



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

JAN 09 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 December 2017, the temperature control point was set at Balls Ferry, per the June 2017, Sacramento River Temperature Plan.

During the current 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 current month, the observed average monthly water temperature was 50.3°F at Balls Ferry.

Enclosed is the monitoring report for December 2017, 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	
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		
7	McCloud River	X	X		
8	Pit River	X	X		
9	Trinity River below Lewiston Dam	X			
9a	Lewiston Dam				X

ID #	Station	Temperature*	Turbidity*	Dissolved Oxygen*	Flow*
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. Kenneth Emanuel
Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812
(w/encl)

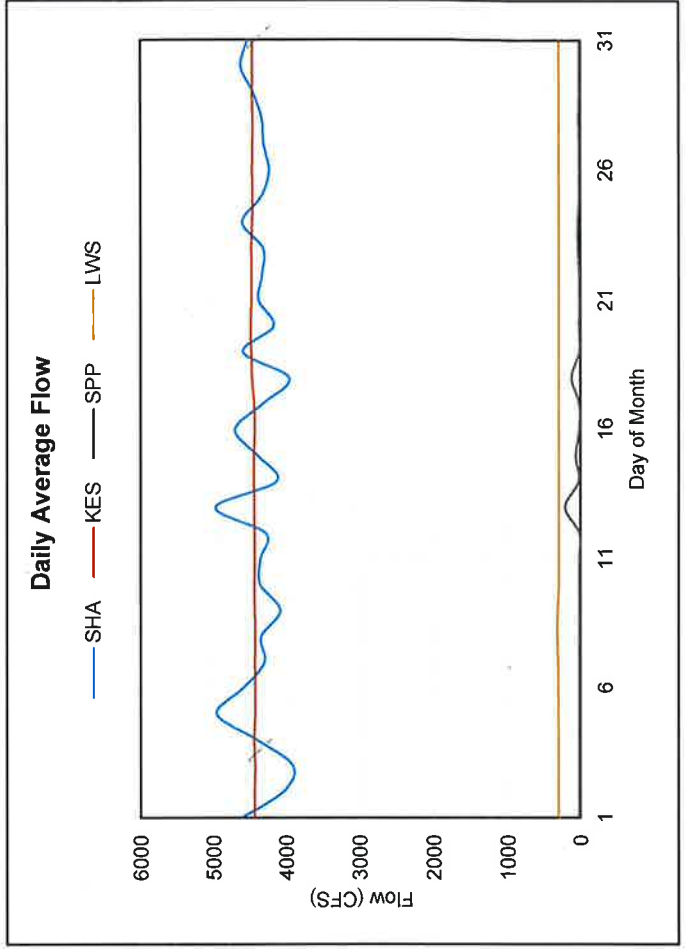
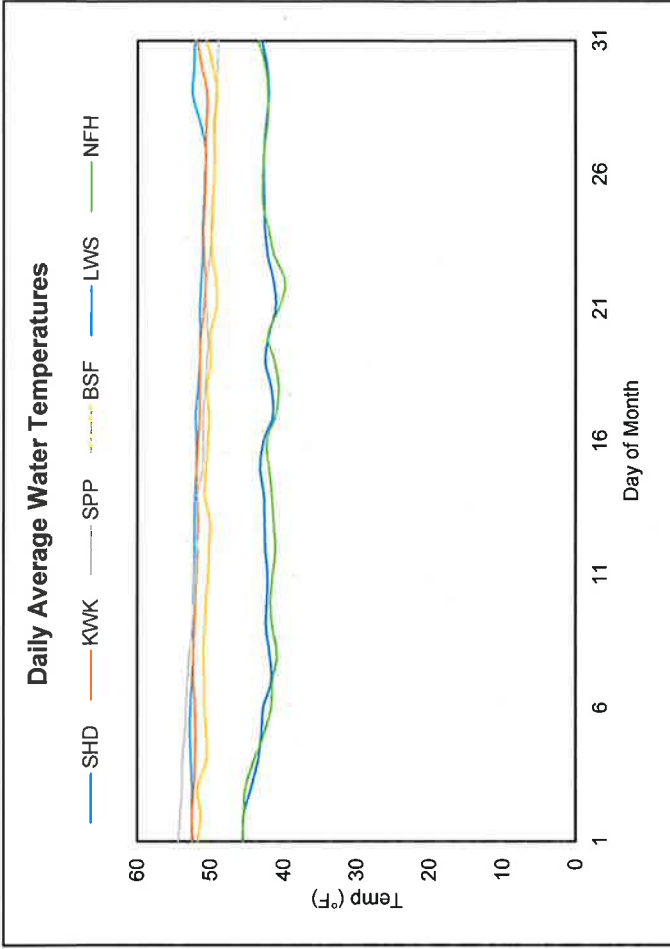
90-5 Required Water Monitoring Data

December 2017

Parameter	Daily Averages from Hourly Automated Observations											Flow (CFS)				
	Temp (°F)															
Site	2	3	4	5	9	11	2a	3a	4	9a		2a	3a	4	9a	
	SHD	KWK	SPP	BSF ¹	LWS	NFH	SHA	KES	SPP	LWS		SHA	KES	SPP	LWS	
1	52.4	52.5	54.4	51.7	45.5	45.6	4615	4433	14	305						
2	52.5	52.5	54.1	51.3	45.4	45.4	4046	4433	14	303						
3	52.5	52.2	53.9	51.7	44.4	45.2	3909	4428	14	304						
4	52.6	52.1	53.8	50.5	43.5	44.1	4404	4439	14	304						
5	52.8	52.0	53.5	50.5	43.0	42.7	4953	4428	14	306						
6	52.7	52.1	53.3	50.8	42.8	41.7	4592	4427	14	306						
7	52.5	52.3	53.1	50.8	41.7	41.5	4298	4431	14	311						
8	52.3	52.3	52.9	50.9	41.9	40.9	4344	4425	14	320						
9	52.3	52.2	52.5	50.8	42.4	41.5	4080	4432	14	317						
10	52.3	52.0	52.2	50.6	42.3	41.8	4354	4433	14	300						
11	52.2	51.9	52.0	50.3	42.2	41.5	4350	4430	14	300						
12	52.2	51.8	51.9	50.2	42.5	41.1	4278	4432	14	300						
13	52.2	51.7	51.5	50.1	42.6	41.4	4969	4434	216	300						
14	52.1	51.8	51.7	50.8	42.7	41.6	4128	4438	24	300						
15	51.9	51.9	51.1	50.6	43.2	42.0	4387	4438	66	300						
16	51.9	51.7	51.0	50.4	42.8	42.3	4695	4427	14	300						
17	52.0	51.5	51.0	50.2	41.5	41.1	4312	4434	17	300						
18	51.7	51.5	50.8	50.5	41.7	40.7	3951	4462	125	300						
19	51.5	51.5	50.5	50.0	42.5	41.2	4583	4470	14	300						
20	51.4	51.3	50.4	50.1	42.1	42.2	4162	4480	17	300						
21	51.5	50.9	50.6	49.2	41.1	40.7	4370	4465	15	300						
22	51.3	50.7	50.6	49.2	41.4	39.8	4320	4464	15	300						
23	51.1	50.9	50.1	49.8	42.2	41.3	4303	4468	34	300						
24	51.1	51.0	49.8	49.9	42.6	42.1	4592	4457	37	300						
25	50.9	50.8	49.7	49.7	42.7	42.9	4329	4453	14	300						
26	50.8	50.7	49.5	49.5	42.8	42.9	4222	4457	14	300						
27	50.7	50.7	49.5	49.5	42.7	42.7	4294	4451	14	300						
28	51.5	50.6	49.4	49.6	42.4	42.2	4323	4448	21	300						
29	52.5	50.5	49.3	49.1	42.1	42.2	4437	4457	14	300						
30	52.3	51.2	49.1	49.7	42.3	42.5	4609	4453	14	300						
31	52.2	51.9	49.0	50.6	43.0	43.5	4519	4451	14	300						
							Max	4969	4480	216	320					
							Mean	4378	4444	28	302					
							Min	3909	4425	14	300					
							Volume (TAF)	269	273	2	19					

Notes

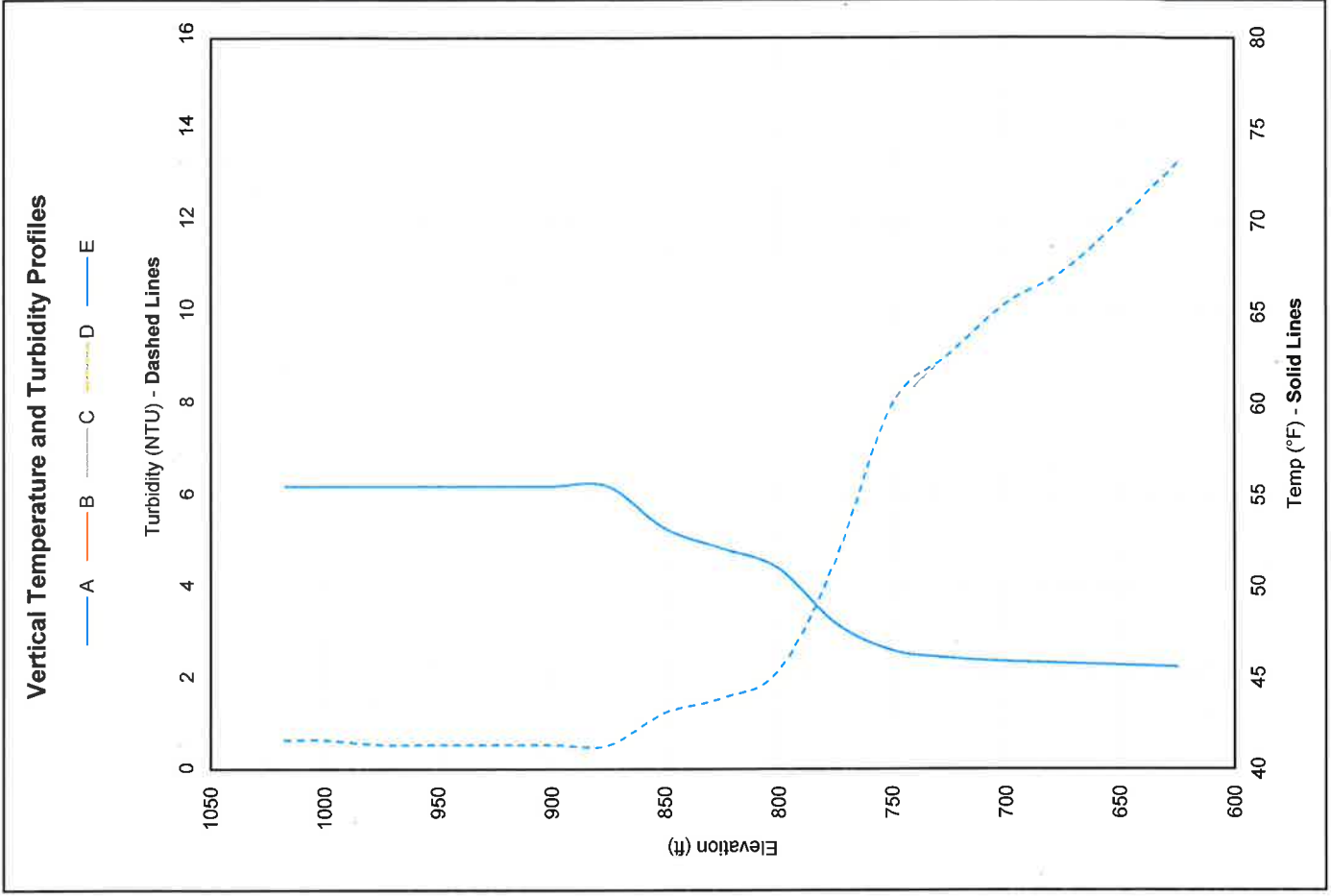
¹ Current temperature control point



90-5 Required Water Monitoring Data (Continued)

December 2017

Vertical Profiles Taken at Site 1 (Shasta Lake at Dam Inlets)												
Profile	A		B		C		D		E			
Day of Month	12		-		-		-		-			
Lake Elev.	1017.39		-		-		-		-			
Parameter	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb	Temp	Turb
L.E.	55.5	0.6	-	-	-	-	-	-	-	-	-	-
1050	-	-	-	-	-	-	-	-	-	-	-	-
1025	-	-	-	-	-	-	-	-	-	-	-	-
1000	55.5	0.6	-	-	-	-	-	-	-	-	-	-
975	55.5	0.5	-	-	-	-	-	-	-	-	-	-
950	55.5	0.5	-	-	-	-	-	-	-	-	-	-
925	55.5	0.5	-	-	-	-	-	-	-	-	-	-
900	55.5	0.5	-	-	-	-	-	-	-	-	-	-
875	55.5	0.5	-	-	-	-	-	-	-	-	-	-
850	53.2	1.2	-	-	-	-	-	-	-	-	-	-
825	52.1	1.5	-	-	-	-	-	-	-	-	-	-
800	51.0	2.1	-	-	-	-	-	-	-	-	-	-
775	48.0	4.5	-	-	-	-	-	-	-	-	-	-
750	46.5	7.9	-	-	-	-	-	-	-	-	-	-
725	46.1	9.0	-	-	-	-	-	-	-	-	-	-
700	45.9	10.1	-	-	-	-	-	-	-	-	-	-
675	45.8	10.8	-	-	-	-	-	-	-	-	-	-
650	45.7	11.9	-	-	-	-	-	-	-	-	-	-
625	45.6	13.2	-	-	-	-	-	-	-	-	-	-



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	41.8	43.9	46.1	1.8	2.1	0.6	4.1	0.9	0.7	4.2		
Day of Month	7	1	6	14	14	27	5	7	1	6		

90-5 Required Water Monitoring Details

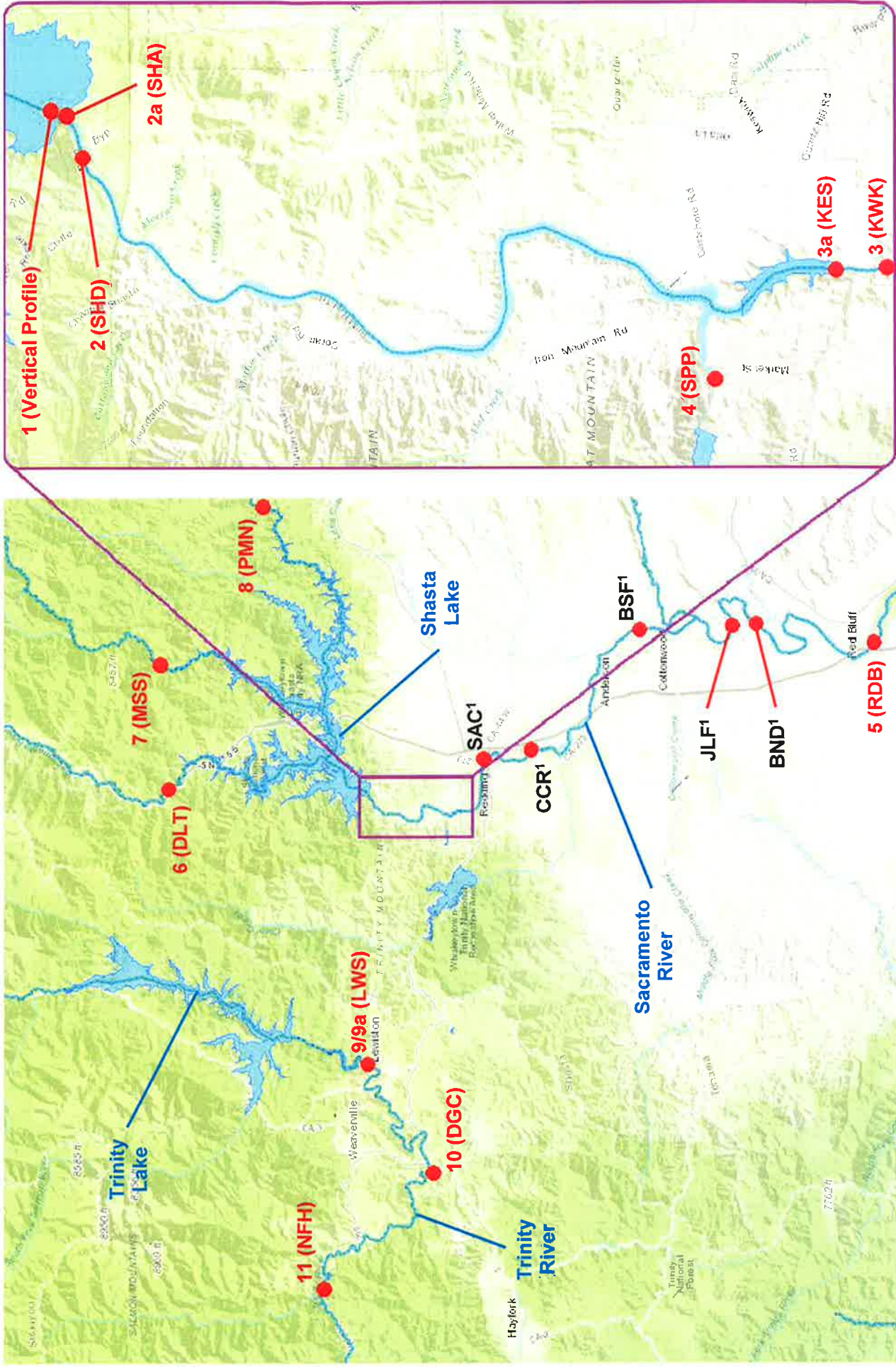
Site	CDEC ID	Description
1	-	Shasta Dam inlets or lake adjacent to the dam face. ¹
2	SHD	Shasta Dam release immediately downstream from the power plant.
2a	SHA	Shasta Dam release.
3	KWK	Sacramento River immediately downstream from Keswick Dam.
3a	KES	Keswick Dam release.
4	SPP	Spring Creek Power Plant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