



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 07 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 April 2018, the temperature control point was set at Balls Ferry, per the June 2017, 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 with the exception of April 7 (56.6) April 21 (56.6°F), April 22 (57.3°F), April 23 (57.6°F), April 24 (57.2°F), April 25 (56.6°F), and April 26 (56.2°F). The April 7 exceedence was a result of warm tributary side flow during a precipitation event. The following actions were taken in preparation for and to avoid exceedences and bring water temperature back into compliance: April 20 Keswick Dam release increase from 3250 cfs to 3750 cfs, April 21 release increase to 4250 cfs, April 22 Shasta TCD Middle Gate open, April 23 release increase to 4750 cfs, April 24 release increase to 5250 cfs, April 25 release increase to 5750 cfs, and April 26 release increase to 6000 cfs. Temperature excursions occurred during a coincident period of record air temperature.

During the month, the observed average monthly water temperature was 54.8°F at Balls Ferry.

Enclosed is the monitoring report for April 2018, under Order No. 90-5. The report contains the following data as required:

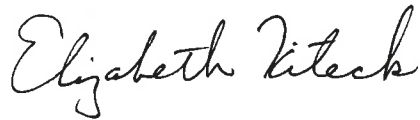
ID #	Station	Temperature*	Turbidity*	Dissolved Oxygen*	Flow*
1	Shasta Inlets	X	X		
2	Shasta Dam	X	X	X	
2a	Shasta Dam				X
3	Sacramento River below Keswick Dam	X		X	

ID #	Station	Temperature*	Turbidity*	Dissolved Oxygen*	Flow*
4	Spring Creek Power Plant	X	X		X
5	Temperature Control Point	X	X	X	
6	Sacramento River at Delta	X	X		
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: Mr. Chris Kwan
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
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Mr. Vadim Demchuk
Division of Water Rights
State Water Resources Control Board
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(w/encl)

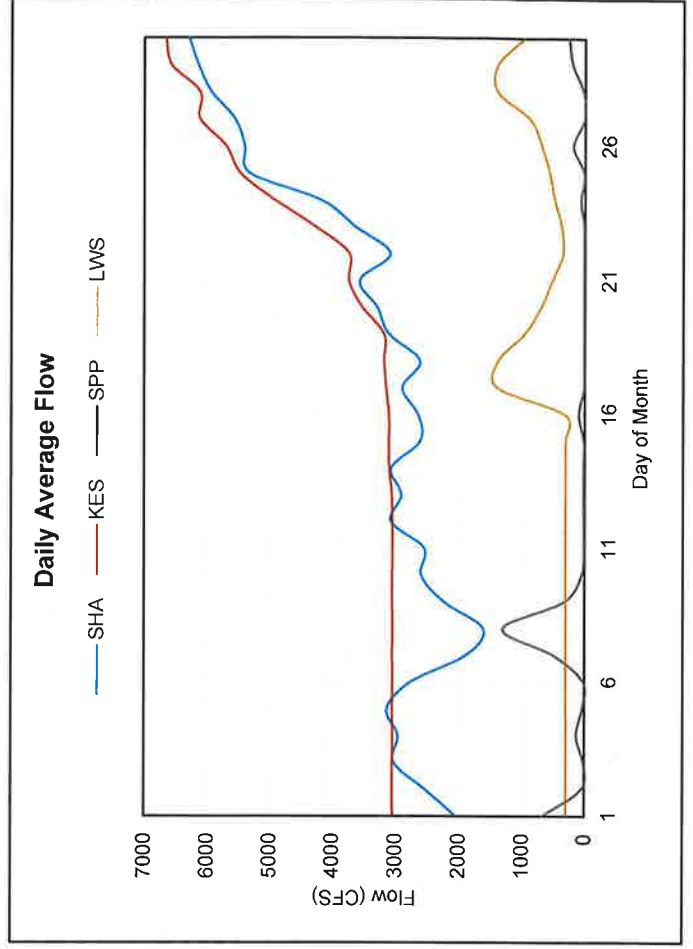
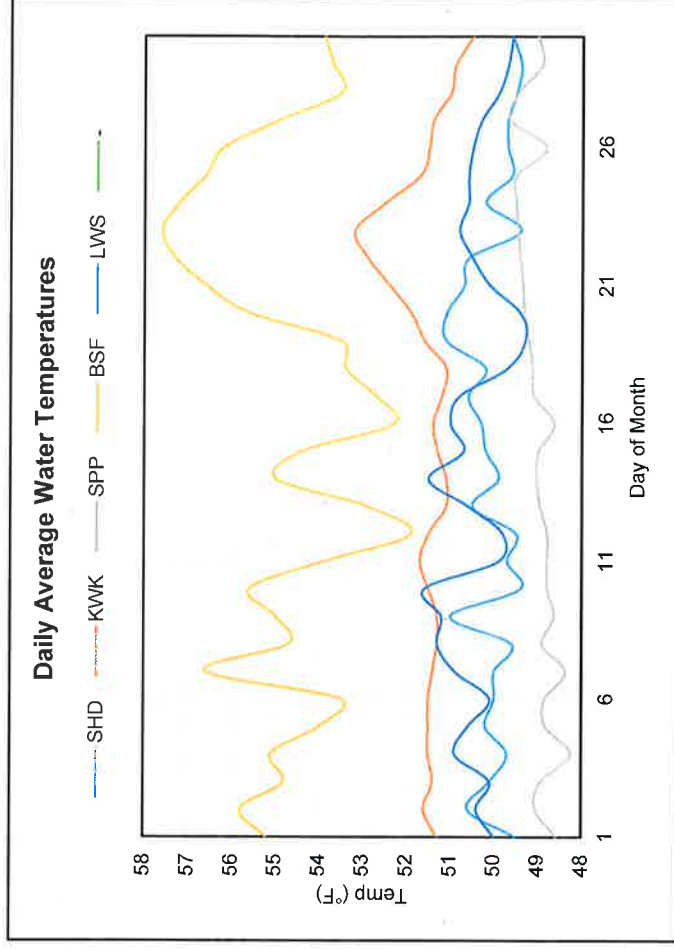
90-5 Required Water Monitoring Data

April 2018

Parameter	Daily Averages from Hourly Automated Observations										Flow (CFS)				
	Site	2	3	4	5	9	9a	2a	3a	4	9a	SHA	KES	SPP	LWS
1	49.5	51.3	48.6	55.2	50.0	LWS	-	2046	3044	679	298				
2	50.6	51.6	49.0	55.8	50.4			2533	3045	50	297				
3	50.1	51.4	48.9	54.8	50.1			3027	3045	17	297				
4	49.7	51.5	48.2	55.1	50.9			2960	3043	131	298				
5	50.2	51.5	48.8	54.0	50.6			3131	3046	36	301				
6	50.0	51.5	48.8	53.5	50.1			2766	3044	16	304				
7	50.0	51.4	48.4	56.6	50.9			1892	3045	490	305				
8	49.6	51.3	48.9	54.7	51.3			1612	3043	1306	303				
9	51.0	51.3	48.6	55.0	51.2			2231	3045	337	308				
10	49.4	51.5	48.8	55.6	51.6			2594	3045	48	310				
11	49.7	51.7	48.8	53.9	49.9			2542	3043	14	308				
12	49.5	51.5	48.8	51.9	49.8			3066	3044	14	307				
13	50.5	51.1	48.9	52.9	50.6			2905	3050	18	307				
14	49.9	51.1	49.0	55.0	51.5			3061	3094	15	306				
15	50.2	51.3	49.0	54.4	50.7			2606	3096	14	307				
16	50.3	51.4	48.6	52.3	51.0			2637	3097	92	312				
17	50.6	51.2	49.1	52.7	50.8			2890	3140	14	1392				
18	50.2	51.1	49.1	53.4	49.7			2611	3173	14	1381				
19	51.1	51.6	49.2	53.5	49.3			3096	3175	14	975				
20	51.1	51.9	49.3	55.6	49.4			3281	3522	14	701				
21	50.7	52.4	49.4	56.6	50.1			3558	3732	14	523				
22	50.6	52.9	49.4	57.3	50.5			3079	3727	14	354				
23	49.4	53.2	49.5	57.6	50.8			3628	4278	14	375				
24	50.2	52.5	49.5	57.2	50.6			4180	4930	62	483				
25	49.6	51.7	49.5	56.6	50.6			5320	5473	14	565				
26	49.7	51.5	48.8	56.2	50.5			5399	5698	185	691				
27	49.7	51.4	49.7	54.9	50.3			5550	6117	14	879				
28	49.5	51.0	49.5	53.5	49.9			5928	6113	20	1387				
29	49.4	50.9	48.9	53.7	49.7			6138	6569	193	1389				
30	49.6	50.5	49.0	53.9	49.6			6285	6652	259	976				
-															
								Max	6285	6652	1306	1392			
								Mean	3418	3839	137	565			
								Min	1612	3043	14	297			
								Volume (TAF)	203	228	8	34			

Notes

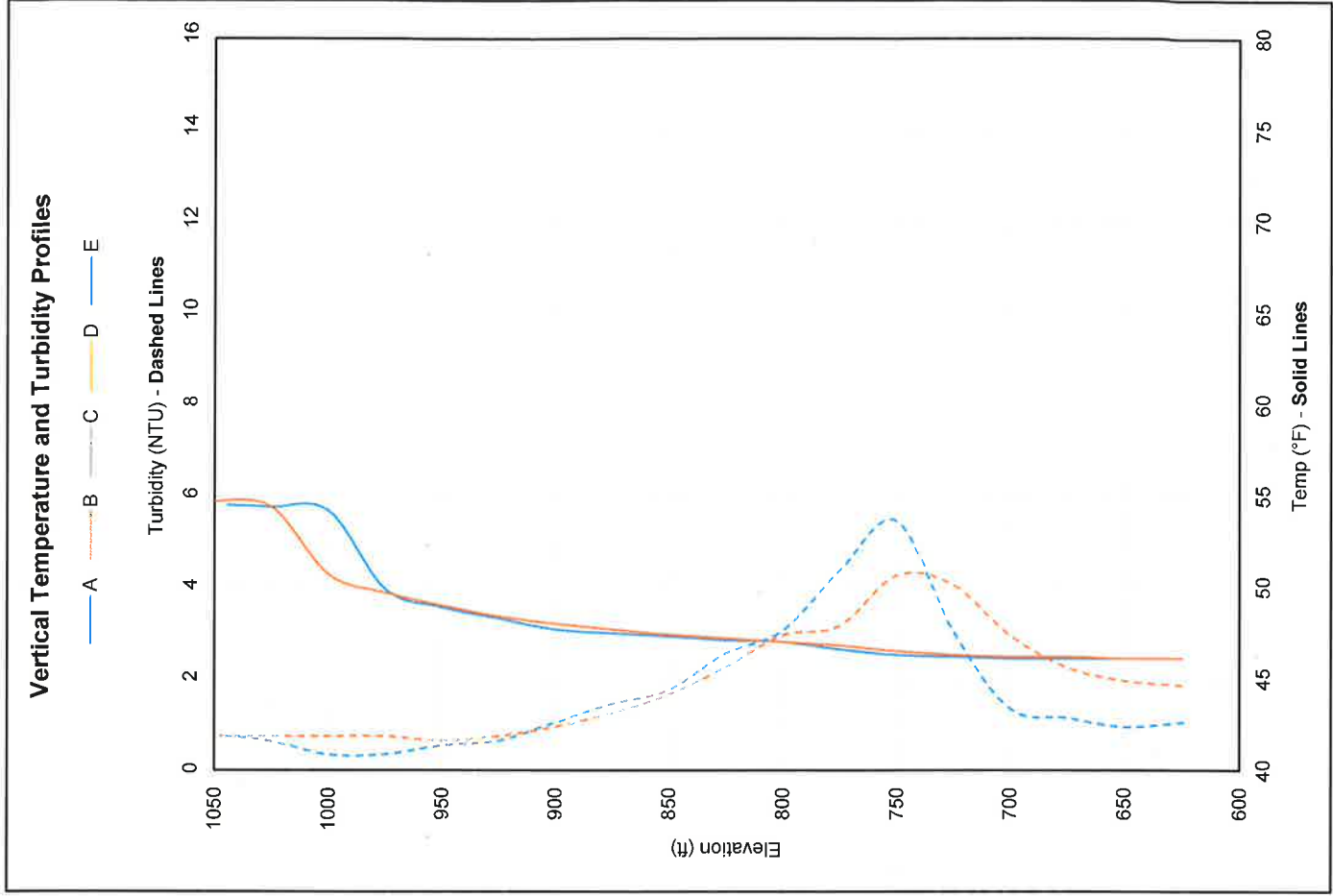
¹ Current temperature control point



90-5 Required Water Monitoring Data (Continued)

April 2018

Vertical Profiles Taken at Site 1 (Shasta Lake at Dam Inlets)											
Profile	A		B		C		D		E		
Day of Month	3		17								
Lake Elev.	1044.29		1052.44								
Parameter	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	
L.E.	54.5	0.7	54.7	0.7	-	-	-	-	-	-	
1050	-	-	54.7	0.7	-	-	-	-	-	-	
1025	54.4	0.6	54.4	0.7	-	-	-	-	-	-	
1000	54.2	0.3	50.7	0.7	-	-	-	-	-	-	
975	49.9	0.3	49.7	0.7	-	-	-	-	-	-	
950	48.9	0.5	49.0	0.6	-	-	-	-	-	-	
925	48.3	0.6	48.4	0.7	-	-	-	-	-	-	
900	47.7	1.0	48.0	0.9	-	-	-	-	-	-	
875	47.5	1.4	47.7	1.2	-	-	-	-	-	-	
850	47.3	1.7	47.4	1.6	-	-	-	-	-	-	
825	47.1	2.5	47.2	2.2	-	-	-	-	-	-	
800	47.0	3.0	47.0	2.9	-	-	-	-	-	-	
775	46.6	4.3	46.8	3.1	-	-	-	-	-	-	
750	46.3	5.4	46.5	4.2	-	-	-	-	-	-	
725	46.2	3.0	46.3	4.0	-	-	-	-	-	-	
700	46.1	1.3	46.2	2.9	-	-	-	-	-	-	
675	46.1	1.1	46.2	2.2	-	-	-	-	-	-	
650	46.1	0.9	46.1	1.9	-	-	-	-	-	-	
625	46.1	1.0	46.1	1.8	-	-	-	-	-	-	



Monthly Manual Observations												
Parameter	Temp (°F)						Turb (NTU)					
	6	7	8	2	3	4	5	6	7	8		
Site	DLT	MSS	PMN	SHD	KWK	SPP	RDB	DLT	MSS	PMN		
Value	48.3	45.1	52.0	1.5	2.2	1.2	6.0	1.2	1.2	8.1		
Day of Month	6	17	11	24	10	10	12	6	17	11		

90-5 Required Water Monitoring Details

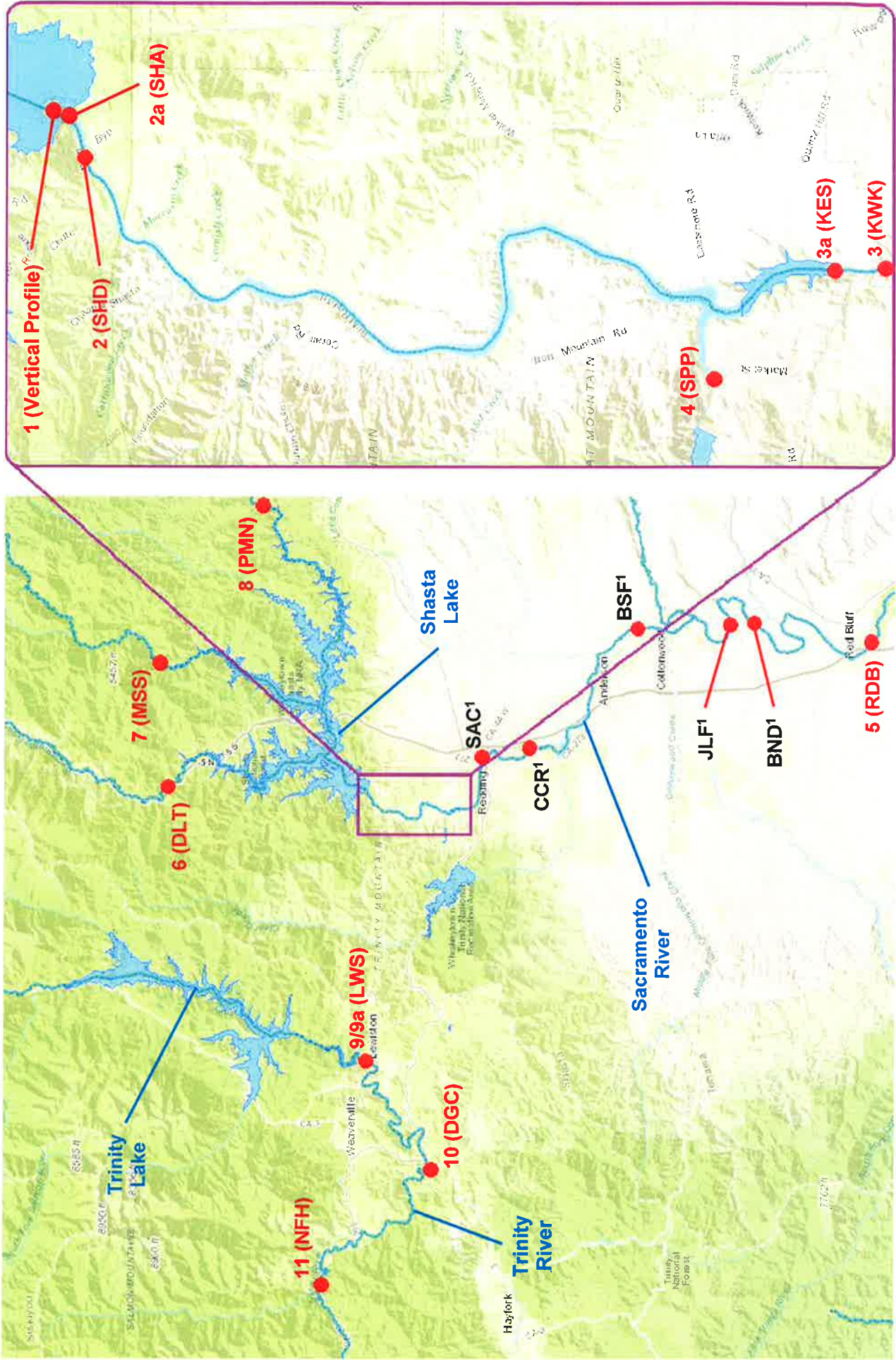
Site	CDEC ID	Description
1	-	Shasta Dam inlets or lake adjacent to the dam face. ¹
2	SHD	Shasta Dam release immediately downstream from the power plant.
2a	SHA	Shasta Dam release.
3	KWK	Sacramento River immediately downstream from Keswick Dam.
3a	KES	Keswick Dam release.
4	SPP	Spring Creek Power Plant 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