


Wisconsin Public Service Corporation

700 North Adams Street
P.O. Box 19001
Green Bay, WI 54307-9001

www.wisconsinpublicservice.com

January 24, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Dear Ms. Bose:

SUBJECT: 2019 Water Quality Monitoring Report

Hydro	<u>FERC Project No.</u>	<u>NATDAM No.</u>	<u>License Article</u>
High Falls	2595	WI00754	406

Per the Order Amending Approved Water Quality Monitoring Plans under Article 406, dated October 13, 2015, Wisconsin Public Service (WPS) is submitting water quality monitoring data collected during the 2019 monitoring season at the High Falls Hydroelectric Project.

At the High Falls Project, WPS is required to ensure flow releases from the Project, as measured immediately downstream from the dam, maintain the following standards except when natural conditions prohibit attainment of the standards: (1) dissolved oxygen (DO) concentrations shall not be less than 5.0 milligrams per liter (mg/L) (minus the precision of the monitoring instrument) for more than 24 hours per year; (2) water temperature shall not exceed 89 degrees Fahrenheit; and (3) the pH shall be within the range of 6.0 to 9.0, with no change greater than 0.5 units outside the estimated natural seasonal maximum and minimum. Natural conditions include inflows to the Project less than the 95 percent exceedance flow.

As described in the Water Quality Monitoring Plan, monitoring is conducted downstream of the powerhouse annually from June 1 through September 30. The downstream monitoring equipment is located on the High Falls Road Bridge near the middle of the river. Monitoring upstream of the Project occurs every five years in conjunction with water quality monitoring conducted at the Caldron Falls Hydroelectric Project. The next upstream monitoring period is scheduled to occur in 2021.

Monitoring data was collected using portable water quality monitoring equipment manufactured by YSI, Inc. Monitoring for DO, temperature, and pH was conducted continuously on an hourly basis. As described in the Water Quality Monitoring Plan, the instrumentation was cleaned and calibrated according to manufacturer specification at least once every 14 days during the monitoring period. A post deployment calibration was conducted to determine the extent of calibration drift. Raw data was adjusted assuming a linear degradation of calibration based upon a post calibration of the equipment. The water quality monitoring equipment used to monitor DO has an accuracy of +/- 0.1 mg/l, per the

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manufacturer. For compliance purposes, DO concentrations more than 0.1 mg/l below the applicable water quality standard are potential deviations.

No deviations from the DO, pH, or temperature water quality standards were observed during the 2019 monitoring season. Please note that on July 15 the facility began a scheduled electrical upgrade project of the powerhouse. From approximately 10:00 a.m. on July 15 through the remainder of the year project release flow was controlled through the spillway Tainter gates.

Agency Consultation

WPS provided the 2019 water quality monitoring data to the Wisconsin Department of Natural Resources (WDNR) and the U.S. Fish and Wildlife Service (FWS) on October 2, 2019 for review and comment. Monitoring data is enclosed with this report in Attachment A. Documentation of Agency Consultation can be found in Attachment B. WPS did not receive comments from the resource agencies on the 2019 water quality monitoring report.

Should you have any questions or concerns with this submittal, please do not hesitate to call Mr. Mark Metcalf at (920) 433-1833 or e-mail at mark.metcalf@wecenergygroup.com.

Sincerely,



Todd P. Jastremski
Asset Manager Hydro Operations
We Energies
800 Industrial Park Drive
Iron Mountain, MI 49801

MWM/ace

Enc: Attachment A – 2019 Water Quality Monitoring Data (37 pages)
Attachment B – Documentation of Agency Consultation (6 pages)

cc: Mr. John Zyga, FERC – CRO
Mr. Nick Utrup, FWS
Ms. Cheryl Laatsch, WDNR

Attachment A

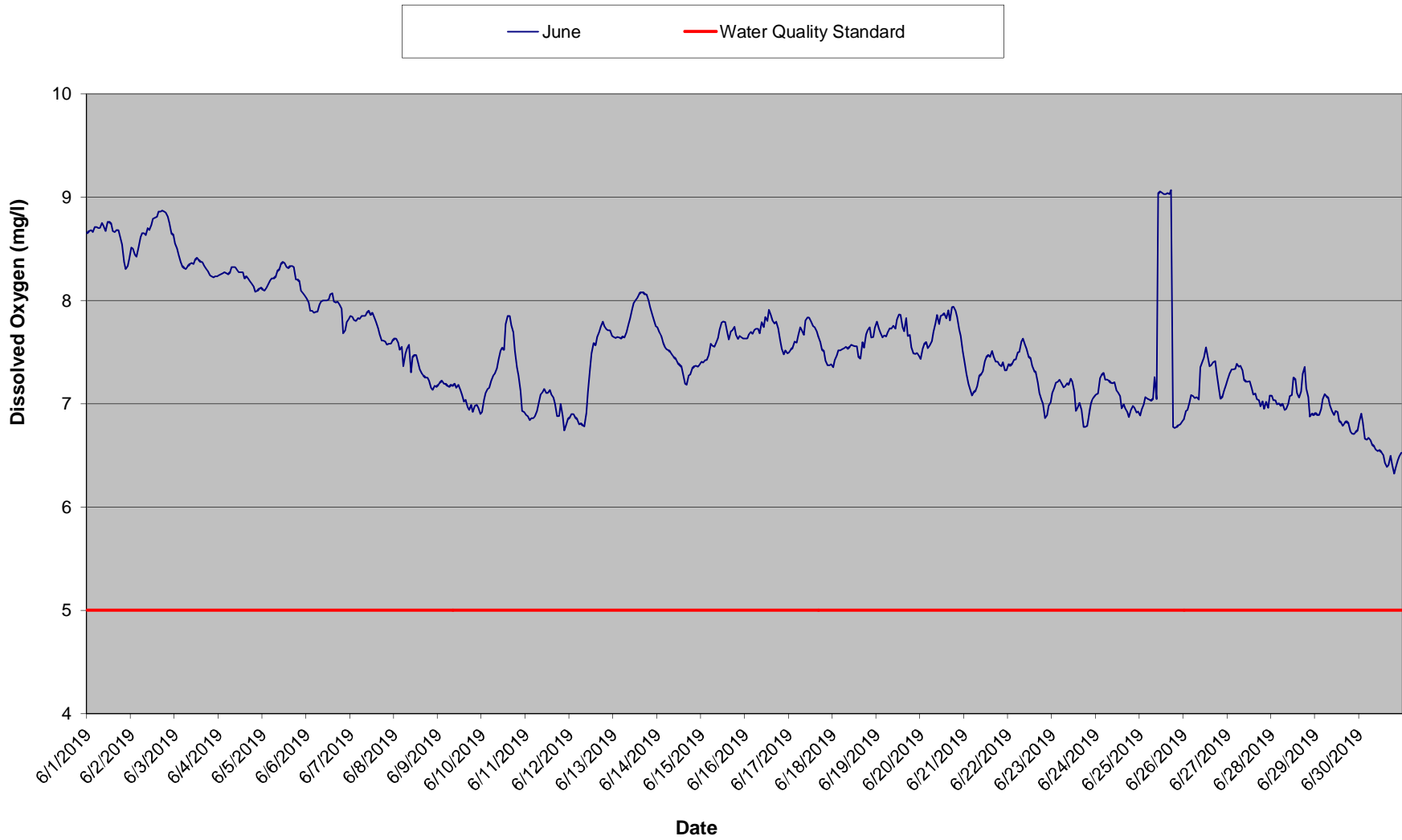
Wisconsin Public Service Corporation

High Falls Hydroelectric Project

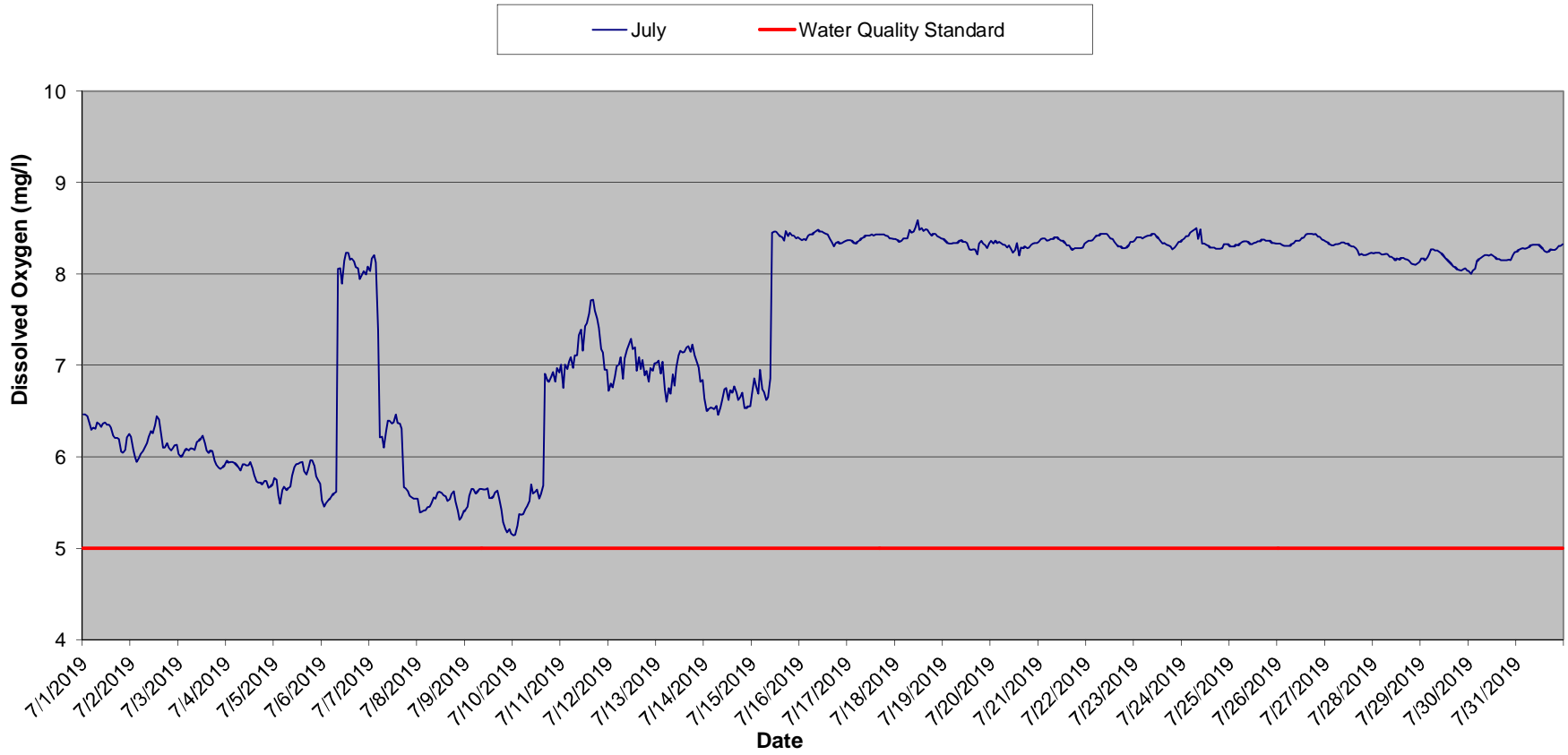
FERC Project No. 2595

2019 Water Quality Monitoring Data

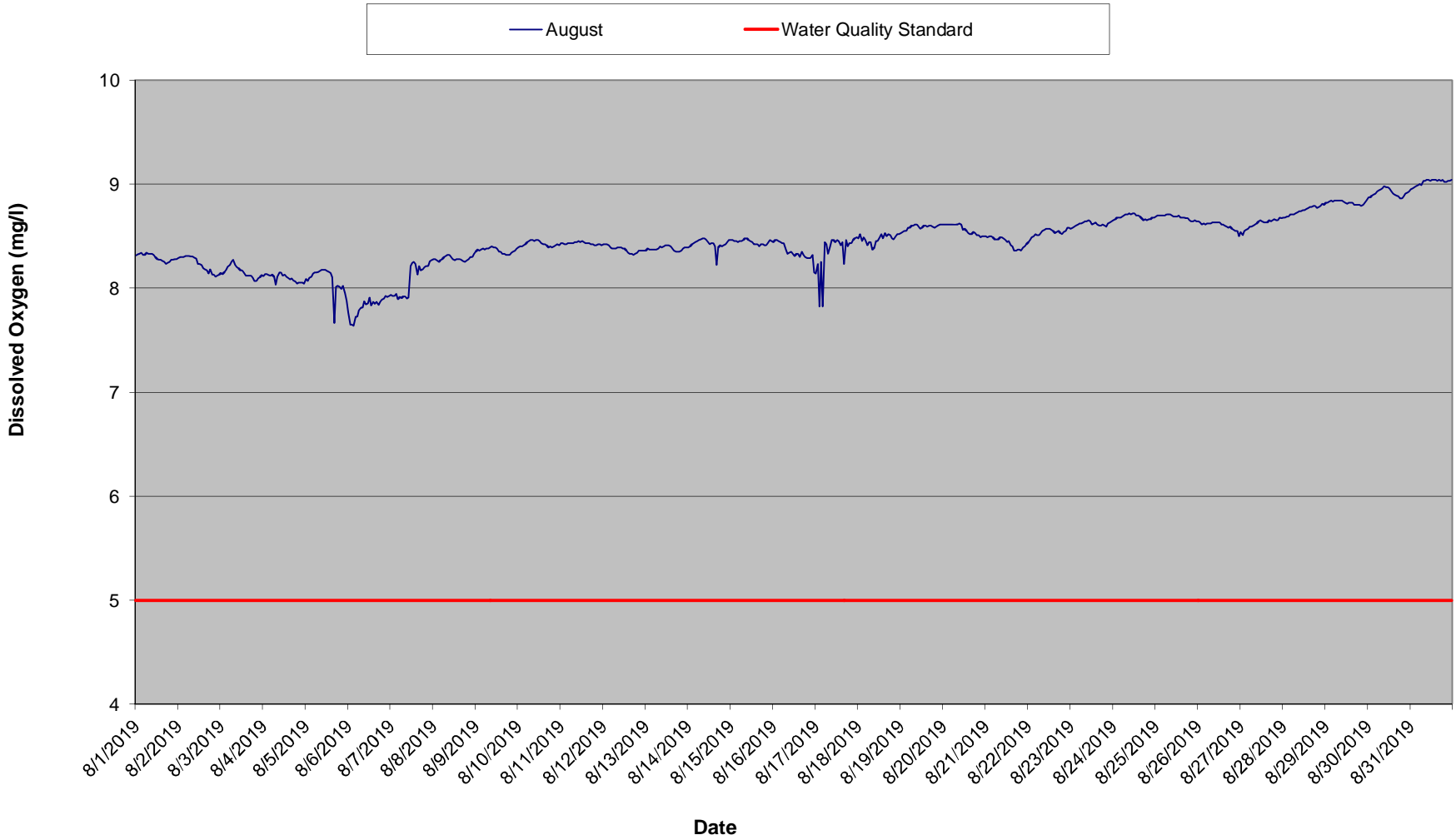
High Falls Tailrace Dissolved Oxygen - June 2019



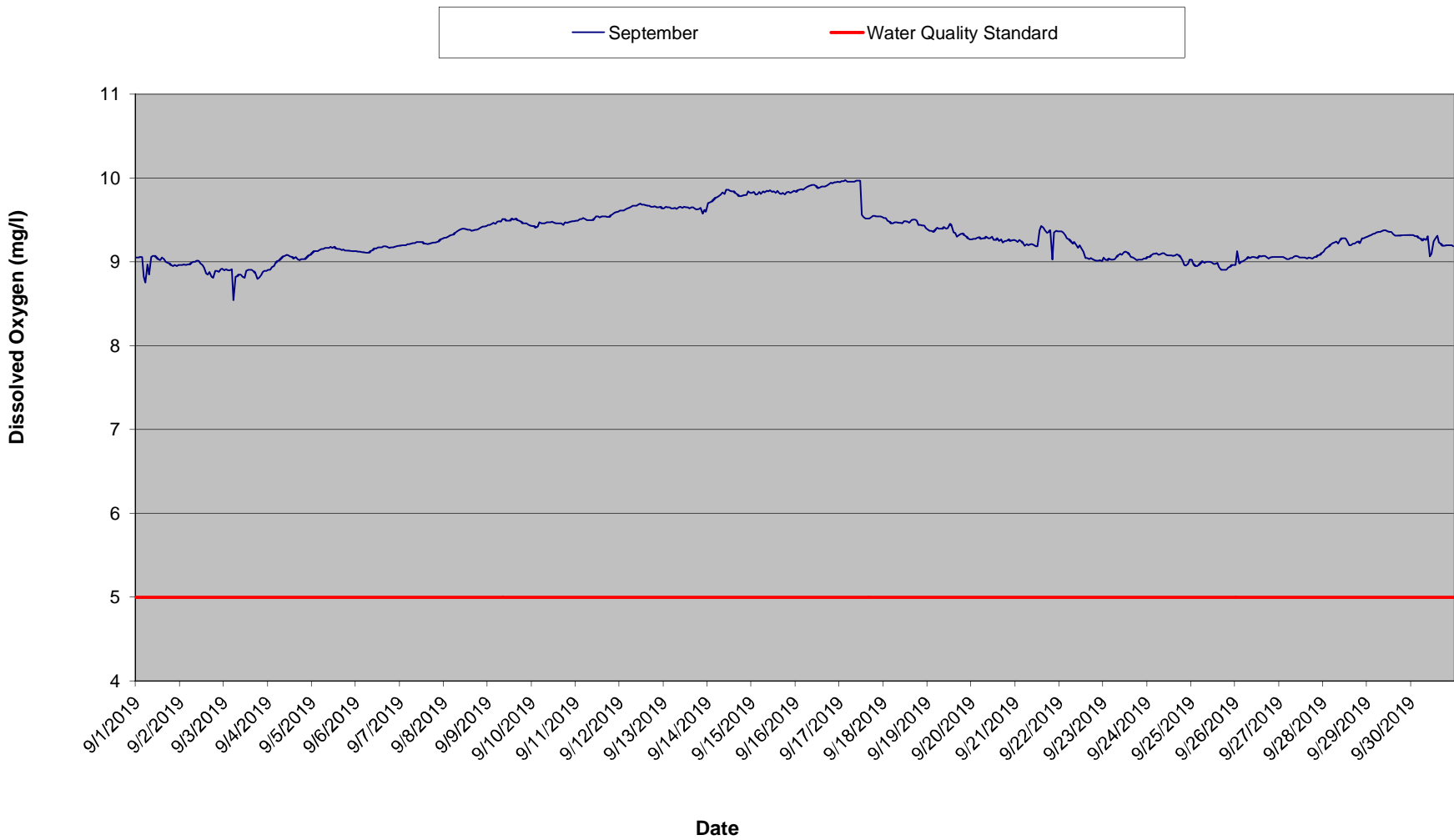
High Falls Tailrace Dissolved Oxygen - July 2019



High Falls Tailrace Dissolved Oxygen - August 2019



High Falls Tailrace Dissolved Oxygen - September 2019



High Falls Tailrace Dissolved Oxygen Summary - June 2019

Time HHMMSS	06/01/19	06/02/19	06/03/19	06/04/19	06/05/19	06/06/19	06/07/19	06/08/19	06/09/19	06/10/19	06/11/19	06/12/19	06/13/19	06/14/19	06/15/19	06/16/19
0	8.7	8.5	8.6	8.2	8.1	8.0	7.9	7.6	7.2	6.9	6.9	6.9	7.6	7.7	7.4	7.6
10000	8.7	8.5	8.5	8.3	8.1	8.0	7.8	7.6	7.2	7.0	6.9	6.9	7.6	7.7	7.4	7.6
20000	8.7	8.4	8.4	8.3	8.1	7.9	7.8	7.6	7.2	7.1	6.8	6.9	7.6	7.6	7.4	7.7
30000	8.7	8.4	8.4	8.3	8.2	7.9	7.8	7.5	7.2	7.1	6.9	6.9	7.6	7.6	7.4	7.7
40000	8.7	8.5	8.3	8.3	8.2	7.9	7.8	7.6	7.2	7.2	6.9	6.9	7.6	7.5	7.5	7.7
50000	8.7	8.6	8.3	8.3	8.2	7.9	7.8	7.4	7.2	7.2	6.9	6.8	7.7	7.5	7.6	7.7
60000	8.7	8.7	8.3	8.3	8.2	7.9	7.9	7.5	7.2	7.3	6.9	6.8	7.6	7.5	7.6	7.7
70000	8.7	8.7	8.3	8.3	8.2	8.0	7.9	7.5	7.2	7.3	7.0	6.8	7.7	7.5	7.5	7.7
80000	8.8	8.6	8.4	8.3	8.3	8.0	7.9	7.6	7.2	7.3	7.1	6.8	7.8	7.5	7.6	7.7
90000	8.7	8.7	8.4	8.3	8.3	8.0	7.9	7.3	7.2	7.4	7.1	6.9	7.8	7.5	7.6	7.8
100000	8.7	8.7	8.4	8.3	8.4	8.0	7.9	7.5	7.2	7.5	7.1	7.1	7.9	7.4	7.7	7.7
110000	8.8	8.7	8.4	8.3	8.4	8.0	7.9	7.5	7.2	7.5	7.1	7.3	8.0	7.4	7.8	7.8
120000	8.8	8.8	8.4	8.3	8.4	8.0	7.9	7.5	7.1	7.5	7.1	7.5	8.0	7.4	7.8	7.8
130000	8.7	8.8	8.4	8.3	8.3	8.1	7.8	7.4	7.1	7.8	7.1	7.6	8.0	7.4	7.8	7.9
140000	8.7	8.8	8.4	8.2	8.3	8.1	7.8	7.3	7.0	7.9	7.1	7.6	8.1	7.3	7.7	7.9
150000	8.7	8.9	8.4	8.2	8.3	8.0	7.7	7.3	7.0	7.9	7.1	7.6	8.1	7.2	7.6	7.8
160000	8.7	8.9	8.3	8.2	8.3	8.0	7.7	7.3	7.0	7.8	7.0	7.7	8.1	7.2	7.7	7.8
170000	8.7	8.9	8.3	8.2	8.3	8.0	7.6	7.3	6.9	7.7	6.9	7.7	8.1	7.3	7.7	7.8
180000	8.6	8.9	8.3	8.2	8.2	8.0	7.6	7.3	7.0	7.5	6.9	7.8	8.1	7.3	7.7	7.7
190000	8.5	8.9	8.2	8.1	8.2	7.9	7.6	7.2	6.9	7.4	7.0	7.8	8.0	7.3	7.7	7.6
200000	8.4	8.8	8.2	8.1	8.2	7.7	7.6	7.2	7.0	7.3	6.9	7.7	7.9	7.4	7.6	7.5
210000	8.3	8.8	8.2	8.1	8.1	7.7	7.6	7.1	7.0	7.1	6.7	7.7	7.9	7.4	7.7	7.5
220000	8.3	8.7	8.2	8.1	8.1	7.8	7.6	7.2	7.0	6.9	6.8	7.7	7.8	7.4	7.6	7.5
230000	8.4	8.6	8.2	8.1	8.1	7.8	7.6	7.2	6.9	6.9	6.9	7.7	7.8	7.4	7.6	7.5
Daily Max	8.8	8.9	8.6	8.3	8.4	8.1	7.9	7.6	7.2	7.9	7.1	7.8	8.1	7.7	7.8	7.9
Daily Min	8.3	8.4	8.2	8.1	8.1	7.7	7.6	7.1	6.9	6.9	6.7	6.8	7.6	7.2	7.4	7.5
Average	8.6	8.7	8.3	8.2	8.2	7.9	7.8	7.4	7.1	7.4	7.0	7.3	7.8	7.4	7.6	7.7

License Minimum DO: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - June 2019

Time HHMMSS	06/17/19	06/18/19	06/19/19	06/20/19	06/21/19	06/22/19	06/23/19	06/24/19	06/25/19	06/26/19	06/27/19	06/28/19	06/29/19	06/30/19
0	7.5	7.3	7.8	7.4	7.4	7.4	7.1	7.1	6.9	6.8	7.2	7.1	6.9	6.8
10000	7.5	7.4	7.7	7.5	7.3	7.4	7.2	7.1	6.9	6.9	7.3	7.0	6.9	6.9
20000	7.5	7.5	7.7	7.6	7.2	7.4	7.2	7.2	7.0	6.9	7.3	7.0	6.9	6.8
30000	7.6	7.5	7.6	7.6	7.1	7.4	7.2	7.3	7.1	7.0	7.3	7.0	6.9	6.7
40000	7.6	7.5	7.7	7.5	7.1	7.4	7.2	7.3	7.0	7.1	7.3	7.0	7.0	6.6
50000	7.7	7.5	7.6	7.6	7.1	7.5	7.2	7.2	7.0	7.1	7.4	7.0	7.1	6.7
60000	7.7	7.5	7.7	7.6	7.1	7.5	7.2	7.2	7.0	7.1	7.4	7.0	7.1	6.6
70000	7.7	7.6	7.7	7.7	7.2	7.6	7.2	7.2	7.0	7.1	7.4	6.9	7.1	6.6
80000	7.7	7.5	7.7	7.8	7.3	7.6	7.2	7.2	7.3	7.0	7.3	6.9	7.0	6.6
90000	7.8	7.6	7.8	7.9	7.3	7.6	7.2	7.2	7.0	7.3	7.2	7.0	6.9	6.6
100000	7.8	7.6	7.7	7.8	7.3	7.5	7.2	7.2	9.0	7.4	7.2	7.1	6.9	6.5
110000	7.8	7.6	7.8	7.8	7.4	7.5	7.2	7.1	9.1	7.4	7.2	7.1	6.9	6.6
120000	7.8	7.6	7.9	7.9	7.5	7.4	7.1	7.1	9.0	7.5	7.2	7.3	6.9	6.5
130000	7.8	7.6	7.9	7.9	7.5	7.4	6.9	7.1	9.0	7.5	7.1	7.2	6.8	6.5
140000	7.7	7.5	7.7	7.8	7.4	7.3	7.0	7.0	9.0	7.4	7.1	7.1	6.8	6.4
150000	7.7	7.4	7.7	7.9	7.5	7.3	7.0	7.0	9.0	7.4	7.1	7.1	6.8	6.4
160000	7.6	7.6	7.8	7.8	7.5	7.2	6.9	7.0	9.0	7.4	7.0	7.1	6.8	6.4
170000	7.6	7.5	7.7	7.9	7.4	7.1	6.8	6.9	9.1	7.4	7.0	7.3	6.8	6.5
180000	7.5	7.7	7.7	7.9	7.4	7.0	6.8	6.9	6.8	7.3	7.0	7.4	6.8	6.4
190000	7.5	7.7	7.5	7.9	7.4	7.0	6.8	6.9	6.8	7.1	7.0	7.1	6.7	6.3
200000	7.4	7.7	7.5	7.8	7.4	6.9	6.9	7.0	6.8	7.0	7.0	7.1	6.7	6.4
210000	7.4	7.6	7.5	7.7	7.4	6.9	7.0	7.0	6.8	7.1	7.0	6.9	6.7	6.4
220000	7.4	7.6	7.5	7.7	7.3	7.0	7.0	6.9	6.8	7.1	7.0	6.9	6.7	6.5
230000	7.4	7.7	7.5	7.5	7.3	7.0	7.1	6.9	6.8	7.2	7.1	6.9	6.7	6.5
Daily Max	7.8	7.7	7.9	7.9	7.5	7.6	7.2	7.3	9.1	7.5	7.4	7.4	7.1	6.9
Daily Min	7.4	7.3	7.5	7.4	7.1	6.9	6.8	6.9	6.8	6.8	7.0	6.9	6.7	6.3
Average	7.6	7.6	7.7	7.7	7.3	7.3	7.1	7.1	7.6	7.2	7.2	7.1	6.9	6.6

High Falls Tailrace Dissolved Oxygen Summary - July 2019

Time HHMMSS	07/01/19	07/02/19	07/03/19	07/04/19	07/05/19	07/06/19	07/07/19	07/08/19	07/09/19	07/10/19	07/11/19	07/12/19	07/13/19	07/14/19	07/15/19	07/16/19
0	6.5	6.2	6.0	6.0	5.8	5.5	8.0	5.5	5.4	5.1	7.0	6.7	7.0	6.6	6.7	8.4
10000	6.5	6.1	6.0	5.9	5.7	5.5	8.2	5.4	5.5	5.1	6.8	6.8	7.1	6.5	6.9	8.4
20000	6.4	6.0	6.0	5.9	5.6	5.5	8.2	5.4	5.6	5.2	7.0	6.8	6.9	6.5	6.8	8.4
30000	6.4	5.9	6.1	5.9	5.5	5.5	8.1	5.4	5.7	5.4	7.0	6.9	7.0	6.5	6.7	8.4
40000	6.3	6.0	6.1	5.9	5.6	5.5	7.4	5.4	5.7	5.4	7.0	7.0	6.7	6.5	7.0	8.4
50000	6.3	6.0	6.1	5.9	5.7	5.6	6.2	5.4	5.6	5.4	7.1	7.0	6.6	6.5	6.7	8.4
60000	6.3	6.1	6.1	5.9	5.6	5.6	6.2	5.5	5.6	5.4	7.0	7.1	6.8	6.6	6.7	8.4
70000	6.4	6.1	6.1	5.8	5.7	5.6	6.1	5.5	5.6	5.5	7.1	6.9	6.7	6.5	6.6	8.5
80000	6.4	6.2	6.1	5.9	5.7	8.1	6.3	5.6	5.6	5.5	7.1	7.1	6.9	6.5	6.7	8.5
90000	6.3	6.2	6.2	5.9	5.8	8.1	6.4	5.5	5.6	5.7	7.3	7.2	6.8	6.6	6.9	8.5
100000	6.4	6.3	6.2	5.9	5.9	7.9	6.4	5.6	5.6	5.6	7.4	7.2	7.0	6.7	8.5	8.5
110000	6.4	6.3	6.2	5.9	5.9	8.1	6.4	5.6	5.7	5.6	7.2	7.3	7.1	6.8	8.5	8.5
120000	6.4	6.3	6.2	5.9	5.9	8.2	6.4	5.6	5.6	5.6	7.4	7.2	7.2	6.6	8.5	8.5
130000	6.4	6.4	6.1	5.9	5.9	8.2	6.5	5.6	5.6	5.5	7.5	7.2	7.1	6.7	8.4	8.4
140000	6.3	6.4	6.1	5.8	5.9	8.2	6.4	5.6	5.6	5.6	7.6	6.9	7.2	6.7	8.4	8.4
150000	6.2	6.3	6.0	5.7	5.8	8.2	6.4	5.5	5.6	5.7	7.7	7.1	7.2	6.8	8.4	8.4
160000	6.2	6.1	6.1	5.7	5.8	8.1	6.3	5.5	5.6	6.9	7.7	7.0	7.2	6.7	8.4	8.4
170000	6.2	6.1	6.1	5.7	5.9	8.1	5.7	5.6	5.5	6.8	7.6	7.1	7.2	6.6	8.5	8.3
180000	6.2	6.2	6.0	5.7	6.0	8.1	5.7	5.6	5.4	6.8	7.5	6.9	7.2	6.7	8.4	8.3
190000	6.1	6.1	5.9	5.7	6.0	7.9	5.6	5.5	5.3	6.9	7.4	6.9	7.1	6.7	8.5	8.4
200000	6.0	6.1	5.9	5.7	5.9	8.0	5.6	5.4	5.2	6.9	7.2	6.8	7.1	6.5	8.4	8.3
210000	6.1	6.1	5.9	5.7	5.8	8.0	5.6	5.3	5.2	6.8	7.1	7.0	7.0	6.5	8.4	8.3
220000	6.2	6.1	5.9	5.7	5.7	8.0	5.5	5.3	5.2	7.0	7.0	6.9	6.8	6.6	8.4	8.4
230000	6.3	6.1	5.9	5.7	5.7	8.1	5.5	5.4	5.2	6.9	7.0	7.0	6.8	6.6	8.4	8.4
Daily Max	6.5	6.4	6.2	6.0	6.0	8.2	8.2	5.6	5.7	7.0	7.7	7.3	7.2	6.8	8.5	8.5
Daily Min	6.0	5.9	5.9	5.7	5.5	5.5	5.5	5.3	5.2	5.1	6.8	6.7	6.6	6.5	6.6	8.3
Average	6.3	6.2	6.0	5.8	5.8	7.2	6.5	5.5	5.5	5.9	7.2	7.0	7.0	6.6	7.7	8.4

License Minimum Dissolved Oxygen: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - July 2019

Time HHMMSS	07/17/19	07/18/19	07/19/19	07/20/19	07/21/19	07/22/19	07/23/19	07/24/19	07/25/19	07/26/19	07/27/19	07/28/19	07/29/19	07/30/19	07/31/19
0	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.3	8.3	8.4	8.2	8.2	8.0	8.2
10000	8.4	8.4	8.4	8.3	8.4	8.4	8.4	8.4	8.3	8.3	8.3	8.2	8.2	8.0	8.3
20000	8.4	8.4	8.3	8.4	8.4	8.4	8.4	8.4	8.3	8.3	8.3	8.2	8.1	8.0	8.3
30000	8.3	8.4	8.3	8.3	8.4	8.4	8.4	8.4	8.3	8.3	8.3	8.2	8.2	8.1	8.3
40000	8.3	8.4	8.3	8.4	8.4	8.4	8.4	8.5	8.3	8.3	8.3	8.2	8.2	8.1	8.3
50000	8.4	8.4	8.3	8.3	8.4	8.4	8.4	8.5	8.3	8.3	8.3	8.2	8.3	8.2	8.3
60000	8.4	8.4	8.3	8.3	8.4	8.4	8.4	8.5	8.3	8.3	8.3	8.2	8.3	8.2	8.3
70000	8.4	8.5	8.3	8.3	8.4	8.4	8.4	8.5	8.4	8.3	8.3	8.2	8.3	8.2	8.3
80000	8.4	8.5	8.4	8.3	8.4	8.4	8.4	8.4	8.4	8.3	8.3	8.2	8.3	8.2	8.3
90000	8.4	8.5	8.4	8.3	8.4	8.4	8.4	8.5	8.3	8.4	8.3	8.2	8.2	8.2	8.3
100000	8.4	8.5	8.4	8.3	8.4	8.4	8.4	8.3	8.3	8.4	8.3	8.2	8.2	8.2	8.3
110000	8.4	8.6	8.4	8.2	8.4	8.4	8.4	8.3	8.3	8.4	8.3	8.1	8.2	8.2	8.3
120000	8.4	8.5	8.3	8.3	8.4	8.4	8.4	8.3	8.3	8.4	8.3	8.2	8.2	8.2	8.3
130000	8.4	8.5	8.3	8.3	8.3	8.4	8.4	8.3	8.3	8.4	8.3	8.2	8.2	8.2	8.3
140000	8.4	8.5	8.3	8.2	8.3	8.4	8.3	8.3	8.4	8.4	8.3	8.2	8.1	8.2	8.2
150000	8.4	8.5	8.3	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.3	8.2	8.1	8.2	8.2
160000	8.4	8.5	8.3	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.3	8.2	8.1	8.1	8.2
170000	8.4	8.5	8.2	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.2	8.2	8.1	8.1	8.3
180000	8.4	8.4	8.3	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.2	8.1	8.1	8.1	8.3
190000	8.4	8.4	8.4	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.2	8.1	8.0	8.1	8.3
200000	8.4	8.4	8.3	8.3	8.3	8.3	8.3	8.3	8.4	8.4	8.2	8.1	8.0	8.2	8.3
210000	8.4	8.4	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.4	8.2	8.1	8.0	8.1	8.3
220000	8.4	8.4	8.3	8.3	8.3	8.4	8.4	8.3	8.3	8.4	8.2	8.1	8.1	8.2	8.3
230000	8.4	8.4	8.3	8.3	8.3	8.4	8.4	8.3	8.3	8.4	8.2	8.1	8.0	8.2	8.3
Daily Max	8.4	8.6	8.4	8.4	8.4	8.4	8.4	8.5	8.4	8.4	8.4	8.2	8.3	8.2	8.3
Daily Min	8.3	8.4	8.2	8.2	8.3	8.3	8.3	8.3	8.3	8.3	8.2	8.1	8.0	8.0	8.2
Average	8.4	8.4	8.3	8.3	8.3	8.4	8.4	8.4	8.3	8.4	8.3	8.2	8.2	8.2	8.3

High Falls Tailrace Dissolved Oxygen Summary - August 2019

Time HHMMSS	08/01/19	08/02/19	08/03/19	08/04/19	08/05/19	08/06/19	08/07/19	08/08/19	08/09/19	08/10/19	08/11/19	08/12/19	08/13/19	08/14/19	08/15/19	08/16/19
0	8.3	8.3	8.1	8.1	8.1	7.8	7.9	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.5	8.4
10000	8.3	8.3	8.1	8.1	8.1	7.6	7.9	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.5	8.5
20000	8.3	8.3	8.2	8.1	8.1	7.6	7.9	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.5	8.5
30000	8.3	8.3	8.2	8.1	8.1	7.6	7.9	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.5	8.5
40000	8.3	8.3	8.2	8.1	8.1	7.7	7.9	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
50000	8.3	8.3	8.2	8.1	8.1	7.7	7.9	8.3	8.4	8.4	8.4	8.4	8.4	8.5	8.5	8.4
60000	8.3	8.3	8.3	8.1	8.1	7.8	7.9	8.3	8.4	8.5	8.4	8.4	8.4	8.5	8.5	8.4
70000	8.3	8.3	8.3	8.0	8.2	7.8	7.9	8.3	8.4	8.5	8.4	8.4	8.4	8.5	8.5	8.4
80000	8.3	8.3	8.2	8.1	8.2	7.8	7.9	8.3	8.4	8.5	8.4	8.4	8.4	8.5	8.5	8.3
90000	8.3	8.3	8.2	8.1	8.2	7.9	7.9	8.3	8.4	8.5	8.4	8.4	8.4	8.5	8.5	8.3
100000	8.3	8.3	8.2	8.1	8.2	7.8	7.9	8.3	8.4	8.5	8.5	8.4	8.4	8.5	8.5	8.4
110000	8.3	8.2	8.2	8.1	8.2	7.9	8.2	8.3	8.4	8.5	8.4	8.4	8.4	8.4	8.5	8.3
120000	8.3	8.2	8.2	8.1	8.2	7.9	8.2	8.3	8.4	8.5	8.5	8.4	8.4	8.4	8.4	8.3
130000	8.3	8.2	8.1	8.1	8.2	7.8	8.3	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.3
140000	8.3	8.2	8.1	8.1	8.1	7.9	8.2	8.3	8.4	8.4	8.4	8.3	8.4	8.4	8.4	8.3
150000	8.3	8.2	8.1	8.1	8.1	7.9	8.1	8.3	8.3	8.4	8.4	8.3	8.4	8.4	8.4	8.3
160000	8.3	8.2	8.1	8.1	7.7	7.9	8.2	8.3	8.3	8.4	8.4	8.3	8.4	8.2	8.4	8.4
170000	8.2	8.1	8.1	8.1	8.0	7.8	8.2	8.3	8.3	8.4	8.4	8.3	8.4	8.4	8.4	8.3
180000	8.2	8.2	8.1	8.1	8.0	7.9	8.2	8.3	8.3	8.4	8.4	8.3	8.4	8.4	8.4	8.3
190000	8.3	8.1	8.1	8.0	8.0	7.9	8.2	8.3	8.3	8.4	8.4	8.3	8.4	8.4	8.4	8.3
200000	8.3	8.1	8.1	8.1	8.0	7.9	8.2	8.3	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.3
210000	8.3	8.1	8.1	8.1	8.0	7.9	8.2	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.3
220000	8.3	8.1	8.1	8.1	7.9	7.9	8.3	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.5	8.3
230000	8.3	8.1	8.1	8.0	7.9	7.9	8.3	8.3	8.4	8.4	8.4	8.4	8.4	8.5	8.5	8.2
Daily Max	8.3	8.3	8.3	8.1	8.2	7.9	8.3	8.3	8.4	8.5	8.5	8.4	8.4	8.5	8.5	8.5
Daily Min	8.2	8.1	8.1	8.0	7.7	7.6	7.9	8.3	8.3	8.4	8.4	8.3	8.4	8.2	8.4	8.2
Average	8.3	8.2	8.2	8.1	8.1	7.8	8.1	8.3	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4

License Minimum Dissolved Oxygen: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - August 2019

Time HHMMSS	08/17/19	08/18/19	08/19/19	08/20/19	08/21/19	08/22/19	08/23/19	08/24/19	08/25/19	08/26/19	08/27/19	08/28/19	08/29/19	08/30/19	08/31/19
0	8.1	8.5	8.5	8.6	8.5	8.4	8.6	8.7	8.7	8.6	8.5	8.7	8.8	8.9	9.0
10000	8.2	8.5	8.5	8.6	8.5	8.5	8.6	8.7	8.7	8.6	8.5	8.7	8.8	8.9	9.0
20000	7.8	8.5	8.6	8.6	8.5	8.5	8.6	8.7	8.7	8.6	8.6	8.7	8.8	8.9	9.0
30000	8.3	8.5	8.6	8.6	8.5	8.5	8.6	8.7	8.7	8.6	8.6	8.7	8.8	8.9	9.0
40000	7.8	8.5	8.6	8.6	8.5	8.5	8.6	8.7	8.7	8.6	8.6	8.7	8.8	8.9	9.0
50000	8.4	8.4	8.6	8.6	8.5	8.5	8.6	8.7	8.7	8.6	8.6	8.7	8.8	8.9	9.0
60000	8.4	8.4	8.6	8.6	8.5	8.5	8.6	8.7	8.7	8.6	8.6	8.7	8.8	8.9	9.0
70000	8.3	8.4	8.6	8.6	8.5	8.5	8.6	8.7	8.7	8.6	8.6	8.7	8.8	9.0	9.0
80000	8.4	8.4	8.6	8.6	8.5	8.6	8.6	8.7	8.7	8.6	8.6	8.7	8.8	9.0	9.0
90000	8.5	8.4	8.6	8.6	8.5	8.6	8.6	8.7	8.7	8.6	8.6	8.7	8.8	9.0	9.0
100000	8.5	8.5	8.6	8.6	8.5	8.6	8.7	8.7	8.7	8.6	8.6	8.7	8.8	9.0	9.0
110000	8.4	8.5	8.6	8.6	8.5	8.6	8.6	8.7	8.7	8.6	8.7	8.8	8.8	9.0	9.0
120000	8.5	8.5	8.6	8.6	8.4	8.6	8.6	8.7	8.7	8.6	8.6	8.8	8.8	9.0	9.0
130000	8.5	8.5	8.6	8.6	8.5	8.6	8.6	8.7	8.7	8.6	8.6	8.8	8.8	8.9	9.0
140000	8.4	8.5	8.6	8.5	8.4	8.6	8.6	8.7	8.7	8.6	8.6	8.8	8.8	8.9	9.0
150000	8.4	8.5	8.6	8.5	8.4	8.5	8.6	8.7	8.7	8.6	8.6	8.8	8.8	8.9	9.0
160000	8.2	8.5	8.6	8.5	8.4	8.5	8.6	8.7	8.7	8.6	8.7	8.8	8.8	8.9	9.0
170000	8.5	8.5	8.6	8.5	8.4	8.6	8.6	8.7	8.7	8.6	8.6	8.8	8.8	8.9	9.0
180000	8.4	8.5	8.6	8.5	8.4	8.5	8.6	8.7	8.7	8.6	8.7	8.8	8.8	8.9	9.0
190000	8.4	8.5	8.6	8.5	8.4	8.5	8.6	8.7	8.7	8.6	8.7	8.8	8.8	8.9	9.0
200000	8.4	8.5	8.6	8.5	8.4	8.5	8.6	8.7	8.6	8.6	8.7	8.8	8.8	8.9	9.0
210000	8.5	8.5	8.6	8.5	8.4	8.6	8.6	8.7	8.6	8.6	8.7	8.8	8.8	8.9	9.0
220000	8.5	8.5	8.6	8.5	8.4	8.6	8.6	8.7	8.7	8.6	8.7	8.8	8.8	8.9	9.0
230000	8.5	8.5	8.6	8.5	8.4	8.6	8.6	8.7	8.6	8.5	8.7	8.8	8.8	8.9	9.0
Daily Max	8.5	8.5	8.6	8.6	8.5	8.6	8.7	8.7	8.7	8.6	8.7	8.8	8.8	9.0	9.0
Daily Min	7.8	8.4	8.5	8.5	8.4	8.4	8.6	8.7	8.6	8.5	8.5	8.7	8.8	8.9	9.0
Average	8.3	8.5	8.6	8.6	8.4	8.5	8.6	8.7	8.7	8.6	8.6	8.7	8.8	8.9	9.0

High Falls Tailrace Dissolved Oxygen Summary - September 2019

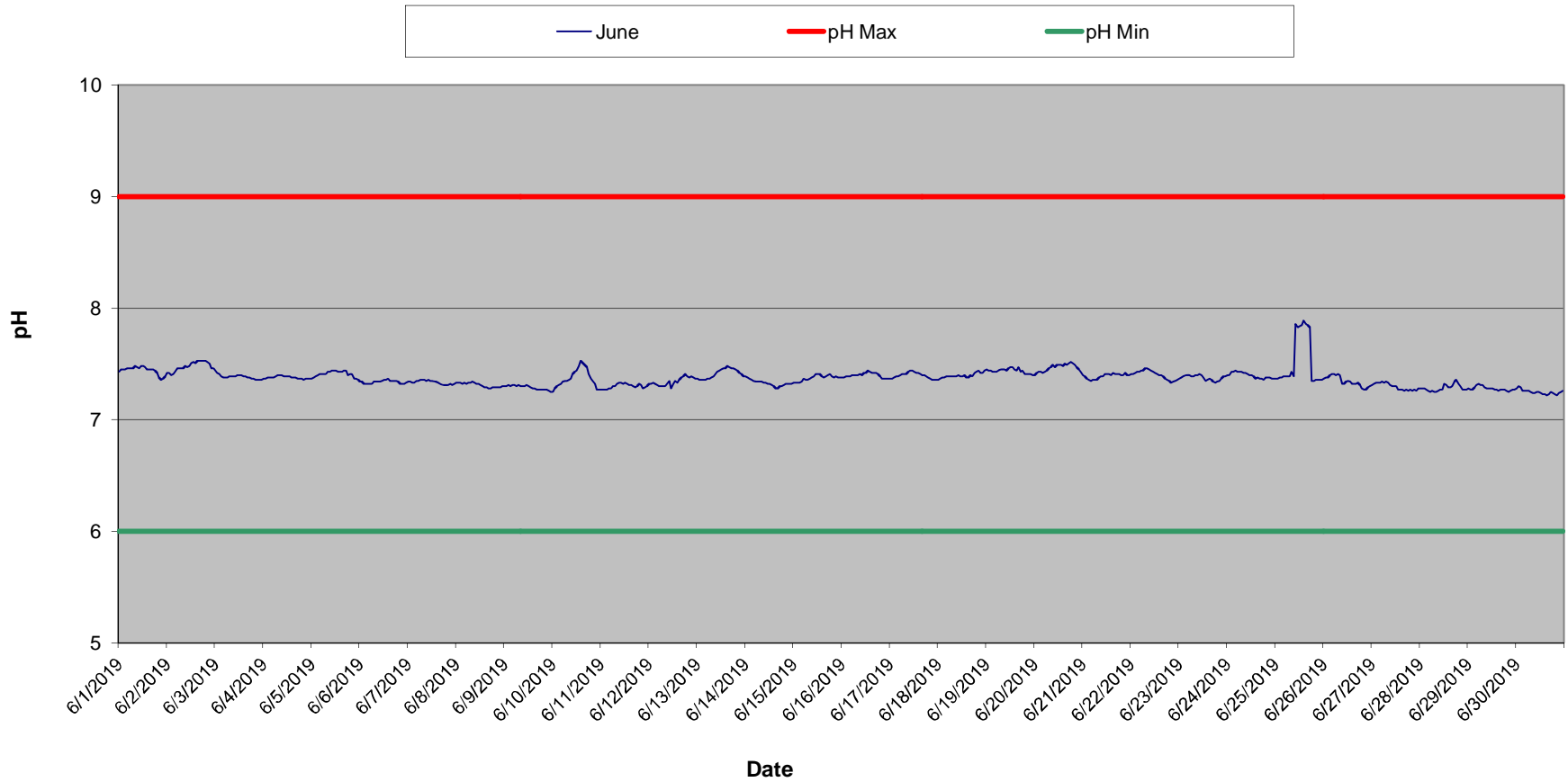
Time HHMMSS	09/01/19	09/02/19	09/03/19	09/04/19	09/05/19	09/06/19	09/07/19	09/08/19	09/09/19	09/10/19	09/11/19	09/12/19	09/13/19	09/14/19	09/15/19	09/16/19
0	9.1	9.0	8.9	8.9	9.1	9.1	9.2	9.3	9.4	9.4	9.5	9.6	9.6	9.7	9.8	9.8
10000	9.1	9.0	8.9	8.9	9.1	9.1	9.2	9.3	9.4	9.4	9.5	9.6	9.7	9.7	9.8	9.9
20000	9.1	9.0	8.9	8.9	9.1	9.1	9.2	9.3	9.5	9.4	9.5	9.6	9.6	9.7	9.8	9.9
30000	9.1	9.0	8.9	8.9	9.1	9.1	9.2	9.3	9.5	9.4	9.5	9.6	9.6	9.7	9.8	9.9
40000	8.8	9.0	8.9	9.0	9.1	9.1	9.2	9.3	9.5	9.5	9.5	9.6	9.6	9.8	9.8	9.9
50000	8.8	9.0	8.5	9.0	9.2	9.1	9.2	9.3	9.5	9.5	9.5	9.6	9.6	9.8	9.8	9.9
60000	9.0	9.0	8.8	9.0	9.2	9.1	9.2	9.3	9.5	9.5	9.5	9.7	9.6	9.8	9.8	9.9
70000	8.9	9.0	8.8	9.0	9.2	9.1	9.2	9.4	9.5	9.5	9.5	9.7	9.6	9.8	9.8	9.9
80000	9.1	9.0	8.9	9.1	9.2	9.1	9.2	9.4	9.5	9.5	9.5	9.7	9.7	9.8	9.9	9.9
90000	9.1	9.0	8.9	9.1	9.2	9.1	9.2	9.4	9.5	9.5	9.5	9.7	9.7	9.8	9.8	9.9
100000	9.1	9.0	8.8	9.1	9.2	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.6	9.9	9.9	9.9
110000	9.1	9.0	8.8	9.1	9.2	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.7	9.9	9.8	9.9
120000	9.0	9.0	8.9	9.1	9.2	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.6	9.9	9.8	9.9
130000	9.0	8.9	8.9	9.1	9.2	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.6	9.8	9.8	9.9
140000	9.1	8.9	8.9	9.0	9.2	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.6	9.8	9.8	9.9
150000	9.0	8.9	8.9	9.1	9.2	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.6	9.8	9.8	9.9
160000	9.0	8.9	8.9	9.0	9.1	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.7	9.8	9.8	9.9
170000	9.0	8.8	8.9	9.0	9.1	9.2	9.2	9.4	9.5	9.4	9.5	9.7	9.6	9.8	9.8	9.9
180000	9.0	8.8	8.8	9.0	9.1	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.6	9.8	9.8	9.9
190000	9.0	8.9	8.8	9.0	9.1	9.2	9.2	9.4	9.5	9.5	9.6	9.7	9.6	9.8	9.8	9.9
200000	9.0	8.9	8.8	9.0	9.1	9.2	9.2	9.4	9.5	9.5	9.6	9.7	9.6	9.8	9.8	9.9
210000	9.0	8.9	8.9	9.1	9.1	9.2	9.2	9.4	9.5	9.5	9.6	9.7	9.6	9.8	9.8	9.9
220000	9.0	8.9	8.9	9.1	9.1	9.2	9.3	9.4	9.4	9.5	9.6	9.7	9.6	9.8	9.8	9.9
230000	9.0	8.9	8.9	9.1	9.1	9.2	9.3	9.4	9.4	9.5	9.6	9.6	9.6	9.8	9.8	10.0
Daily Max	9.1	9.0	8.9	9.1	9.2	9.2	9.3	9.4	9.5	9.5	9.6	9.7	9.7	9.9	9.9	10.0
Daily Min	8.8	8.8	8.5	8.9	9.1	9.1	9.2	9.3	9.4	9.4	9.5	9.6	9.6	9.7	9.8	9.8
Average	9.0	8.9	8.9	9.0	9.1	9.2	9.2	9.4	9.5	9.5	9.5	9.7	9.6	9.8	9.8	9.9

License Minimum Dissolved Oxygen: 5.0 mg/l

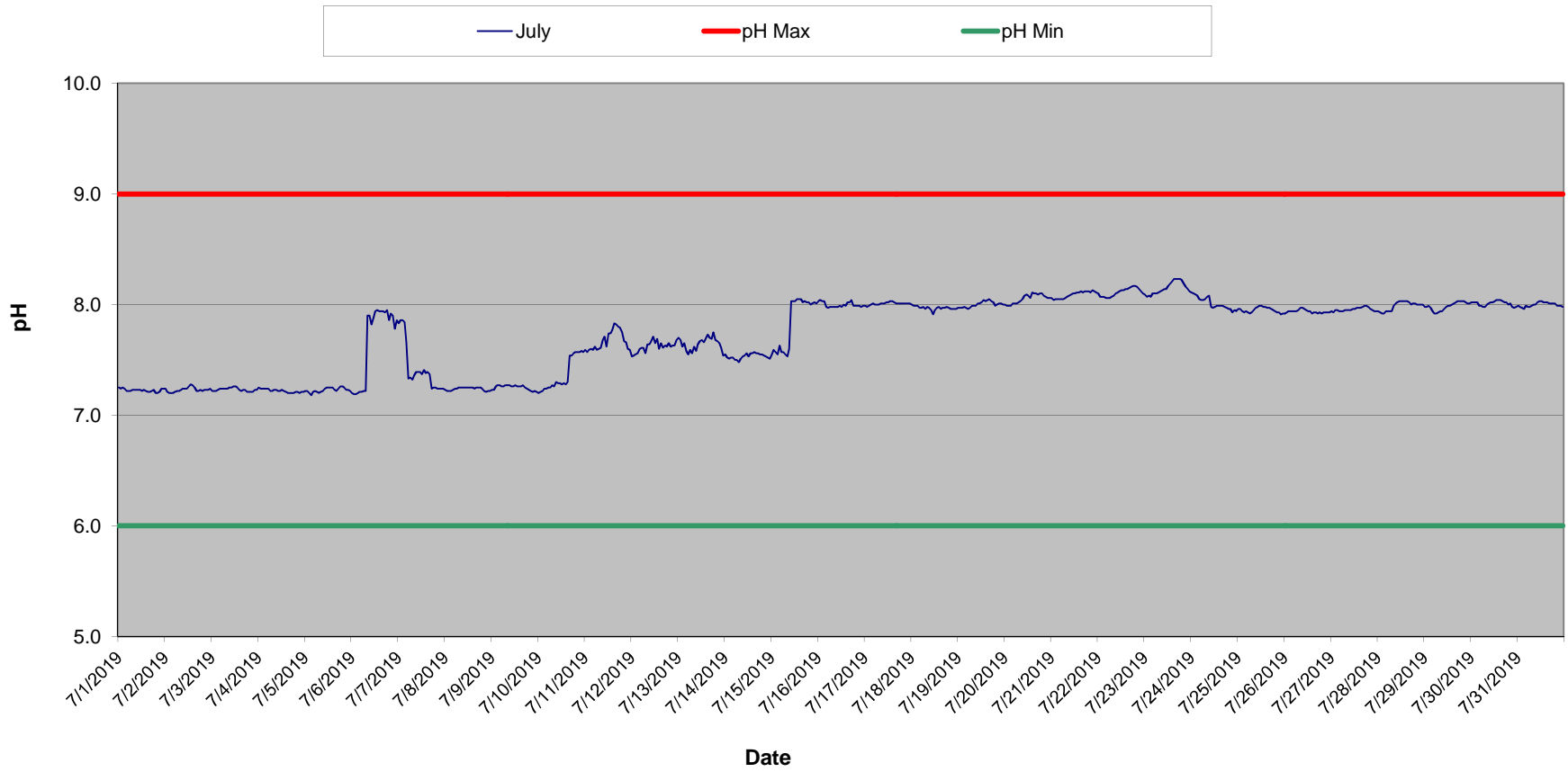
High Falls Tailrace Dissolved Oxygen Summary - September 2019

Time HHMMSS	09/17/19	09/18/19	09/19/19	09/20/19	09/21/19	09/22/19	09/23/19	09/24/19	09/25/19	09/26/19	09/27/19	09/28/19	09/29/19	09/30/19
0	9.9	9.5	9.4	9.3	9.3	9.4	9.0	9.1	9.0	9.0	9.1	9.1	9.3	9.3
10000	10.0	9.5	9.4	9.3	9.2	9.4	9.0	9.1	9.0	9.1	9.1	9.2	9.3	9.3
20000	10.0	9.5	9.4	9.3	9.3	9.4	9.0	9.1	9.0	9.0	9.1	9.2	9.3	9.3
30000	10.0	9.5	9.4	9.3	9.2	9.3	9.0	9.1	9.0	9.0	9.0	9.2	9.3	9.3
40000	10.0	9.5	9.4	9.3	9.2	9.3	9.0	9.1	9.0	9.0	9.0	9.2	9.3	9.3
50000	10.0	9.5	9.4	9.3	9.2	9.3	9.0	9.1	9.0	9.0	9.0	9.2	9.3	9.3
60000	10.0	9.5	9.4	9.3	9.2	9.2	9.0	9.1	9.0	9.0	9.0	9.2	9.4	9.3
70000	10.0	9.5	9.4	9.3	9.2	9.2	9.1	9.1	9.0	9.1	9.0	9.2	9.4	9.3
80000	10.0	9.5	9.4	9.3	9.2	9.2	9.1	9.1	9.0	9.0	9.1	9.2	9.4	9.3
90000	10.0	9.5	9.4	9.3	9.2	9.2	9.1	9.1	9.0	9.1	9.1	9.3	9.4	9.3
100000	10.0	9.5	9.4	9.3	9.2	9.2	9.1	9.1	9.0	9.1	9.1	9.3	9.4	9.1
110000	10.0	9.5	9.4	9.3	9.2	9.2	9.1	9.1	9.0	9.1	9.1	9.3	9.4	9.1
120000	9.6	9.5	9.5	9.3	9.2	9.2	9.1	9.1	9.0	9.0	9.1	9.3	9.4	9.2
130000	9.5	9.5	9.4	9.3	9.4	9.1	9.1	9.1	9.0	9.1	9.1	9.2	9.4	9.3
140000	9.5	9.5	9.4	9.3	9.4	9.0	9.1	9.1	9.0	9.1	9.0	9.2	9.3	9.3
150000	9.5	9.5	9.3	9.2	9.4	9.0	9.1	9.1	8.9	9.1	9.0	9.2	9.3	9.2
160000	9.5	9.5	9.3	9.3	9.4	9.0	9.0	9.1	8.9	9.1	9.0	9.2	9.3	9.2
170000	9.5	9.5	9.3	9.2	9.3	9.0	9.0	9.1	8.9	9.1	9.0	9.2	9.3	9.2
180000	9.5	9.5	9.3	9.2	9.4	9.0	9.0	9.1	8.9	9.0	9.0	9.2	9.3	9.2
190000	9.5	9.4	9.3	9.2	9.4	9.0	9.0	9.0	8.9	9.0	9.1	9.2	9.3	9.2
200000	9.5	9.4	9.3	9.3	9.0	9.0	9.0	9.0	8.9	9.1	9.1	9.2	9.3	9.2
210000	9.5	9.4	9.3	9.2	9.4	9.0	9.0	9.0	8.9	9.1	9.1	9.3	9.3	9.2
220000	9.5	9.4	9.3	9.3	9.4	9.0	9.0	9.0	9.0	9.1	9.1	9.3	9.3	9.2
230000	9.5	9.4	9.3	9.3	9.4	9.0	9.0	9.0	9.0	9.1	9.1	9.3	9.3	9.2
Daily Max	10.0	9.5	9.5	9.3	9.4	9.4	9.1	9.1	9.0	9.1	9.1	9.3	9.4	9.3
Daily Min	9.5	9.4	9.3	9.2	9.0	9.0	9.0	9.0	8.9	9.0	9.0	9.1	9.3	9.1
Average	9.7	9.5	9.4	9.3	9.3	9.2	9.1	9.1	9.0	9.0	9.1	9.2	9.3	9.2

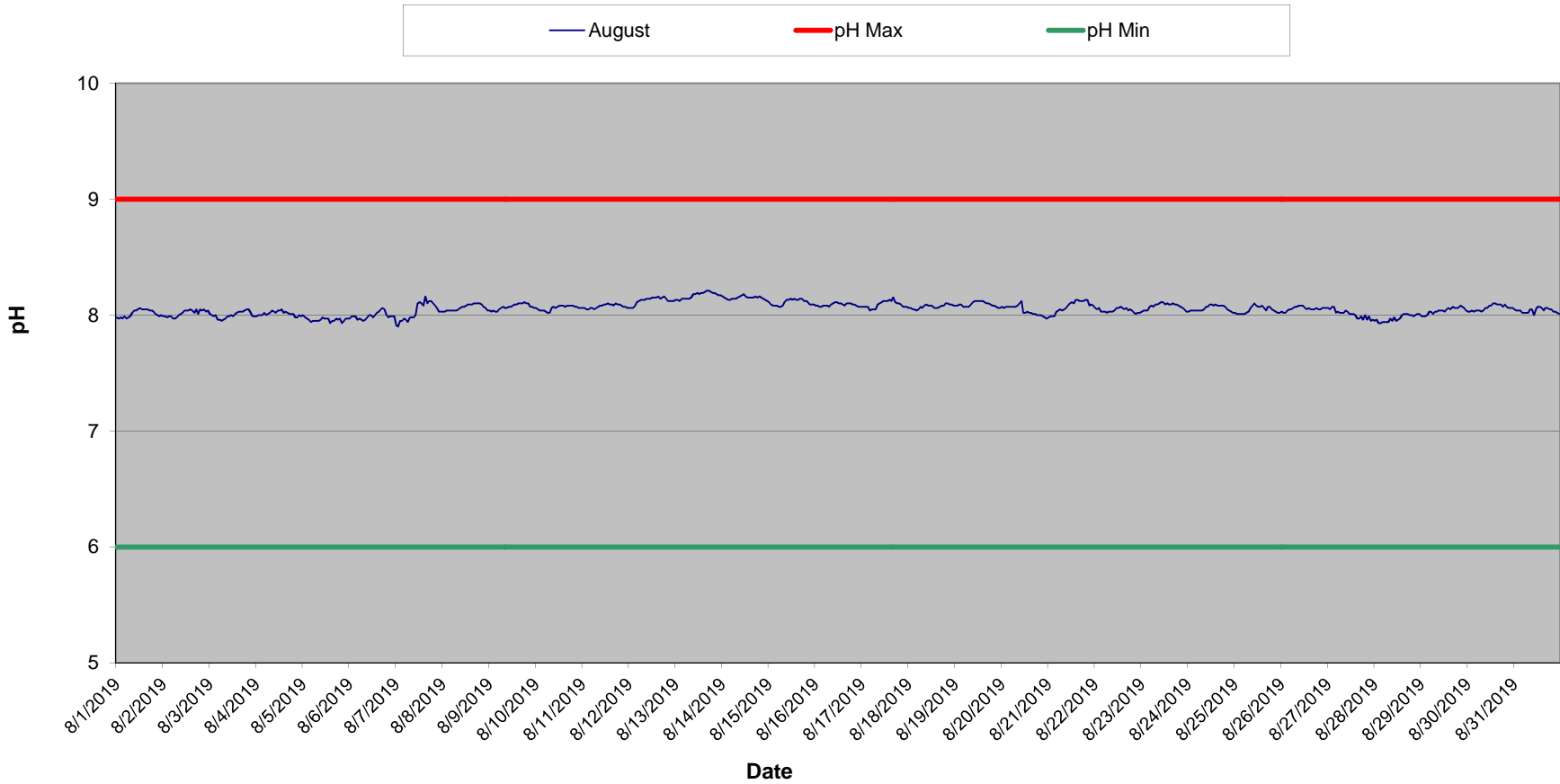
High Falls Tailrace pH Summary - June 2019



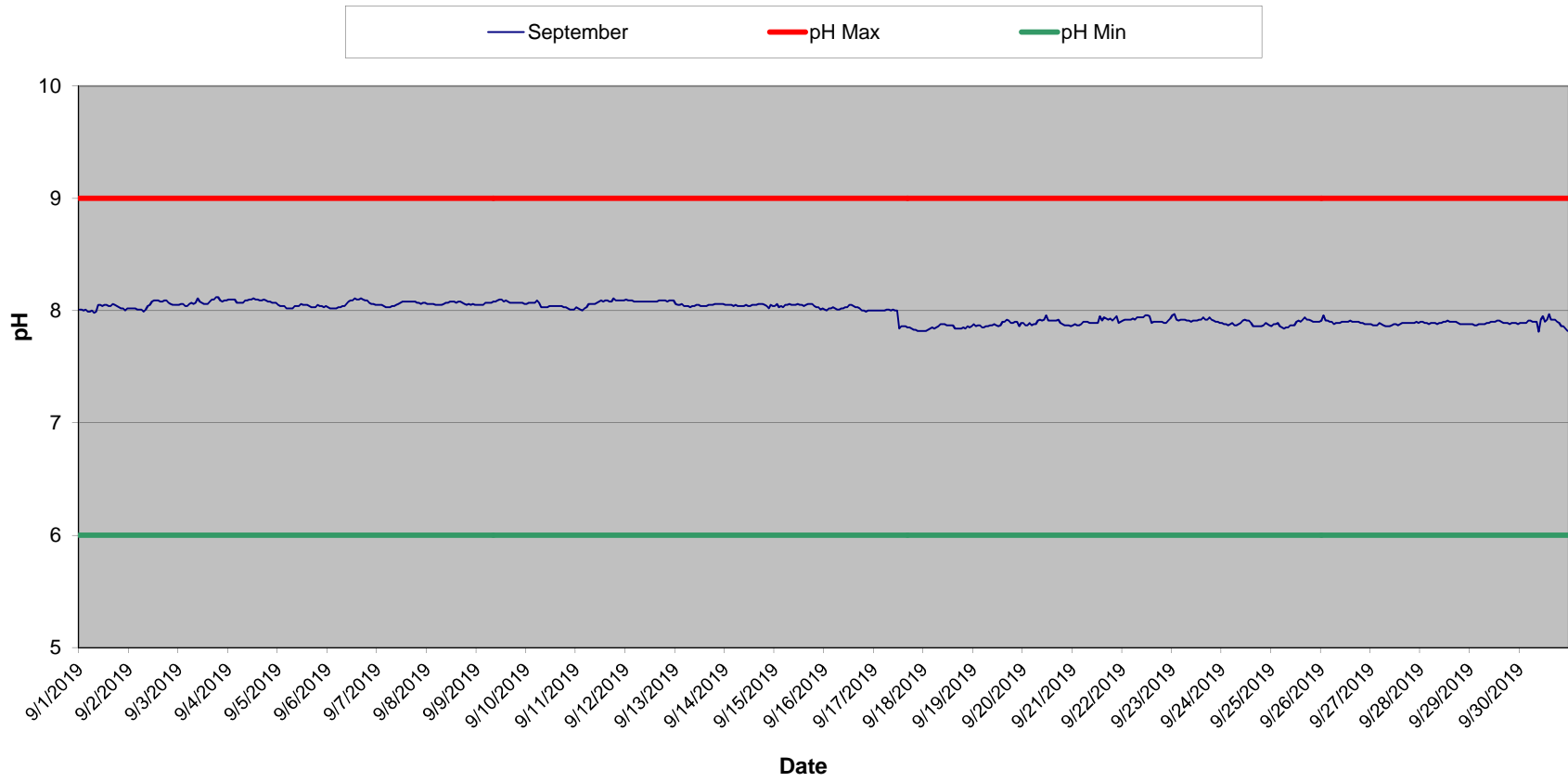
High Falls Tailrace pH Summary - July 2019



High Falls Tailrace pH Summary - August 2019



High Falls Tailrace pH Summary - September 2019



High Falls Tailrace pH Summary - June 2019

Time HHMMSS	06/01/19	06/02/19	06/03/19	06/04/19	06/05/19	06/06/19	06/07/19	06/08/19	06/09/19	06/10/19	06/11/19	06/12/19	06/13/19	06/14/19	06/15/19	06/16/19
0	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4
10000	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4
20000	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4
30000	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4
40000	7.5	7.4	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4
50000	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.3	7.4	7.4
60000	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.4	7.3	7.3	7.4	7.3	7.4	7.4
70000	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.4	7.3	7.3	7.4	7.3	7.4	7.4
80000	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.4	7.3	7.3	7.4	7.3	7.4	7.4
90000	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.4	7.3	7.3	7.4	7.3	7.4	7.4
100000	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.4	7.3	7.4	7.4	7.3	7.4	7.4
110000	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.4	7.3	7.3	7.4	7.3	7.4	7.4
120000	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.4	7.3	7.3	7.5	7.3	7.4	7.4
130000	7.5	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.5	7.3	7.4	7.5	7.3	7.4	7.4
140000	7.5	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.5	7.3	7.3	7.5	7.3	7.4	7.4
150000	7.5	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.5	7.3	7.4	7.5	7.3	7.4	7.4
160000	7.5	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.5	7.3	7.4	7.5	7.3	7.4	7.4
170000	7.5	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.5	7.3	7.4	7.5	7.3	7.4	7.4
180000	7.4	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.4	7.3	7.4	7.5	7.3	7.4	7.4
190000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.3	7.4	7.5	7.3	7.4	7.4
200000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.3	7.4	7.4	7.3	7.4	7.4
210000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4	7.4
220000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4	7.4
230000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4	7.4
Daily Max	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.5	7.3	7.4	7.5	7.4	7.4	7.4
Daily Min	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.3	7.3	7.4
Average	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.3	7.3	7.4	7.3	7.4	7.4

License maximum pH: 9

License minimum pH: 6

High Falls Tailrace pH Summary - June 2019

Time	06/17/19	06/18/19	06/19/19	06/20/19	06/21/19	06/22/19	06/23/19	06/24/19	06/25/19	06/26/19	06/27/19	06/28/19	06/29/19	06/30/19
HHMMSS														
0	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
10000	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
20000	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
30000	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
40000	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
50000	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
60000	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
70000	7.4	7.4	7.5	7.5	7.4	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3
80000	7.4	7.4	7.5	7.5	7.4	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.2
90000	7.4	7.4	7.5	7.5	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.2
100000	7.4	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.9	7.3	7.3	7.3	7.3	7.3
110000	7.4	7.4	7.5	7.5	7.4	7.4	7.4	7.4	7.8	7.3	7.3	7.3	7.3	7.3
120000	7.4	7.4	7.5	7.5	7.4	7.4	7.4	7.4	7.8	7.4	7.3	7.3	7.3	7.2
130000	7.4	7.4	7.5	7.5	7.4	7.4	7.4	7.4	7.9	7.3	7.3	7.3	7.3	7.2
140000	7.4	7.4	7.5	7.5	7.4	7.4	7.4	7.4	7.9	7.3	7.3	7.3	7.3	7.2
150000	7.4	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.9	7.3	7.3	7.3	7.3	7.2
160000	7.4	7.4	7.5	7.5	7.4	7.4	7.4	7.4	7.9	7.3	7.3	7.3	7.3	7.2
170000	7.4	7.4	7.4	7.5	7.4	7.4	7.3	7.4	7.8	7.3	7.3	7.3	7.3	7.3
180000	7.4	7.4	7.4	7.5	7.4	7.4	7.3	7.4	7.4	7.3	7.3	7.4	7.3	7.2
190000	7.4	7.4	7.4	7.5	7.4	7.4	7.3	7.4	7.4	7.3	7.3	7.3	7.3	7.2
200000	7.4	7.4	7.4	7.5	7.4	7.3	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.2
210000	7.4	7.4	7.4	7.5	7.4	7.3	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.2
220000	7.4	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3
230000	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3
Daily Max	7.4	7.4	7.5	7.5	7.4	7.5	7.4	7.4	7.9	7.4	7.3	7.4	7.3	7.3
Daily Min	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.4	7.4	7.3	7.3	7.3	7.3	7.2
Average	7.4	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.5	7.3	7.3	7.3	7.3	7.2

High Falls Tailrace pH Summary - July 2019

Time HHMMSS	07/01/19	07/02/19	07/03/19	07/04/19	07/05/19	07/06/19	07/07/19	07/08/19	07/09/19	07/10/19	07/11/19	07/12/19	07/13/19	07/14/19	07/15/19	07/16/19
0	7.3	7.2	7.2	7.3	7.2	7.2	7.8	7.2	7.2	7.2	7.6	7.5	7.7	7.6	7.6	8.0
10000	7.2	7.2	7.2	7.2	7.2	7.2	7.9	7.2	7.2	7.2	7.6	7.5	7.7	7.5	7.6	8.0
20000	7.3	7.2	7.2	7.2	7.2	7.2	7.9	7.2	7.3	7.2	7.6	7.6	7.6	7.5	7.6	8.0
30000	7.2	7.2	7.2	7.2	7.2	7.2	7.8	7.2	7.3	7.2	7.6	7.6	7.7	7.5	7.6	8.0
40000	7.2	7.2	7.2	7.2	7.2	7.2	7.7	7.2	7.3	7.2	7.6	7.6	7.6	7.5	7.6	8.0
50000	7.2	7.2	7.2	7.2	7.2	7.2	7.3	7.2	7.3	7.3	7.6	7.6	7.6	7.5	7.6	8.0
60000	7.2	7.2	7.2	7.2	7.2	7.2	7.3	7.2	7.3	7.3	7.6	7.6	7.6	7.5	7.6	8.0
70000	7.2	7.2	7.2	7.2	7.2	7.2	7.3	7.3	7.3	7.3	7.6	7.6	7.6	7.5	7.6	8.0
80000	7.2	7.2	7.2	7.2	7.2	7.9	7.4	7.3	7.3	7.3	7.6	7.6	7.6	7.5	7.5	8.0
90000	7.2	7.2	7.3	7.2	7.2	7.9	7.4	7.3	7.3	7.3	7.7	7.6	7.6	7.5	7.6	8.0
100000	7.2	7.2	7.3	7.2	7.2	7.8	7.4	7.3	7.3	7.3	7.7	7.7	7.6	7.5	8.0	8.0
110000	7.2	7.2	7.3	7.2	7.3	7.9	7.4	7.3	7.3	7.3	7.6	7.7	7.7	7.6	8.0	8.0
120000	7.2	7.3	7.3	7.2	7.3	7.9	7.4	7.3	7.3	7.3	7.7	7.7	7.7	7.5	8.0	8.0
130000	7.2	7.3	7.3	7.2	7.3	8.0	7.4	7.3	7.3	7.3	7.7	7.7	7.7	7.6	8.1	8.0
140000	7.2	7.3	7.2	7.2	7.3	7.9	7.4	7.3	7.3	7.3	7.8	7.6	7.7	7.6	8.1	8.0
150000	7.2	7.3	7.2	7.2	7.2	7.9	7.4	7.2	7.3	7.3	7.8	7.7	7.7	7.6	8.1	8.0
160000	7.2	7.2	7.2	7.2	7.2	7.9	7.4	7.3	7.3	7.5	7.8	7.6	7.7	7.6	8.0	8.0
170000	7.2	7.2	7.2	7.2	7.2	7.9	7.2	7.3	7.3	7.5	7.8	7.6	7.7	7.6	8.0	8.0
180000	7.2	7.2	7.2	7.2	7.3	8.0	7.3	7.3	7.2	7.6	7.8	7.6	7.8	7.6	8.0	8.0
190000	7.2	7.2	7.2	7.2	7.3	7.9	7.3	7.2	7.2	7.6	7.8	7.7	7.7	7.6	8.0	8.0
200000	7.2	7.2	7.2	7.2	7.3	7.9	7.2	7.2	7.2	7.6	7.7	7.6	7.7	7.5	8.0	8.0
210000	7.2	7.2	7.2	7.2	7.2	7.9	7.2	7.2	7.2	7.6	7.7	7.6	7.7	7.5	8.0	8.0
220000	7.2	7.2	7.2	7.2	7.2	7.8	7.2	7.2	7.2	7.6	7.6	7.6	7.6	7.5	8.0	8.0
230000	7.2	7.2	7.2	7.2	7.2	7.9	7.2	7.2	7.2	7.6	7.6	7.7	7.5	7.5	8.0	8.0
Daily Max	7.3	7.3	7.3	7.3	7.3	8.0	7.9	7.3	7.3	7.6	7.8	7.7	7.8	7.6	8.1	8.0
Daily Min	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.6	7.5	7.5	7.5	7.5	8.0
Average	7.2	7.2	7.2	7.2	7.2	7.7	7.4	7.2	7.3	7.4	7.7	7.6	7.6	7.5	7.8	8.0

License maximum pH: 9

License minimum pH: 6

High Falls Tailrace pH Summary - July 2019

Time	07/17/19	07/18/19	07/19/19	07/20/19	07/21/19	07/22/19	07/23/19	07/24/19	07/25/19	07/26/19	07/27/19	07/28/19	07/29/19	07/30/19	07/31/19
HHMMSS															
0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	7.9	7.9	7.9	8.0	8.0	8.0
10000	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.0	7.9	7.9	7.9	8.0	8.0	8.0
20000	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	7.9	7.9	8.0	7.9	8.0	8.0	8.0
30000	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	7.9	7.9	8.0	7.9	8.0	8.0	8.0
40000	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	7.9	7.9	7.9	7.9	7.9	8.0	8.0
50000	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	8.0	8.0
60000	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	8.0	8.0
70000	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	7.9	8.0	8.0	7.9	7.9	8.0	8.0
80000	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0	7.9	8.0	8.0
90000	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0	7.9	8.0	8.0
100000	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
110000	8.0	7.9	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
120000	8.0	8.0	8.0	8.1	8.1	8.1	8.2	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0
130000	8.0	8.0	8.0	8.1	8.1	8.1	8.2	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0
140000	8.0	8.0	8.0	8.1	8.1	8.1	8.2	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0
150000	8.0	8.0	8.0	8.1	8.1	8.1	8.2	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0
160000	8.0	8.0	8.1	8.1	8.1	8.2	8.2	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0
170000	8.0	8.0	8.0	8.1	8.1	8.2	8.2	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0
180000	8.0	8.0	8.0	8.1	8.1	8.2	8.2	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0
190000	8.0	8.0	8.0	8.1	8.1	8.2	8.2	8.0	7.9	7.9	8.0	8.0	8.0	8.0	8.0
200000	8.0	8.0	8.0	8.1	8.1	8.2	8.2	8.0	7.9	7.9	8.0	8.0	8.0	8.0	8.0
210000	8.0	8.0	8.0	8.1	8.1	8.1	8.2	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0
220000	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	7.9	7.9	7.9	8.0	8.0	8.0	8.0
230000	8.0	8.0	8.0	8.1	8.1	8.1	8.1	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0
Daily Max	8.0	8.0	8.1	8.1	8.1	8.2	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Daily Min	8.0	7.9	8.0	8.0	8.0	8.1	8.1	7.9	7.9	7.9	7.9	7.9	7.9	8.0	8.0
Average	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0

High Falls Tailrace pH Summary - August 2019

Time HHMMSS	08/01/19	08/02/19	08/03/19	08/04/19	08/05/19	08/06/19	08/07/19	08/08/19	08/09/19	08/10/19	08/11/19	08/12/19	08/13/19	08/14/19	08/15/19	08/16/19
0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.1	8.1	8.1	8.1	8.2	8.1	8.1
10000	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.1	8.1	8.1	8.1	8.2	8.1	8.1
20000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
30000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
40000	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
50000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1
60000	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1
70000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1
80000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.1
90000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.1
100000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.1
110000	8.1	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.1
120000	8.1	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.2	8.1	8.1
130000	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.2	8.1	8.1
140000	8.1	8.1	8.0	8.0	7.9	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.2	8.1	8.1
150000	8.1	8.0	8.0	8.0	8.0	8.0	8.2	8.1	8.1	8.1	8.1	8.2	8.2	8.2	8.1	8.1
160000	8.1	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.1
170000	8.0	8.1	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.2	8.1	8.1
180000	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.2	8.1	8.1
190000	8.0	8.1	8.1	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.1
200000	8.0	8.0	8.1	8.0	7.9	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.2	8.1	8.1
210000	8.0	8.1	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.1	8.1	8.1
220000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.1	8.1	8.1
230000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.2	8.1	8.1	8.1
Daily Max	8.1	8.1	8.1	8.1	8.0	8.1	8.2	8.1	8.1	8.1	8.1	8.2	8.2	8.2	8.1	8.1
Daily Min	8.0	8.0	8.0	8.0	7.9	8.0	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
Average	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.2	8.1	8.1	8.1

License maximum pH: 9

License minimum pH: 6

High Falls Tailrace pH Summary - August 2019

Time	08/17/19	08/18/19	08/19/19	08/20/19	08/21/19	08/22/19	08/23/19	08/24/19	08/25/19	08/26/19	08/27/19	08/28/19	08/29/19	08/30/19	08/31/19
HHMMSS															
0	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.1
10000	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.0
20000	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.0	8.0	8.0	8.1	7.9	8.0	8.0	8.0
30000	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.1	7.9	8.0	8.0	8.0
40000	8.0	8.0	8.1	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.0	7.9	8.0	8.0	8.0
50000	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.0	7.9	8.0	8.0	8.0
60000	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.0	8.1	8.0	7.9	8.0	8.0	8.0
70000	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.0	7.9	8.0	8.0	8.0
80000	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.1
90000	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.1	8.1
100000	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.1	8.0
110000	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.1	8.1
120000	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.1	8.1
130000	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.1
140000	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.1
150000	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.0
160000	8.2	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.0	8.1	8.1	8.1
170000	8.1	8.1	8.1	8.0	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.1
180000	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.1
190000	8.1	8.1	8.1	8.0	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.1
200000	8.1	8.1	8.1	8.0	8.1	8.0	8.1	8.1	8.0	8.1	8.0	8.0	8.1	8.1	8.0
210000	8.1	8.1	8.1	8.0	8.1	8.0	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.1	8.0
220000	8.1	8.1	8.1	8.0	8.1	8.0	8.1	8.0	8.0	8.1	8.0	8.0	8.1	8.1	8.0
230000	8.1	8.1	8.1	8.0	8.1	8.0	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.1	8.0
Daily Max	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1
Daily Min	8.0	8.0	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0
Average	8.1	8.1	8.1	8.0	8.1	8.0	8.1	8.1	8.0	8.1	8.0	8.0	8.0	8.1	8.0

High Falls Tailrace pH Summary - September 2019

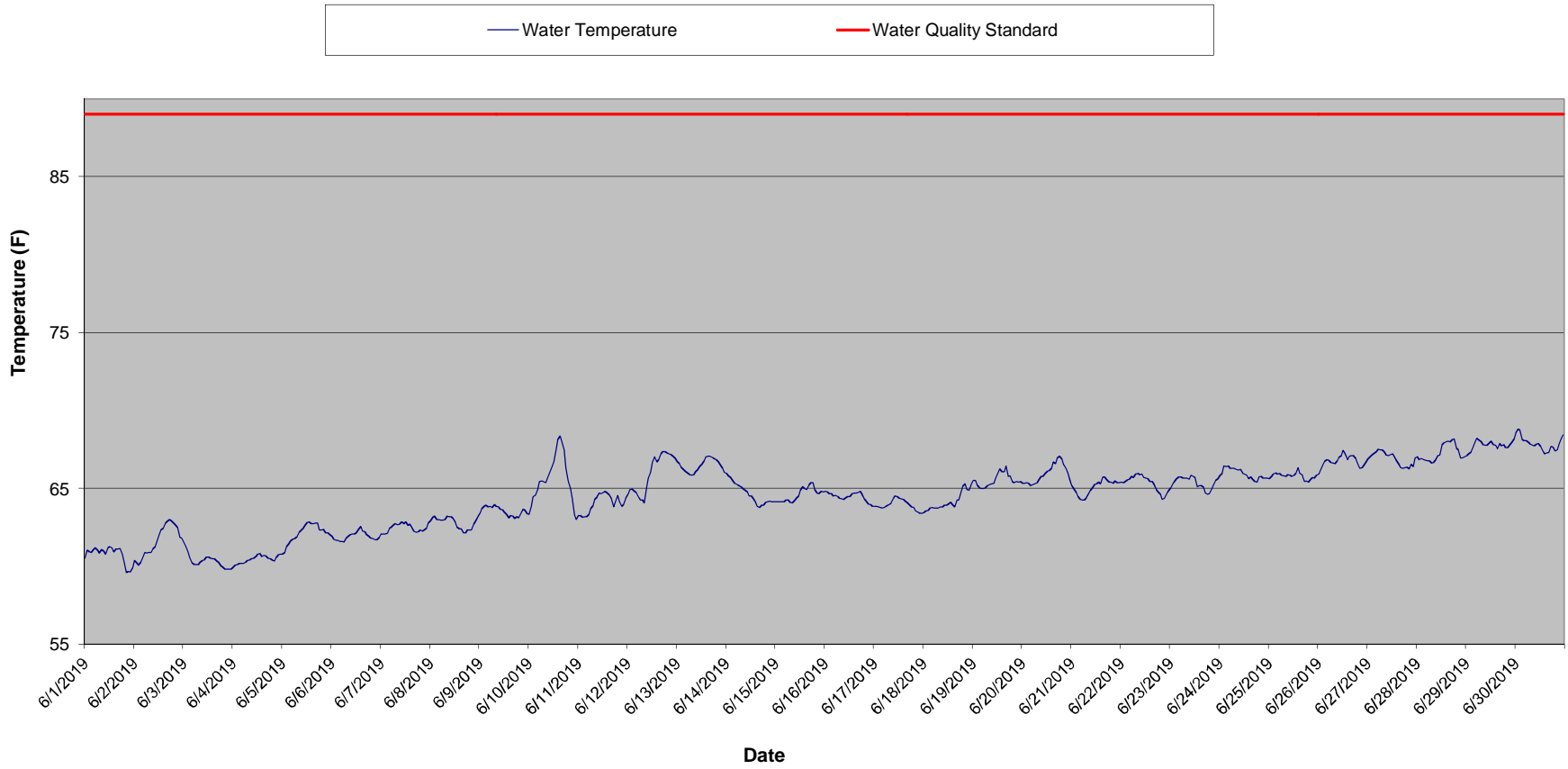
Time HHMMSS	09/01/19	09/02/19	09/03/19	09/04/19	09/05/19	09/06/19	09/07/19	09/08/19	09/09/19	09/10/19	09/11/19	09/12/19	09/13/19	09/14/19	09/15/19	09/16/19
0	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0
10000	8.0	8.0	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0
20000	8.0	8.0	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0
30000	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0
40000	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.0	8.0	8.0	8.0
50000	8.0	8.0	8.1	8.1	8.0	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.0	8.1	8.1	8.0
60000	8.0	8.0	8.1	8.1	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.0
70000	8.0	8.0	8.1	8.1	8.0	8.0	8.0	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.0
80000	8.0	8.0	8.1	8.1	8.0	8.0	8.0	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.0
90000	8.1	8.0	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.0
100000	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.0
110000	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.1	8.0
120000	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.1
130000	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.0	8.1	8.1	8.1
140000	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.0	8.1	8.0	8.0
150000	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.0	8.1	8.1	8.0
160000	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.0
170000	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.0
180000	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.0
190000	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.0
200000	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0	8.0
210000	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0	8.0
220000	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.0
230000	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0	8.0
Daily Max	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
Daily Min	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.1	8.1	8.0	8.0	8.1	8.0	8.0	8.0	8.0
Average	8.0	8.0	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.0	8.0

License maximum pH: 9
 License minimum pH: 6

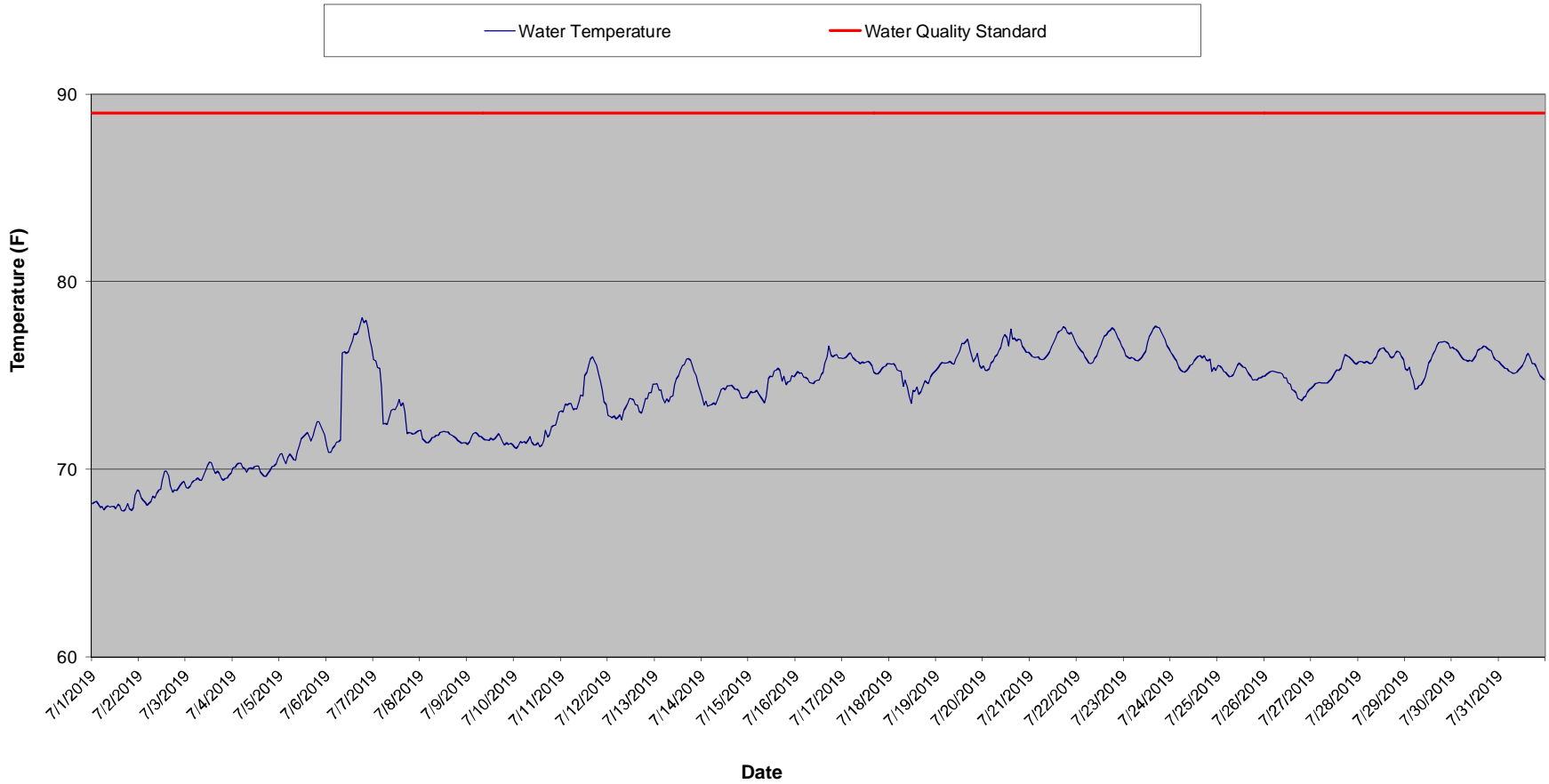
High Falls Tailrace pH Summary - September 2019

Time HHMMSS	09/17/19	09/18/19	09/19/19	09/20/19	09/21/19	09/22/19	09/23/19	09/24/19	09/25/19	09/26/19	09/27/19	09/28/19	09/29/19	09/30/19
0	8.0	7.8	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9
10000	8.0	7.8	7.9	7.9	7.9	7.9	8.0	7.9	7.9	8.0	7.9	7.9	7.9	7.9
20000	8.0	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
30000	8.0	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
40000	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
50000	8.0	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
60000	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.9	7.9	7.9
70000	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
80000	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
90000	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.8
100000	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
110000	8.0	7.9	7.9	8.0	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	8.0
120000	7.8	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
130000	7.9	7.9	7.9	7.9	8.0	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
140000	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	8.0
150000	7.9	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
160000	7.9	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
170000	7.9	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
180000	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
190000	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
200000	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
210000	7.8	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
220000	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.8
230000	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.8
Daily Max	8.0	7.9	7.9	8.0	8.0	8.0	8.0	7.9	7.9	8.0	7.9	7.9	7.9	8.0
Daily Min	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.9	7.9	7.8
Average	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9

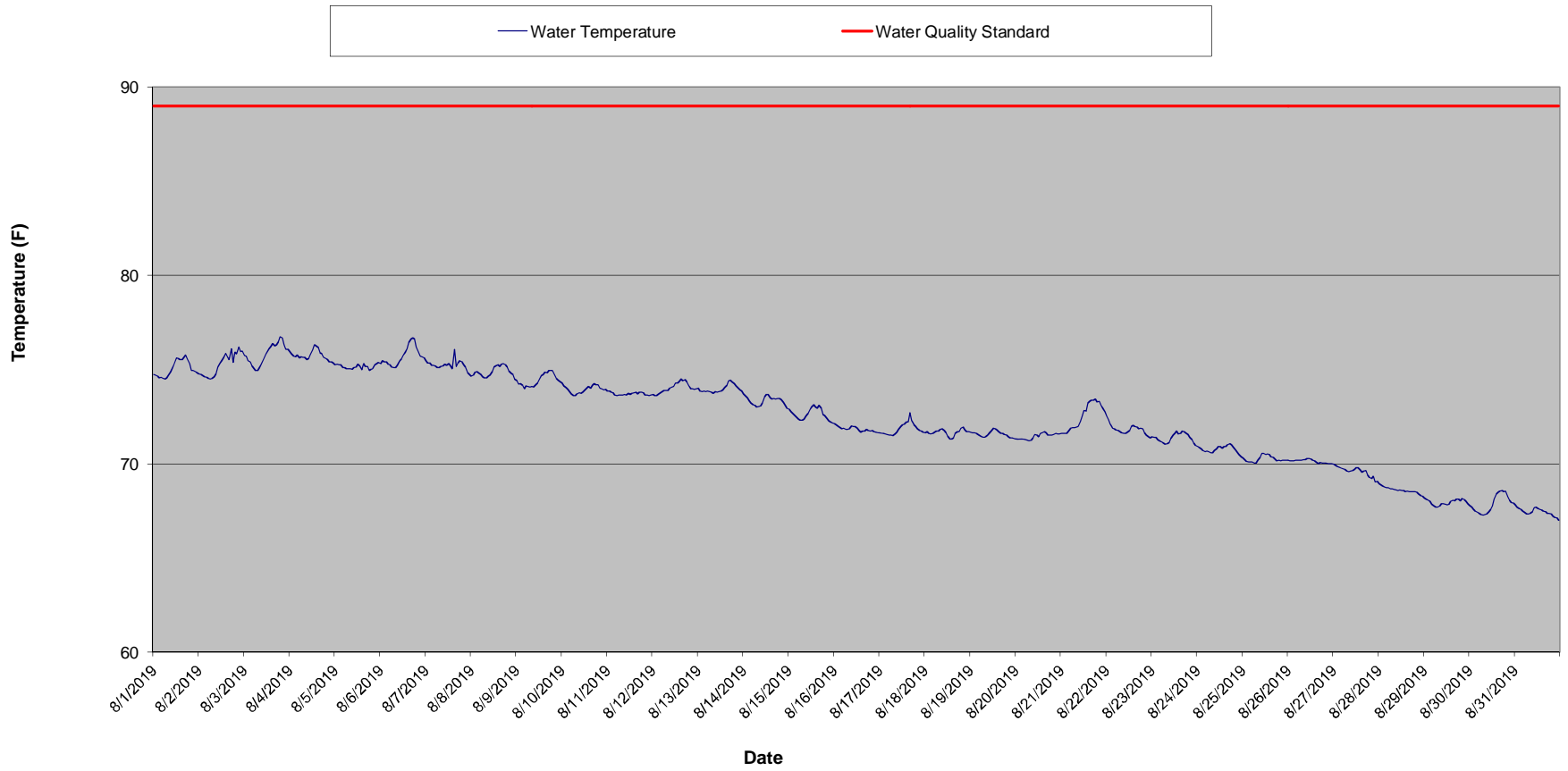
High Falls Tailrace Water Temperature - June 2019



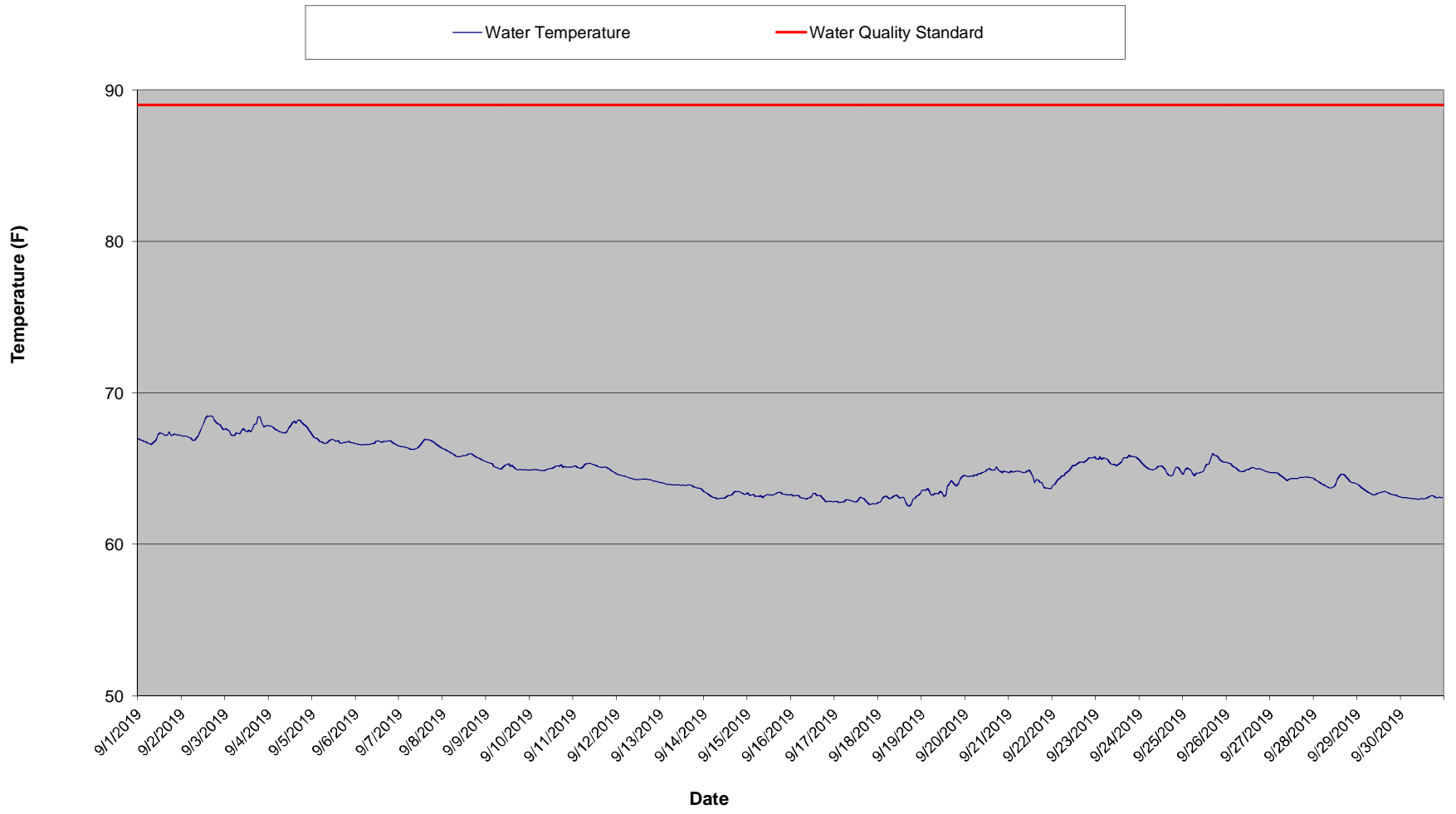
High Falls Tailrace Water Temperature - July 2019



High Falls Tailrace Water Temperature - August 2019



High Falls Tailrace Water Temperature - September 2019



High Falls Tailrace Temperature Summary - June 2019

Time HHMMSS	06/01/19	06/02/19	06/03/19	06/04/19	06/05/19	06/06/19	06/07/19	06/08/19	06/09/19	06/10/19	06/11/19	06/12/19	06/13/19	06/14/19	06/15/19	06/16/19
0	60.5	60.4	61.5	59.9	60.8	61.9	62.1	62.9	63.4	63.3	63.3	64.6	66.7	66.0	64.2	64.8
10000	61.0	60.2	61.3	60.1	60.9	61.7	62.1	63.2	63.7	63.9	63.3	64.9	66.6	65.8	64.2	64.8
20000	60.9	60.1	60.9	60.1	61.2	61.7	62.1	63.2	63.8	64.5	63.1	65.0	66.4	65.7	64.2	64.6
30000	60.9	60.3	60.6	60.2	61.4	61.7	62.1	63.0	63.9	64.5	63.2	64.9	66.2	65.5	64.1	64.7
40000	61.1	60.5	60.2	60.2	61.6	61.6	62.5	63.0	63.8	64.9	63.2	64.7	66.1	65.3	64.2	64.5
50000	61.2	60.9	60.1	60.2	61.7	61.6	62.5	63.0	63.8	65.4	63.3	64.5	66.0	65.2	64.3	64.6
60000	61.0	60.9	60.1	60.3	61.8	61.6	62.7	63.0	63.8	65.5	63.7	64.3	65.9	65.2	64.2	64.5
70000	60.9	60.9	60.1	60.4	61.9	61.8	62.7	63.0	64.0	65.4	63.9	64.2	65.9	65.1	64.1	64.4
80000	61.1	60.9	60.3	60.4	62.2	61.9	62.7	63.2	63.9	65.3	64.3	64.1	65.9	65.0	64.1	64.3
90000	61.0	61.1	60.4	60.5	62.3	62.0	62.7	63.2	63.8	65.7	64.4	65.0	66.1	64.9	64.2	64.3
100000	60.8	61.2	60.4	60.5	62.4	62.1	62.8	63.2	63.7	66.0	64.7	65.7	66.2	64.8	64.4	64.4
110000	61.2	61.6	60.6	60.6	62.6	62.1	62.7	63.1	63.6	66.4	64.7	66.0	66.4	64.5	64.5	64.5
120000	61.3	62.0	60.6	60.8	62.8	62.1	62.8	62.8	63.5	66.7	64.7	66.7	66.5	64.5	64.9	64.5
130000	61.2	62.3	60.5	60.8	62.9	62.4	62.6	62.5	63.3	67.5	64.8	67.0	66.8	64.4	65.1	64.7
140000	60.9	62.4	60.5	60.6	62.7	62.6	62.7	62.4	63.1	68.2	64.7	66.7	67.0	64.1	65.0	64.7
150000	61.1	62.8	60.5	60.7	62.8	62.3	62.4	62.4	63.2	68.3	64.6	66.9	67.1	63.9	64.9	64.7
160000	61.1	62.9	60.4	60.7	62.8	62.2	62.3	62.1	63.2	68.0	64.3	67.2	67.1	63.8	65.2	64.7
170000	61.1	63.0	60.3	60.5	62.8	62.1	62.2	62.1	63.1	67.5	63.8	67.4	67.0	63.9	65.4	64.8
180000	60.8	62.9	60.0	60.5	62.3	61.9	62.2	62.3	63.2	66.3	64.1	67.4	66.9	63.9	65.4	64.6
190000	60.3	62.8	59.9	60.4	62.3	61.8	62.3	62.3	63.1	65.5	64.6	67.3	66.8	64.1	64.9	64.3
200000	59.6	62.7	59.8	60.3	62.4	61.8	62.2	62.3	63.4	65.0	64.1	67.2	66.7	64.2	64.7	64.1
210000	59.7	62.5	59.8	60.6	62.1	61.7	62.3	62.7	63.6	64.3	63.8	67.2	66.5	64.2	64.7	64.0
220000	59.6	61.9	59.8	60.8	62.2	61.7	62.4	62.9	63.6	63.3	64.0	67.1	66.3	64.1	64.8	63.9
230000	59.9	61.8	59.8	60.8	62.0	61.9	62.8	63.1	63.4	63.0	64.4	66.9	66.0	64.1	64.8	63.9
Daily Max	61.3	63.0	61.5	60.8	62.9	62.6	62.8	63.2	64.0	68.3	64.8	67.4	67.1	66.0	65.4	64.8
Daily Min	59.6	60.1	59.8	59.9	60.8	61.6	62.1	62.1	63.1	63.0	63.1	64.1	65.9	63.8	64.1	63.9
Average	60.8	61.6	60.3	60.4	62.1	61.9	62.5	62.8	63.5	65.6	64.0	65.9	66.5	64.7	64.6	64.5

Monthly average Temp: 64.3
 License Maximum Temperature: 89 F

High Falls Tailrace Temperature Summary - June 2019

Time HHMMSS	06/17/19	06/18/19	06/19/19	06/20/19	06/21/19	06/22/19	06/23/19	06/24/19	06/25/19	06/26/19	06/27/19	06/28/19	06/29/19	06/30/19
0	63.8	63.4	65.5	65.3	65.2	65.4	65.0	65.8	65.6	65.9	66.9	67.0	67.1	68.5
10000	63.9	63.6	65.5	65.3	65.0	65.3	65.2	66.0	65.8	66.2	67.0	66.8	67.2	68.8
20000	63.8	63.6	65.2	65.4	64.7	65.4	65.5	66.4	65.9	66.5	67.1	66.9	67.3	68.7
30000	63.8	63.7	65.0	65.3	64.5	65.6	65.6	66.4	66.0	66.7	67.2	66.8	67.6	68.1
40000	63.7	63.8	65.0	65.2	64.3	65.6	65.7	66.4	65.9	66.8	67.4	66.8	67.9	68.1
50000	63.8	63.7	65.0	65.3	64.3	65.8	65.7	66.3	66.0	66.8	67.5	66.8	68.2	68.1
60000	63.9	63.7	65.0	65.3	64.2	65.7	65.7	66.3	65.9	66.7	67.5	66.8	68.1	68.0
70000	63.9	63.7	65.2	65.4	64.4	65.9	65.7	66.3	65.8	66.6	67.5	66.6	68.0	67.8
80000	64.0	63.8	65.3	65.5	64.6	65.9	65.7	66.2	65.8	66.6	67.3	66.7	67.8	67.8
90000	64.3	63.8	65.3	65.8	64.8	65.9	65.6	66.2	65.9	66.8	67.1	66.8	67.8	67.7
100000	64.5	63.9	65.3	65.8	65.0	65.9	65.9	66.2	65.8	67.0	67.1	67.1	67.8	67.8
110000	64.5	63.9	65.6	66.0	65.2	65.7	65.8	65.9	65.8	67.1	67.2	67.1	67.9	67.9
120000	64.4	64.0	66.0	66.1	65.3	65.6	65.7	65.9	65.8	67.4	67.2	67.8	68.0	67.7
130000	64.3	64.1	66.3	66.1	65.4	65.6	65.1	65.8	66.0	67.2	66.9	67.9	67.8	67.4
140000	64.3	63.9	66.0	66.3	65.3	65.4	65.2	65.6	66.3	66.9	66.8	68.0	67.8	67.2
150000	64.2	63.8	66.1	66.7	65.7	65.4	65.2	65.7	66.0	67.0	66.5	68.0	67.5	67.3
160000	64.1	64.3	66.4	66.6	65.7	65.2	65.1	65.6	65.9	67.1	66.3	68.0	67.9	67.3
170000	64.0	64.2	65.8	67.0	65.5	64.9	64.7	65.4	65.4	67.1	66.3	68.2	67.7	67.7
180000	63.8	64.8	65.8	67.1	65.4	64.8	64.6	65.4	65.5	66.9	66.3	68.2	67.8	67.6
190000	63.8	65.2	65.5	66.9	65.4	64.6	64.7	65.7	65.4	66.6	66.4	67.6	67.6	67.4
200000	63.6	65.3	65.4	66.5	65.3	64.3	65.0	65.8	65.6	66.3	66.2	67.5	67.6	67.5
210000	63.5	64.9	65.4	66.3	65.5	64.4	65.3	65.6	65.7	66.3	66.5	67.0	67.8	67.8
220000	63.4	64.9	65.4	66.0	65.4	64.6	65.5	65.7	65.7	66.5	66.4	67.0	67.9	68.2
230000	63.4	65.3	65.4	65.5	65.4	64.8	65.6	65.6	65.9	66.7	67.0	67.0	68.2	68.4
Daily Max	64.5	65.3	66.4	67.1	65.7	65.9	65.9	66.4	66.3	67.4	67.5	68.2	68.2	68.8
Daily Min	63.4	63.4	65.0	65.2	64.2	64.3	64.6	65.4	65.4	65.9	66.2	66.6	67.1	67.2
Average	63.9	64.1	65.5	65.9	65.1	65.3	65.4	65.9	65.8	66.7	66.9	67.3	67.8	67.9

High Falls Tailrace Temperature Summary - July 2019

Time HHMMSS	07/01/19	07/02/19	07/03/19	07/04/19	07/05/19	07/06/19	07/07/19	07/08/19	07/09/19	07/10/19	07/11/19	07/12/19	07/13/19	07/14/19	07/15/19	07/16/19
0	68.2	68.8	69.0	70.1	70.8	71.2	75.8	72.1	71.3	71.2	73.1	72.9	74.5	73.9	74.0	75.1
10000	68.2	68.5	69.0	70.1	70.8	70.9	75.8	71.6	71.5	71.1	73.0	72.8	74.6	73.4	74.1	75.2
20000	68.3	68.3	69.1	70.3	70.6	70.9	75.4	71.5	71.7	71.2	73.5	72.8	74.2	73.6	74.1	75.1
30000	68.2	68.2	69.3	70.3	70.3	71.1	75.4	71.4	71.9	71.5	73.4	72.8	74.2	73.4	74.1	75.1
40000	68.0	68.1	69.4	70.3	70.6	71.3	74.4	71.4	72.0	71.4	73.5	72.7	73.8	73.4	74.2	74.9
50000	68.0	68.2	69.5	70.1	70.8	71.4	72.4	71.5	71.9	71.5	73.5	72.7	73.5	73.4	74.0	74.9
60000	67.8	68.3	69.5	70.0	70.7	71.5	72.5	71.7	71.8	71.4	73.2	72.9	73.7	73.5	73.9	74.8
70000	68.0	68.6	69.4	69.8	70.5	71.6	72.4	71.7	71.8	71.6	73.2	72.6	73.6	73.5	73.7	74.6
80000	68.0	68.5	69.4	70.0	70.5	76.2	72.8	71.8	71.6	71.7	73.2	73.1	73.9	73.7	73.5	74.6
90000	68.0	68.7	69.7	70.1	70.9	76.3	73.1	71.8	71.6	71.5	73.6	73.3	73.9	74.0	73.9	74.6
100000	68.0	68.9	69.9	70.0	71.3	76.2	73.2	72.0	71.6	71.3	74.0	73.5	74.5	74.3	74.9	74.7
110000	68.0	68.9	70.2	70.1	71.6	76.3	73.2	72.0	71.5	71.3	73.9	73.8	74.8	74.3	74.9	74.8
120000	67.9	69.5	70.4	70.2	71.8	76.6	73.4	72.0	71.7	71.4	75.0	73.8	75.0	74.2	74.9	74.8
130000	68.2	69.9	70.4	70.2	71.9	76.8	73.7	72.0	71.6	71.2	75.2	73.7	75.3	74.5	75.2	75.0
140000	68.1	69.9	70.0	69.9	72.0	77.2	73.4	72.0	71.6	71.3	75.5	73.5	75.5	74.4	75.3	75.2
150000	67.8	69.7	69.8	69.7	71.7	77.2	73.5	71.9	71.8	71.5	75.9	73.4	75.6	74.5	75.4	75.6
160000	67.8	69.1	69.9	69.6	71.5	77.3	73.1	71.8	71.9	72.1	76.0	73.1	75.9	74.4	75.3	76.0
170000	67.9	68.8	69.8	69.6	71.8	77.7	71.9	71.8	71.7	71.7	75.8	73.0	75.9	74.3	74.7	76.6
180000	68.2	68.9	69.5	69.8	72.2	78.1	72.0	71.7	71.5	71.9	75.5	73.3	75.8	74.3	75.0	76.1
190000	67.9	68.9	69.4	69.9	72.5	77.8	71.9	71.5	71.3	72.3	75.1	73.8	75.5	74.2	74.5	76.0
200000	67.8	69.0	69.5	70.1	72.5	77.9	71.9	71.5	71.4	72.3	74.6	73.8	75.2	73.8	74.7	76.1
210000	68.0	69.1	69.5	70.2	72.3	77.6	71.9	71.4	71.3	72.4	74.2	74.1	75.0	73.8	74.7	76.1
220000	68.6	69.3	69.7	70.3	72.0	77.0	72.0	71.4	71.4	72.7	73.6	74.1	74.6	73.8	75.0	75.9
230000	68.9	69.3	69.8	70.6	71.8	76.4	72.1	71.4	71.3	73.0	73.5	74.5	74.2	73.8	74.9	75.9
Daily Max	68.9	69.9	70.4	70.6	72.5	78.1	75.8	72.1	72.0	73.0	76.0	74.5	75.9	74.5	75.4	76.6
Daily Min	67.8	68.1	69.0	69.6	70.3	70.9	71.9	71.4	71.3	71.1	73.0	72.6	73.5	73.4	73.5	74.6
Average	68.1	68.9	69.6	70.1	71.4	75.1	73.2	71.7	71.6	71.7	74.2	73.3	74.7	73.9	74.5	75.3

Monthly Average Temp: 74.0
 License Maximum Temperature: 89 F

High Falls Tailrace Temperature Summary - July 2019

Time	07/17/19	07/18/19	07/19/19	07/20/19	07/21/19	07/22/19	07/23/19	07/24/19	07/25/19	07/26/19	07/27/19	07/28/19	07/29/19	07/30/19	07/31/19
0	75.9	75.6	75.3	75.5	76.1	76.6	76.3	76.2	75.5	75.0	74.3	75.7	75.4	76.5	75.7
10000	75.9	75.6	75.5	75.3	76.0	76.5	76.0	76.1	75.5	75.0	74.5	75.8	75.3	76.4	75.6
20000	76.0	75.6	75.6	75.3	76.0	76.3	76.0	75.9	75.4	75.2	74.6	75.7	75.4	76.4	75.5
30000	76.1	75.5	75.7	75.4	75.9	76.2	75.9	75.8	75.2	75.2	74.6	75.7	75.1	76.3	75.4
40000	76.2	75.3	75.7	75.7	76.0	76.0	76.0	75.4	75.2	75.2	74.6	75.7	74.8	76.1	75.4
50000	76.0	75.2	75.7	75.8	75.9	75.8	75.9	75.3	75.0	75.2	74.6	75.7	74.3	75.9	75.2
60000	75.9	75.2	75.7	76.0	75.8	75.7	75.8	75.2	74.9	75.2	74.6	75.6	74.3	75.9	75.2
70000	75.8	74.4	75.8	76.1	75.9	75.6	75.8	75.2	75.0	75.2	74.6	75.7	74.4	75.8	75.1
80000	75.7	74.8	75.6	76.3	76.0	75.7	75.8	75.3	75.0	75.2	74.6	75.8	74.5	75.8	75.1
90000	75.6	74.4	75.6	76.5	76.1	75.9	76.0	75.4	75.3	75.1	74.7	76.0	74.7	75.8	75.2
100000	75.7	73.9	75.9	77.0	76.3	76.1	76.1	75.5	75.5	74.9	74.8	76.3	74.9	75.7	75.3
110000	75.7	73.5	76.1	77.2	76.6	76.3	76.3	75.6	75.7	74.9	75.0	76.4	75.3	75.9	75.4
120000	75.7	74.2	76.3	77.0	76.7	76.6	76.7	75.8	75.5	74.6	75.2	76.5	75.6	76.1	75.5
130000	75.8	74.1	76.7	76.6	77.0	76.9	77.1	75.9	75.5	74.5	75.3	76.5	75.8	76.3	75.8
140000	75.7	74.4	76.7	77.5	77.3	77.1	77.3	76.0	75.4	74.2	75.3	76.3	76.1	76.4	76.0
150000	75.5	74.0	76.8	76.9	77.4	77.2	77.5	76.1	75.2	74.2	75.4	76.2	76.3	76.4	76.2
160000	75.2	74.1	76.9	77.0	77.4	77.3	77.6	75.9	75.1	74.1	75.7	76.0	76.5	76.6	75.9
170000	75.1	74.4	76.4	76.9	77.6	77.4	77.6	76.0	74.9	73.8	76.1	75.9	76.7	76.5	75.6
180000	75.1	74.7	76.0	76.9	77.5	77.6	77.5	75.8	74.8	73.7	76.0	76.0	76.8	76.4	75.6
190000	75.2	74.6	75.7	76.9	77.3	77.4	77.3	75.8	74.8	73.6	76.0	76.2	76.8	76.4	75.5
200000	75.4	74.6	75.9	76.6	77.2	77.2	77.1	75.9	74.7	73.8	75.9	76.3	76.8	76.3	75.2
210000	75.4	74.9	76.2	76.4	77.3	77.0	76.9	75.2	74.9	73.9	75.8	76.2	76.8	76.0	75.0
220000	75.5	75.1	75.5	76.2	77.1	76.8	76.6	75.4	74.9	74.1	75.7	76.0	76.7	75.8	74.9
230000	75.6	75.2	75.4	76.2	76.8	76.6	76.4	75.3	75.0	74.3	75.6	75.8	76.4	75.8	74.8
Daily Max	76.2	75.6	76.9	77.5	77.6	77.6	77.6	76.2	75.7	75.2	76.1	76.5	76.8	76.6	76.2
Daily Min	75.1	73.5	75.3	75.3	75.8	75.6	75.8	75.2	74.7	73.6	74.3	75.6	74.3	75.7	74.8
Average	75.7	74.7	75.9	76.4	76.6	76.6	76.6	75.7	75.2	74.6	75.1	76.0	75.7	76.1	75.4

High Falls Tailrace Temperature Summary - August 2019

Time HHMMSS	08/01/19	08/02/19	08/03/19	08/04/19	08/05/19	08/06/19	08/07/19	08/08/19	08/09/19	08/10/19	08/11/19	08/12/19	08/13/19	08/14/19	08/15/19	08/16/19
0	74.7	74.8	75.7	76.0	75.3	75.3	75.5	74.7	74.4	74.3	73.9	73.7	74.0	73.7	72.9	72.1
10000	74.7	74.7	75.7	75.8	75.3	75.5	75.4	74.7	74.2	74.1	73.9	73.6	73.9	73.6	72.8	72.1
20000	74.7	74.7	75.5	75.7	75.3	75.4	75.3	74.9	74.3	74.0	73.8	73.6	73.8	73.5	72.7	72.0
30000	74.6	74.6	75.4	75.7	75.3	75.4	75.2	74.9	74.2	74.0	73.8	73.7	73.9	73.4	72.6	71.9
40000	74.6	74.6	75.2	75.8	75.1	75.3	75.2	74.8	74.0	73.8	73.7	73.8	73.8	73.2	72.5	71.9
50000	74.5	74.5	75.1	75.6	75.1	75.2	75.2	74.7	74.1	73.7	73.6	73.8	73.9	73.1	72.4	71.9
60000	74.5	74.5	75.0	75.7	75.1	75.2	75.1	74.6	74.1	73.6	73.6	73.9	73.8	73.1	72.3	71.8
70000	74.5	74.5	75.0	75.7	75.0	75.1	75.1	74.5	74.1	73.6	73.7	73.9	73.8	73.0	72.3	71.8
80000	74.7	74.6	75.1	75.6	75.0	75.1	75.2	74.6	74.1	73.7	73.7	73.9	73.8	73.0	72.4	71.9
90000	74.9	74.8	75.3	75.5	75.0	75.2	75.2	74.6	74.1	73.8	73.7	74.0	73.8	73.1	72.5	72.0
100000	75.1	75.1	75.5	75.6	75.1	75.4	75.3	74.7	74.2	73.7	73.7	74.1	73.8	73.2	72.7	72.0
110000	75.3	75.3	75.7	75.8	75.1	75.6	75.2	74.9	74.3	73.8	73.8	74.1	73.8	73.6	72.9	72.0
120000	75.6	75.5	75.9	76.1	75.3	75.7	75.3	75.1	74.5	73.9	73.7	74.3	73.9	73.7	73.0	71.9
130000	75.6	75.6	76.1	76.3	75.2	75.9	75.2	75.2	74.7	74.0	73.7	74.3	73.9	73.7	73.1	71.8
140000	75.5	75.9	76.2	76.3	75.0	76.1	75.0	75.2	74.7	74.1	73.8	74.4	74.1	73.5	73.0	71.7
150000	75.5	75.7	76.4	76.2	75.3	76.4	76.1	75.2	74.9	74.0	73.8	74.5	74.2	73.4	73.0	71.7
160000	75.7	75.5	76.3	75.9	75.2	76.6	75.2	75.3	74.8	74.2	73.7	74.4	74.4	73.5	73.1	71.7
170000	75.8	76.1	76.3	75.8	75.2	76.7	75.3	75.3	75.0	74.3	73.8	74.5	74.5	73.4	73.0	71.8
180000	75.6	75.4	76.5	75.7	74.9	76.6	75.5	75.3	75.0	74.2	73.8	74.3	74.4	73.5	72.6	71.8
190000	75.3	75.9	76.8	75.6	75.0	76.2	75.4	75.2	74.9	74.2	73.8	74.2	74.3	73.5	72.6	71.7
200000	75.0	75.8	76.7	75.5	75.1	75.9	75.2	74.9	74.7	74.0	73.7	74.0	74.2	73.4	72.4	71.8
210000	74.9	76.2	76.3	75.4	75.3	75.7	75.1	74.8	74.5	74.0	73.7	74.0	74.1	73.3	72.3	71.7
220000	74.9	76.0	76.1	75.4	75.3	75.7	74.8	74.7	74.4	73.9	73.6	73.9	73.9	73.1	72.2	71.7
230000	74.8	76.0	76.1	75.4	75.4	75.6	74.7	74.5	74.3	74.0	73.6	74.0	73.9	73.0	72.2	71.7
Daily Max	75.8	76.2	76.8	76.3	75.4	76.7	76.1	75.3	75.0	74.3	73.9	74.5	74.5	73.7	73.1	72.1
Daily Min	74.5	74.5	75.0	75.4	74.9	75.1	74.7	74.5	74.0	73.6	73.6	73.6	73.8	73.0	72.2	71.7
Average	75.0	75.3	75.8	75.8	75.2	75.7	75.2	74.9	74.4	74.0	73.7	74.0	74.0	73.3	72.6	71.8

Monthly Average Temp: 72.4
 License Maximum Temperature: 89 F

High Falls Tailrace Temperature Summary - August 2019

Time	08/17/19	08/18/19	08/19/19	08/20/19	08/21/19	08/22/19	08/23/19	08/24/19	08/25/19	08/26/19	08/27/19	08/28/19	08/29/19	08/30/19	08/31/19
0	71.6	71.7	71.7	71.3	71.6	72.5	71.4	70.9	70.3	70.2	70.0	68.9	68.2	67.8	67.8
10000	71.6	71.7	71.6	71.3	71.6	72.3	71.4	70.9	70.2	70.2	69.9	68.9	68.1	67.7	67.7
20000	71.6	71.6	71.6	71.3	71.6	72.1	71.4	70.8	70.1	70.2	69.9	68.8	68.1	67.6	67.7
30000	71.6	71.6	71.6	71.3	71.6	71.9	71.3	70.7	70.1	70.1	69.8	68.8	68.0	67.5	67.6
40000	71.6	71.6	71.6	71.3	71.8	71.9	71.2	70.6	70.1	70.2	69.8	68.7	67.9	67.4	67.5
50000	71.5	71.7	71.5	71.3	71.9	71.8	71.2	70.7	70.1	70.2	69.7	68.7	67.8	67.4	67.4
60000	71.5	71.8	71.4	71.2	71.9	71.8	71.1	70.6	70.0	70.2	69.7	68.7	67.7	67.3	67.3
70000	71.5	71.7	71.4	71.2	71.9	71.7	71.0	70.6	70.0	70.2	69.6	68.7	67.7	67.3	67.3
80000	71.6	71.8	71.4	71.3	71.9	71.7	71.1	70.6	70.2	70.2	69.6	68.6	67.8	67.3	67.4
90000	71.7	71.9	71.5	71.4	72.0	71.6	71.1	70.7	70.4	70.2	69.6	68.6	67.9	67.3	67.5
100000	71.8	71.8	71.6	71.6	72.2	71.6	71.3	70.8	70.6	70.3	69.6	68.6	67.9	67.5	67.7
110000	72.0	71.6	71.8	71.5	72.5	71.7	71.5	70.9	70.5	70.3	69.7	68.6	67.9	67.6	67.7
120000	72.1	71.5	71.9	71.4	72.8	71.8	71.6	70.9	70.5	70.2	69.8	68.6	67.8	67.8	67.6
130000	72.1	71.3	71.9	71.6	72.8	72.0	71.7	70.8	70.5	70.2	69.8	68.6	67.9	68.1	67.6
140000	72.2	71.3	71.8	71.6	73.2	72.0	71.6	70.9	70.5	70.2	69.7	68.5	68.0	68.4	67.6
150000	72.2	71.4	71.7	71.7	73.3	72.0	71.6	70.9	70.4	70.1	69.5	68.5	68.1	68.5	67.5
160000	72.7	71.6	71.6	71.7	73.4	72.0	71.7	71.0	70.3	70.0	69.6	68.5	68.0	68.6	67.5
170000	72.3	71.7	71.6	71.5	73.4	71.9	71.7	71.1	70.3	70.1	69.7	68.5	68.1	68.6	67.4
180000	72.1	71.7	71.6	71.5	73.4	71.9	71.6	71.0	70.2	70.0	69.4	68.5	68.1	68.5	67.4
190000	72.0	71.9	71.5	71.5	73.3	71.9	71.6	70.9	70.2	70.0	69.3	68.5	68.0	68.6	67.3
200000	71.8	71.9	71.4	71.6	73.3	71.6	71.4	70.7	70.2	70.0	69.2	68.5	68.2	68.3	67.2
210000	71.8	71.8	71.4	71.6	73.1	71.5	71.3	70.6	70.2	70.0	69.3	68.4	68.1	68.1	67.2
220000	71.7	71.7	71.4	71.6	72.9	71.4	71.1	70.5	70.2	70.0	69.0	68.3	68.0	67.9	67.1
230000	71.7	71.7	71.3	71.6	72.7	71.4	71.0	70.4	70.2	70.0	69.1	68.3	67.9	67.9	67.0
Daily Max	72.7	71.9	71.9	71.7	73.4	72.5	71.7	71.1	70.6	70.3	70.0	68.9	68.2	68.6	67.8
Daily Min	71.5	71.3	71.3	71.2	71.6	71.4	71.0	70.4	70.0	70.0	69.0	68.3	67.7	67.3	67.0
Average	71.9	71.7	71.6	71.5	72.5	71.8	71.4	70.8	70.3	70.1	69.6	68.6	68.0	67.9	67.5

High Falls Tailrace Temperature Summary - September 2019

Time	09/01/19	09/02/19	09/03/19	09/04/19	09/05/19	09/06/19	09/07/19	09/08/19	09/09/19	09/10/19	09/11/19	09/12/19	09/13/19	09/14/19	09/15/19	09/16/19
HHMMSS																
0	67.0	67.2	67.6	67.8	67.2	66.6	66.5	66.3	65.4	64.9	65.2	64.6	64.1	63.5	63.4	63.3
10000	66.9	67.2	67.6	67.8	67.1	66.6	66.5	66.3	65.4	64.9	65.2	64.6	64.1	63.4	63.2	63.2
20000	66.9	67.1	67.5	67.7	67.0	66.6	66.4	66.2	65.4	64.9	65.1	64.5	64.0	63.3	63.3	63.2
30000	66.8	67.1	67.2	67.7	66.9	66.6	66.4	66.1	65.3	64.9	65.0	64.5	64.0	63.2	63.3	63.2
40000	66.8	67.0	67.2	67.6	66.8	66.6	66.4	66.1	65.2	64.9	65.0	64.5	64.0	63.2	63.2	63.2
50000	66.7	67.0	67.2	67.5	66.8	66.6	66.3	66.0	65.1	64.9	65.1	64.5	63.9	63.1	63.2	63.1
60000	66.6	66.9	67.4	67.4	66.7	66.6	66.3	65.9	65.0	64.9	65.2	64.4	63.9	63.1	63.2	63.1
70000	66.6	66.9	67.3	67.4	66.7	66.6	66.3	65.8	65.0	64.9	65.3	64.4	63.9	63.0	63.2	63.0
80000	66.7	67.0	67.3	67.3	66.7	66.6	66.3	65.8	65.0	64.9	65.3	64.3	63.9	63.0	63.1	63.0
90000	66.8	67.2	67.5	67.4	66.8	66.7	66.3	65.8	65.1	64.9	65.3	64.3	63.9	63.0	63.2	63.0
100000	66.9	67.5	67.6	67.5	66.9	66.7	66.4	65.8	65.2	65.0	65.3	64.3	63.9	63.0	63.3	63.1
110000	67.3	67.7	67.5	67.7	66.9	66.8	66.5	65.9	65.3	65.0	65.3	64.3	63.9	63.1	63.3	63.2
120000	67.4	68.0	67.4	67.9	66.9	66.8	66.6	65.9	65.3	65.0	65.2	64.3	63.9	63.1	63.2	63.4
130000	67.3	68.3	67.5	68.0	66.8	66.8	66.8	65.9	65.2	65.1	65.1	64.3	63.9	63.2	63.3	63.4
140000	67.2	68.5	67.4	68.1	66.9	66.7	66.9	66.0	65.2	65.1	65.1	64.3	63.9	63.2	63.3	63.2
150000	67.2	68.4	67.6	68.0	66.7	66.8	66.9	66.0	65.1	65.2	65.1	64.3	63.9	63.3	63.3	63.2
160000	67.2	68.5	67.9	68.2	66.7	66.8	66.9	66.0	65.0	65.1	65.1	64.3	63.9	63.4	63.4	63.2
170000	67.4	68.4	68.0	68.2	66.7	66.8	66.9	65.9	64.9	65.3	65.1	64.3	63.9	63.5	63.4	63.1
180000	67.2	68.2	68.4	68.1	66.7	66.8	66.8	65.8	64.9	65.1	65.1	64.3	63.8	63.5	63.4	62.9
190000	67.2	68.0	68.4	67.9	66.8	66.8	66.7	65.7	65.0	65.2	65.0	64.2	63.8	63.5	63.3	62.8
200000	67.3	67.9	68.1	67.8	66.8	66.7	66.6	65.7	64.9	65.1	64.9	64.2	63.7	63.4	63.3	62.8
210000	67.2	67.9	67.7	67.7	66.7	66.7	66.6	65.6	64.9	65.1	64.8	64.2	63.7	63.4	63.3	62.8
220000	67.2	67.7	67.8	67.5	66.7	66.6	66.5	65.5	64.9	65.1	64.8	64.1	63.7	63.3	63.3	62.8
230000	67.2	67.6	67.9	67.4	66.7	66.5	66.4	65.5	64.9	65.1	64.7	64.1	63.6	63.3	63.3	62.8
Daily Max	67.4	68.5	68.4	68.2	67.2	66.8	66.9	66.3	65.4	65.3	65.3	64.6	64.1	63.5	63.4	63.4
Daily Min	66.6	66.9	67.2	67.3	66.7	66.5	66.3	65.5	64.9	64.9	64.7	64.1	63.6	63.0	63.1	62.8
Average	67.0	67.6	67.6	67.7	66.8	66.7	66.5	65.9	65.1	65.0	65.1	64.3	63.9	63.3	63.3	63.1
Monthly Average Temp:				65.0												
License Maximum Temperature:				89 F												

High Falls Tailrace Temperature Summary - September 2019

Time HHMMSS	09/17/19	09/18/19	09/19/19	09/20/19	09/21/19	09/22/19	09/23/19	09/24/19	09/25/19	09/26/19	09/27/19	09/28/19	09/29/19	09/30/19
0	62.8	62.8	63.6	64.5	64.7	63.9	65.6	65.5	64.6	65.4	64.7	64.3	64.0	63.1
10000	62.8	62.8	63.6	64.5	64.8	64.0	65.6	65.4	64.9	65.4	64.7	64.3	63.9	63.1
20000	62.8	63.0	63.6	64.5	64.8	64.1	65.8	65.3	65.0	65.3	64.7	64.2	63.8	63.1
30000	62.8	63.2	63.7	64.5	64.8	64.3	65.6	65.1	65.0	65.2	64.7	64.1	63.7	63.1
40000	62.8	63.2	63.5	64.5	64.8	64.4	65.7	65.1	64.9	65.1	64.7	64.0	63.6	63.0
50000	62.8	63.1	63.3	64.6	64.8	64.5	65.7	65.0	64.7	65.0	64.6	64.0	63.5	63.0
60000	62.9	63.0	63.3	64.6	64.8	64.5	65.6	64.9	64.5	64.9	64.5	63.9	63.4	63.0
70000	62.9	63.1	63.4	64.6	64.8	64.7	65.5	64.9	64.7	64.8	64.4	63.8	63.4	63.0
80000	62.9	63.1	63.4	64.7	64.7	64.8	65.3	64.9	64.7	64.8	64.3	63.8	63.3	63.0
90000	62.9	63.2	63.3	64.7	64.8	64.9	65.3	65.0	64.7	64.8	64.2	63.7	63.3	63.0
100000	62.8	63.3	63.5	64.8	64.8	65.0	65.3	65.2	64.8	64.9	64.3	63.8	63.3	63.0
110000	62.8	63.1	63.4	64.8	64.9	65.2	65.2	65.2	64.8	65.0	64.3	63.8	63.4	63.0
120000	62.8	63.0	63.2	65.0	64.7	65.2	65.3	65.2	65.1	64.9	64.3	64.0	63.4	63.0
130000	63.0	63.1	63.3	65.0	64.4	65.3	65.3	65.1	65.3	65.0	64.4	64.3	63.4	63.0
140000	63.1	63.1	63.8	64.9	64.1	65.4	65.5	65.0	65.3	65.1	64.3	64.5	63.5	63.1
150000	63.0	62.7	64.0	64.9	64.3	65.4	65.7	64.7	65.6	65.0	64.3	64.6	63.5	63.1
160000	63.0	62.6	64.2	64.9	64.2	65.4	65.7	64.6	66.0	65.0	64.4	64.6	63.4	63.2
170000	62.9	62.5	64.1	65.1	64.1	65.4	65.7	64.5	65.9	65.0	64.4	64.6	63.4	63.2
180000	62.7	62.7	63.9	64.9	64.1	65.5	65.9	64.6	65.8	65.0	64.4	64.4	63.3	63.2
190000	62.6	63.0	63.9	64.8	63.8	65.6	65.8	64.9	65.8	65.0	64.4	64.3	63.3	63.1
200000	62.7	63.0	64.0	64.7	63.7	65.7	65.8	65.1	65.6	64.9	64.4	64.2	63.3	63.1
210000	62.7	63.2	64.3	64.8	63.7	65.7	65.8	65.1	65.5	64.8	64.4	64.1	63.2	63.1
220000	62.7	63.2	64.4	64.8	63.7	65.7	65.7	64.9	65.4	64.8	64.4	64.1	63.2	63.1
230000	62.7	63.4	64.6	64.8	63.7	65.8	65.7	64.7	65.4	64.7	64.4	64.0	63.1	63.1
Daily Max	63.1	63.4	64.6	65.1	64.9	65.8	65.9	65.5	66.0	65.4	64.7	64.6	64.0	63.2
Daily Min	62.6	62.5	63.2	64.5	63.7	63.9	65.2	64.5	64.5	64.7	64.2	63.7	63.1	63.0
Average	62.8	63.0	63.7	64.7	64.4	65.0	65.6	65.0	65.2	65.0	64.5	64.1	63.4	63.1

Attachment B

Documentation of Agency Consultation

From: [Metcalf, Mark W](#)
To: [Laatsch, Cheryl](#); [Utrup, Nick](#)
Cc: [Schott, Katie J](#); [Bosacki, William K](#); [Grisar, Mike L](#)
Subject: High Falls Hydroelectric Project (FERC Proj. 2595) - 2019 Water Quality Monitoring report
Date: Wednesday, October 02, 2019 9:43:14 AM
Attachments: [20191002 HIF Annual WQM Rpt.pdf](#)
[High Falls Bridge DO Summary 2019.xlsx](#)
[High Falls Bridge pH Summary 2019.xlsx](#)
[High Falls Bridge Temp Summary 2019.xlsx](#)

Good morning Cheryl and Nick,

Pursuant to the water quality monitoring plan for the Wisconsin Public Service (WPS) High Falls hydroelectric facility, WPS is submitting water quality monitoring data collected during the 2019 monitoring season for your review and comment. No deviations from the water quality standards for dissolved oxygen, pH, or temperature were observed during the monitoring season.

As identified in the monitoring plan, the monitoring data is being provided in tabular and graphical format in the attached excel spreadsheets. Please review the enclosed data and provide any comments you may have within 30 days. Should you have any questions or concerns, feel free to call me at (920) 433-1833.

Thanks,
Mark

Mark Metcalf
Principal Environmental Consultant
920-433-1833
920-246-2717



Wisconsin Public Service Corporation
700 North Adams Street
Green Bay, WI 54301
www.wisconsinpublicservice.com

October 2, 2019

Ms. Cheryl Laatch
Wisconsin Department of Natural Resources
Office of Energy, Water Management Specialist
101 S. Webster St.
Madison, WI 53703

Mr. Nicholas Utrup
U.S. Fish & Wildlife Service
4101 American Blvd East
Bloomington, MN 55425

Dear Ms. Laatch and Mr. Utrup:

SUBJECT: 2019 Water Quality Monitoring Report

<u>Hydro</u>	<u>FERC Project No.</u>	<u>NATDAM No.</u>	<u>License Article</u>
High Falls	2595	WI-00754	406

Per the Order Amending Approved Water Quality Monitoring Plans under Article 406, dated October 13, 2015, Wisconsin Public Service Corporation (WPSC) is submitting water quality monitoring data collected during the 2019 monitoring season at the High Falls Hydroelectric project for your review and comment.

At the High Falls facility, WPSC is required to ensure flow releases from the project, as measured immediately downstream from the dam, maintain the following standards, except when natural conditions prohibit attainment of the standards: (1) DO concentrations shall not be less than 5.0 milligrams per liter (mg/L) (minus the precision of the monitoring instrument) for more than 24 hours per year; (2) water temperature shall not exceed 89 degrees Fahrenheit; and (3) the pH shall be within the range of 6.0 to 9.0, with no change greater than 0.5 units outside the estimated natural seasonal maximum and minimum. Natural conditions include inflows to the project less than the 95 percent exceedance flow.

As described in the water quality monitoring plan, monitoring is conducted downstream of the powerhouse annually from June 1 through September 30. The downstream monitoring equipment is located on the High Falls Road bridge near the middle of the river. Monitoring upstream of the project occurs every 5 years in conjunction with water quality monitoring conducted at the Caldron Falls Hydroelectric Project. The next upstream monitoring period is scheduled to occur in 2021.

Monitoring data was collected using portable water quality monitoring equipment manufactured by YSI, Inc. Monitoring for DO, temperature, and pH was conducted continuously on an hourly basis. As

October 2, 2019

Page 2 of 2

described in the water quality monitoring plan, the instrumentation was cleaned and calibrated according to manufacturer specification at least once every 14 days during the monitoring period. A post deployment calibration was conducted to determine the extent of calibration drift. Raw data was adjusted assuming a linear degradation of calibration based upon a post calibration of the equipment. The water quality monitoring equipment used to monitor DO has an accuracy of +/- 0.1 mg/l, per the manufacturer. For compliance purposes, DO concentrations more than 0.1 mg/l below the applicable water quality standard are potential deviations.

No deviations from the DO, pH, or temperature water quality standards were observed during the 2019 monitoring season. Please note that on July 15 the facility began a scheduled electrical upgrade project of the powerhouse. From approximately 10:00 a.m. on July 15 through the remainder of the year project release flow was controlled through the tainter gates.

Enclosed with this report are excel spreadsheets containing the monitoring data, in both tabular and graphical format. Please review the enclosed data and provide any comments you may have within 30 days of this letter. Should you have any questions or concerns, feel free to call me at (920) 433-1833.

Sincerely,

A handwritten signature in black ink that reads "Mark Metcalf". The signature is written in a cursive, slightly slanted style.

Mark Metcalf

Principal Environmental Consultant

Enc. 2019 Water Quality Monitoring Data

cc: Ms. Katie Schott
Mr. Bill Bosacki
Mr. Mike Grisar

Response to Comments from the Wisconsin Department of Natural Resources

The Wisconsin Department of Natural Resources did not provide comments on the 2019 water quality monitoring report.

Response to Comments from the United States Fish & Wildlife Service

The US Fish & Wildlife Service did not provide comments on the 2019 water quality monitoring report.

Document Content(s)

20200124 HIF Env Out.PDF.....1-2

20200124 HIF Out Attach A.PDF.....3-39

20200124 HIF Out Attach B.PDF.....40-45