	321		
23	54.3	54.2	56.6	53.7	-	46.2	4062	4629	47	310		
24	54.5	54.3	55.8	54.4	-	46.6	3891	4657	289	298		
25	54.6	54.2	55.8	54.1	-	46.8	3898	4668	407	298		
26	54.2	54.2	56.1	53.9	-	47.1	3863	4366	46	296		
27	54.2	54.0	55.7	53.6	-	47.1	3660	4141	35	297		
28	54.3	53.9	55.6	53.7	-	47.6	3714	3987	37	295		
29	54.2	53.8	54.9	-	-	47.9	1251	3981	1102	297		
30	54.6	53.8	54.6	-	-	46.5	2605	3983	638	295		
-												
							6418	6148	1102	322		
							3935	4706	299	304		
							1251	3981	16	286		
							234	280	18	18		
							Volume (TAF)					



Notes

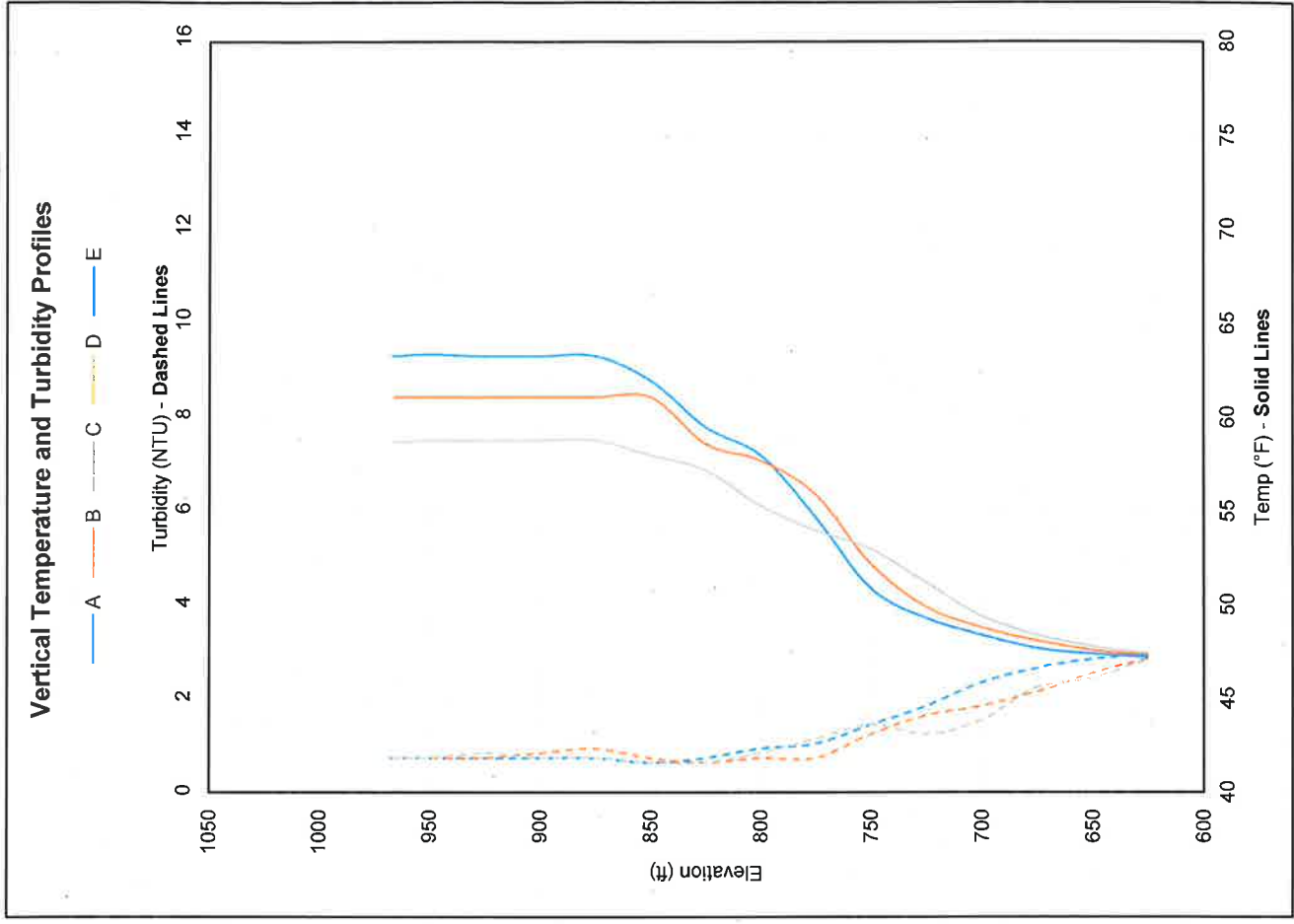
¹ Current temperature control point

² Missing data per facility transmitter

90-5 Required Water Monitoring Data (Continued)

November 2018

Vertical Profiles Taken at Site 1 (Shasta Lake at Dam Inlets)											
Profile	A		B		C		D		E		
Day of Month	6		13		27						
Lake Elev.	966.76		965.96		966.03						
Parameter	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	
L.E.	63.3	0.7	61.1	0.7	58.7	0.7	-	-	-	-	
1050	-	-	-	-	-	-	-	-	-	-	
1025	-	-	-	-	-	-	-	-	-	-	
1000	-	-	-	-	-	-	-	-	-	-	
975	-	-	-	-	-	-	-	-	-	-	
950	63.4	0.7	61.1	0.7	58.8	0.7	-	-	-	-	
925	63.3	0.7	61.1	0.7	58.8	0.8	-	-	-	-	
900	63.3	0.7	61.1	0.8	58.8	0.7	-	-	-	-	
875	63.3	0.7	61.1	0.9	58.8	0.7	-	-	-	-	
850	62.0	0.6	61.1	0.7	58.0	0.6	-	-	-	-	
825	59.5	0.7	58.6	0.6	57.2	0.6	-	-	-	-	
800	58.0	0.9	57.7	0.7	55.3	0.8	-	-	-	-	
775	54.7	1.0	55.9	0.7	54.0	1.1	-	-	-	-	
750	50.9	1.4	52.2	1.2	53.0	1.4	-	-	-	-	
725	49.3	1.8	49.9	1.6	51.2	1.2	-	-	-	-	
700	48.4	2.3	48.8	1.8	49.4	1.5	-	-	-	-	
675	47.7	2.6	48.1	2.1	48.4	2.2	-	-	-	-	
650	47.4	2.8	47.6	2.5	47.8	2.4	-	-	-	-	
625	47.2	2.9	47.3	2.8	47.4	2.8	-	-	-	-	



Monthly Manual Observations												
Parameter	Temp (°F)						Turb (NTU)					
	6	7	8	9	28	28	7	8	28	28	28	
Site	DLT	MSS ¹	PMN	SHD	KWK	SPP	RDB	DLT	MSS ¹	PMN		
Value	48.7	-	50.8	1.2	1.6	0.5	1.7	2.5	-	2.5		
Day of Month	28	-	9	28	8	7	7	28	-	9		

Notes

¹ MSS not visited this month

90-5 Required Water Monitoring Details

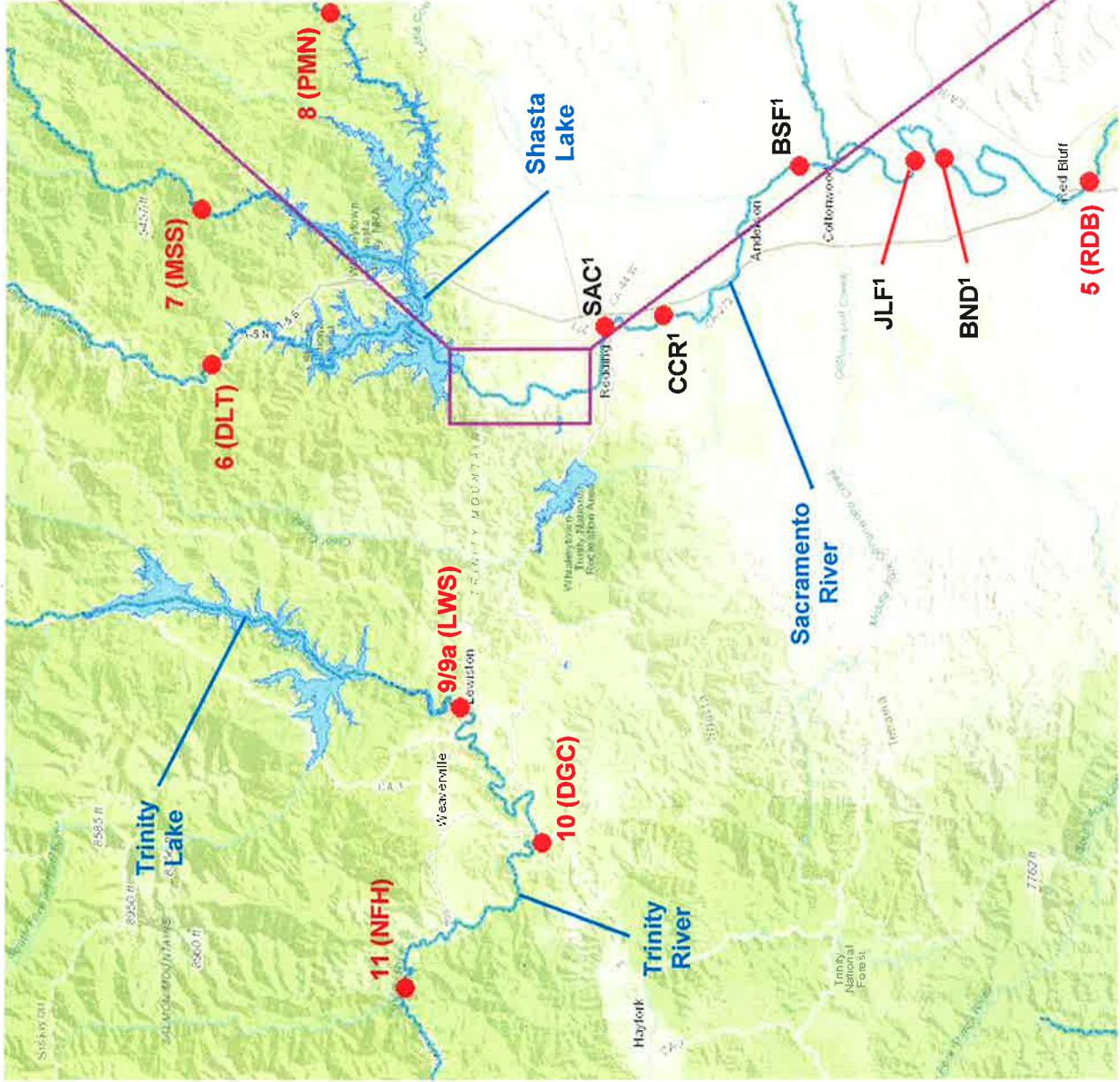
Site	CDEC ID	Description
1	-	Shasta Dam inlets or lake adjacent to the dam face. ¹
2	SHD	Shasta Dam release immediately downstream from the power plant.
2a	SHA	Shasta Dam release.
3	KWK	Sacramento River immediately downstream from Keswick Dam.
3a	KES	Keswick Dam release.
4	SPP	Spring Creek Power Plant release.
5	RDB	Sacramento River downstream from Red Bluff Diversion Dam.
6	DLT ²	Sacramento River (above Shasta Dam).
7	MSS	McCloud River (above Shasta Dam).
8	PMN	Pit River (above Shasta Dam).
9	LWS	Trinity River immediately downstream from Lewiston Dam.
9a	LWS	Lewiston Dam release.
10	DGC	Trinity River at the Douglas City Bridge.
11	NFH	Trinity River at the confluence of the North Fork Trinity River.

	Temperature		Turbidity ³		Dissolved Oxygen ⁴		Flow	
	Frequency	Period	Frequency	Period	Frequency	Period	Frequency	Period
1	Every 2 weeks	5/1 to 11/30	Monthly	All Year	-	-	-	-
2	Average Daily	All Year	Monthly	All Year	Every 2 weeks	5/1 to 9/30	-	-
2a	-	-	-	-	-	-	Average Daily	All Year
3	Average Daily	All Year	-	-	Every 2 weeks	5/1 to 9/30	-	-
3a	-	-	Monthly	All Year	-	-	Average Daily	All Year
4	Average Daily	All Year	Monthly	All Year	-	-	Average Daily	All Year
5	Average Daily ⁵	All Year	Monthly	All Year	Every 2 weeks	5/1 to 9/30	-	-
6	Monthly	All Year	Monthly	All Year	-	-	-	-
7	Monthly	All Year	Monthly	All Year	-	-	-	-
8	Monthly	All Year	Monthly	All Year	-	-	-	-
9	Average Daily	All Year	-	-	-	-	-	-
9a	-	-	-	-	-	-	Average Daily	All Year
10	Average Daily	9/15 to 10/1	-	-	-	-	-	-
11	Average Daily	10/1 to 12/31	-	-	-	-	-	-

Notes

- ¹ Take sufficient collection points to characterize the vertical profile for temperature and turbidity.
- ² Site 6 (DLT) is not accessible year round making it unsuitable for real-time Dissolved Oxygen monitoring do to calibration requirements.
- ³ From 5/1 to 9/30 if turbidity at site 2 is greater than or equal to 10 ntu's then frequency must be weekly.
- ⁴ To be taken before 10:00 am.
- ⁵ If the temperature control point is moved upstream from site 5, then temperature monitoring shall continue at the new site.

90-5 Required Water Monitoring Site Map



Notes

¹ SAC, CCR, BSF, JLF and BND are alternative upstream temperature control points to RDB