



Wisconsin Public Service Corporation

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

www.wisconsinpublicservice.com

February 11, 2019

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

Dear Ms. Bose:

SUBJECT: 2018 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 2018 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 2018 monitoring season. During the monitoring season there was one period in August when non-representative DO data was recorded due to biofouling of the monitoring equipment. Notification of the incident was provided to the FERC on August 31, 2018. Monitoring data is enclosed with this report in Attachment A.

Agency Consultation

WPS provided the 2018 water quality monitoring data to the Wisconsin Department of Natural Resources (WDNR) and the U.S. Fish and Wildlife Service (FWS) on October 10, 2018 for review and comment. WPS did not receive comments from the resource agencies on the 2018 water quality monitoring report. Documentation of Agency Consultation can be found in Attachment B.

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 – 2018 Water Quality Monitoring Data (37 pages)
Attachment B – Documentation of Agency Consultation (6 pages)

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

Attachment A

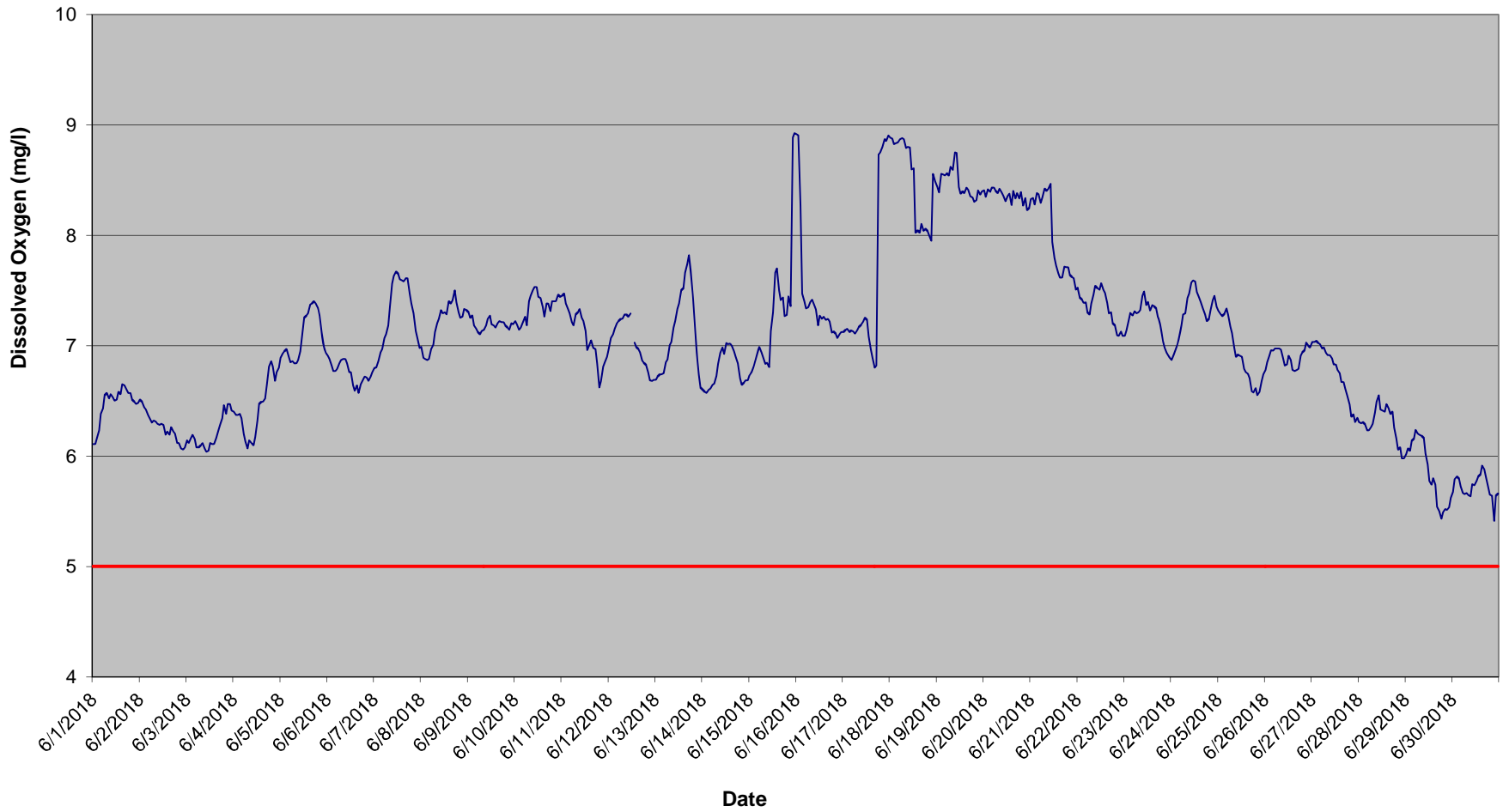
Wisconsin Public Service Corporation

High Falls Hydroelectric Project

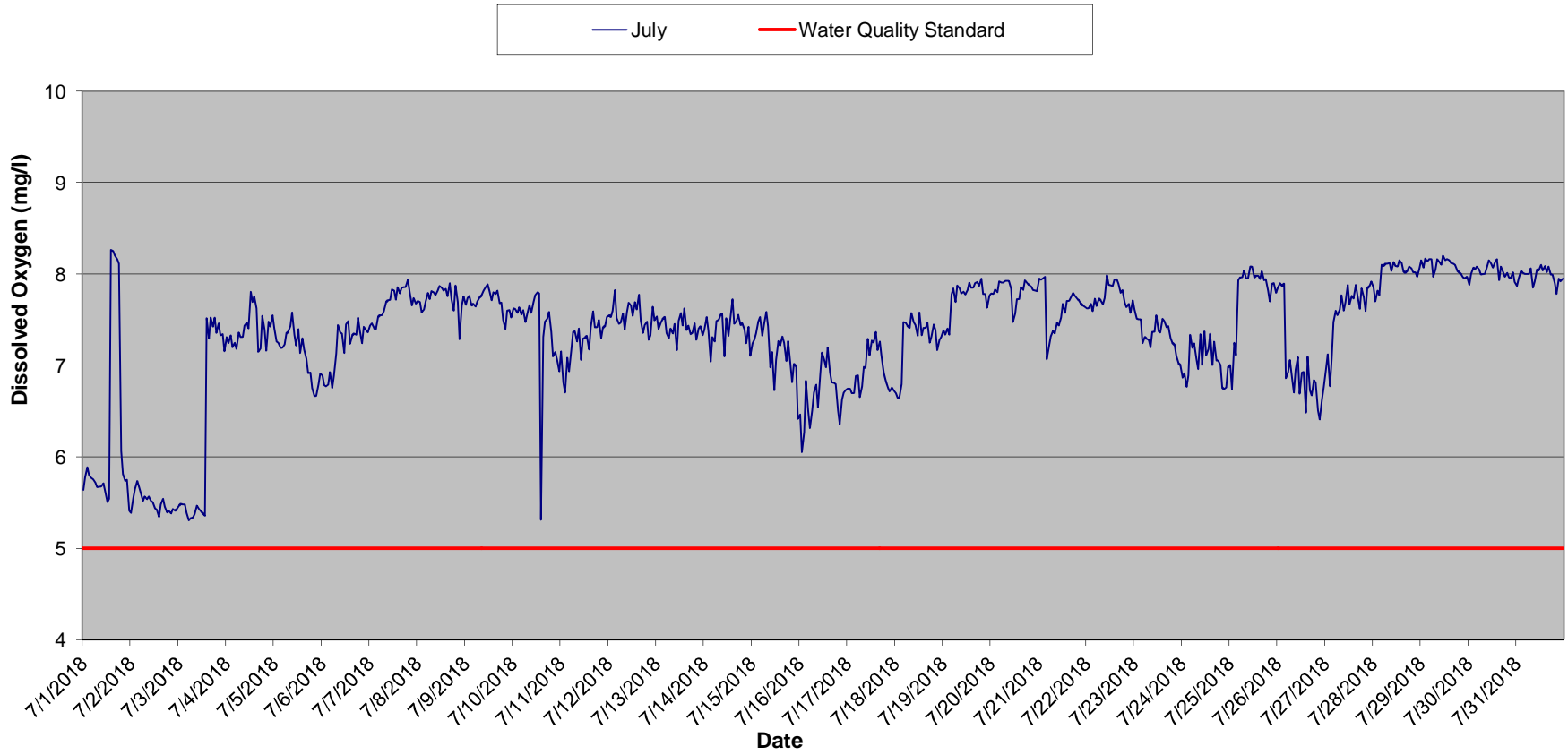
FERC Project No. 2595

2018 Water Quality Monitoring Data

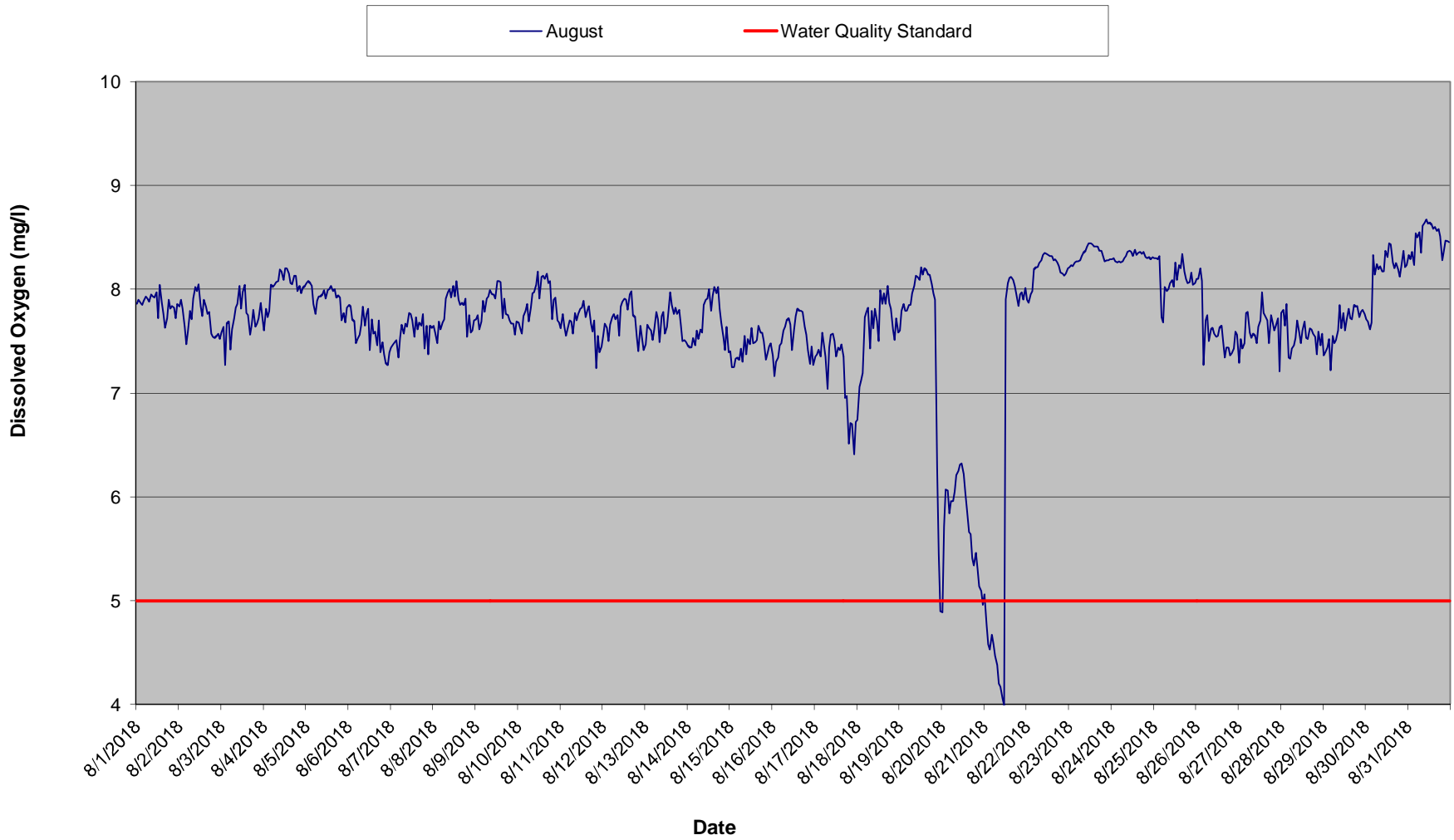
High Falls Tailrace Dissolved Oxygen - June 2018



High Falls Tailrace Dissolved Oxygen - July 2018

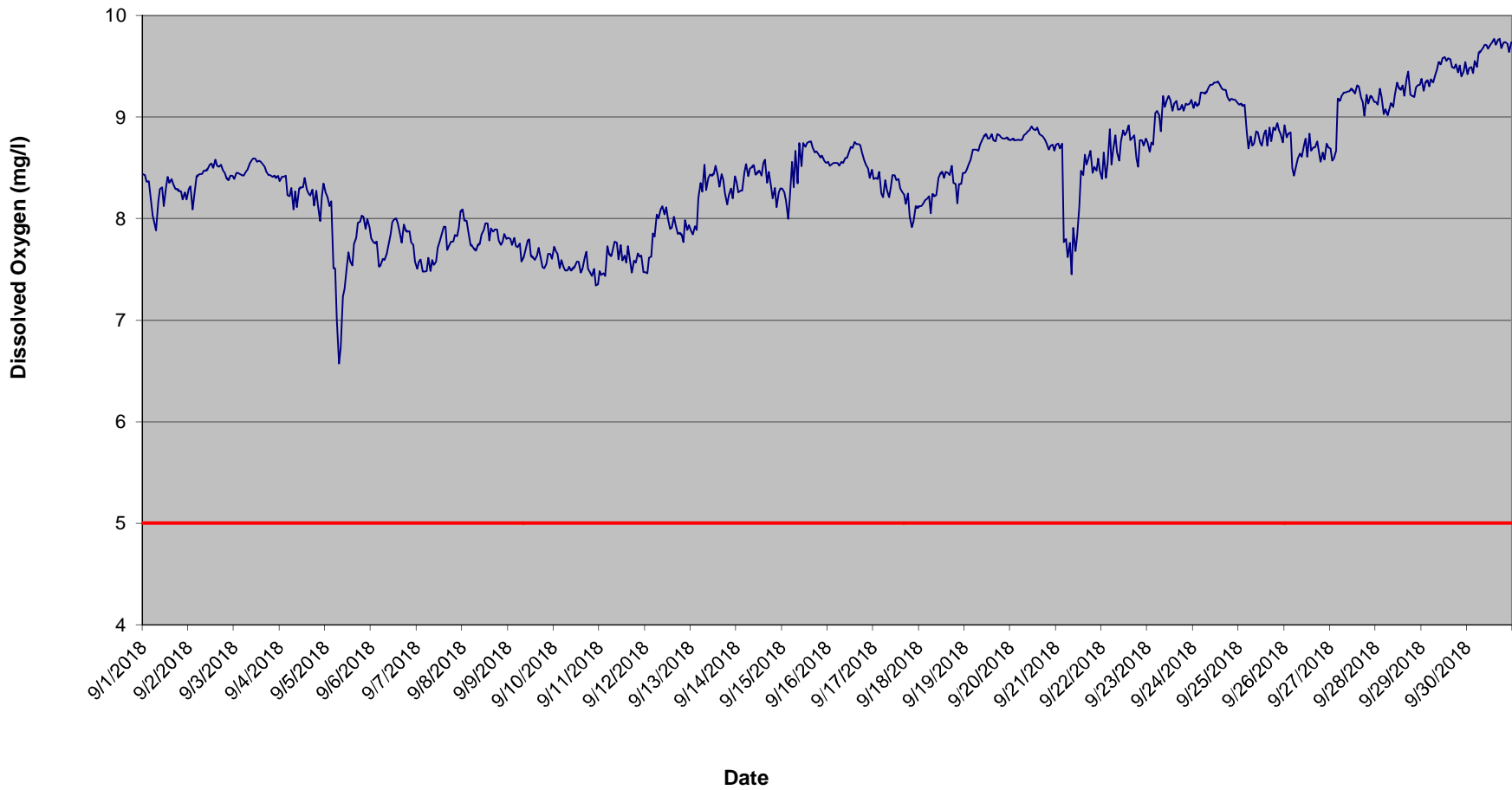


High Falls Tailrace Dissolved Oxygen - August 2018



High Falls Tailrace Dissolved Oxygen - September 2018

— September — Water Quality Standard



High Falls Tailrace Dissolved Oxygen Summary - June 2018

| Time HHMMSS | 06/01/18 | 06/02/18 | 06/03/18 | 06/04/18 | 06/05/18 | 06/06/18 | 06/07/18 | 06/08/18 | 06/09/18 | 06/10/18 | 06/11/18 | 06/12/18 | 06/13/18 | 06/14/18 | 06/15/18 | 06/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 6.1 | 6.5 | 6.1 | 6.4 | 6.9 | 6.9 | 6.8 | 7.0 | 7.3 | 7.2 | 7.5 | 7.0 | 6.7 | 6.6 | 6.7 | 8.9 |
| 10000 | 6.1 | 6.5 | 6.1 | 6.4 | 6.9 | 6.9 | 6.8 | 6.9 | 7.3 | 7.2 | 7.5 | 7.1 | 6.7 | 6.6 | 6.8 | 8.9 |
| 20000 | 6.2 | 6.4 | 6.2 | 6.4 | 7.0 | 6.8 | 6.9 | 6.9 | 7.3 | 7.1 | 7.4 | 7.1 | 6.7 | 6.6 | 6.8 | 8.3 |
| 30000 | 6.2 | 6.4 | 6.2 | 6.4 | 7.0 | 6.8 | 6.9 | 6.9 | 7.2 | 7.2 | 7.3 | 7.2 | 6.7 | 6.6 | 6.9 | 7.5 |
| 40000 | 6.4 | 6.4 | 6.2 | 6.3 | 6.9 | 6.8 | 7.0 | 6.9 | 7.2 | 7.2 | 7.3 | 7.2 | 6.7 | 6.6 | 6.9 | 7.4 |
| 50000 | 6.4 | 6.3 | 6.1 | 6.2 | 6.9 | 6.8 | 7.1 | 7.0 | 7.1 | 7.3 | 7.2 | 7.2 | 6.8 | 6.6 | 7.0 | 7.3 |
| 60000 | 6.6 | 6.3 | 6.1 | 6.1 | 6.9 | 6.8 | 7.1 | 7.0 | 7.1 | 7.2 | 7.2 | 7.2 | 6.9 | 6.7 | 6.9 | 7.3 |
| 70000 | 6.6 | 6.3 | 6.1 | 6.1 | 6.8 | 6.9 | 7.2 | 7.1 | 7.1 | 7.4 | 7.3 | 7.2 | 7.0 | 6.7 | 6.9 | 7.4 |
| 80000 | 6.5 | 6.3 | 6.1 | 6.1 | 6.8 | 6.9 | 7.4 | 7.2 | 7.1 | 7.5 | 7.3 | 7.3 | 7.0 | 6.8 | 6.8 | 7.4 |
| 90000 | 6.6 | 6.3 | 6.1 | 6.1 | 6.9 | 6.9 | 7.6 | 7.2 | 7.2 | 7.5 | 7.3 | 7.3 | 7.2 | 6.9 | 6.8 | 7.4 |
| 100000 | 6.5 | 6.3 | 6.0 | 6.1 | 7.0 | 6.8 | 7.6 | 7.3 | 7.2 | 7.5 | 7.3 | 7.3 | 7.2 | 7.0 | 6.8 | 7.3 |
| 110000 | 6.5 | 6.3 | 6.1 | 6.2 | 7.1 | 6.8 | 7.7 | 7.3 | 7.3 | 7.5 | 7.2 | 7.3 | 7.3 | 6.9 | 7.1 | 7.2 |
| 120000 | 6.5 | 6.3 | 6.1 | 6.3 | 7.3 | 6.8 | 7.7 | 7.3 | 7.2 | 7.4 | 7.1 | 7.4 | 7.0 | 7.3 | 7.3 | 7.3 |
| 130000 | 6.6 | 6.2 | 6.1 | 6.5 | 7.3 | 6.6 | 7.6 | 7.3 | 7.2 | 7.4 | 7.0 | 7.0 | 7.5 | 7.0 | 7.7 | 7.2 |
| 140000 | 6.6 | 6.2 | 6.1 | 6.5 | 7.3 | 6.6 | 7.6 | 7.4 | 7.2 | 7.4 | 7.0 | 7.0 | 7.5 | 7.0 | 7.7 | 7.3 |
| 150000 | 6.7 | 6.2 | 6.2 | 6.5 | 7.4 | 6.6 | 7.6 | 7.4 | 7.2 | 7.3 | 7.1 | 7.0 | 7.7 | 7.0 | 7.5 | 7.2 |
| 160000 | 6.6 | 6.3 | 6.2 | 6.5 | 7.4 | 6.6 | 7.6 | 7.4 | 7.2 | 7.4 | 7.0 | 6.9 | 7.7 | 6.9 | 7.4 | 7.2 |
| 170000 | 6.6 | 6.2 | 6.3 | 6.6 | 7.4 | 6.7 | 7.6 | 7.5 | 7.2 | 7.4 | 7.0 | 6.9 | 7.8 | 6.9 | 7.4 | 7.2 |
| 180000 | 6.6 | 6.2 | 6.3 | 6.8 | 7.4 | 6.7 | 7.5 | 7.4 | 7.2 | 7.3 | 6.8 | 6.8 | 7.6 | 6.8 | 7.3 | 7.1 |
| 190000 | 6.6 | 6.1 | 6.5 | 6.9 | 7.3 | 6.7 | 7.4 | 7.3 | 7.2 | 7.4 | 6.6 | 6.8 | 7.5 | 6.7 | 7.3 | 7.1 |
| 200000 | 6.5 | 6.1 | 6.4 | 6.8 | 7.3 | 6.7 | 7.3 | 7.3 | 7.2 | 7.4 | 6.7 | 6.8 | 7.2 | 6.6 | 7.4 | 7.1 |
| 210000 | 6.5 | 6.1 | 6.5 | 6.7 | 7.1 | 6.7 | 7.1 | 7.3 | 7.1 | 7.4 | 6.8 | 6.7 | 6.9 | 6.7 | 7.4 | 7.1 |
| 220000 | 6.5 | 6.1 | 6.5 | 6.8 | 7.0 | 6.7 | 7.1 | 7.3 | 7.2 | 7.5 | 6.9 | 6.7 | 6.7 | 6.7 | 8.9 | 7.1 |
| 230000 | 6.5 | 6.1 | 6.4 | 6.8 | 6.9 | 6.8 | 7.0 | 7.3 | 7.2 | 7.4 | 6.9 | 6.7 | 6.6 | 6.7 | 8.9 | 7.1 |
| Daily Max | 6.7 | 6.5 | 6.5 | 6.9 | 7.4 | 6.9 | 7.7 | 7.5 | 7.3 | 7.5 | 7.5 | 7.3 | 7.8 | 7.0 | 8.9 | 8.9 |
| Daily Min | 6.1 | 6.1 | 6.0 | 6.1 | 6.8 | 6.6 | 6.8 | 6.9 | 7.1 | 7.1 | 6.6 | 6.7 | 6.6 | 6.6 | 6.7 | 7.1 |
| Average | 6.5 | 6.3 | 6.2 | 6.4 | 7.1 | 6.8 | 7.3 | 7.2 | 7.2 | 7.4 | 7.1 | 7.0 | 7.1 | 6.8 | 7.3 | 7.4 |

License Minimum DO: 5.0 mg/l

Missing data due to equipment maintenance

High Falls Tailrace Dissolved Oxygen Summary - June 2018

| Time HHMMSS | 06/17/18 | 06/18/18 | 06/19/18 | 06/20/18 | 06/21/18 | 06/22/18 | 06/23/18 | 06/24/18 | 06/25/18 | 06/26/18 | 06/27/18 | 06/28/18 | 06/29/18 | 06/30/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 7.1 | 8.9 | 8.4 | 8.4 | 8.3 | 7.5 | 7.1 | 6.9 | 7.3 | 6.8 | 7.0 | 6.3 | 6.0 | 5.7 |
| 10000 | 7.1 | 8.9 | 8.4 | 8.3 | 8.3 | 7.4 | 7.1 | 6.9 | 7.3 | 6.8 | 7.0 | 6.3 | 6.1 | 5.8 |
| 20000 | 7.2 | 8.8 | 8.6 | 8.4 | 8.3 | 7.4 | 7.2 | 7.0 | 7.3 | 6.9 | 7.0 | 6.3 | 6.0 | 5.8 |
| 30000 | 7.1 | 8.8 | 8.6 | 8.4 | 8.4 | 7.4 | 7.3 | 7.0 | 7.3 | 7.0 | 7.0 | 6.3 | 6.1 | 5.8 |
| 40000 | 7.1 | 8.8 | 8.5 | 8.4 | 8.4 | 7.4 | 7.3 | 7.1 | 7.3 | 7.0 | 7.0 | 6.2 | 6.2 | 5.7 |
| 50000 | 7.1 | 8.9 | 8.6 | 8.4 | 8.3 | 7.3 | 7.3 | 7.2 | 7.3 | 7.0 | 7.0 | 6.2 | 6.2 | 5.7 |
| 60000 | 7.1 | 8.9 | 8.5 | 8.4 | 8.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.0 | 7.0 | 6.3 | 6.2 | 5.7 |
| 70000 | 7.1 | 8.9 | 8.6 | 8.4 | 8.4 | 7.4 | 7.3 | 7.3 | 7.1 | 7.0 | 6.9 | 6.3 | 6.2 | 5.7 |
| 80000 | 7.2 | 8.8 | 8.6 | 8.4 | 8.4 | 7.5 | 7.3 | 7.4 | 7.0 | 7.0 | 6.9 | 6.4 | 6.2 | 5.6 |
| 90000 | 7.2 | 8.8 | 8.7 | 8.4 | 8.4 | 7.5 | 7.4 | 7.5 | 6.9 | 6.9 | 6.9 | 6.5 | 6.2 | 5.6 |
| 100000 | 7.2 | 8.8 | 8.7 | 8.4 | 8.5 | 7.5 | 7.5 | 7.6 | 6.9 | 6.8 | 6.9 | 6.6 | 6.0 | 5.7 |
| 110000 | 7.3 | 8.6 | 8.4 | 8.3 | 7.9 | 7.5 | 7.4 | 7.6 | 6.9 | 6.8 | 6.8 | 6.4 | 5.9 | 5.7 |
| 120000 | 7.2 | 8.6 | 8.4 | 8.4 | 7.8 | 7.6 | 7.4 | 7.6 | 6.9 | 6.9 | 6.8 | 6.4 | 5.8 | 5.8 |
| 130000 | 7.1 | 8.0 | 8.4 | 8.4 | 7.7 | 7.5 | 7.3 | 7.5 | 6.8 | 6.9 | 6.8 | 6.4 | 5.7 | 5.8 |
| 140000 | 7.0 | 8.0 | 8.4 | 8.3 | 7.7 | 7.5 | 7.4 | 7.4 | 6.8 | 6.8 | 6.7 | 6.5 | 5.8 | 5.8 |
| 150000 | 6.9 | 8.0 | 8.4 | 8.4 | 7.6 | 7.4 | 7.4 | 7.4 | 6.7 | 6.8 | 6.7 | 6.4 | 5.7 | 5.9 |
| 160000 | 6.8 | 8.1 | 8.4 | 8.3 | 7.6 | 7.3 | 7.3 | 7.3 | 6.7 | 6.8 | 6.7 | 6.4 | 5.5 | 5.9 |
| 170000 | 6.8 | 8.0 | 8.4 | 8.4 | 7.7 | 7.3 | 7.3 | 7.3 | 6.6 | 6.8 | 6.6 | 6.4 | 5.5 | 5.8 |
| 180000 | 8.7 | 8.1 | 8.3 | 8.3 | 7.7 | 7.2 | 7.2 | 7.2 | 6.6 | 6.9 | 6.5 | 6.3 | 5.4 | 5.7 |
| 190000 | 8.7 | 8.0 | 8.3 | 8.4 | 7.7 | 7.2 | 7.1 | 7.2 | 6.6 | 6.9 | 6.5 | 6.2 | 5.5 | 5.6 |
| 200000 | 8.8 | 8.0 | 8.3 | 8.3 | 7.6 | 7.1 | 7.0 | 7.3 | 6.6 | 7.0 | 6.4 | 6.1 | 5.5 | 5.6 |
| 210000 | 8.9 | 7.9 | 8.4 | 8.3 | 7.6 | 7.1 | 7.0 | 7.4 | 6.6 | 7.0 | 6.4 | 6.1 | 5.5 | 5.4 |
| 220000 | 8.9 | 8.6 | 8.4 | 8.2 | 7.6 | 7.1 | 6.9 | 7.4 | 6.7 | 7.0 | 6.3 | 6.0 | 5.5 | 5.6 |
| 230000 | 8.9 | 8.5 | 8.4 | 8.2 | 7.5 | 7.1 | 6.9 | 7.3 | 6.7 | 7.0 | 6.3 | 6.0 | 5.6 | 5.7 |
| Daily Max | 8.9 | 8.9 | 8.7 | 8.4 | 8.5 | 7.6 | 7.5 | 7.6 | 7.3 | 7.0 | 7.0 | 6.6 | 6.2 | 5.9 |
| Daily Min | 6.8 | 7.9 | 8.3 | 8.2 | 7.5 | 7.1 | 6.9 | 6.9 | 6.6 | 6.8 | 6.3 | 6.0 | 5.4 | 5.4 |
| Average | 7.5 | 8.5 | 8.5 | 8.4 | 8.0 | 7.4 | 7.2 | 7.3 | 6.9 | 6.9 | 6.8 | 6.3 | 5.9 | 5.7 |

High Falls Tailrace Dissolved Oxygen Summary - July 2018

| Time HHMMSS | 07/01/18 | 07/02/18 | 07/03/18 | 07/04/18 | 07/05/18 | 07/06/18 | 07/07/18 | 07/08/18 | 07/09/18 | 07/10/18 | 07/11/18 | 07/12/18 | 07/13/18 | 07/14/18 | 07/15/18 | 07/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 5.6 | 5.4 | 5.5 | 7.3 | 7.4 | 6.9 | 7.4 | 7.7 | 7.7 | 7.6 | 7.2 | 7.5 | 7.5 | 7.4 | 7.2 | 6.5 |
| 10000 | 5.8 | 5.5 | 5.5 | 7.2 | 7.3 | 6.8 | 7.5 | 7.7 | 7.7 | 7.6 | 6.8 | 7.5 | 7.4 | 7.5 | 7.3 | 6.1 |
| 20000 | 5.9 | 5.6 | 5.5 | 7.3 | 7.3 | 6.8 | 7.4 | 7.6 | 7.8 | 7.6 | 6.7 | 7.6 | 7.5 | 7.4 | 7.4 | 6.3 |
| 30000 | 5.8 | 5.7 | 5.5 | 7.2 | 7.2 | 6.8 | 7.4 | 7.6 | 7.7 | 7.6 | 7.1 | 7.8 | 7.5 | 7.0 | 7.5 | 6.8 |
| 40000 | 5.8 | 5.7 | 5.4 | 7.2 | 7.2 | 6.9 | 7.5 | 7.7 | 7.7 | 7.6 | 6.9 | 7.5 | 7.5 | 7.3 | 7.5 | 6.5 |
| 50000 | 5.8 | 5.6 | 5.3 | 7.2 | 7.2 | 6.7 | 7.6 | 7.8 | 7.6 | 7.6 | 7.2 | 7.5 | 7.4 | 7.3 | 7.3 | 6.3 |
| 60000 | 5.7 | 5.5 | 5.3 | 7.4 | 7.3 | 6.9 | 7.6 | 7.7 | 7.7 | 7.5 | 7.4 | 7.5 | 7.3 | 7.5 | 7.4 | 6.5 |
| 70000 | 5.7 | 5.6 | 5.3 | 7.3 | 7.4 | 7.1 | 7.6 | 7.8 | 7.7 | 7.6 | 7.4 | 7.6 | 7.4 | 7.5 | 7.6 | 6.7 |
| 80000 | 5.7 | 5.5 | 5.4 | 7.3 | 7.4 | 7.4 | 7.7 | 7.8 | 7.8 | 7.7 | 7.3 | 7.4 | 7.3 | 7.5 | 7.4 | 6.8 |
| 90000 | 5.7 | 5.6 | 5.5 | 7.4 | 7.6 | 7.4 | 7.7 | 7.8 | 7.8 | 7.6 | 7.4 | 7.6 | 7.5 | 7.6 | 7.0 | 6.5 |
| 100000 | 5.7 | 5.5 | 5.4 | 7.5 | 7.3 | 7.3 | 7.7 | 7.8 | 7.9 | 7.7 | 7.1 | 7.7 | 7.2 | 7.1 | 7.1 | 6.9 |
| 110000 | 5.6 | 5.5 | 5.4 | 7.4 | 7.2 | 7.1 | 7.8 | 7.9 | 7.9 | 7.8 | 7.3 | 7.7 | 7.5 | 7.5 | 6.7 | 7.1 |
| 120000 | 5.5 | 5.4 | 5.4 | 7.8 | 7.4 | 7.4 | 7.8 | 7.8 | 7.8 | 7.8 | 7.3 | 7.5 | 7.6 | 7.3 | 7.1 | 7.1 |
| 130000 | 5.5 | 5.4 | 5.4 | 7.7 | 7.1 | 7.5 | 7.7 | 7.8 | 7.7 | 7.8 | 7.3 | 7.7 | 7.4 | 7.5 | 7.3 | 7.0 |
| 140000 | 8.3 | 5.3 | 7.5 | 7.8 | 7.3 | 7.2 | 7.9 | 7.8 | 7.8 | 5.3 | 7.2 | 7.6 | 7.6 | 7.7 | 7.2 | 7.2 |
| 150000 | 8.3 | 5.5 | 7.3 | 7.6 | 7.2 | 7.3 | 7.8 | 7.8 | 7.8 | 7.3 | 7.4 | 7.8 | 7.4 | 7.5 | 7.3 | 6.9 |
| 160000 | 8.2 | 5.5 | 7.5 | 7.1 | 7.1 | 7.3 | 7.8 | 7.9 | 7.8 | 7.5 | 7.6 | 7.5 | 7.4 | 7.5 | 7.2 | 6.8 |
| 170000 | 8.2 | 5.5 | 7.4 | 7.2 | 6.9 | 7.3 | 7.9 | 7.7 | 7.7 | 7.5 | 7.4 | 7.4 | 7.3 | 7.6 | 7.0 | 6.8 |
| 180000 | 8.1 | 5.4 | 7.5 | 7.5 | 6.9 | 7.5 | 7.9 | 7.6 | 7.7 | 7.6 | 7.4 | 7.4 | 7.4 | 7.4 | 7.3 | 6.8 |
| 190000 | 6.1 | 5.4 | 7.4 | 7.4 | 6.8 | 7.4 | 7.9 | 7.9 | 7.5 | 7.4 | 7.5 | 7.5 | 7.5 | 7.5 | 7.0 | 6.5 |
| 200000 | 5.8 | 5.4 | 7.5 | 7.2 | 6.7 | 7.2 | 7.8 | 7.7 | 7.4 | 7.1 | 7.3 | 7.3 | 7.3 | 7.4 | 6.8 | 6.4 |
| 210000 | 5.7 | 5.4 | 7.3 | 7.5 | 6.7 | 7.4 | 7.7 | 7.3 | 7.6 | 7.1 | 7.4 | 7.3 | 7.4 | 7.2 | 7.0 | 6.6 |
| 220000 | 5.7 | 5.4 | 7.3 | 7.4 | 6.8 | 7.4 | 7.7 | 7.7 | 7.6 | 7.1 | 7.4 | 7.6 | 7.4 | 7.4 | 7.0 | 6.7 |
| 230000 | 5.4 | 5.4 | 7.2 | 7.6 | 6.9 | 7.4 | 7.7 | 7.8 | 7.5 | 6.9 | 7.5 | 7.5 | 7.3 | 7.1 | 6.4 | 6.7 |
| Daily Max | 8.3 | 5.7 | 7.5 | 7.8 | 7.6 | 7.5 | 7.9 | 7.9 | 7.9 | 7.8 | 7.6 | 7.8 | 7.6 | 7.7 | 7.6 | 7.2 |
| Daily Min | 5.4 | 5.3 | 5.3 | 7.1 | 6.7 | 6.7 | 7.4 | 7.3 | 7.4 | 5.3 | 6.7 | 7.3 | 7.2 | 7.0 | 6.4 | 6.1 |
| Average | 6.2 | 5.5 | 6.2 | 7.4 | 7.1 | 7.2 | 7.7 | 7.7 | 7.7 | 7.4 | 7.3 | 7.5 | 7.4 | 7.4 | 7.2 | 6.7 |

License Minimum Dissolved Oxygen: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - July 2018

| Time HHMMSS | 07/17/18 | 07/18/18 | 07/19/18 | 07/20/18 | 07/21/18 | 07/22/18 | 07/23/18 | 07/24/18 | 07/25/18 | 07/26/18 | 07/27/18 | 07/28/18 | 07/29/18 | 07/30/18 | 07/31/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 6.7 | 6.7 | 7.4 | 7.8 | 7.9 | 7.6 | 7.6 | 6.9 | 7.0 | 7.9 | 7.0 | 7.9 | 8.2 | 7.9 | 7.9 |
| 10000 | 6.7 | 6.6 | 7.3 | 7.8 | 7.9 | 7.6 | 7.5 | 6.9 | 6.7 | 7.9 | 7.1 | 7.7 | 8.1 | 8.0 | 8.0 |
| 20000 | 6.7 | 6.6 | 7.4 | 7.8 | 7.9 | 7.7 | 7.5 | 6.8 | 7.3 | 7.9 | 6.8 | 7.8 | 8.2 | 8.1 | 8.0 |
| 30000 | 6.7 | 6.8 | 7.3 | 7.8 | 8.0 | 7.6 | 7.5 | 6.9 | 7.1 | 7.9 | 7.1 | 7.8 | 8.1 | 8.1 | 8.0 |
| 40000 | 6.9 | 7.5 | 7.8 | 7.9 | 7.1 | 7.7 | 7.2 | 7.3 | 7.9 | 6.9 | 7.5 | 8.1 | 8.2 | 8.1 | 8.0 |
| 50000 | 6.9 | 7.5 | 7.8 | 7.9 | 7.2 | 7.6 | 7.3 | 7.2 | 8.0 | 6.9 | 7.6 | 8.1 | 8.2 | 8.1 | 8.0 |
| 60000 | 6.7 | 7.4 | 7.7 | 7.9 | 7.3 | 7.7 | 7.3 | 7.2 | 8.0 | 7.1 | 7.6 | 8.1 | 8.0 | 8.0 | 8.0 |
| 70000 | 6.8 | 7.4 | 7.9 | 7.9 | 7.4 | 7.7 | 7.3 | 7.1 | 8.0 | 6.9 | 7.6 | 8.1 | 8.1 | 8.0 | 8.1 |
| 80000 | 7.0 | 7.6 | 7.8 | 7.9 | 7.3 | 7.7 | 7.2 | 7.0 | 8.0 | 6.7 | 7.8 | 8.1 | 8.2 | 8.0 | 7.9 |
| 90000 | 7.0 | 7.5 | 7.8 | 7.9 | 7.5 | 7.7 | 7.4 | 7.3 | 8.0 | 7.0 | 7.6 | 8.0 | 8.1 | 8.1 | 7.9 |
| 100000 | 7.3 | 7.4 | 7.8 | 7.8 | 7.4 | 8.0 | 7.4 | 7.0 | 8.1 | 7.1 | 7.7 | 8.1 | 8.1 | 8.2 | 8.1 |
| 110000 | 7.1 | 7.3 | 7.8 | 7.5 | 7.5 | 7.9 | 7.5 | 7.4 | 8.1 | 6.7 | 7.9 | 8.1 | 8.2 | 8.1 | 8.0 |
| 120000 | 7.3 | 7.6 | 7.8 | 7.6 | 7.7 | 7.9 | 7.4 | 7.1 | 8.0 | 6.9 | 7.7 | 8.1 | 8.2 | 8.1 | 8.1 |
| 130000 | 7.2 | 7.3 | 7.9 | 7.7 | 7.6 | 7.9 | 7.4 | 7.2 | 8.0 | 6.9 | 7.8 | 8.2 | 8.2 | 8.1 | 8.0 |
| 140000 | 7.4 | 7.4 | 7.9 | 7.7 | 7.7 | 7.9 | 7.5 | 7.4 | 8.0 | 6.5 | 7.7 | 8.1 | 8.2 | 8.2 | 8.1 |
| 150000 | 7.2 | 7.4 | 7.9 | 7.9 | 7.7 | 7.9 | 7.5 | 7.0 | 7.9 | 7.1 | 7.9 | 8.0 | 8.1 | 7.9 | 8.0 |
| 160000 | 7.3 | 7.5 | 7.9 | 7.8 | 7.7 | 7.9 | 7.4 | 7.3 | 8.0 | 6.7 | 7.8 | 8.0 | 8.1 | 8.1 | 8.1 |
| 170000 | 7.1 | 7.2 | 7.9 | 7.9 | 7.8 | 7.8 | 7.4 | 7.1 | 7.9 | 6.7 | 7.6 | 8.0 | 8.1 | 8.0 | 8.0 |
| 180000 | 6.9 | 7.3 | 7.9 | 7.9 | 7.8 | 7.8 | 7.3 | 7.1 | 7.9 | 6.8 | 7.8 | 8.1 | 8.0 | 8.0 | 8.0 |
| 190000 | 6.8 | 7.4 | 8.0 | 7.9 | 7.7 | 7.7 | 7.2 | 7.0 | 7.8 | 6.8 | 7.7 | 8.1 | 8.0 | 8.0 | 7.9 |
| 200000 | 6.8 | 7.4 | 7.8 | 7.9 | 7.7 | 7.6 | 7.2 | 6.8 | 7.7 | 6.5 | 7.6 | 8.0 | 8.0 | 8.0 | 7.8 |
| 210000 | 6.7 | 7.2 | 7.8 | 7.8 | 7.7 | 7.7 | 7.1 | 6.7 | 7.9 | 6.4 | 7.8 | 8.0 | 8.0 | 8.0 | 8.0 |
| 220000 | 6.8 | 7.3 | 7.6 | 7.8 | 7.7 | 7.6 | 7.0 | 6.8 | 7.9 | 6.6 | 7.9 | 8.0 | 8.0 | 8.0 | 7.9 |
| 230000 | 6.7 | 7.3 | 7.8 | 7.8 | 7.6 | 7.7 | 7.0 | 7.0 | 7.8 | 6.8 | 7.9 | 8.1 | 8.0 | 7.9 | 8.0 |
| Daily Max | 7.4 | 7.6 | 8.0 | 7.9 | 8.0 | 8.0 | 7.6 | 7.4 | 8.1 | 7.9 | 7.9 | 8.2 | 8.2 | 8.2 | 8.1 |
| Daily Min | 6.7 | 6.6 | 7.3 | 7.5 | 7.1 | 7.6 | 7.0 | 6.7 | 6.7 | 6.4 | 6.8 | 7.7 | 8.0 | 7.9 | 7.8 |
| Average | 6.9 | 7.3 | 7.7 | 7.8 | 7.6 | 7.8 | 7.3 | 7.0 | 7.8 | 7.0 | 7.6 | 8.0 | 8.1 | 8.0 | 8.0 |

High Falls Tailrace Dissolved Oxygen Summary - August 2018

| Time HHMMSS | 08/01/18 | 08/02/18 | 08/03/18 | 08/04/18 | 08/05/18 | 08/06/18 | 08/07/18 | 08/08/18 | 08/09/18 | 08/10/18 | 08/11/18 | 08/12/18 | 08/13/18 | 08/14/18 | 08/15/18 | 08/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 7.9 | 7.8 | 7.6 | 7.6 | 8.1 | 7.9 | 7.4 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.5 | 7.5 | 7.4 | 7.4 |
| 10000 | 7.9 | 7.9 | 7.6 | 7.8 | 8.1 | 7.8 | 7.5 | 7.6 | 7.8 | 7.6 | 7.8 | 7.7 | 7.7 | 7.4 | 7.3 | 7.2 |
| 20000 | 7.9 | 7.8 | 7.3 | 7.7 | 8.1 | 7.7 | 7.5 | 7.5 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.4 | 7.3 | 7.3 |
| 30000 | 7.9 | 7.6 | 7.7 | 7.8 | 8.0 | 7.7 | 7.5 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.5 | 7.3 | 7.3 |
| 40000 | 7.9 | 7.5 | 7.7 | 8.0 | 7.9 | 7.5 | 7.3 | 7.6 | 7.9 | 7.8 | 7.6 | 7.7 | 7.5 | 7.5 | 7.3 | 7.5 |
| 50000 | 7.9 | 7.6 | 7.4 | 8.0 | 7.8 | 7.5 | 7.5 | 7.7 | 7.8 | 7.9 | 7.7 | 7.7 | 7.6 | 7.6 | 7.3 | 7.5 |
| 60000 | 7.9 | 7.8 | 7.6 | 8.0 | 7.9 | 7.6 | 7.7 | 7.7 | 7.9 | 7.7 | 7.7 | 7.8 | 7.8 | 7.5 | 7.4 | 7.6 |
| 70000 | 7.9 | 7.7 | 7.7 | 8.1 | 7.9 | 7.7 | 7.6 | 7.9 | 7.9 | 7.8 | 7.6 | 7.7 | 7.7 | 7.6 | 7.3 | 7.6 |
| 80000 | 8.0 | 7.9 | 7.8 | 8.1 | 7.9 | 7.8 | 7.7 | 8.0 | 8.0 | 8.0 | 7.8 | 7.8 | 7.5 | 7.6 | 7.6 | 7.7 |
| 90000 | 7.9 | 8.0 | 7.9 | 8.2 | 8.0 | 7.7 | 7.6 | 8.0 | 8.0 | 8.0 | 7.7 | 7.6 | 7.7 | 7.9 | 7.4 | 7.7 |
| 100000 | 7.9 | 8.0 | 8.0 | 8.2 | 8.0 | 7.8 | 7.8 | 7.9 | 8.0 | 8.0 | 7.8 | 7.8 | 7.8 | 7.9 | 7.5 | 7.7 |
| 110000 | 8.0 | 8.1 | 7.8 | 8.1 | 7.9 | 7.8 | 7.8 | 8.0 | 7.9 | 8.2 | 7.8 | 7.9 | 7.6 | 7.9 | 7.5 | 7.4 |
| 120000 | 7.7 | 7.8 | 8.0 | 8.2 | 8.0 | 7.4 | 7.7 | 7.9 | 8.1 | 7.9 | 7.8 | 7.9 | 7.6 | 8.0 | 7.6 | 7.6 |
| 130000 | 8.0 | 7.7 | 8.0 | 8.2 | 8.0 | 7.7 | 7.5 | 8.1 | 8.1 | 8.1 | 7.9 | 7.9 | 7.8 | 7.8 | 7.5 | 7.7 |
| 140000 | 7.9 | 7.9 | 7.8 | 8.2 | 8.0 | 7.6 | 7.7 | 7.9 | 8.1 | 8.1 | 7.7 | 7.8 | 8.0 | 7.9 | 7.5 | 7.8 |
| 150000 | 7.8 | 7.8 | 7.8 | 8.1 | 8.0 | 7.6 | 7.6 | 7.9 | 7.7 | 8.1 | 7.8 | 8.0 | 7.9 | 8.0 | 7.5 | 7.8 |
| 160000 | 7.6 | 7.8 | 7.6 | 8.1 | 8.0 | 7.5 | 7.7 | 7.9 | 7.9 | 8.2 | 7.8 | 8.0 | 7.8 | 8.0 | 7.7 | 7.8 |
| 170000 | 7.7 | 7.8 | 7.7 | 8.1 | 7.9 | 7.7 | 7.7 | 7.9 | 7.8 | 8.1 | 7.7 | 7.8 | 7.8 | 8.0 | 7.6 | 7.8 |
| 180000 | 7.9 | 7.6 | 7.8 | 8.1 | 7.9 | 7.4 | 7.8 | 7.9 | 7.8 | 8.1 | 7.6 | 7.7 | 7.8 | 7.8 | 7.6 | 7.6 |
| 190000 | 7.8 | 7.5 | 7.6 | 8.0 | 7.9 | 7.5 | 7.4 | 7.5 | 7.7 | 7.7 | 7.7 | 7.6 | 7.8 | 7.7 | 7.5 | 7.6 |
| 200000 | 7.8 | 7.5 | 7.7 | 8.0 | 7.7 | 7.4 | 7.7 | 7.8 | 7.7 | 7.9 | 7.2 | 7.4 | 7.7 | 7.5 | 7.3 | 7.4 |
| 210000 | 7.8 | 7.6 | 7.7 | 8.0 | 7.8 | 7.3 | 7.4 | 7.6 | 7.7 | 7.9 | 7.6 | 7.7 | 7.5 | 7.4 | 7.4 | 7.3 |
| 220000 | 7.7 | 7.6 | 7.9 | 8.0 | 7.7 | 7.3 | 7.7 | 7.6 | 7.6 | 7.7 | 7.4 | 7.5 | 7.5 | 7.6 | 7.5 | 7.5 |
| 230000 | 7.9 | 7.5 | 7.7 | 8.0 | 7.8 | 7.4 | 7.6 | 7.7 | 7.7 | 7.7 | 7.5 | 7.4 | 7.5 | 7.4 | 7.5 | 7.3 |
| Daily Max | 8.0 | 8.1 | 8.0 | 8.2 | 8.1 | 7.9 | 7.8 | 8.1 | 8.1 | 8.2 | 7.9 | 8.0 | 8.0 | 8.0 | 7.7 | 7.8 |
| Daily Min | 7.6 | 7.5 | 7.3 | 7.6 | 7.7 | 7.3 | 7.3 | 7.5 | 7.6 | 7.6 | 7.2 | 7.4 | 7.5 | 7.4 | 7.3 | 7.2 |
| Average | 7.9 | 7.7 | 7.7 | 8.0 | 7.9 | 7.6 | 7.6 | 7.8 | 7.8 | 7.9 | 7.7 | 7.7 | 7.7 | 7.7 | 7.4 | 7.5 |

License Minimum Dissolved Oxygen: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - August 2018

| Time HHMMSS | 08/17/18 | 08/18/18 | 08/19/18 | 08/20/18 | 08/21/18 | 08/22/18 | 08/23/18 | 08/24/18 | 08/25/18 | 08/26/18 | 08/27/18 | 08/28/18 | 08/29/18 | 08/30/18 | 08/31/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 7.4 | 6.7 | 7.6 | 4.9 | 5.1 | 7.9 | 8.2 | 8.3 | 8.3 | 8.1 | 7.3 | 7.8 | 7.4 | 7.7 | 8.3 |
| 10000 | 7.4 | 7.1 | 7.8 | 5.7 | 4.8 | 7.9 | 8.2 | 8.3 | 8.3 | 8.1 | 7.5 | 7.8 | 7.4 | 7.7 | 8.3 |
| 20000 | 7.4 | 7.1 | 7.9 | 6.1 | 4.6 | 8.0 | 8.2 | 8.3 | 8.3 | 8.2 | 7.4 | 7.7 | 7.4 | 7.6 | 8.4 |
| 30000 | 7.4 | 7.2 | 7.8 | 6.1 | 4.5 | 8.0 | 8.3 | 8.3 | 8.3 | 8.1 | 7.5 | 7.9 | 7.5 | 7.7 | 8.2 |
| 40000 | 7.6 | 7.7 | 7.8 | 5.8 | 4.7 | 8.2 | 8.3 | 8.3 | 7.7 | 7.3 | 7.8 | 7.3 | 7.2 | 8.3 | 8.5 |
| 50000 | 7.5 | 7.8 | 7.9 | 6.0 | 4.6 | 8.2 | 8.3 | 8.3 | 7.7 | 7.7 | 7.8 | 7.3 | 7.6 | 8.1 | 8.5 |
| 60000 | 7.4 | 7.8 | 7.9 | 6.0 | 4.5 | 8.2 | 8.3 | 8.3 | 8.0 | 7.8 | 7.6 | 7.4 | 7.5 | 8.2 | 8.6 |
| 70000 | 7.0 | 7.4 | 8.0 | 6.1 | 4.4 | 8.3 | 8.3 | 8.3 | 8.0 | 7.5 | 7.5 | 7.5 | 7.5 | 8.2 | 8.4 |
| 80000 | 7.4 | 7.8 | 8.0 | 6.2 | 4.2 | 8.3 | 8.4 | 8.3 | 8.0 | 7.6 | 7.6 | 7.5 | 7.6 | 8.2 | 8.6 |
| 90000 | 7.6 | 7.6 | 8.1 | 6.3 | 4.2 | 8.3 | 8.4 | 8.4 | 8.1 | 7.6 | 7.6 | 7.7 | 7.9 | 8.2 | 8.6 |
| 100000 | 7.6 | 7.8 | 8.1 | 6.3 | 4.1 | 8.4 | 8.4 | 8.4 | 8.1 | 7.6 | 7.5 | 7.6 | 7.6 | 8.2 | 8.7 |
| 110000 | 7.5 | 7.7 | 8.1 | 6.3 | 4.0 | 8.3 | 8.4 | 8.4 | 8.0 | 7.5 | 7.6 | 7.5 | 7.8 | 8.4 | 8.6 |
| 120000 | 7.4 | 7.5 | 8.2 | 6.2 | 7.9 | 8.3 | 8.4 | 8.3 | 8.3 | 7.6 | 7.7 | 7.6 | 7.6 | 8.3 | 8.6 |
| 130000 | 7.4 | 8.0 | 8.1 | 6.0 | 8.1 | 8.3 | 8.4 | 8.4 | 8.1 | 7.6 | 8.0 | 7.7 | 7.7 | 8.4 | 8.6 |
| 140000 | 7.4 | 7.9 | 8.2 | 5.9 | 8.1 | 8.3 | 8.4 | 8.3 | 8.2 | 7.7 | 7.8 | 7.5 | 7.8 | 8.4 | 8.6 |
| 150000 | 7.5 | 8.0 | 8.2 | 5.7 | 8.1 | 8.3 | 8.4 | 8.4 | 8.2 | 7.5 | 7.7 | 7.5 | 7.7 | 8.3 | 8.6 |
| 160000 | 7.4 | 7.9 | 8.1 | 5.6 | 8.1 | 8.3 | 8.4 | 8.4 | 8.3 | 7.3 | 7.7 | 7.6 | 7.7 | 8.2 | 8.6 |
| 170000 | 7.0 | 8.0 | 8.1 | 5.4 | 8.0 | 8.3 | 8.4 | 8.3 | 8.2 | 7.4 | 7.5 | 7.6 | 7.9 | 8.3 | 8.6 |
| 180000 | 7.0 | 7.9 | 8.1 | 5.3 | 8.0 | 8.2 | 8.4 | 8.4 | 8.1 | 7.4 | 7.8 | 7.6 | 7.8 | 8.2 | 8.5 |
| 190000 | 6.5 | 7.8 | 8.0 | 5.5 | 7.8 | 8.2 | 8.3 | 8.3 | 8.1 | 7.4 | 7.7 | 7.5 | 7.8 | 8.1 | 8.3 |
| 200000 | 6.7 | 7.6 | 7.9 | 5.3 | 8.0 | 8.2 | 8.3 | 8.3 | 8.1 | 7.4 | 7.6 | 7.4 | 7.7 | 8.2 | 8.4 |
| 210000 | 6.7 | 7.5 | 6.3 | 5.1 | 8.0 | 8.1 | 8.3 | 8.3 | 8.2 | 7.4 | 7.7 | 7.6 | 7.8 | 8.4 | 8.5 |
| 220000 | 6.4 | 7.7 | 5.5 | 5.1 | 7.9 | 8.2 | 8.3 | 8.3 | 8.0 | 7.6 | 7.7 | 7.5 | 7.8 | 8.2 | 8.5 |
| 230000 | 6.7 | 7.6 | 4.9 | 5.0 | 8.0 | 8.2 | 8.3 | 8.3 | 8.1 | 7.6 | 7.2 | 7.6 | 7.8 | 8.2 | 8.5 |
| Daily Max | 7.6 | 8.0 | 8.2 | 6.3 | 8.1 | 8.4 | 8.4 | 8.4 | 8.3 | 8.2 | 8.0 | 7.9 | 7.9 | 8.4 | 8.7 |
| Daily Min | 6.4 | 6.7 | 4.9 | 4.9 | 4.0 | 7.9 | 8.2 | 8.3 | 7.7 | 7.3 | 7.2 | 7.3 | 7.2 | 7.6 | 8.2 |
| Average | 7.2 | 7.6 | 7.7 | 5.7 | 6.2 | 8.2 | 8.3 | 8.3 | 8.1 | 7.6 | 7.6 | 7.6 | 7.6 | 8.2 | 8.5 |

Non-representative data due to biofouling of DO probe.

High Falls Tailrace Dissolved Oxygen Summary - September 2018

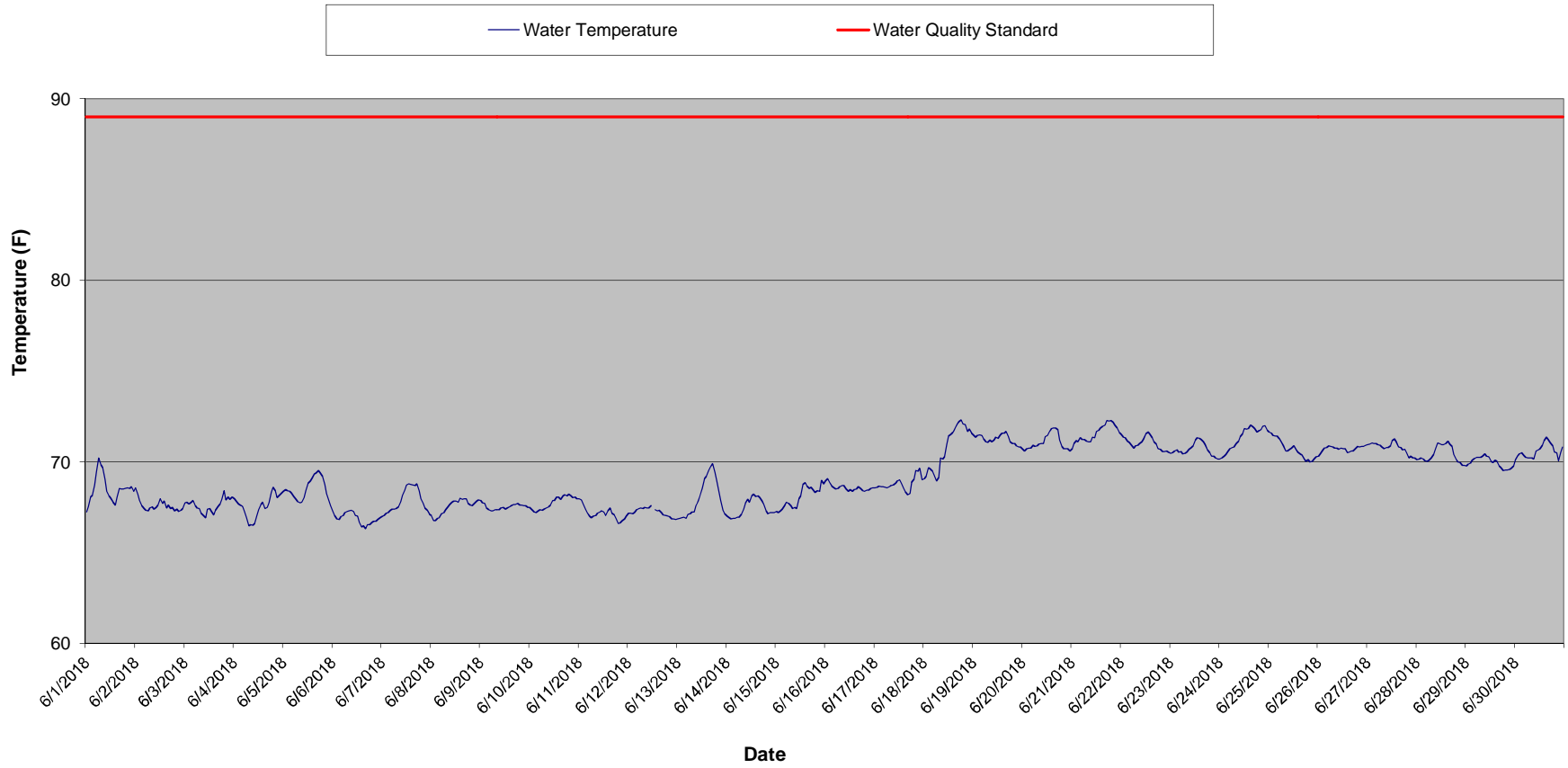
| Time HHMMSS | 09/01/18 | 09/02/18 | 09/03/18 | 09/04/18 | 09/05/18 | 09/06/18 | 09/07/18 | 09/08/18 | 09/09/18 | 09/10/18 | 09/11/18 | 09/12/18 | 09/13/18 | 09/14/18 | 09/15/18 | 09/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 8.4 | 8.3 | 8.4 | 8.4 | 8.3 | 7.8 | 7.5 | 8.1 | 7.8 | 7.7 | 7.5 | 7.5 | 7.9 | 8.4 | 8.3 | 8.6 |
| 10000 | 8.4 | 8.3 | 8.5 | 8.4 | 8.2 | 7.8 | 7.6 | 8.0 | 7.8 | 7.7 | 7.4 | 7.5 | 7.8 | 8.3 | 8.3 | 8.5 |
| 20000 | 8.4 | 8.1 | 8.5 | 8.4 | 8.1 | 7.8 | 7.6 | 8.0 | 7.7 | 7.7 | 7.5 | 7.6 | 7.9 | 8.3 | 8.2 | 8.5 |
| 30000 | 8.4 | 8.2 | 8.4 | 8.4 | 8.2 | 7.8 | 7.5 | 7.9 | 7.8 | 7.5 | 7.4 | 7.6 | 7.9 | 8.3 | 8.0 | 8.5 |
| 40000 | 8.2 | 8.4 | 8.4 | 8.2 | 7.5 | 7.5 | 7.5 | 7.7 | 7.7 | 7.6 | 7.7 | 7.9 | 8.2 | 8.5 | 8.2 | 8.5 |
| 50000 | 8.0 | 8.4 | 8.4 | 8.2 | 7.5 | 7.5 | 7.5 | 7.7 | 7.7 | 7.5 | 7.7 | 7.8 | 8.4 | 8.5 | 8.6 | 8.5 |
| 60000 | 8.0 | 8.4 | 8.5 | 8.3 | 7.0 | 7.6 | 7.6 | 7.7 | 7.8 | 7.5 | 7.6 | 8.0 | 8.3 | 8.4 | 8.3 | 8.5 |
| 70000 | 7.9 | 8.4 | 8.5 | 8.1 | 6.6 | 7.6 | 7.5 | 7.7 | 7.6 | 7.5 | 7.7 | 8.0 | 8.5 | 8.5 | 8.7 | 8.6 |
| 80000 | 8.2 | 8.5 | 8.5 | 8.3 | 6.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.5 | 7.8 | 8.1 | 8.3 | 8.5 | 8.3 | 8.5 |
| 90000 | 8.3 | 8.5 | 8.6 | 8.1 | 7.2 | 7.7 | 7.5 | 7.8 | 7.7 | 7.5 | 7.8 | 8.1 | 8.4 | 8.5 | 8.7 | 8.6 |
| 100000 | 8.3 | 8.5 | 8.6 | 8.3 | 7.3 | 7.8 | 7.6 | 7.8 | 7.8 | 7.5 | 7.6 | 8.0 | 8.4 | 8.4 | 8.5 | 8.6 |
| 110000 | 8.1 | 8.5 | 8.6 | 8.3 | 7.5 | 8.0 | 7.7 | 7.9 | 7.8 | 7.5 | 7.7 | 8.1 | 8.4 | 8.5 | 8.7 | 8.6 |
| 120000 | 8.3 | 8.5 | 8.6 | 8.3 | 7.7 | 8.0 | 7.8 | 8.0 | 7.6 | 7.6 | 7.6 | 8.0 | 8.4 | 8.5 | 8.7 | 8.7 |
| 130000 | 8.4 | 8.5 | 8.6 | 8.4 | 7.6 | 8.0 | 7.8 | 8.0 | 7.6 | 7.6 | 7.6 | 7.9 | 8.5 | 8.4 | 8.7 | 8.7 |
| 140000 | 8.4 | 8.6 | 8.6 | 8.3 | 7.5 | 8.0 | 7.9 | 7.8 | 7.6 | 7.5 | 7.6 | 7.9 | 8.4 | 8.5 | 8.8 | 8.8 |
| 150000 | 8.4 | 8.5 | 8.5 | 8.2 | 7.7 | 7.9 | 7.9 | 7.9 | 7.6 | 7.5 | 7.7 | 8.0 | 8.3 | 8.6 | 8.8 | 8.7 |
| 160000 | 8.3 | 8.5 | 8.5 | 8.2 | 7.8 | 7.8 | 7.7 | 7.9 | 7.7 | 7.6 | 7.6 | 7.9 | 8.4 | 8.4 | 8.7 | 8.7 |
| 170000 | 8.3 | 8.5 | 8.5 | 8.3 | 8.0 | 7.9 | 7.7 | 7.9 | 7.6 | 7.7 | 7.5 | 7.8 | 8.4 | 8.5 | 8.7 | 8.7 |
| 180000 | 8.3 | 8.5 | 8.4 | 8.1 | 8.0 | 7.9 | 7.8 | 7.9 | 7.5 | 7.5 | 7.6 | 7.9 | 8.2 | 8.3 | 8.7 | 8.7 |
| 190000 | 8.3 | 8.5 | 8.4 | 8.3 | 8.0 | 7.9 | 7.8 | 7.8 | 7.5 | 7.5 | 7.6 | 7.8 | 8.1 | 8.2 | 8.6 | 8.6 |
| 200000 | 8.3 | 8.4 | 8.4 | 8.1 | 8.0 | 7.9 | 7.8 | 7.7 | 7.6 | 7.4 | 7.7 | 7.8 | 8.2 | 8.3 | 8.6 | 8.5 |
| 210000 | 8.2 | 8.4 | 8.4 | 8.0 | 7.9 | 7.8 | 7.8 | 7.8 | 7.7 | 7.5 | 7.6 | 8.0 | 8.3 | 8.1 | 8.6 | 8.5 |
| 220000 | 8.3 | 8.4 | 8.4 | 8.2 | 8.0 | 7.7 | 7.9 | 7.9 | 7.7 | 7.3 | 7.6 | 7.9 | 8.2 | 8.3 | 8.6 | 8.4 |
| 230000 | 8.2 | 8.4 | 8.4 | 8.3 | 7.9 | 7.6 | 8.1 | 7.8 | 7.6 | 7.4 | 7.5 | 7.9 | 8.4 | 8.3 | 8.6 | 8.5 |
| Daily Max | 8.4 | 8.6 | 8.6 | 8.4 | 8.3 | 8.0 | 8.1 | 8.1 | 7.8 | 7.7 | 7.8 | 8.1 | 8.5 | 8.6 | 8.8 | 8.8 |
| Daily Min | 7.9 | 8.1 | 8.4 | 8.0 | 6.6 | 7.5 | 7.5 | 7.7 | 7.5 | 7.3 | 7.4 | 7.5 | 7.8 | 8.1 | 8.0 | 8.4 |
| Average | 8.3 | 8.4 | 8.5 | 8.3 | 7.7 | 7.8 | 7.7 | 7.8 | 7.7 | 7.5 | 7.6 | 7.9 | 8.3 | 8.4 | 8.5 | 8.6 |

License Minimum Dissolved Oxygen: 5.0 mg/l

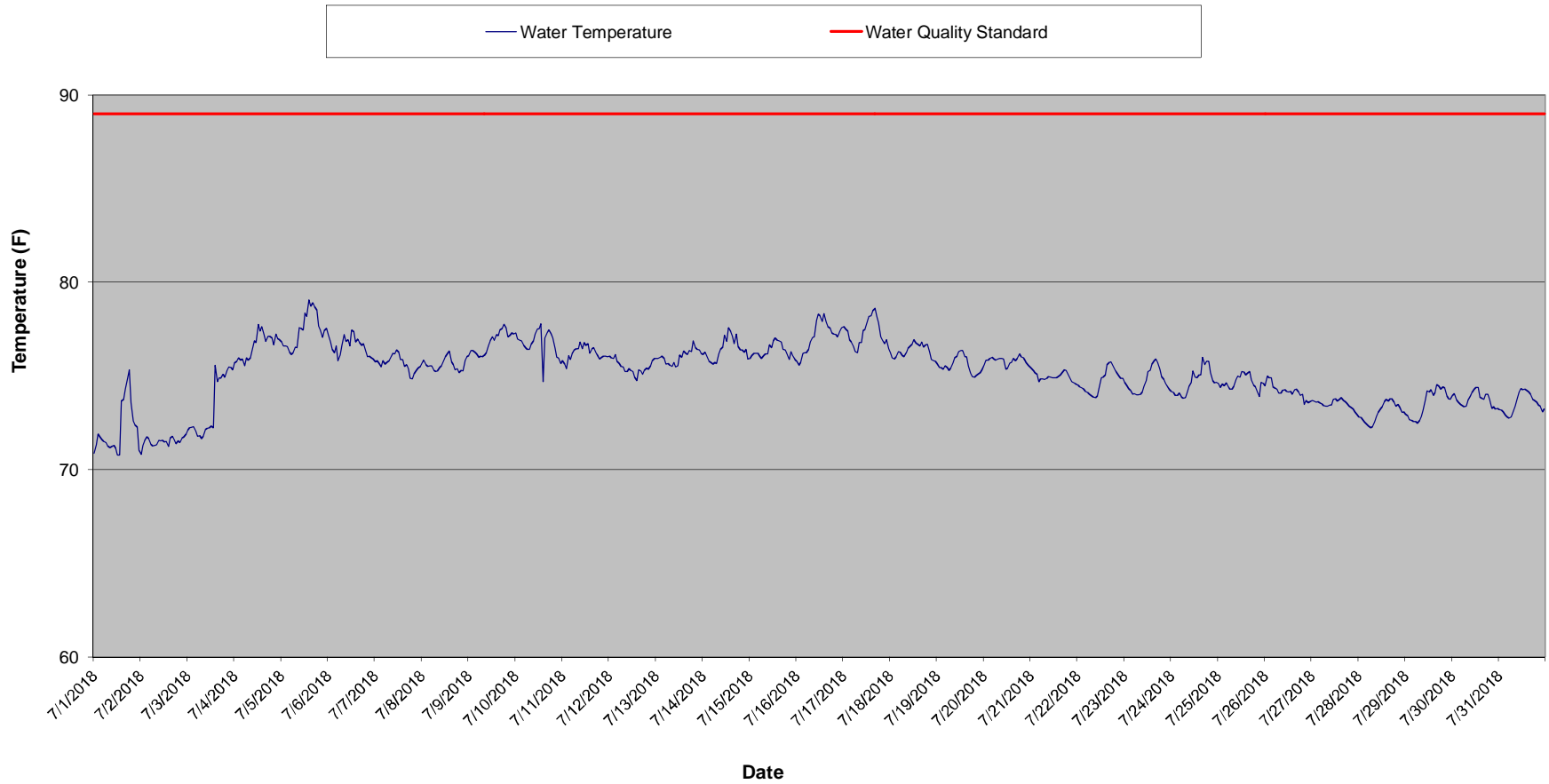
High Falls Tailrace Dissolved Oxygen Summary - September 2018

| Time HHMMSS | 09/17/18 | 09/18/18 | 09/19/18 | 09/20/18 | 09/21/18 | 09/22/18 | 09/23/18 | 09/24/18 | 09/25/18 | 09/26/18 | 09/27/18 | 09/28/18 | 09/29/18 | 09/30/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 8.4 | 8.1 | 8.5 | 8.8 | 8.7 | 8.4 | 8.8 | 9.1 | 9.1 | 8.9 | 8.7 | 9.2 | 9.4 | 9.4 |
| 10000 | 8.4 | 8.1 | 8.5 | 8.8 | 8.7 | 8.7 | 8.7 | 9.2 | 9.1 | 8.8 | 8.6 | 9.1 | 9.3 | 9.5 |
| 20000 | 8.4 | 8.1 | 8.5 | 8.8 | 8.7 | 8.4 | 8.8 | 9.1 | 9.1 | 8.8 | 8.6 | 9.3 | 9.3 | 9.5 |
| 30000 | 8.5 | 8.2 | 8.6 | 8.8 | 8.7 | 8.6 | 8.7 | 9.1 | 9.1 | 8.9 | 8.7 | 9.2 | 9.4 | 9.4 |
| 40000 | 8.3 | 8.2 | 8.7 | 8.8 | 7.8 | 8.9 | 9.0 | 9.2 | 8.9 | 8.5 | 9.2 | 9.0 | 9.3 | 9.6 |
| 50000 | 8.2 | 8.2 | 8.7 | 8.8 | 7.8 | 8.5 | 9.1 | 9.2 | 8.7 | 8.4 | 9.2 | 9.1 | 9.4 | 9.5 |
| 60000 | 8.4 | 8.1 | 8.7 | 8.8 | 7.6 | 8.7 | 9.0 | 9.2 | 8.8 | 8.5 | 9.2 | 9.0 | 9.3 | 9.6 |
| 70000 | 8.3 | 8.2 | 8.7 | 8.8 | 7.8 | 8.8 | 8.9 | 9.3 | 8.7 | 8.6 | 9.2 | 9.1 | 9.4 | 9.7 |
| 80000 | 8.2 | 8.2 | 8.7 | 8.8 | 7.5 | 8.7 | 9.2 | 9.3 | 8.7 | 8.6 | 9.2 | 9.1 | 9.5 | 9.7 |
| 90000 | 8.3 | 8.2 | 8.8 | 8.9 | 7.9 | 8.6 | 9.1 | 9.3 | 8.9 | 8.6 | 9.3 | 9.1 | 9.5 | 9.7 |
| 100000 | 8.4 | 8.4 | 8.8 | 8.9 | 7.7 | 8.8 | 9.2 | 9.3 | 8.9 | 8.7 | 9.3 | 9.2 | 9.5 | 9.7 |
| 110000 | 8.4 | 8.4 | 8.8 | 8.9 | 7.8 | 8.9 | 9.2 | 9.3 | 8.8 | 8.8 | 9.3 | 9.3 | 9.6 | 9.7 |
| 120000 | 8.4 | 8.5 | 8.8 | 8.9 | 8.1 | 8.8 | 9.2 | 9.3 | 8.7 | 8.6 | 9.3 | 9.3 | 9.6 | 9.7 |
| 130000 | 8.4 | 8.4 | 8.8 | 8.9 | 8.5 | 8.9 | 9.1 | 9.4 | 8.8 | 8.8 | 9.2 | 9.3 | 9.6 | 9.7 |
| 140000 | 8.3 | 8.5 | 8.8 | 8.9 | 8.4 | 8.9 | 9.1 | 9.3 | 8.9 | 8.7 | 9.3 | 9.3 | 9.6 | 9.8 |
| 150000 | 8.3 | 8.5 | 8.8 | 8.8 | 8.6 | 8.8 | 9.2 | 9.3 | 8.7 | 8.7 | 9.3 | 9.2 | 9.6 | 9.7 |
| 160000 | 8.2 | 8.4 | 8.8 | 8.8 | 8.5 | 8.8 | 9.1 | 9.3 | 8.9 | 8.7 | 9.2 | 9.4 | 9.5 | 9.8 |
| 170000 | 8.1 | 8.5 | 8.8 | 8.8 | 8.6 | 8.8 | 9.1 | 9.3 | 8.8 | 8.8 | 9.2 | 9.5 | 9.5 | 9.8 |
| 180000 | 8.2 | 8.4 | 8.8 | 8.8 | 8.7 | 8.6 | 9.1 | 9.2 | 8.9 | 8.7 | 9.0 | 9.2 | 9.5 | 9.7 |
| 190000 | 8.0 | 8.3 | 8.8 | 8.7 | 8.5 | 8.5 | 9.1 | 9.2 | 8.9 | 8.6 | 9.2 | 9.2 | 9.4 | 9.7 |
| 200000 | 7.9 | 8.2 | 8.8 | 8.7 | 8.5 | 8.8 | 9.1 | 9.2 | 8.9 | 8.7 | 9.1 | 9.2 | 9.5 | 9.7 |
| 210000 | 8.0 | 8.3 | 8.8 | 8.7 | 8.5 | 8.8 | 9.1 | 9.2 | 8.9 | 8.6 | 9.2 | 9.3 | 9.4 | 9.7 |
| 220000 | 8.1 | 8.3 | 8.8 | 8.7 | 8.6 | 8.7 | 9.1 | 9.2 | 8.8 | 8.7 | 9.2 | 9.3 | 9.5 | 9.6 |
| 230000 | 8.1 | 8.5 | 8.8 | 8.7 | 8.5 | 8.8 | 9.2 | 9.2 | 8.8 | 8.7 | 9.2 | 9.3 | 9.5 | 9.7 |
| Daily Max | 8.5 | 8.5 | 8.8 | 8.9 | 8.7 | 8.9 | 9.2 | 9.4 | 9.1 | 8.9 | 9.3 | 9.5 | 9.6 | 9.8 |
| Daily Min | 7.9 | 8.1 | 8.5 | 8.7 | 7.5 | 8.4 | 8.7 | 9.1 | 8.7 | 8.4 | 8.6 | 9.0 | 9.3 | 9.4 |
| Average | 8.3 | 8.3 | 8.7 | 8.8 | 8.3 | 8.7 | 9.0 | 9.2 | 8.9 | 8.7 | 9.1 | 9.2 | 9.5 | 9.7 |

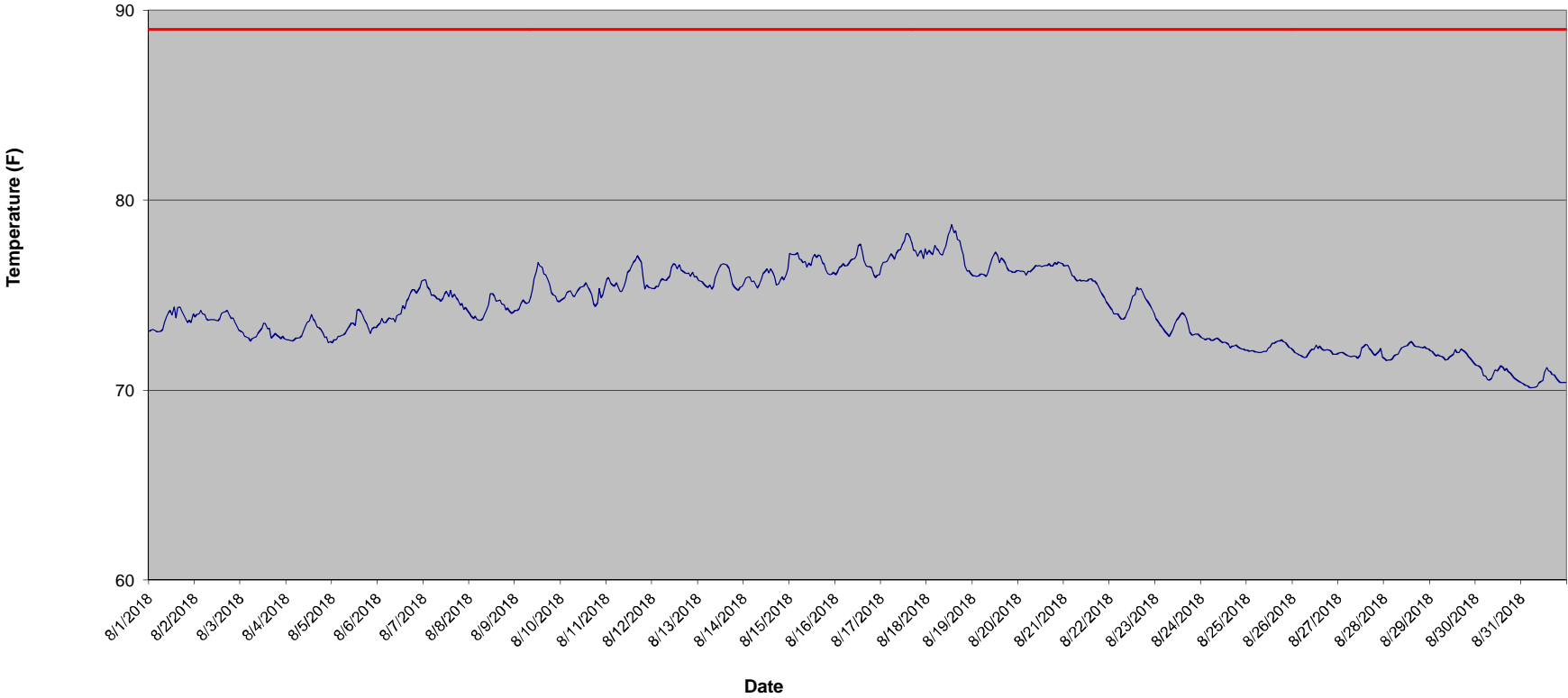
High Falls Tailrace Water Temperature - June 2018



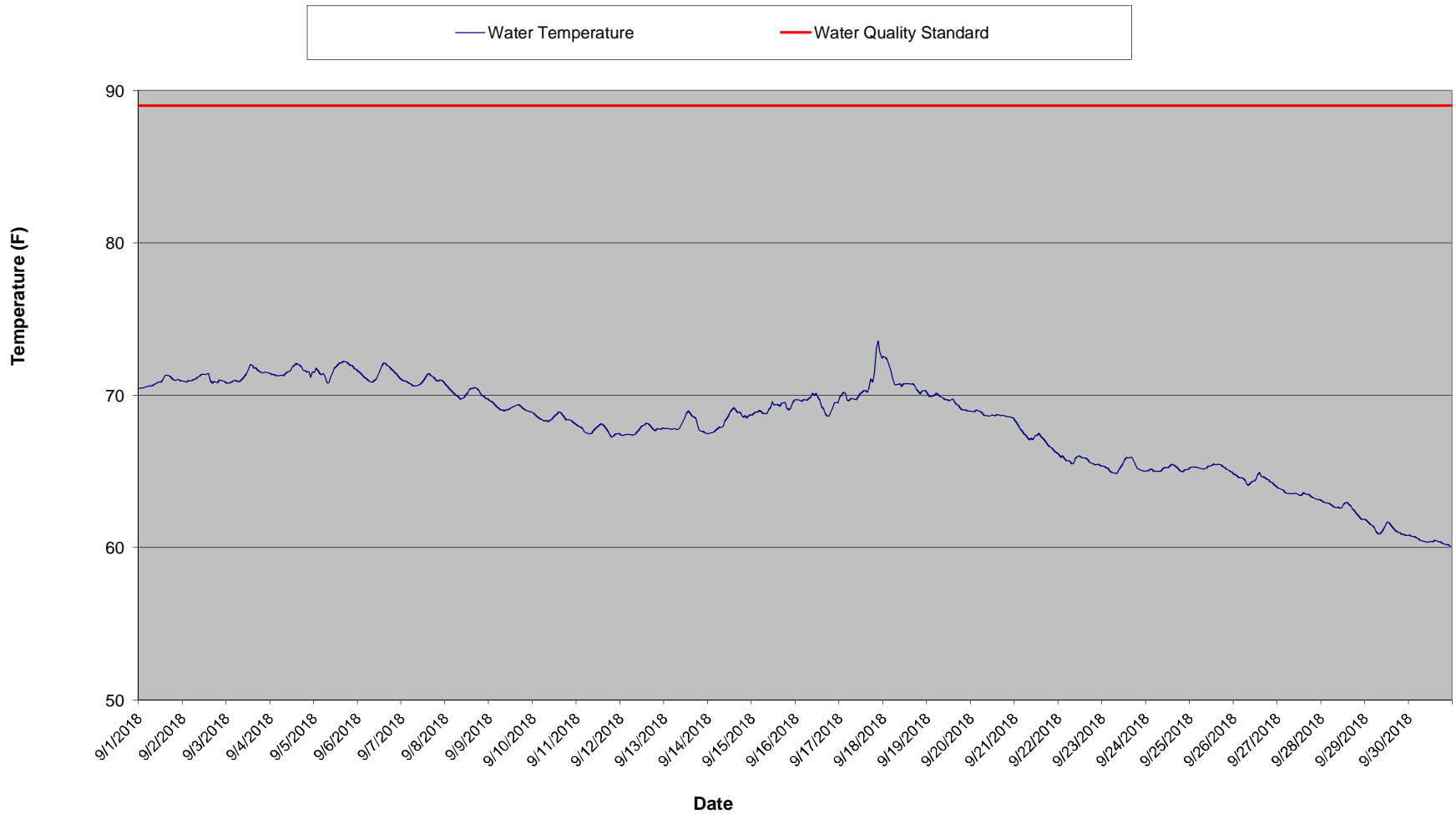
High Falls Tailrace Water Temperature - July 2018



High Falls Tailrace Water Temperature - August 2018



High Falls Tailrace Water Temperature - September 2018



High Falls Tailrace Temperature Summary - June 2018

| Time HHMMSS | 06/01/18 | 06/02/18 | 06/03/18 | 06/04/18 | 06/05/18 | 06/06/18 | 06/07/18 | 06/08/18 | 06/09/18 | 06/10/18 | 06/11/18 | 06/12/18 | 06/13/18 | 06/14/18 | 06/15/18 | 06/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 67.2 | 68.6 | 67.7 | 68.0 | 68.4 | 67.3 | 67.0 | 67.1 | 67.9 | 67.5 | 68.0 | 67.2 | 66.8 | 67.0 | 67.3 | 69.0 |
| 10000 | 67.5 | 68.2 | 67.8 | 67.8 | 68.5 | 67.0 | 67.0 | 66.7 | 67.7 | 67.4 | 67.9 | 67.2 | 66.9 | 66.9 | 67.2 | 69.1 |
| 20000 | 68.1 | 67.9 | 67.7 | 67.7 | 68.4 | 66.9 | 67.2 | 66.8 | 67.7 | 67.2 | 67.7 | 67.1 | 66.9 | 66.9 | 67.3 | 68.9 |
| 30000 | 68.1 | 67.6 | 67.8 | 67.6 | 68.4 | 66.8 | 67.2 | 66.9 | 67.5 | 67.2 | 67.4 | 67.2 | 67.0 | 66.9 | 67.4 | 68.7 |
| 40000 | 68.7 | 67.4 | 67.9 | 67.6 | 68.3 | 67.0 | 67.3 | 66.9 | 67.4 | 67.3 | 67.2 | 67.3 | 66.9 | 66.9 | 67.6 | 68.5 |
| 50000 | 69.4 | 67.3 | 67.6 | 67.3 | 68.1 | 67.1 | 67.4 | 67.1 | 67.3 | 67.4 | 67.0 | 67.4 | 67.1 | 66.9 | 67.8 | 68.5 |
| 60000 | 70.2 | 67.3 | 67.5 | 66.9 | 67.9 | 67.2 | 67.4 | 67.2 | 67.3 | 67.3 | 66.9 | 67.5 | 67.1 | 67.0 | 67.7 | 68.5 |
| 70000 | 69.8 | 67.5 | 67.4 | 66.5 | 67.8 | 67.3 | 67.4 | 67.4 | 67.4 | 67.4 | 67.0 | 67.4 | 67.2 | 67.1 | 67.6 | 68.6 |
| 80000 | 69.7 | 67.5 | 67.2 | 66.5 | 67.7 | 67.3 | 67.5 | 67.5 | 67.4 | 67.4 | 67.0 | 67.5 | 67.2 | 67.4 | 67.4 | 68.7 |
| 90000 | 69.0 | 67.4 | 67.0 | 66.5 | 67.8 | 67.3 | 67.8 | 67.7 | 67.4 | 67.5 | 67.2 | 67.5 | 67.6 | 67.7 | 67.5 | 68.7 |
| 100000 | 68.4 | 67.5 | 66.9 | 66.6 | 68.0 | 67.3 | 68.2 | 67.8 | 67.4 | 67.6 | 67.2 | 67.4 | 67.8 | 67.9 | 67.4 | 68.5 |
| 110000 | 68.1 | 67.6 | 67.4 | 67.0 | 68.4 | 67.0 | 68.5 | 67.8 | 67.5 | 67.9 | 67.3 | 67.6 | 68.3 | 67.8 | 68.0 | 68.4 |
| 120000 | 68.0 | 68.0 | 67.4 | 67.4 | 68.8 | 67.0 | 68.7 | 67.8 | 67.4 | 67.9 | 67.2 | 67.6 | 68.5 | 68.1 | 68.1 | 68.5 |
| 130000 | 67.8 | 67.7 | 67.3 | 67.7 | 68.9 | 66.7 | 68.8 | 67.8 | 67.5 | 68.1 | 67.0 | 67.4 | 69.1 | 68.2 | 68.7 | 68.4 |
| 140000 | 67.6 | 67.8 | 67.1 | 67.8 | 69.1 | 66.4 | 68.8 | 68.0 | 67.5 | 68.1 | 67.3 | 67.3 | 69.2 | 68.1 | 68.8 | 68.5 |
| 150000 | 68.0 | 67.4 | 67.3 | 67.4 | 69.3 | 66.5 | 68.7 | 67.9 | 67.6 | 67.9 | 67.5 | 67.3 | 69.5 | 68.1 | 68.7 | 68.5 |
| 160000 | 68.5 | 67.6 | 67.5 | 67.5 | 69.4 | 66.3 | 68.7 | 67.9 | 67.6 | 68.1 | 67.2 | 67.2 | 69.7 | 68.0 | 68.5 | 68.6 |
| 170000 | 68.5 | 67.4 | 67.7 | 67.7 | 69.5 | 66.5 | 68.8 | 68.0 | 67.6 | 68.2 | 67.1 | 67.1 | 69.9 | 67.8 | 68.6 | 68.5 |
| 180000 | 68.5 | 67.5 | 67.9 | 68.3 | 69.4 | 66.5 | 68.4 | 67.7 | 67.7 | 68.1 | 66.9 | 67.0 | 69.4 | 67.6 | 68.4 | 68.4 |
| 190000 | 68.5 | 67.3 | 68.4 | 68.6 | 69.2 | 66.7 | 68.0 | 67.6 | 67.6 | 68.2 | 66.6 | 67.0 | 69.0 | 67.3 | 68.3 | 68.4 |
| 200000 | 68.6 | 67.4 | 67.9 | 68.4 | 68.7 | 66.7 | 67.7 | 67.6 | 67.6 | 68.1 | 66.6 | 67.0 | 68.3 | 67.1 | 68.4 | 68.4 |
| 210000 | 68.5 | 67.3 | 68.1 | 68.0 | 68.3 | 66.7 | 67.4 | 67.7 | 67.6 | 68.0 | 66.8 | 66.8 | 67.9 | 67.2 | 68.4 | 68.4 |
| 220000 | 68.6 | 67.3 | 67.9 | 68.2 | 67.9 | 66.8 | 67.3 | 67.8 | 67.6 | 68.0 | 66.9 | 66.8 | 67.3 | 67.2 | 69.0 | 68.5 |
| 230000 | 68.4 | 67.4 | 68.1 | 68.3 | 67.6 | 66.9 | 67.1 | 67.9 | 67.5 | 68.0 | 67.0 | 66.8 | 67.1 | 67.2 | 68.8 | 68.6 |
| Daily Max | 70.2 | 68.6 | 68.4 | 68.6 | 69.5 | 67.3 | 68.8 | 68.0 | 67.9 | 68.2 | 68.0 | 67.6 | 69.9 | 68.2 | 69.0 | 69.1 |
| Daily Min | 67.2 | 67.3 | 66.9 | 66.5 | 67.6 | 66.3 | 67.0 | 66.7 | 67.3 | 67.2 | 66.6 | 66.8 | 66.8 | 66.9 | 67.2 | 68.4 |
| Average | 68.5 | 67.6 | 67.6 | 67.6 | 68.5 | 66.9 | 67.8 | 67.5 | 67.5 | 67.7 | 67.2 | 67.2 | 68.0 | 67.4 | 68.0 | 68.6 |

Monthly average Temp: 69.5
 License Maximum Temperature: 89 F

Missing data due to equipment maintenance

High Falls Tailrace Temperature Summary - June 2018

| Time HHMMSS | 06/17/18 | 06/18/18 | 06/19/18 | 06/20/18 | 06/21/18 | 06/22/18 | 06/23/18 | 06/24/18 | 06/25/18 | 06/26/18 | 06/27/18 | 06/28/18 | 06/29/18 | 06/30/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 68.6 | 69.1 | 71.5 | 70.7 | 70.7 | 71.5 | 70.5 | 70.1 | 71.6 | 70.3 | 71.0 | 70.1 | 69.8 | 70.1 |
| 10000 | 68.6 | 69.2 | 71.4 | 70.6 | 71.0 | 71.4 | 70.5 | 70.2 | 71.6 | 70.4 | 71.0 | 70.1 | 69.9 | 70.3 |
| 20000 | 68.7 | 69.7 | 71.4 | 70.7 | 71.2 | 71.3 | 70.6 | 70.3 | 71.4 | 70.6 | 71.0 | 70.2 | 69.9 | 70.4 |
| 30000 | 68.6 | 69.6 | 71.5 | 70.8 | 71.1 | 71.1 | 70.6 | 70.4 | 71.4 | 70.7 | 71.0 | 70.1 | 70.1 | 70.5 |
| 40000 | 68.6 | 69.5 | 71.4 | 70.7 | 71.3 | 71.1 | 70.5 | 70.6 | 71.4 | 70.8 | 71.0 | 70.1 | 70.2 | 70.3 |
| 50000 | 68.6 | 69.3 | 71.3 | 70.9 | 71.2 | 70.9 | 70.6 | 70.7 | 71.3 | 70.9 | 70.9 | 70.0 | 70.2 | 70.2 |
| 60000 | 68.6 | 69.0 | 71.1 | 70.9 | 71.2 | 70.8 | 70.4 | 70.8 | 71.0 | 70.9 | 70.9 | 70.1 | 70.2 | 70.2 |
| 70000 | 68.6 | 69.1 | 71.1 | 70.9 | 71.1 | 70.9 | 70.5 | 70.8 | 70.9 | 70.8 | 70.8 | 70.2 | 70.2 | 70.2 |
| 80000 | 68.7 | 70.2 | 71.2 | 71.0 | 71.1 | 70.9 | 70.5 | 71.0 | 70.6 | 70.8 | 70.7 | 70.4 | 70.3 | 70.2 |
| 90000 | 68.7 | 70.1 | 71.1 | 71.0 | 71.1 | 71.0 | 70.7 | 71.1 | 70.6 | 70.8 | 70.8 | 70.7 | 70.4 | 70.2 |
| 100000 | 68.8 | 70.3 | 71.2 | 71.0 | 71.3 | 71.1 | 70.8 | 71.4 | 70.7 | 70.7 | 70.8 | 71.0 | 70.3 | 70.6 |
| 110000 | 68.9 | 71.0 | 71.4 | 71.4 | 71.3 | 71.3 | 70.9 | 71.6 | 70.8 | 70.7 | 70.9 | 71.0 | 70.3 | 70.6 |
| 120000 | 69.0 | 71.4 | 71.3 | 71.4 | 71.7 | 71.5 | 71.2 | 71.8 | 70.9 | 70.7 | 71.2 | 70.9 | 70.0 | 70.7 |
| 130000 | 68.8 | 71.5 | 71.5 | 71.6 | 71.7 | 71.6 | 71.3 | 71.8 | 70.7 | 70.7 | 71.3 | 70.9 | 70.0 | 70.9 |
| 140000 | 68.5 | 71.6 | 71.6 | 71.8 | 71.9 | 71.5 | 71.3 | 71.8 | 70.5 | 70.5 | 71.1 | 71.0 | 70.1 | 71.1 |
| 150000 | 68.3 | 71.8 | 71.6 | 71.9 | 72.0 | 71.3 | 71.2 | 72.0 | 70.4 | 70.5 | 70.8 | 71.1 | 70.0 | 71.4 |
| 160000 | 68.2 | 72.1 | 71.7 | 71.9 | 72.0 | 71.1 | 71.1 | 71.9 | 70.4 | 70.6 | 70.8 | 71.0 | 69.8 | 71.2 |
| 170000 | 68.3 | 72.2 | 71.4 | 71.8 | 72.3 | 71.0 | 70.9 | 71.8 | 70.1 | 70.6 | 70.7 | 70.8 | 69.7 | 71.0 |
| 180000 | 68.9 | 72.3 | 71.1 | 71.2 | 72.2 | 70.7 | 70.7 | 71.6 | 70.0 | 70.7 | 70.7 | 70.4 | 69.5 | 70.9 |
| 190000 | 69.0 | 72.1 | 71.0 | 70.8 | 72.3 | 70.7 | 70.5 | 71.7 | 70.1 | 70.8 | 70.5 | 70.2 | 69.5 | 70.5 |
| 200000 | 69.5 | 72.1 | 71.0 | 70.7 | 72.2 | 70.5 | 70.3 | 71.8 | 70.0 | 70.8 | 70.2 | 70.0 | 69.6 | 70.5 |
| 210000 | 69.5 | 71.7 | 70.9 | 70.7 | 72.0 | 70.6 | 70.3 | 72.0 | 70.0 | 70.9 | 70.3 | 69.9 | 69.6 | 70.1 |
| 220000 | 69.6 | 71.8 | 70.8 | 70.7 | 71.9 | 70.6 | 70.2 | 72.0 | 70.2 | 70.9 | 70.2 | 69.8 | 69.6 | 70.5 |
| 230000 | 69.0 | 71.6 | 70.8 | 70.6 | 71.6 | 70.5 | 70.1 | 71.7 | 70.3 | 70.9 | 70.2 | 69.8 | 69.8 | 70.8 |
| Daily Max | 69.6 | 72.3 | 71.7 | 71.9 | 72.3 | 71.6 | 71.3 | 72.0 | 71.6 | 70.9 | 71.3 | 71.1 | 70.4 | 71.4 |
| Daily Min | 68.2 | 69.0 | 70.8 | 70.6 | 70.7 | 70.5 | 70.1 | 70.1 | 70.0 | 70.3 | 70.2 | 69.8 | 69.5 | 70.1 |
| Average | 68.8 | 70.8 | 71.3 | 71.1 | 71.6 | 71.0 | 70.7 | 71.3 | 70.7 | 70.7 | 70.8 | 70.4 | 70.0 | 70.6 |

High Falls Tailrace Temperature Summary - July 2018

| Time HHMMSS | 07/01/18 | 07/02/18 | 07/03/18 | 07/04/18 | 07/05/18 | 07/06/18 | 07/07/18 | 07/08/18 | 07/09/18 | 07/10/18 | 07/11/18 | 07/12/18 | 07/13/18 | 07/14/18 | 07/15/18 | 07/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 70.9 | 70.8 | 72.1 | 75.7 | 76.8 | 77.2 | 75.7 | 75.7 | 76.1 | 77.3 | 75.8 | 76.0 | 75.9 | 76.2 | 75.9 | 75.8 |
| 10000 | 71.3 | 71.3 | 72.2 | 75.8 | 76.6 | 76.8 | 75.8 | 75.8 | 76.4 | 77.0 | 75.6 | 76.0 | 75.9 | 76.3 | 76.1 | 75.6 |
| 20000 | 71.9 | 71.5 | 72.3 | 76.0 | 76.6 | 76.4 | 75.7 | 75.6 | 76.4 | 76.9 | 75.4 | 75.9 | 76.0 | 76.0 | 76.2 | 75.7 |
| 30000 | 71.7 | 71.7 | 72.3 | 75.8 | 76.6 | 76.2 | 75.5 | 75.5 | 76.3 | 76.9 | 76.1 | 76.1 | 76.1 | 75.8 | 76.2 | 76.2 |
| 40000 | 71.6 | 71.7 | 72.1 | 75.9 | 76.3 | 76.6 | 75.8 | 75.5 | 76.2 | 76.6 | 75.9 | 75.8 | 75.9 | 75.7 | 76.2 | 76.2 |
| 50000 | 71.5 | 71.4 | 71.8 | 75.5 | 76.1 | 75.8 | 75.6 | 75.5 | 76.0 | 76.5 | 76.2 | 75.7 | 75.6 | 75.6 | 76.0 | 76.2 |
| 60000 | 71.4 | 71.3 | 71.8 | 76.0 | 76.2 | 76.1 | 75.7 | 75.3 | 76.0 | 76.4 | 76.4 | 75.5 | 75.7 | 75.7 | 75.9 | 76.4 |
| 70000 | 71.3 | 71.3 | 71.7 | 75.8 | 76.5 | 76.6 | 75.8 | 75.2 | 76.0 | 76.4 | 76.4 | 75.5 | 75.6 | 75.6 | 76.1 | 76.8 |
| 80000 | 71.2 | 71.3 | 71.8 | 76.0 | 76.5 | 77.2 | 76.0 | 75.3 | 76.1 | 76.7 | 76.4 | 75.2 | 75.5 | 76.2 | 76.2 | 77.1 |
| 90000 | 71.2 | 71.6 | 72.1 | 76.4 | 77.6 | 76.8 | 76.2 | 75.4 | 76.2 | 76.9 | 76.8 | 75.2 | 75.7 | 76.4 | 76.2 | 77.1 |
| 100000 | 71.3 | 71.5 | 72.2 | 76.9 | 77.5 | 76.9 | 76.2 | 75.5 | 76.6 | 77.2 | 76.5 | 75.4 | 75.5 | 76.5 | 76.7 | 78.0 |
| 110000 | 71.1 | 71.6 | 72.2 | 76.8 | 77.4 | 76.6 | 76.4 | 75.8 | 76.9 | 77.5 | 76.8 | 75.3 | 75.5 | 77.2 | 76.5 | 78.3 |
| 120000 | 70.8 | 71.5 | 72.3 | 77.7 | 78.4 | 77.5 | 76.3 | 76.0 | 77.1 | 77.5 | 76.6 | 75.2 | 76.1 | 76.8 | 76.9 | 78.2 |
| 130000 | 70.8 | 71.5 | 72.2 | 77.4 | 78.2 | 77.4 | 75.9 | 76.2 | 76.9 | 77.8 | 76.7 | 74.9 | 76.0 | 77.6 | 77.0 | 77.9 |
| 140000 | 73.7 | 71.2 | 75.6 | 77.6 | 79.1 | 76.8 | 75.9 | 76.3 | 77.2 | 74.7 | 76.2 | 74.8 | 76.3 | 77.4 | 76.9 | 78.3 |
| 150000 | 73.8 | 71.7 | 74.7 | 77.2 | 78.7 | 77.0 | 75.5 | 75.8 | 77.2 | 77.0 | 76.5 | 75.3 | 76.2 | 77.1 | 76.9 | 77.9 |
| 160000 | 74.3 | 71.8 | 74.9 | 76.8 | 78.9 | 76.8 | 75.6 | 75.6 | 77.5 | 77.3 | 76.5 | 75.3 | 76.1 | 76.7 | 76.8 | 77.6 |
| 170000 | 74.9 | 71.6 | 74.9 | 77.1 | 78.7 | 76.6 | 75.4 | 75.3 | 77.5 | 77.4 | 76.2 | 75.1 | 76.4 | 77.2 | 76.4 | 77.5 |
| 180000 | 75.3 | 71.4 | 75.1 | 77.1 | 78.5 | 76.7 | 74.9 | 75.4 | 77.7 | 77.2 | 76.1 | 75.3 | 76.3 | 76.6 | 76.4 | 77.3 |
| 190000 | 73.6 | 71.5 | 74.9 | 77.0 | 77.7 | 76.4 | 74.9 | 75.2 | 77.5 | 77.0 | 75.9 | 75.4 | 76.9 | 76.4 | 76.2 | 77.2 |
| 200000 | 72.6 | 71.4 | 75.3 | 76.6 | 77.4 | 76.0 | 75.1 | 75.3 | 77.1 | 76.5 | 76.0 | 75.4 | 76.5 | 76.4 | 75.9 | 77.2 |
| 210000 | 72.4 | 71.7 | 75.5 | 77.2 | 77.1 | 76.1 | 75.3 | 75.3 | 77.2 | 76.0 | 76.0 | 75.5 | 76.4 | 76.3 | 76.3 | 77.1 |
| 220000 | 72.3 | 71.7 | 75.4 | 77.0 | 77.4 | 76.0 | 75.4 | 75.8 | 77.3 | 76.0 | 76.0 | 75.8 | 76.4 | 76.4 | 76.1 | 77.4 |
| 230000 | 71.0 | 71.9 | 75.3 | 76.9 | 77.5 | 75.9 | 75.5 | 76.0 | 77.2 | 75.7 | 76.0 | 75.9 | 76.2 | 75.9 | 75.9 | 77.6 |
| Daily Max | 75.3 | 71.9 | 75.6 | 77.7 | 79.1 | 77.5 | 76.4 | 76.3 | 77.7 | 77.8 | 76.8 | 76.1 | 76.9 | 77.6 | 77.0 | 78.3 |
| Daily Min | 70.8 | 70.8 | 71.7 | 75.5 | 76.1 | 75.8 | 74.9 | 75.2 | 76.0 | 74.7 | 75.4 | 74.8 | 75.5 | 75.6 | 75.9 | 75.6 |
| Average | 72.2 | 71.5 | 73.4 | 76.6 | 77.4 | 76.6 | 75.7 | 75.6 | 76.8 | 76.8 | 76.2 | 75.5 | 76.0 | 76.4 | 76.3 | 77.1 |

Monthly Average Temp: 75.2
License Maximum Temperature: 89 F

High Falls Tailrace Temperature Summary - July 2018

| Time | 07/17/18 | 07/18/18 | 07/19/18 | 07/20/18 | 07/21/18 | 07/22/18 | 07/23/18 | 07/24/18 | 07/25/18 | 07/26/18 | 07/27/18 | 07/28/18 | 07/29/18 | 07/30/18 | 07/31/18 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 77.6 | 76.2 | 75.7 | 75.6 | 75.4 | 74.5 | 74.7 | 74.2 | 74.6 | 74.5 | 73.7 | 72.8 | 72.9 | 74.0 | 73.2 |
| 10000 | 77.5 | 76.0 | 75.4 | 75.8 | 75.3 | 74.4 | 74.5 | 74.1 | 74.4 | 75.0 | 73.7 | 72.8 | 72.9 | 74.0 | 73.2 |
| 20000 | 77.4 | 75.9 | 75.5 | 75.8 | 75.2 | 74.4 | 74.3 | 74.0 | 74.6 | 74.9 | 73.6 | 72.6 | 72.7 | 73.7 | 73.1 |
| 30000 | 76.9 | 76.0 | 75.4 | 75.9 | 75.1 | 74.3 | 74.2 | 74.0 | 74.5 | 74.9 | 73.6 | 72.5 | 72.6 | 73.6 | 72.9 |
| 40000 | 76.8 | 76.3 | 75.5 | 76.0 | 74.7 | 74.2 | 74.0 | 74.1 | 74.6 | 74.4 | 73.6 | 72.4 | 72.6 | 73.5 | 72.8 |
| 50000 | 76.6 | 76.3 | 75.4 | 75.9 | 74.8 | 74.1 | 74.0 | 73.9 | 74.5 | 74.3 | 73.5 | 72.3 | 72.6 | 73.4 | 72.7 |
| 60000 | 76.3 | 76.1 | 75.3 | 75.8 | 74.8 | 74.0 | 74.0 | 73.8 | 74.3 | 74.3 | 73.4 | 72.2 | 72.5 | 73.4 | 72.8 |
| 70000 | 76.2 | 76.0 | 75.4 | 75.9 | 74.8 | 73.9 | 74.0 | 73.8 | 74.3 | 74.1 | 73.4 | 72.3 | 72.6 | 73.4 | 73.1 |
| 80000 | 76.8 | 76.2 | 75.7 | 75.9 | 74.9 | 73.9 | 74.0 | 74.1 | 74.4 | 74.1 | 73.4 | 72.6 | 72.8 | 73.7 | 73.4 |
| 90000 | 76.8 | 76.5 | 76.0 | 75.9 | 75.0 | 73.8 | 74.2 | 74.4 | 74.8 | 74.2 | 73.5 | 72.8 | 73.2 | 73.9 | 73.7 |
| 100000 | 77.4 | 76.6 | 76.1 | 75.9 | 74.9 | 73.9 | 74.5 | 74.6 | 75.0 | 74.3 | 73.5 | 73.1 | 73.7 | 74.1 | 74.2 |
| 110000 | 77.5 | 76.7 | 76.3 | 75.3 | 74.9 | 74.4 | 74.8 | 75.3 | 74.9 | 74.2 | 73.8 | 73.2 | 74.2 | 74.3 | 74.3 |
| 120000 | 77.9 | 76.9 | 76.3 | 75.4 | 74.9 | 74.9 | 75.2 | 74.9 | 75.2 | 74.1 | 73.8 | 73.4 | 74.1 | 74.4 | 74.3 |
| 130000 | 78.2 | 76.7 | 76.4 | 75.7 | 74.9 | 74.9 | 75.3 | 74.9 | 75.2 | 74.2 | 73.7 | 73.6 | 74.3 | 74.4 | 74.3 |
| 140000 | 78.2 | 76.7 | 76.0 | 75.7 | 75.0 | 75.1 | 75.6 | 75.0 | 75.0 | 74.0 | 73.8 | 73.8 | 74.0 | 73.9 | 74.2 |
| 150000 | 78.5 | 76.6 | 76.0 | 75.9 | 75.1 | 75.6 | 75.8 | 75.1 | 75.1 | 74.3 | 73.8 | 73.6 | 74.1 | 73.8 | 74.1 |
| 160000 | 78.6 | 76.8 | 75.5 | 75.8 | 75.2 | 75.7 | 75.9 | 76.0 | 75.2 | 74.3 | 73.7 | 73.8 | 74.5 | 73.8 | 74.0 |
| 170000 | 78.2 | 76.5 | 75.1 | 75.9 | 75.3 | 75.8 | 75.7 | 75.6 | 74.8 | 74.1 | 73.6 | 73.8 | 74.4 | 74.0 | 73.7 |
| 180000 | 77.8 | 76.7 | 75.0 | 76.2 | 75.3 | 75.6 | 75.4 | 75.8 | 74.5 | 74.0 | 73.5 | 73.6 | 74.3 | 74.0 | 73.7 |
| 190000 | 77.1 | 76.7 | 74.9 | 76.0 | 75.1 | 75.3 | 75.0 | 75.8 | 74.4 | 74.0 | 73.4 | 73.4 | 74.4 | 73.8 | 73.6 |
| 200000 | 76.9 | 76.3 | 75.0 | 76.0 | 74.9 | 75.2 | 74.8 | 75.2 | 74.1 | 73.5 | 73.3 | 73.5 | 74.3 | 73.3 | 73.4 |
| 210000 | 76.7 | 75.9 | 75.1 | 75.8 | 74.7 | 75.0 | 74.6 | 74.7 | 73.9 | 73.7 | 73.2 | 73.3 | 73.9 | 73.4 | 73.4 |
| 220000 | 76.9 | 75.8 | 75.2 | 75.7 | 74.6 | 74.9 | 74.4 | 74.6 | 74.7 | 73.6 | 73.1 | 73.1 | 73.8 | 73.2 | 73.1 |
| 230000 | 76.5 | 75.8 | 75.3 | 75.5 | 74.6 | 74.9 | 74.3 | 74.7 | 74.6 | 73.6 | 72.9 | 73.1 | 73.7 | 73.3 | 73.2 |
| Daily Max | 78.6 | 76.9 | 76.4 | 76.2 | 75.4 | 75.8 | 75.9 | 76.0 | 75.2 | 75.0 | 73.8 | 73.8 | 74.5 | 74.4 | 74.3 |
| Daily Min | 76.2 | 75.8 | 74.9 | 75.3 | 74.6 | 73.8 | 74.0 | 73.8 | 73.9 | 73.5 | 72.9 | 72.2 | 72.5 | 73.2 | 72.7 |
| Average | 77.3 | 76.3 | 75.6 | 75.8 | 75.0 | 74.7 | 74.7 | 74.7 | 74.7 | 74.2 | 73.5 | 73.1 | 73.6 | 73.8 | 73.5 |

High Falls Tailrace Temperature Summary - August 2018

| Time HHMMSS | 08/01/18 | 08/02/18 | 08/03/18 | 08/04/18 | 08/05/18 | 08/06/18 | 08/07/18 | 08/08/18 | 08/09/18 | 08/10/18 | 08/11/18 | 08/12/18 | 08/13/18 | 08/14/18 | 08/15/18 | 08/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 73.1 | 73.9 | 73.1 | 72.7 | 72.5 | 73.4 | 75.8 | 74.0 | 74.2 | 74.7 | 75.8 | 75.3 | 75.8 | 75.7 | 77.2 | 76.1 |
| 10000 | 73.2 | 74.0 | 73.0 | 72.7 | 72.6 | 73.5 | 75.8 | 73.9 | 74.2 | 74.8 | 75.9 | 75.4 | 75.7 | 75.9 | 77.1 | 76.2 |
| 20000 | 73.2 | 74.0 | 72.8 | 72.6 | 72.7 | 73.8 | 75.5 | 73.8 | 74.3 | 74.9 | 75.6 | 75.5 | 75.7 | 75.9 | 77.1 | 76.4 |
| 30000 | 73.1 | 74.2 | 72.8 | 72.6 | 72.8 | 73.6 | 75.3 | 73.9 | 74.5 | 75.1 | 75.5 | 75.4 | 75.6 | 75.9 | 77.1 | 76.5 |
| 40000 | 73.1 | 74.0 | 72.7 | 72.7 | 72.8 | 73.6 | 75.0 | 73.7 | 74.7 | 75.2 | 75.5 | 75.7 | 75.5 | 75.7 | 77.2 | 76.6 |
| 50000 | 73.1 | 74.0 | 72.6 | 72.7 | 72.9 | 73.7 | 75.0 | 73.7 | 74.6 | 75.2 | 75.7 | 75.9 | 75.4 | 75.7 | 76.9 | 76.5 |
| 60000 | 73.1 | 73.7 | 72.7 | 72.8 | 72.9 | 73.8 | 74.9 | 73.7 | 74.5 | 75.0 | 75.4 | 75.8 | 75.5 | 75.5 | 76.9 | 76.6 |
| 70000 | 73.2 | 73.7 | 72.8 | 72.8 | 73.0 | 73.7 | 74.8 | 73.8 | 74.6 | 74.9 | 75.2 | 75.8 | 75.3 | 75.4 | 76.7 | 76.7 |
| 80000 | 73.6 | 73.7 | 72.8 | 72.9 | 73.2 | 73.8 | 74.8 | 74.0 | 74.9 | 75.1 | 75.2 | 75.9 | 75.5 | 75.5 | 76.8 | 76.8 |
| 90000 | 73.9 | 73.7 | 73.0 | 73.1 | 73.4 | 73.6 | 74.7 | 74.2 | 75.3 | 75.3 | 75.5 | 76.0 | 75.9 | 75.8 | 76.5 | 76.9 |
| 100000 | 74.1 | 73.7 | 73.1 | 73.4 | 73.5 | 73.9 | 74.8 | 74.5 | 75.9 | 75.4 | 75.8 | 76.4 | 76.2 | 76.1 | 76.7 | 76.9 |
| 110000 | 74.2 | 73.7 | 73.2 | 73.6 | 73.5 | 74.0 | 75.1 | 75.1 | 76.3 | 75.4 | 76.2 | 76.7 | 76.4 | 76.2 | 76.6 | 77.1 |
| 120000 | 74.0 | 73.7 | 73.5 | 73.6 | 73.4 | 74.0 | 75.2 | 75.1 | 76.7 | 75.5 | 76.3 | 76.6 | 76.6 | 76.4 | 77.0 | 77.6 |
| 130000 | 74.4 | 73.8 | 73.5 | 74.0 | 74.2 | 74.4 | 74.9 | 75.0 | 76.5 | 75.7 | 76.5 | 76.4 | 76.6 | 76.2 | 77.1 | 77.7 |
| 140000 | 73.8 | 74.1 | 73.2 | 73.7 | 74.3 | 74.3 | 75.2 | 74.7 | 76.5 | 75.4 | 76.7 | 76.6 | 76.6 | 76.4 | 77.0 | 77.3 |
| 150000 | 74.3 | 74.1 | 73.2 | 73.6 | 74.1 | 74.7 | 74.9 | 74.7 | 76.1 | 75.3 | 76.9 | 76.3 | 76.6 | 76.2 | 77.1 | 76.8 |
| 160000 | 74.4 | 74.1 | 72.7 | 73.3 | 73.9 | 74.8 | 75.1 | 74.7 | 76.1 | 75.0 | 77.1 | 76.3 | 76.4 | 76.0 | 77.1 | 76.5 |
| 170000 | 74.2 | 74.2 | 72.8 | 73.3 | 73.7 | 75.1 | 74.9 | 74.5 | 75.8 | 74.6 | 76.9 | 76.2 | 76.0 | 75.5 | 76.7 | 76.5 |
| 180000 | 74.0 | 73.9 | 73.0 | 73.2 | 73.5 | 75.3 | 74.8 | 74.5 | 75.6 | 74.4 | 76.7 | 76.1 | 75.6 | 75.6 | 76.6 | 76.5 |
| 190000 | 73.7 | 73.8 | 72.9 | 73.0 | 73.2 | 75.3 | 74.5 | 74.2 | 75.1 | 74.6 | 75.9 | 76.2 | 75.4 | 75.8 | 76.3 | 76.5 |
| 200000 | 73.6 | 73.8 | 72.8 | 72.8 | 73.0 | 75.1 | 74.6 | 74.3 | 75.0 | 75.3 | 75.3 | 76.0 | 75.3 | 76.0 | 76.2 | 76.1 |
| 210000 | 73.7 | 73.6 | 72.7 | 72.8 | 73.2 | 75.3 | 74.3 | 74.2 | 75.0 | 74.9 | 75.5 | 76.2 | 75.3 | 75.8 | 76.1 | 75.9 |
| 220000 | 73.6 | 73.3 | 72.8 | 72.5 | 73.3 | 75.4 | 74.3 | 74.0 | 74.7 | 75.0 | 75.4 | 76.0 | 75.4 | 76.1 | 76.1 | 76.0 |
| 230000 | 74.0 | 73.2 | 72.7 | 72.6 | 73.3 | 75.7 | 74.2 | 74.1 | 74.7 | 75.5 | 75.4 | 76.0 | 75.5 | 76.4 | 76.2 | 76.1 |
| Daily Max | 74.4 | 74.2 | 73.5 | 74.0 | 74.3 | 75.7 | 75.8 | 75.1 | 76.7 | 75.7 | 77.1 | 76.7 | 76.6 | 76.4 | 77.2 | 77.7 |
| Daily Min | 73.1 | 73.2 | 72.6 | 72.5 | 72.5 | 73.4 | 74.2 | 73.7 | 74.2 | 74.4 | 75.2 | 75.3 | 75.3 | 75.4 | 76.1 | 75.9 |
| Average | 73.7 | 73.8 | 72.9 | 73.0 | 73.3 | 74.3 | 74.9 | 74.3 | 75.2 | 75.1 | 75.9 | 76.0 | 75.8 | 75.9 | 76.8 | 76.6 |

Monthly Average Temp: 74.3
License Maximum Temperature: 89 F

High Falls Tailrace Temperature Summary - August 2018

| Time | 08/17/18 | 08/18/18 | 08/19/18 | 08/20/18 | 08/21/18 | 08/22/18 | 08/23/18 | 08/24/18 | 08/25/18 | 08/26/18 | 08/27/18 | 08/28/18 | 08/29/18 | 08/30/18 | 08/31/18 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 76.5 | 77.1 | 76.0 | 76.3 | 76.5 | 74.3 | 73.8 | 72.8 | 72.1 | 72.1 | 71.9 | 71.6 | 72.1 | 71.3 | 70.4 |
| 10000 | 76.7 | 77.3 | 76.0 | 76.3 | 76.6 | 74.2 | 73.6 | 72.7 | 72.1 | 72.0 | 72.0 | 71.6 | 72.0 | 71.3 | 70.3 |
| 20000 | 76.7 | 77.2 | 76.0 | 76.3 | 76.6 | 74.0 | 73.5 | 72.7 | 72.1 | 71.9 | 72.0 | 71.6 | 71.9 | 71.2 | 70.3 |
| 30000 | 76.8 | 77.1 | 76.0 | 76.2 | 76.4 | 74.0 | 73.3 | 72.7 | 72.1 | 71.9 | 71.9 | 71.6 | 71.8 | 71.1 | 70.2 |
| 40000 | 77.0 | 77.6 | 76.1 | 76.0 | 76.0 | 74.0 | 73.2 | 72.7 | 72.0 | 71.8 | 71.9 | 71.7 | 71.9 | 70.8 | 70.1 |
| 50000 | 77.2 | 77.4 | 76.1 | 76.3 | 76.0 | 73.9 | 73.1 | 72.6 | 72.0 | 71.8 | 71.8 | 71.8 | 71.8 | 70.8 | 70.1 |
| 60000 | 77.1 | 77.3 | 76.1 | 76.2 | 75.8 | 73.7 | 72.9 | 72.6 | 72.0 | 71.7 | 71.8 | 71.9 | 71.8 | 70.6 | 70.1 |
| 70000 | 76.9 | 77.2 | 76.0 | 76.3 | 75.7 | 73.7 | 72.8 | 72.7 | 72.0 | 71.7 | 71.8 | 71.9 | 71.7 | 70.5 | 70.2 |
| 80000 | 77.2 | 77.1 | 76.2 | 76.4 | 75.8 | 73.8 | 73.0 | 72.7 | 72.0 | 71.9 | 71.8 | 72.1 | 71.6 | 70.6 | 70.2 |
| 90000 | 77.4 | 77.4 | 76.5 | 76.6 | 75.7 | 74.1 | 73.2 | 72.7 | 72.0 | 72.1 | 71.8 | 72.2 | 71.6 | 70.8 | 70.4 |
| 100000 | 77.4 | 77.6 | 76.9 | 76.5 | 75.8 | 74.3 | 73.5 | 72.6 | 72.1 | 72.2 | 71.7 | 72.3 | 71.7 | 71.1 | 70.5 |
| 110000 | 77.6 | 78.2 | 77.1 | 76.6 | 75.7 | 74.7 | 73.7 | 72.5 | 72.2 | 72.1 | 71.8 | 72.3 | 71.8 | 71.0 | 70.5 |
| 120000 | 77.8 | 78.4 | 77.3 | 76.5 | 75.7 | 75.0 | 73.8 | 72.5 | 72.2 | 72.4 | 72.2 | 72.3 | 71.9 | 71.1 | 70.9 |
| 130000 | 78.2 | 78.7 | 77.0 | 76.5 | 75.8 | 75.0 | 74.0 | 72.5 | 72.5 | 72.2 | 72.3 | 72.5 | 72.1 | 71.3 | 71.2 |
| 140000 | 78.2 | 78.3 | 76.7 | 76.6 | 75.9 | 75.4 | 74.1 | 72.4 | 72.5 | 72.3 | 72.4 | 72.6 | 72.0 | 71.2 | 71.0 |
| 150000 | 78.0 | 78.4 | 77.0 | 76.6 | 75.7 | 75.3 | 74.0 | 72.2 | 72.5 | 72.2 | 72.4 | 72.4 | 72.0 | 71.0 | 71.0 |
| 160000 | 77.7 | 77.9 | 76.8 | 76.7 | 75.7 | 75.4 | 73.8 | 72.3 | 72.6 | 72.1 | 72.2 | 72.3 | 72.2 | 71.1 | 70.8 |
| 170000 | 77.3 | 77.9 | 76.7 | 76.5 | 75.6 | 75.2 | 73.4 | 72.3 | 72.6 | 72.1 | 72.1 | 72.3 | 72.1 | 71.0 | 70.8 |
| 180000 | 77.3 | 77.4 | 76.4 | 76.5 | 75.4 | 75.0 | 73.0 | 72.4 | 72.6 | 72.1 | 71.9 | 72.3 | 72.1 | 70.9 | 70.6 |
| 190000 | 77.1 | 77.1 | 76.3 | 76.7 | 75.2 | 74.8 | 72.9 | 72.3 | 72.6 | 72.1 | 71.8 | 72.3 | 71.9 | 70.8 | 70.5 |
| 200000 | 77.2 | 76.5 | 76.3 | 76.6 | 75.0 | 74.6 | 72.9 | 72.2 | 72.5 | 72.0 | 71.9 | 72.2 | 71.8 | 70.6 | 70.4 |
| 210000 | 77.3 | 76.3 | 76.2 | 76.7 | 74.9 | 74.5 | 72.9 | 72.2 | 72.4 | 71.9 | 72.0 | 72.3 | 71.7 | 70.6 | 70.4 |
| 220000 | 76.9 | 76.3 | 76.2 | 76.7 | 74.7 | 74.3 | 72.9 | 72.2 | 72.3 | 71.9 | 72.2 | 72.2 | 71.5 | 70.5 | 70.4 |
| 230000 | 77.5 | 76.1 | 76.3 | 76.7 | 74.5 | 74.1 | 72.9 | 72.1 | 72.2 | 71.9 | 71.7 | 72.2 | 71.4 | 70.4 | 70.4 |
| Daily Max | 78.2 | 78.7 | 77.3 | 76.7 | 76.6 | 75.4 | 74.1 | 72.8 | 72.6 | 72.4 | 72.4 | 72.6 | 72.2 | 71.3 | 71.2 |
| Daily Min | 76.5 | 76.1 | 76.0 | 76.0 | 74.5 | 73.7 | 72.8 | 72.1 | 72.0 | 71.7 | 71.7 | 71.6 | 71.4 | 70.4 | 70.1 |
| Average | 77.3 | 77.4 | 76.4 | 76.5 | 75.7 | 74.5 | 73.3 | 72.5 | 72.2 | 72.0 | 72.0 | 72.1 | 71.8 | 70.9 | 70.5 |

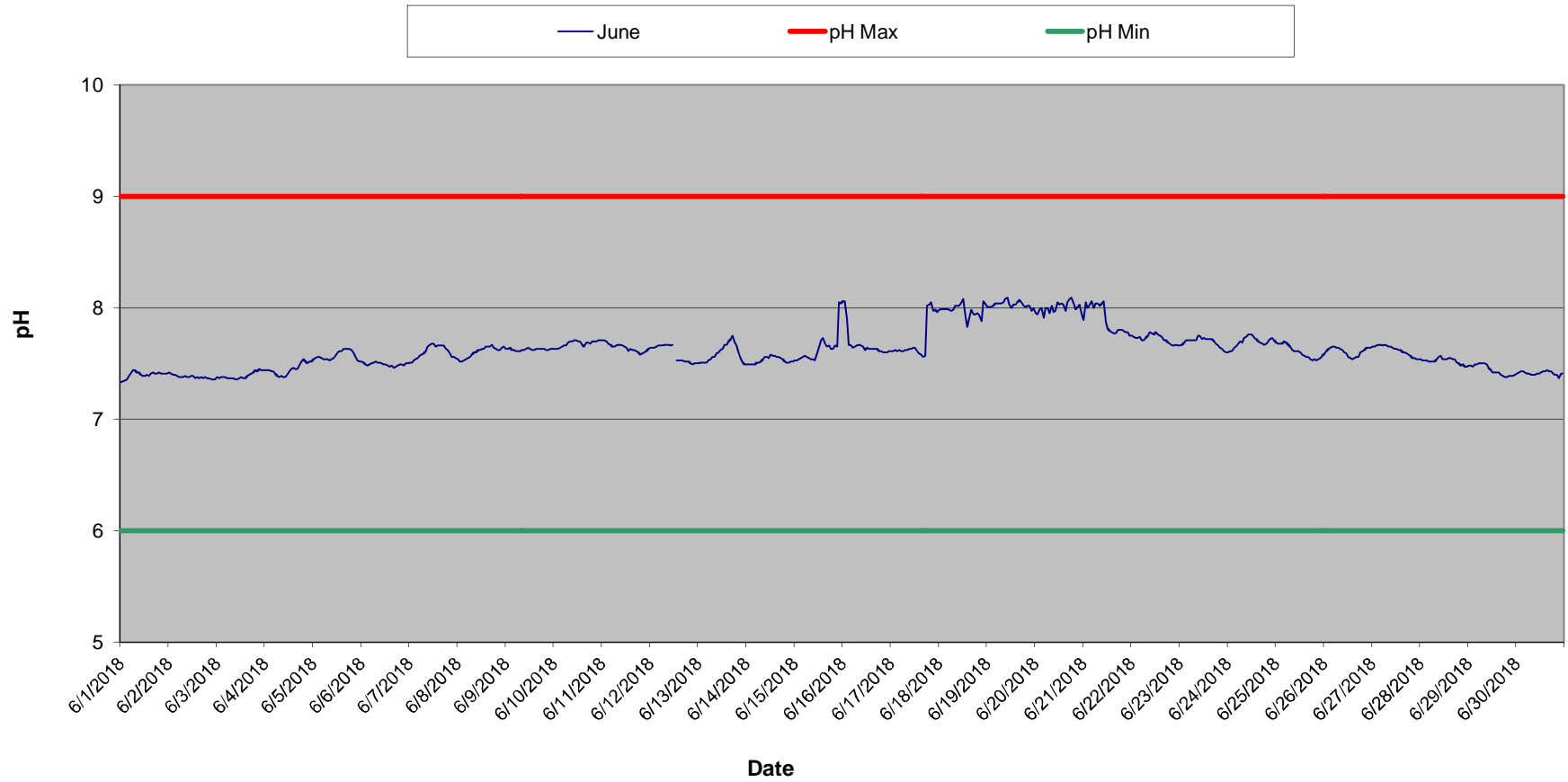
High Falls Tailrace Temperature Summary - September 2018

| Time | 09/01/18 | 09/02/18 | 09/03/18 | 09/04/18 | 09/05/18 | 09/06/18 | 09/07/18 | 09/08/18 | 09/09/18 | 09/10/18 | 09/11/18 | 09/12/18 | 09/13/18 | 09/14/18 | 09/15/18 | 09/16/18 |
|------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 70.5 | 70.9 | 70.8 | 71.4 | 71.5 | 71.6 | 71.0 | 70.7 | 69.7 | 68.8 | 68.0 | 67.4 | 67.8 | 67.5 | 68.7 | 69.7 |
| 10000 | 70.5 | 70.9 | 70.8 | 71.3 | 71.8 | 71.5 | 71.0 | 70.6 | 69.6 | 68.7 | 68.0 | 67.4 | 67.8 | 67.5 | 68.8 | 69.7 |
| 20000 | 70.5 | 70.9 | 70.8 | 71.3 | 71.6 | 71.4 | 70.9 | 70.4 | 69.5 | 68.6 | 67.9 | 67.4 | 67.8 | 67.5 | 68.9 | 69.7 |
| 30000 | 70.5 | 71.0 | 70.9 | 71.3 | 71.4 | 71.2 | 70.9 | 70.3 | 69.4 | 68.5 | 67.8 | 67.4 | 67.8 | 67.6 | 68.9 | 69.6 |
| 40000 | 70.6 | 70.9 | 71.0 | 71.3 | 71.4 | 71.2 | 70.8 | 70.2 | 69.2 | 68.4 | 67.6 | 67.4 | 67.8 | 67.7 | 69.0 | 69.7 |
| 50000 | 70.6 | 71.0 | 71.0 | 71.3 | 71.4 | 71.0 | 70.7 | 70.1 | 69.2 | 68.4 | 67.5 | 67.4 | 67.8 | 67.8 | 68.9 | 69.7 |
| 60000 | 70.6 | 71.0 | 70.9 | 71.3 | 71.2 | 70.9 | 70.6 | 70.0 | 69.0 | 68.3 | 67.5 | 67.4 | 67.8 | 67.9 | 68.8 | 69.7 |
| 70000 | 70.6 | 71.1 | 70.9 | 71.3 | 70.8 | 70.9 | 70.6 | 69.9 | 69.0 | 68.3 | 67.5 | 67.4 | 67.8 | 67.9 | 68.8 | 69.8 |
| 80000 | 70.7 | 71.2 | 71.0 | 71.4 | 70.8 | 70.9 | 70.6 | 69.8 | 69.0 | 68.3 | 67.5 | 67.5 | 67.8 | 68.0 | 68.8 | 69.9 |
| 90000 | 70.7 | 71.3 | 71.1 | 71.5 | 71.2 | 71.0 | 70.6 | 69.8 | 69.0 | 68.3 | 67.7 | 67.6 | 68.0 | 68.3 | 69.0 | 70.1 |
| 100000 | 70.8 | 71.4 | 71.3 | 71.6 | 71.5 | 71.1 | 70.7 | 69.8 | 69.1 | 68.4 | 67.8 | 67.7 | 68.3 | 68.5 | 69.2 | 70.0 |
| 110000 | 70.9 | 71.4 | 71.4 | 71.6 | 71.8 | 71.3 | 70.8 | 70.0 | 69.1 | 68.5 | 67.9 | 67.9 | 68.5 | 68.7 | 69.6 | 70.1 |
| 120000 | 70.9 | 71.4 | 71.7 | 71.9 | 71.9 | 71.6 | 71.0 | 70.2 | 69.2 | 68.7 | 68.0 | 68.0 | 68.8 | 68.9 | 69.3 | 69.9 |
| 130000 | 71.0 | 71.4 | 72.0 | 71.9 | 72.0 | 71.9 | 71.2 | 70.4 | 69.3 | 68.7 | 68.1 | 68.1 | 69.0 | 69.1 | 69.4 | 69.7 |
| 140000 | 71.3 | 71.4 | 71.9 | 72.1 | 72.1 | 72.1 | 71.4 | 70.4 | 69.3 | 68.9 | 68.1 | 68.2 | 68.8 | 69.2 | 69.4 | 69.3 |
| 150000 | 71.3 | 71.0 | 71.8 | 72.0 | 72.1 | 72.1 | 71.4 | 70.4 | 69.3 | 68.9 | 68.0 | 68.1 | 68.6 | 69.0 | 69.3 | 69.1 |
| 160000 | 71.3 | 70.8 | 71.8 | 72.0 | 72.2 | 71.9 | 71.3 | 70.5 | 69.4 | 68.7 | 67.8 | 68.0 | 68.6 | 68.9 | 69.5 | 68.8 |
| 170000 | 71.3 | 70.9 | 71.6 | 71.9 | 72.2 | 71.9 | 71.2 | 70.4 | 69.3 | 68.5 | 67.6 | 67.8 | 68.5 | 68.9 | 69.5 | 68.7 |
| 180000 | 71.1 | 70.9 | 71.6 | 71.7 | 72.2 | 71.7 | 71.1 | 70.3 | 69.2 | 68.4 | 67.4 | 67.8 | 68.1 | 68.8 | 69.5 | 68.6 |
| 190000 | 71.0 | 70.8 | 71.5 | 71.6 | 72.0 | 71.6 | 70.9 | 70.1 | 69.1 | 68.4 | 67.3 | 67.7 | 67.7 | 68.6 | 69.2 | 68.9 |
| 200000 | 71.0 | 71.0 | 71.5 | 71.5 | 72.0 | 71.5 | 70.9 | 70.0 | 69.0 | 68.4 | 67.3 | 67.8 | 67.7 | 68.7 | 69.1 | 69.2 |
| 210000 | 71.0 | 71.0 | 71.5 | 71.5 | 71.9 | 71.4 | 71.0 | 69.9 | 69.0 | 68.3 | 67.5 | 67.8 | 67.6 | 68.5 | 69.1 | 69.5 |
| 220000 | 71.0 | 70.9 | 71.5 | 71.2 | 71.8 | 71.2 | 71.0 | 69.8 | 68.9 | 68.2 | 67.5 | 67.8 | 67.5 | 68.6 | 69.5 | 69.5 |
| 230000 | 70.9 | 70.9 | 71.4 | 71.5 | 71.7 | 71.1 | 70.9 | 69.8 | 68.9 | 68.1 | 67.5 | 67.8 | 67.5 | 68.7 | 69.7 | 69.5 |
| Daily Max | 71.3 | 71.4 | 72.0 | 72.1 | 72.2 | 72.1 | 71.4 | 70.7 | 69.7 | 68.9 | 68.1 | 68.2 | 69.0 | 69.2 | 69.7 | 70.1 |
| Daily Min | 70.5 | 70.8 | 70.8 | 71.2 | 70.8 | 70.9 | 70.6 | 69.8 | 68.9 | 68.1 | 67.3 | 67.4 | 67.5 | 67.5 | 68.7 | 68.6 |
| Average | 70.9 | 71.1 | 71.3 | 71.6 | 71.7 | 71.4 | 70.9 | 70.2 | 69.2 | 68.5 | 67.7 | 67.7 | 68.1 | 68.4 | 69.2 | 69.5 |
| Monthly Average Temp: | | | | 67.9 | | | | | | | | | | | | |
| License Maximum Temperature: | | | | 89 F | | | | | | | | | | | | |

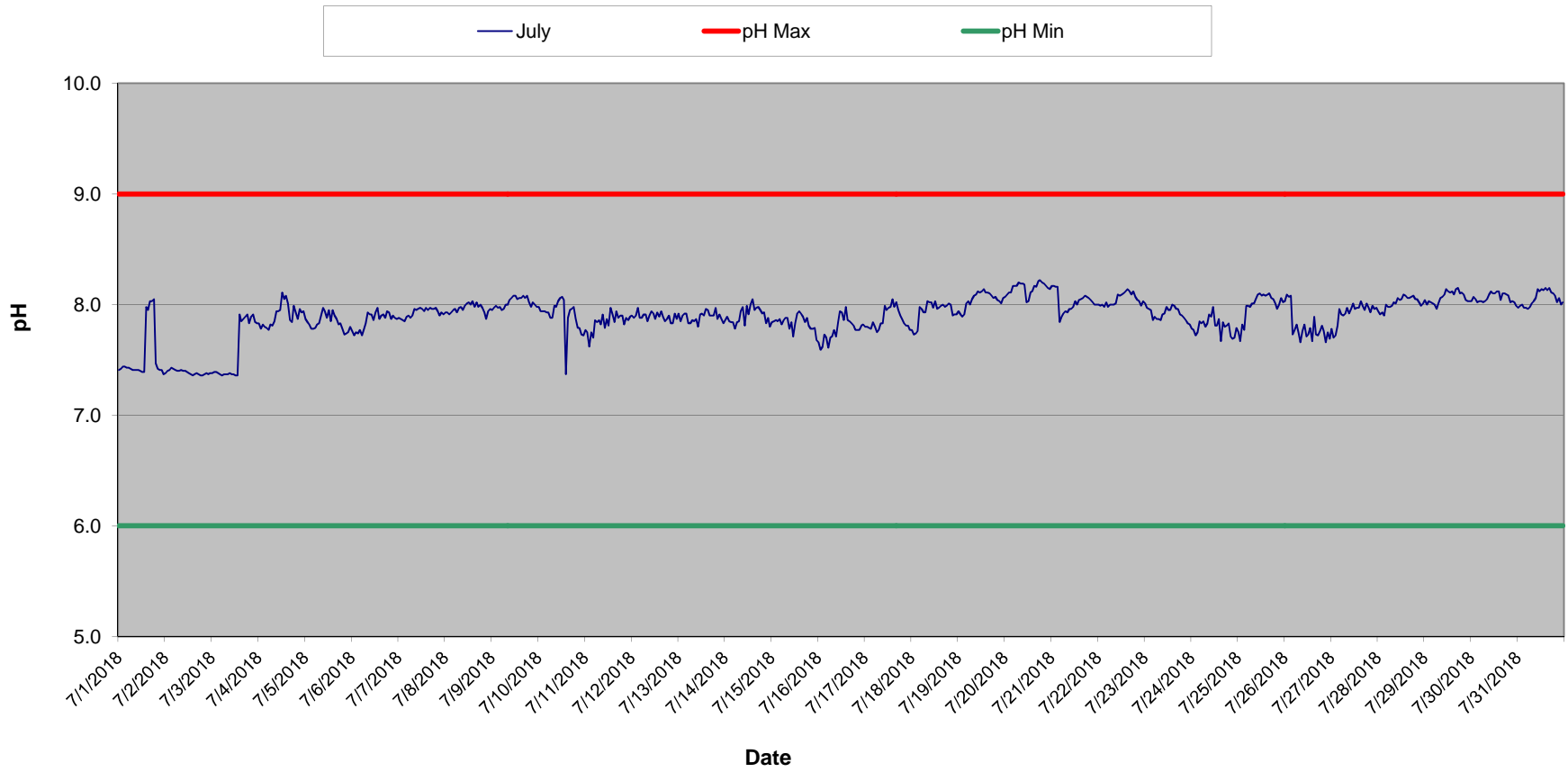
High Falls Tailrace Temperature Summary - September 2018

| Time | 09/17/18 | 09/18/18 | 09/19/18 | 09/20/18 | 09/21/18 | 09/22/18 | 09/23/18 | 09/24/18 | 09/25/18 | 09/26/18 | 09/27/18 | 09/28/18 | 09/29/18 | 09/30/18 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| HHMMSS | | | | | | | | | | | | | | |
| 0 | 69.9 | 72.5 | 70.1 | 68.9 | 68.4 | 66.1 | 65.4 | 65.1 | 65.2 | 64.8 | 63.9 | 63.1 | 61.9 | 60.9 |
| 10000 | 70.0 | 72.5 | 69.9 | 69.0 | 68.2 | 65.9 | 65.3 | 65.0 | 65.3 | 64.8 | 63.9 | 63.0 | 61.7 | 60.8 |
| 20000 | 70.2 | 72.3 | 69.9 | 68.9 | 68.0 | 66.0 | 65.2 | 65.1 | 65.3 | 64.7 | 63.8 | 63.0 | 61.6 | 60.8 |
| 30000 | 70.1 | 71.9 | 70.0 | 69.0 | 67.8 | 65.9 | 65.2 | 65.1 | 65.3 | 64.6 | 63.8 | 62.9 | 61.5 | 60.7 |
| 40000 | 69.7 | 71.6 | 70.0 | 69.0 | 67.6 | 65.7 | 65.0 | 65.0 | 65.2 | 64.6 | 63.6 | 62.9 | 61.4 | 60.6 |
| 50000 | 69.6 | 71.1 | 70.1 | 68.9 | 67.5 | 65.7 | 64.9 | 65.0 | 65.2 | 64.6 | 63.6 | 62.8 | 61.3 | 60.6 |
| 60000 | 69.8 | 70.7 | 70.0 | 68.8 | 67.3 | 65.7 | 64.9 | 65.0 | 65.2 | 64.4 | 63.6 | 62.8 | 61.1 | 60.5 |
| 70000 | 69.8 | 70.7 | 69.9 | 68.7 | 67.2 | 65.5 | 64.9 | 65.0 | 65.1 | 64.2 | 63.5 | 62.7 | 60.9 | 60.4 |
| 80000 | 69.7 | 70.7 | 69.8 | 68.6 | 67.1 | 65.5 | 64.9 | 65.0 | 65.2 | 64.1 | 63.5 | 62.6 | 60.9 | 60.4 |
| 90000 | 69.7 | 70.8 | 69.8 | 68.6 | 67.2 | 65.8 | 65.1 | 65.2 | 65.2 | 64.3 | 63.6 | 62.7 | 61.0 | 60.4 |
| 100000 | 69.9 | 70.6 | 69.7 | 68.6 | 67.1 | 66.0 | 65.3 | 65.2 | 65.4 | 64.3 | 63.6 | 62.6 | 61.2 | 60.3 |
| 110000 | 70.1 | 70.8 | 69.7 | 68.7 | 67.4 | 66.0 | 65.5 | 65.3 | 65.3 | 64.4 | 63.5 | 62.6 | 61.4 | 60.4 |
| 120000 | 70.2 | 70.7 | 69.6 | 68.7 | 67.4 | 66.0 | 65.7 | 65.3 | 65.4 | 64.5 | 63.4 | 62.8 | 61.7 | 60.4 |
| 130000 | 70.3 | 70.8 | 69.7 | 68.6 | 67.5 | 65.9 | 65.9 | 65.4 | 65.5 | 64.8 | 63.4 | 62.9 | 61.7 | 60.4 |
| 140000 | 70.3 | 70.7 | 69.7 | 68.7 | 67.3 | 65.9 | 65.9 | 65.5 | 65.4 | 64.9 | 63.6 | 63.0 | 61.5 | 60.5 |
| 150000 | 70.2 | 70.7 | 69.5 | 68.7 | 67.2 | 65.9 | 65.9 | 65.4 | 65.5 | 64.6 | 63.5 | 62.8 | 61.3 | 60.4 |
| 160000 | 70.5 | 70.8 | 69.4 | 68.7 | 67.1 | 65.7 | 65.9 | 65.3 | 65.5 | 64.7 | 63.5 | 62.7 | 61.2 | 60.4 |
| 170000 | 71.1 | 70.7 | 69.3 | 68.7 | 66.9 | 65.6 | 65.7 | 65.3 | 65.4 | 64.6 | 63.5 | 62.5 | 61.1 | 60.4 |
| 180000 | 70.9 | 70.4 | 69.2 | 68.7 | 66.7 | 65.6 | 65.4 | 65.1 | 65.3 | 64.5 | 63.4 | 62.4 | 61.0 | 60.3 |
| 190000 | 71.4 | 70.3 | 69.1 | 68.6 | 66.6 | 65.5 | 65.2 | 65.0 | 65.3 | 64.5 | 63.3 | 62.2 | 61.0 | 60.2 |
| 200000 | 73.1 | 70.1 | 69.0 | 68.6 | 66.6 | 65.4 | 65.1 | 65.0 | 65.2 | 64.3 | 63.3 | 62.1 | 60.9 | 60.2 |
| 210000 | 73.6 | 70.3 | 69.0 | 68.6 | 66.4 | 65.5 | 65.1 | 65.1 | 65.1 | 64.3 | 63.2 | 62.0 | 60.9 | 60.2 |
| 220000 | 72.9 | 70.3 | 69.0 | 68.5 | 66.3 | 65.5 | 65.0 | 65.1 | 65.0 | 64.1 | 63.2 | 61.9 | 60.8 | 60.2 |
| 230000 | 72.4 | 70.3 | 69.0 | 68.5 | 66.2 | 65.4 | 65.0 | 65.2 | 64.9 | 64.0 | 63.1 | 61.9 | 60.8 | 60.1 |
| Daily Max | 73.6 | 72.5 | 70.1 | 69.0 | 68.4 | 66.1 | 65.9 | 65.5 | 65.5 | 64.9 | 63.9 | 63.1 | 61.9 | 60.9 |
| Daily Min | 69.6 | 70.1 | 69.0 | 68.5 | 66.2 | 65.4 | 64.9 | 65.0 | 64.9 | 64.0 | 63.1 | 61.9 | 60.8 | 60.1 |
| Average | 70.6 | 70.9 | 69.6 | 68.7 | 67.2 | 65.7 | 65.3 | 65.2 | 65.3 | 64.5 | 63.5 | 62.6 | 61.2 | 60.4 |

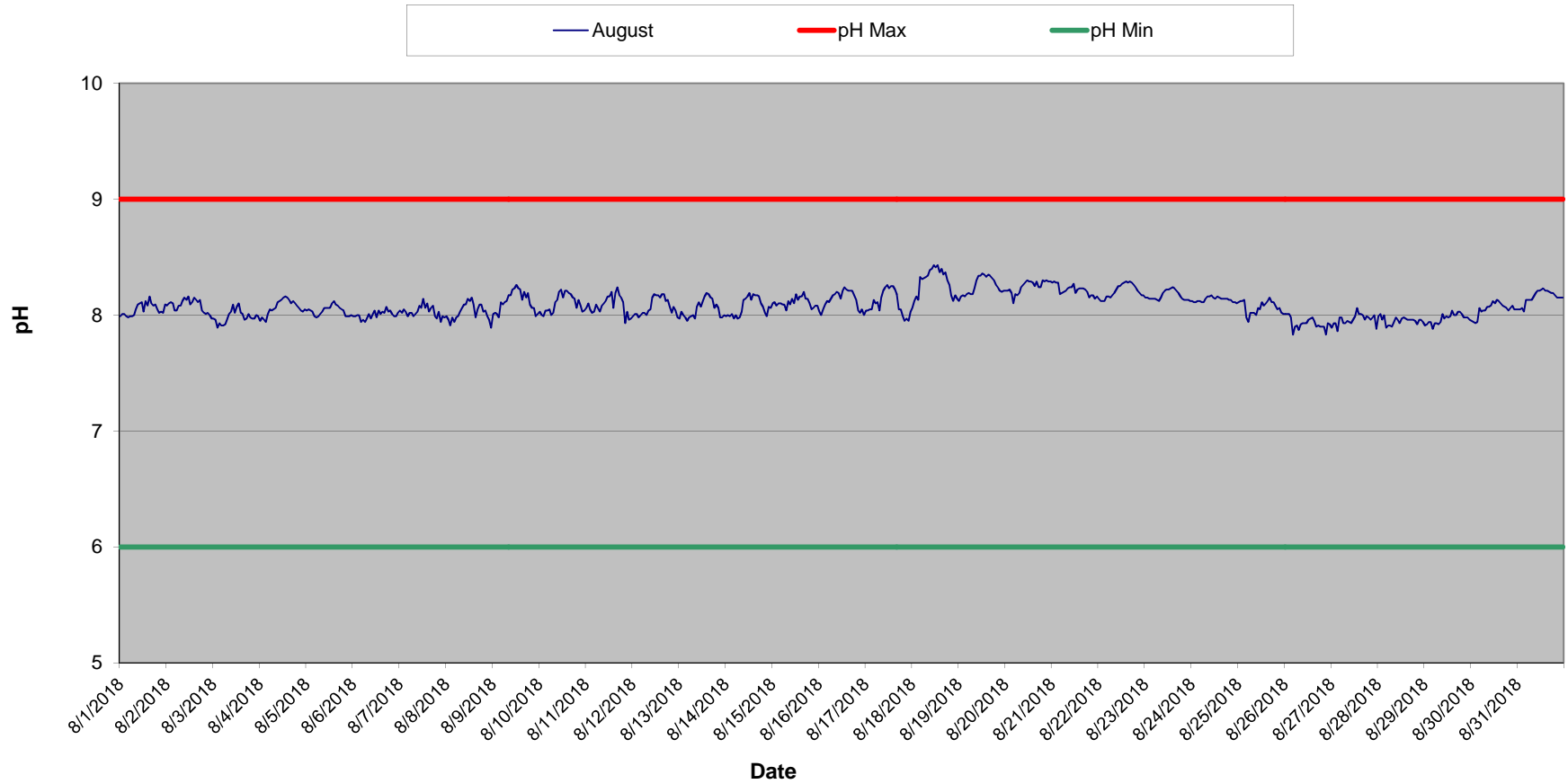
High Falls Tailrace pH Summary - June 2018



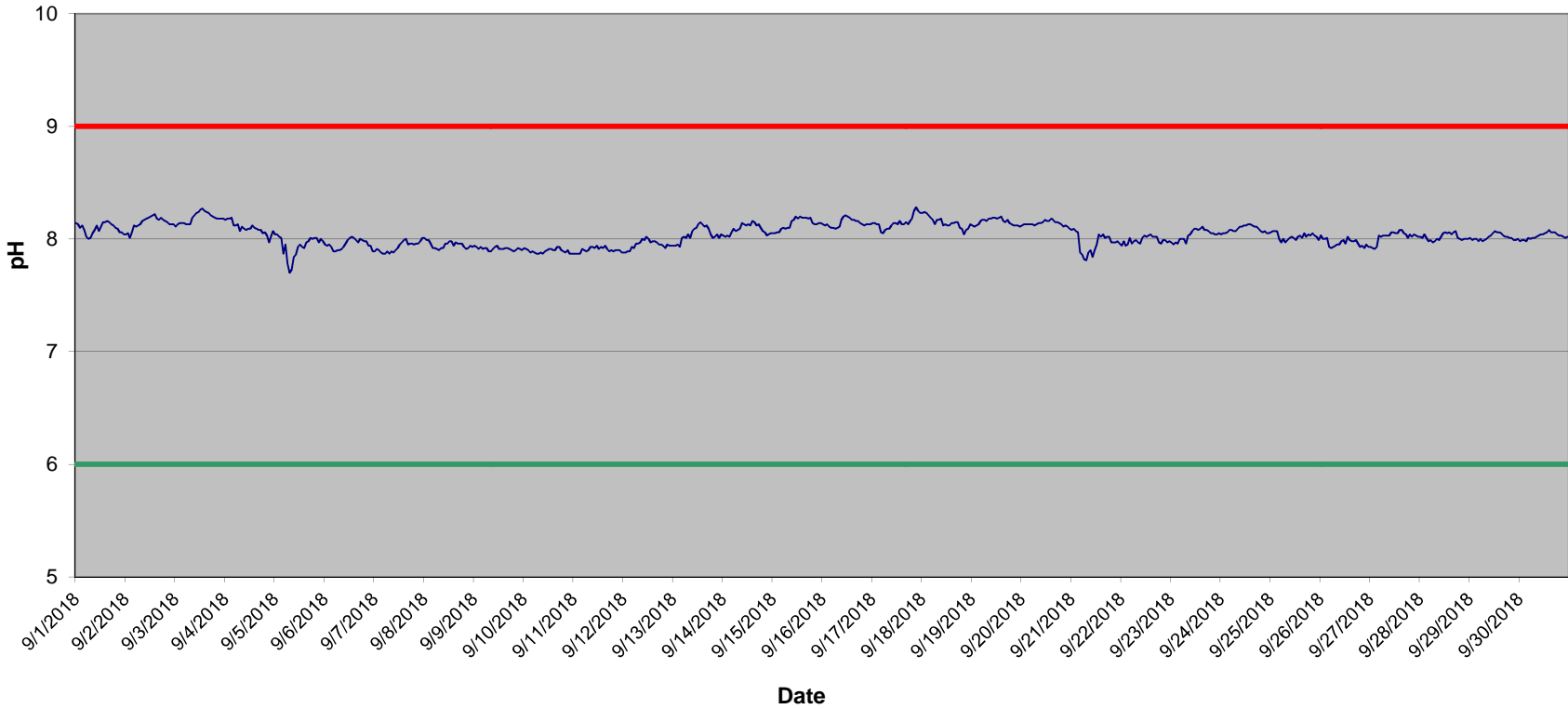
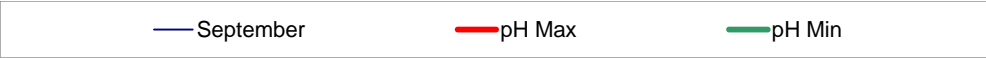
High Falls Tailrace pH Summary - July 2018



High Falls Tailrace pH Summary - August 2018



High Falls Tailrace pH Summary - September 2018



High Falls Tailrace pH Summary - June 2018

| Time HHMMSS | 06/01/18 | 06/02/18 | 06/03/18 | 06/04/18 | 06/05/18 | 06/06/18 | 06/07/18 | 06/08/18 | 06/09/18 | 06/10/18 | 06/11/18 | 06/12/18 | 06/13/18 | 06/14/18 | 06/15/18 | 06/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 7.3 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.5 | 7.5 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.5 | 7.5 | 8.1 |
| 10000 | 7.3 | 7.4 | 7.4 | 7.4 | 7.6 | 7.5 | 7.5 | 7.5 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.5 | 7.5 | 8.1 |
| 20000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.6 | 7.5 | 7.5 | 7.5 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.5 | 7.5 | 7.9 |
| 30000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.6 | 7.5 | 7.5 | 7.5 | 7.6 | 7.6 | 7.7 | 7.7 | 7.5 | 7.5 | 7.6 | 7.7 |
| 40000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.6 | 7.5 | 7.6 | 7.5 | 7.6 | 7.7 | 7.7 | 7.7 | 7.5 | 7.5 | 7.6 | 7.7 |
| 50000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.5 | 7.5 | 7.6 | 7.6 |
| 60000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.5 | 7.5 | 7.6 | 7.7 |
| 70000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.7 |
| 80000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.5 | 7.7 |
| 90000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.7 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.5 | 7.7 |
| 100000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.6 | 7.5 | 7.7 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.5 | 7.7 |
| 110000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.6 | 7.5 | 7.7 | 7.6 | 7.6 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.6 | 7.6 |
| 120000 | 7.4 | 7.4 | 7.4 | 7.4 | 7.6 | 7.5 | 7.7 | 7.6 | 7.6 | 7.7 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 |
| 130000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.6 | 7.5 | 7.7 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.7 | 7.6 | 7.7 | 7.6 |
| 140000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.6 | 7.5 | 7.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.5 | 7.7 | 7.6 | 7.7 | 7.6 |
| 150000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.6 | 7.5 | 7.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.5 | 7.7 | 7.6 | 7.7 | 7.6 |
| 160000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.6 | 7.5 | 7.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.5 | 7.7 | 7.6 | 7.7 | 7.6 |
| 170000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.6 | 7.5 | 7.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.5 | 7.8 | 7.6 | 7.7 | 7.6 |
| 180000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.6 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.7 | 7.5 | 7.6 | 7.6 |
| 190000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.6 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.7 | 7.5 | 7.6 | 7.6 |
| 200000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.6 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.6 | 7.5 | 7.7 | 7.6 |
| 210000 | 7.4 | 7.4 | 7.5 | 7.5 | 7.6 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.6 | 7.5 | 7.7 | 7.6 |
| 220000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.5 | 7.5 | 8.1 | 7.6 |
| 230000 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.5 | 7.6 | 7.7 | 7.6 | 7.7 | 7.6 | 7.5 | 7.5 | 7.5 | 8.0 | 7.6 |
| Daily Max | 7.4 | 7.4 | 7.5 | 7.5 | 7.6 | 7.5 | 7.7 | 7.7 | 7.6 | 7.7 | 7.7 | 7.7 | 7.8 | 7.6 | 8.1 | 8.1 |
| Daily Min | 7.3 | 7.4 | 7.4 | 7.4 | 7.5 | 7.5 | 7.5 | 7.5 | 7.6 | 7.6 | 7.6 | 7.5 | 7.5 | 7.5 | 7.5 | 7.6 |
| Average | 7.4 | 7.4 | 7.4 | 7.4 | 7.6 | 7.5 | 7.6 | 7.6 | 7.6 | 7.7 | 7.6 | 7.6 | 7.6 | 7.5 | 7.6 | 7.7 |

License maximum pH: 9
License minimum pH: 6

Missing data due to equipment maintenance

High Falls Tailrace pH Summary - June 2018

| Time | 06/17/18 | 06/18/18 | 06/19/18 | 06/20/18 | 06/21/18 | 06/22/18 | 06/23/18 | 06/24/18 | 06/25/18 | 06/26/18 | 06/27/18 | 06/28/18 | 06/29/18 | 06/30/18 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| HHMMSS | | | | | | | | | | | | | | |
| 0 | 7.6 | 8.0 | 8.0 | 8.0 | 7.9 | 7.8 | 7.7 | 7.6 | 7.7 | 7.6 | 7.7 | 7.5 | 7.5 | 7.4 |
| 10000 | 7.6 | 8.0 | 8.0 | 7.9 | 8.1 | 7.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.7 | 7.5 | 7.5 | 7.4 |
| 20000 | 7.6 | 8.0 | 8.0 | 8.0 | 8.0 | 7.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.7 | 7.5 | 7.5 | 7.4 |
| 30000 | 7.6 | 8.0 | 8.0 | 8.0 | 8.0 | 7.7 | 7.7 | 7.6 | 7.7 | 7.6 | 7.7 | 7.5 | 7.5 | 7.4 |
| 40000 | 7.6 | 8.0 | 8.0 | 7.9 | 8.1 | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 | 7.5 | 7.5 | 7.4 |
| 50000 | 7.6 | 8.0 | 8.0 | 8.0 | 8.0 | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 | 7.5 | 7.5 | 7.4 |
| 60000 | 7.6 | 8.0 | 8.0 | 8.0 | 8.0 | 7.7 | 7.7 | 7.7 | 7.7 | 7.6 | 7.7 | 7.5 | 7.5 | 7.4 |
| 70000 | 7.6 | 8.0 | 8.0 | 8.0 | 8.0 | 7.7 | 7.7 | 7.7 | 7.7 | 7.6 | 7.7 | 7.5 | 7.5 | 7.4 |
| 80000 | 7.6 | 8.0 | 8.1 | 8.0 | 8.0 | 7.8 | 7.7 | 7.7 | 7.6 | 7.6 | 7.7 | 7.5 | 7.5 | 7.4 |
| 90000 | 7.6 | 8.0 | 8.1 | 8.0 | 8.0 | 7.8 | 7.8 | 7.7 | 7.6 | 7.6 | 7.7 | 7.6 | 7.5 | 7.4 |
| 100000 | 7.6 | 8.0 | 8.1 | 8.0 | 8.1 | 7.8 | 7.8 | 7.8 | 7.6 | 7.6 | 7.6 | 7.6 | 7.5 | 7.4 |
| 110000 | 7.6 | 8.1 | 8.0 | 8.1 | 7.9 | 7.8 | 7.7 | 7.8 | 7.6 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 120000 | 7.6 | 8.1 | 8.0 | 8.0 | 7.8 | 7.8 | 7.7 | 7.8 | 7.6 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 130000 | 7.6 | 7.9 | 8.0 | 8.0 | 7.8 | 7.8 | 7.7 | 7.7 | 7.6 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 140000 | 7.6 | 7.8 | 8.0 | 8.0 | 7.8 | 7.8 | 7.7 | 7.7 | 7.6 | 7.5 | 7.6 | 7.6 | 7.4 | 7.4 |
| 150000 | 7.6 | 7.9 | 8.1 | 8.0 | 7.8 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.6 | 7.6 | 7.4 | 7.4 |
| 160000 | 7.6 | 8.0 | 8.1 | 8.1 | 7.8 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 170000 | 7.6 | 7.9 | 8.1 | 8.1 | 7.8 | 7.7 | 7.7 | 7.7 | 7.5 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 180000 | 8.0 | 7.9 | 8.0 | 8.1 | 7.8 | 7.7 | 7.7 | 7.7 | 7.5 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 190000 | 8.0 | 8.0 | 8.0 | 8.0 | 7.8 | 7.7 | 7.7 | 7.7 | 7.5 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 200000 | 8.1 | 7.9 | 8.0 | 8.0 | 7.8 | 7.7 | 7.6 | 7.7 | 7.5 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 210000 | 8.0 | 7.9 | 8.0 | 8.0 | 7.8 | 7.7 | 7.6 | 7.7 | 7.5 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |
| 220000 | 8.0 | 8.1 | 8.0 | 8.0 | 7.8 | 7.7 | 7.6 | 7.7 | 7.6 | 7.6 | 7.5 | 7.5 | 7.4 | 7.4 |
| 230000 | 8.0 | 8.0 | 8.0 | 7.9 | 7.8 | 7.7 | 7.6 | 7.7 | 7.6 | 7.6 | 7.5 | 7.5 | 7.4 | 7.4 |
| Daily Max | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 7.8 | 7.8 | 7.8 | 7.7 | 7.7 | 7.7 | 7.6 | 7.5 | 7.4 |
| Daily Min | 7.6 | 7.8 | 8.0 | 7.9 | 7.8 | 7.7 | 7.6 | 7.6 | 7.5 | 7.5 | 7.5 | 7.5 | 7.4 | 7.4 |
| Average | 7.7 | 8.0 | 8.0 | 8.0 | 7.9 | 7.7 | 7.7 | 7.7 | 7.6 | 7.6 | 7.6 | 7.5 | 7.4 | 7.4 |

High Falls Tailrace pH Summary - July 2018

| Time HHMMSS | 07/01/18 | 07/02/18 | 07/03/18 | 07/04/18 | 07/05/18 | 07/06/18 | 07/07/18 | 07/08/18 | 07/09/18 | 07/10/18 | 07/11/18 | 07/12/18 | 07/13/18 | 07/14/18 | 07/15/18 | 07/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 7.4 | 7.4 | 7.4 | 7.8 | 7.9 | 7.8 | 7.9 | 7.9 | 8.0 | 8.0 | 7.8 | 7.9 | 7.9 | 7.9 | 7.8 | 7.7 |
| 10000 | 7.4 | 7.4 | 7.4 | 7.8 | 7.8 | 7.7 | 7.9 | 7.9 | 8.0 | 7.9 | 7.8 | 7.9 | 7.9 | 7.9 | 7.9 | 7.6 |
| 20000 | 7.4 | 7.4 | 7.4 | 7.8 | 7.8 | 7.8 | 7.9 | 7.9 | 8.0 | 7.9 | 7.6 | 7.9 | 7.9 | 7.9 | 7.9 | 7.6 |
| 30000 | 7.4 | 7.4 | 7.4 | 7.8 | 7.8 | 7.7 | 7.9 | 7.9 | 8.0 | 7.9 | 7.8 | 8.0 | 7.9 | 7.8 | 7.9 | 7.7 |
| 40000 | 7.4 | 7.4 | 7.4 | 7.8 | 7.8 | 7.8 | 7.9 | 8.0 | 8.0 | 7.9 | 7.7 | 7.9 | 7.9 | 7.8 | 7.9 | 7.7 |
| 50000 | 7.4 | 7.4 | 7.4 | 7.8 | 7.8 | 7.7 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.8 | 7.8 | 7.8 | 7.6 |
| 60000 | 7.4 | 7.4 | 7.4 | 7.8 | 7.8 | 7.8 | 7.9 | 7.9 | 8.0 | 7.9 | 7.8 | 7.9 | 7.8 | 7.8 | 7.9 | 7.7 |
| 70000 | 7.4 | 7.4 | 7.4 | 7.8 | 7.8 | 7.8 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.7 |
| 80000 | 7.4 | 7.4 | 7.4 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 | 7.8 | 7.9 | 7.9 | 7.9 | 7.9 | 7.8 |
| 90000 | 7.4 | 7.4 | 7.4 | 7.9 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 7.8 | 7.7 |
| 100000 | 7.4 | 7.4 | 7.4 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 7.8 | 7.9 | 7.8 | 7.8 | 7.8 | 7.8 |
| 110000 | 7.4 | 7.4 | 7.4 | 8.0 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.1 | 7.9 | 7.9 | 7.9 | 8.0 | 7.7 | 7.9 |
| 120000 | 7.4 | 7.4 | 7.4 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.1 | 8.1 | 7.8 | 7.9 | 7.9 | 7.9 | 7.8 | 7.9 |
| 130000 | 7.4 | 7.4 | 7.4 | 8.1 | 7.9 | 8.0 | 7.9 | 8.0 | 8.1 | 8.0 | 8.0 | 7.9 | 7.9 | 8.0 | 7.9 | 7.9 |
| 140000 | 8.0 | 7.4 | 7.9 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.1 | 7.4 | 7.9 | 7.9 | 8.0 | 8.1 | 7.9 | 8.0 |
| 150000 | 8.0 | 7.4 | 7.9 | 8.0 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 7.9 | 7.8 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 |
| 160000 | 8.0 | 7.4 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 7.9 | 7.9 |
| 170000 | 8.0 | 7.4 | 7.9 | 7.8 | 7.8 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 7.8 | 7.8 |
| 180000 | 8.1 | 7.4 | 7.9 | 8.0 | 7.8 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 7.9 | 7.8 |
| 190000 | 7.5 | 7.4 | 7.8 | 7.9 | 7.8 | 7.9 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 7.9 | 7.8 | 7.8 |
| 200000 | 7.4 | 7.4 | 7.9 | 7.9 | 7.7 | 7.9 | 7.9 | 7.9 | 8.0 | 7.8 | 7.8 | 7.8 | 7.9 | 7.9 | 7.8 | 7.8 |
| 210000 | 7.4 | 7.4 | 7.9 | 8.0 | 7.7 | 7.9 | 7.9 | 7.9 | 8.0 | 7.8 | 7.9 | 7.8 | 7.9 | 7.8 | 7.8 | 7.8 |
| 220000 | 7.4 | 7.4 | 7.8 | 7.9 | 7.8 | 7.9 | 7.9 | 7.9 | 8.0 | 7.7 | 7.9 | 7.9 | 7.9 | 7.9 | 7.8 | 7.8 |
| 230000 | 7.4 | 7.4 | 7.8 | 7.9 | 7.8 | 7.9 | 7.9 | 8.0 | 8.0 | 7.7 | 7.9 | 7.9 | 7.8 | 7.8 | 7.7 | 7.8 |
| Daily Max | 8.1 | 7.4 | 7.9 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 7.9 | 8.0 |
| Daily Min | 7.4 | 7.4 | 7.4 | 7.8 | 7.7 | 7.7 | 7.9 | 7.9 | 8.0 | 7.4 | 7.6 | 7.8 | 7.8 | 7.8 | 7.7 | 7.6 |
| Average | 7.5 | 7.4 | 7.6 | 7.9 | 7.8 | 7.9 | 7.9 | 8.0 | 8.0 | 7.9 | 7.8 | 7.9 | 7.9 | 7.9 | 7.8 | 7.8 |

License maximum pH: 9

License minimum pH: 6

High Falls Tailrace pH Summary - July 2018

| Time | 07/17/18 | 07/18/18 | 07/19/18 | 07/20/18 | 07/21/18 | 07/22/18 | 07/23/18 | 07/24/18 | 07/25/18 | 07/26/18 | 07/27/18 | 07/28/18 | 07/29/18 | 07/30/18 | 07/31/18 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| HHMMSS | | | | | | | | | | | | | | | |
| 0 | 7.8 | 7.8 | 7.9 | 8.1 | 8.2 | 8.0 | 8.0 | 7.8 | 7.8 | 8.0 | 7.8 | 7.9 | 8.0 | 8.0 | 8.0 |
| 10000 | 7.8 | 7.7 | 7.9 | 8.1 | 8.2 | 8.0 | 8.0 | 7.8 | 7.7 | 8.1 | 7.7 | 7.9 | 8.0 | 8.1 | 8.0 |
| 20000 | 7.8 | 7.7 | 7.9 | 8.1 | 8.2 | 8.0 | 8.0 | 7.7 | 7.8 | 8.1 | 7.7 | 7.9 | 8.0 | 8.1 | 8.0 |
| 30000 | 7.8 | 7.8 | 7.9 | 8.1 | 8.2 | 8.0 | 8.0 | 7.8 | 7.8 | 8.1 | 7.8 | 7.9 | 8.0 | 8.0 | 8.0 |
| 40000 | 7.8 | 8.0 | 8.0 | 8.2 | 7.8 | 8.0 | 7.9 | 7.9 | 8.0 | 7.7 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| 50000 | 7.8 | 8.0 | 8.0 | 8.2 | 7.9 | 8.0 | 7.9 | 7.8 | 8.0 | 7.8 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 60000 | 7.8 | 7.9 | 8.0 | 8.2 | 7.9 | 8.0 | 7.9 | 7.9 | 8.0 | 7.8 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 70000 | 7.8 | 7.9 | 8.1 | 8.2 | 7.9 | 8.0 | 7.9 | 7.8 | 8.0 | 7.7 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 80000 | 7.8 | 8.0 | 8.1 | 8.2 | 7.9 | 8.0 | 7.9 | 7.8 | 8.0 | 7.7 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 |
| 90000 | 7.8 | 8.0 | 8.1 | 8.2 | 8.0 | 8.0 | 7.9 | 7.9 | 8.1 | 7.8 | 7.9 | 8.0 | 8.1 | 8.1 | 8.1 |
| 100000 | 8.0 | 8.0 | 8.1 | 8.2 | 8.0 | 8.1 | 7.9 | 7.9 | 8.1 | 7.8 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| 110000 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.1 | 7.7 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 |
| 120000 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.1 | 8.0 | 7.8 | 8.1 | 7.7 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| 130000 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.1 | 8.0 | 7.8 | 8.1 | 7.8 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| 140000 | 8.1 | 8.0 | 8.1 | 8.1 | 8.0 | 8.1 | 8.0 | 7.9 | 8.1 | 7.7 | 8.0 | 8.1 | 8.1 | 8.1 | 8.2 |
| 150000 | 8.0 | 8.0 | 8.1 | 8.2 | 8.1 | 8.1 | 8.0 | 7.7 | 8.1 | 7.9 | 8.0 | 8.1 | 8.1 | 8.0 | 8.1 |
| 160000 | 8.0 | 8.0 | 8.1 | 8.2 | 8.1 | 8.1 | 8.0 | 7.8 | 8.1 | 7.7 | 8.0 | 8.1 | 8.1 | 8.1 | 8.2 |
| 170000 | 8.0 | 8.0 | 8.1 | 8.2 | 8.1 | 8.1 | 8.0 | 7.8 | 8.1 | 7.7 | 8.0 | 8.1 | 8.2 | 8.1 | 8.1 |
| 180000 | 7.9 | 8.0 | 8.1 | 8.2 | 8.1 | 8.1 | 7.9 | 7.8 | 8.1 | 7.8 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| 190000 | 7.9 | 8.0 | 8.1 | 8.2 | 8.1 | 8.1 | 7.9 | 7.8 | 8.0 | 7.8 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| 200000 | 7.8 | 8.0 | 8.0 | 8.2 | 8.0 | 8.0 | 7.9 | 7.7 | 8.0 | 7.8 | 7.9 | 8.1 | 8.1 | 8.0 | 8.0 |
| 210000 | 7.8 | 7.9 | 8.0 | 8.2 | 8.0 | 8.0 | 7.9 | 7.7 | 8.0 | 7.7 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 |
| 220000 | 7.8 | 7.9 | 8.0 | 8.2 | 8.0 | 8.0 | 7.8 | 7.7 | 8.1 | 7.8 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| 230000 | 7.8 | 7.9 | 8.1 | 8.1 | 8.0 | 8.0 | 7.8 | 7.8 | 8.0 | 7.7 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| Daily Max | 8.1 | 8.0 | 8.1 | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.1 | 8.2 | 8.1 | 8.2 |
| Daily Min | 7.8 | 7.7 | 7.9 | 8.0 | 7.8 | 8.0 | 7.8 | 7.7 | 7.7 | 7.7 | 7.7 | 7.9 | 8.0 | 8.0 | 8.0 |
| Average | 7.9 | 7.9 | 8.0 | 8.1 | 8.0 | 8.0 | 7.9 | 7.8 | 8.0 | 7.8 | 7.9 | 8.0 | 8.1 | 8.1 | 8.1 |

High Falls Tailrace pH Summary - August 2018

| Time HHMMSS | 08/01/18 | 08/02/18 | 08/03/18 | 08/04/18 | 08/05/18 | 08/06/18 | 08/07/18 | 08/08/18 | 08/09/18 | 08/10/18 | 08/11/18 | 08/12/18 | 08/13/18 | 08/14/18 | 08/15/18 | 08/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 |
| 10000 | 8.0 | 8.1 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 |
| 20000 | 8.0 | 8.1 | 7.9 | 8.0 | 8.0 | 8.0 | 8.1 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 |
| 30000 | 8.0 | 8.1 | 7.9 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 |
| 40000 | 8.0 | 8.0 | 7.9 | 8.0 | 8.0 | 7.9 | 8.0 | 7.9 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 |
| 50000 | 8.0 | 8.0 | 7.9 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 |
| 60000 | 8.0 | 8.1 | 7.9 | 8.0 | 8.0 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 |
| 70000 | 8.0 | 8.1 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.2 |
| 80000 | 8.1 | 8.1 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 90000 | 8.1 | 8.2 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.2 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.2 |
| 100000 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 | 8.1 | 8.2 | 8.1 | 8.1 | 8.1 | 8.2 |
| 110000 | 8.1 | 8.2 | 8.0 | 8.1 | 8.1 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 | 8.2 | 8.2 | 8.1 | 8.2 | 8.1 | 8.1 |
| 120000 | 8.0 | 8.1 | 8.1 | 8.2 | 8.1 | 8.0 | 8.1 | 8.1 | 8.3 | 8.2 | 8.2 | 8.2 | 8.1 | 8.2 | 8.2 | 8.2 |
| 130000 | 8.1 | 8.1 | 8.1 | 8.2 | 8.1 | 8.0 | 8.1 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.1 | 8.1 | 8.2 |
| 140000 | 8.1 | 8.2 | 8.0 | 8.2 | 8.1 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 | 8.1 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 |
| 150000 | 8.2 | 8.1 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 |
| 160000 | 8.1 | 8.1 | 8.0 | 8.1 | 8.1 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 |
| 170000 | 8.1 | 8.1 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.2 | 8.2 | 8.2 | 8.1 | 8.1 | 8.2 | 8.1 | 8.2 |
| 180000 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.2 | 8.1 | 8.2 | 8.1 | 8.1 | 8.1 | 8.1 | 8.2 |
| 190000 | 8.1 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 |
| 200000 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 | 7.9 | 8.0 | 8.1 | 8.0 | 8.1 | 8.0 |
| 210000 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 8.0 | 8.1 | 8.1 | 8.0 | 8.1 | 8.0 | 8.0 | 8.1 | 8.0 |
| 220000 | 8.0 | 8.0 | 8.0 | 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 |
| 230000 | 8.1 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 |
| Daily Max | 8.2 | 8.2 | 8.1 | 8.2 | 8.1 | 8.1 | 8.1 | 8.2 | 8.3 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 |
| Daily Min | 8.0 | 8.0 | 7.9 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| Average | 8.0 | 8.1 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 |

License maximum pH: 9

License minimum pH: 6

High Falls Tailrace pH Summary - August 2018

| Time | 08/17/18 | 08/18/18 | 08/19/18 | 08/20/18 | 08/21/18 | 08/22/18 | 08/23/18 | 08/24/18 | 08/25/18 | 08/26/18 | 08/27/18 | 08/28/18 | 08/29/18 | 08/30/18 | 08/31/18 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 8.0 | 8.1 | 8.1 | 8.2 | 8.3 | 8.1 | 8.2 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 7.9 | 8.0 | 8.1 |
| 10000 | 8.0 | 8.1 | 8.2 | 8.2 | 8.3 | 8.1 | 8.2 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 8.1 |
| 20000 | 8.1 | 8.2 | 8.2 | 8.2 | 8.3 | 8.1 | 8.1 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 8.1 |
| 30000 | 8.1 | 8.1 | 8.2 | 8.2 | 8.3 | 8.1 | 8.1 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 8.0 |
| 40000 | 8.1 | 8.3 | 8.2 | 8.1 | 8.2 | 8.2 | 8.1 | 8.1 | 8.0 | 7.8 | 8.0 | 7.9 | 7.9 | 8.1 | 8.1 |
| 50000 | 8.1 | 8.3 | 8.2 | 8.2 | 8.2 | 8.2 | 8.1 | 8.1 | 7.9 | 7.9 | 8.0 | 7.9 | 7.9 | 8.0 | 8.1 |
| 60000 | 8.1 | 8.3 | 8.2 | 8.2 | 8.2 | 8.2 | 8.1 | 8.1 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 |
| 70000 | 8.0 | 8.3 | 8.2 | 8.2 | 8.2 | 8.2 | 8.1 | 8.1 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 |
| 80000 | 8.2 | 8.3 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.2 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 8.1 | 8.2 |
| 90000 | 8.2 | 8.4 | 8.3 | 8.3 | 8.2 | 8.2 | 8.2 | 8.2 | 8.0 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.2 |
| 100000 | 8.2 | 8.4 | 8.3 | 8.3 | 8.2 | 8.3 | 8.2 | 8.2 | 8.1 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.2 |
| 110000 | 8.3 | 8.4 | 8.3 | 8.3 | 8.3 | 8.3 | 8.2 | 8.2 | 8.1 | 7.9 | 8.0 | 7.9 | 8.0 | 8.1 | 8.2 |
| 120000 | 8.2 | 8.4 | 8.4 | 8.3 | 8.2 | 8.3 | 8.2 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 130000 | 8.3 | 8.4 | 8.4 | 8.3 | 8.2 | 8.3 | 8.2 | 8.2 | 8.1 | 8.0 | 8.1 | 8.0 | 8.0 | 8.1 | 8.2 |
| 140000 | 8.3 | 8.4 | 8.3 | 8.3 | 8.2 | 8.3 | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 150000 | 8.2 | 8.4 | 8.4 | 8.3 | 8.2 | 8.3 | 8.2 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 160000 | 8.2 | 8.4 | 8.3 | 8.3 | 8.2 | 8.3 | 8.2 | 8.1 | 8.2 | 7.9 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 170000 | 8.1 | 8.4 | 8.3 | 8.2 | 8.2 | 8.3 | 8.2 | 8.1 | 8.1 | 7.9 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 180000 | 8.1 | 8.3 | 8.3 | 8.2 | 8.2 | 8.3 | 8.2 | 8.1 | 8.1 | 7.9 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 190000 | 8.0 | 8.3 | 8.3 | 8.3 | 8.2 | 8.2 | 8.1 | 8.1 | 8.1 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 | 8.2 |
| 200000 | 8.0 | 8.2 | 8.2 | 8.3 | 8.2 | 8.2 | 8.1 | 8.1 | 8.1 | 7.9 | 8.0 | 7.9 | 8.0 | 8.1 | 8.2 |
| 210000 | 8.0 | 8.1 | 8.2 | 8.3 | 8.2 | 8.2 | 8.1 | 8.1 | 8.1 | 7.8 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 220000 | 8.0 | 8.2 | 8.2 | 8.3 | 8.1 | 8.2 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |
| 230000 | 8.0 | 8.1 | 8.2 | 8.3 | 8.2 | 8.2 | 8.1 | 8.1 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.2 |
| Daily Max | 8.3 | 8.4 | 8.4 | 8.3 | 8.3 | 8.3 | 8.2 | 8.2 | 8.2 | 8.0 | 8.1 | 8.0 | 8.0 | 8.1 | 8.2 |
| Daily Min | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 7.9 | 7.8 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 |
| Average | 8.1 | 8.3 | 8.3 | 8.2 | 8.2 | 8.2 | 8.2 | 8.1 | 8.1 | 7.9 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 |

High Falls Tailrace pH Summary - September 2018

| Time HHMMSS | 09/01/18 | 09/02/18 | 09/03/18 | 09/04/18 | 09/05/18 | 09/06/18 | 09/07/18 | 09/08/18 | 09/09/18 | 09/10/18 | 09/11/18 | 09/12/18 | 09/13/18 | 09/14/18 | 09/15/18 | 09/16/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 8.1 | 8.0 | 8.1 | 8.2 | 8.0 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 |
| 10000 | 8.1 | 8.1 | 8.1 | 8.2 | 8.0 | 7.9 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 |
| 20000 | 8.1 | 8.0 | 8.1 | 8.2 | 8.0 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.1 |
| 30000 | 8.1 | 8.1 | 8.1 | 8.2 | 8.0 | 7.9 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 |
| 40000 | 8.1 | 8.1 | 8.1 | 8.1 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.1 |
| 50000 | 8.0 | 8.1 | 8.1 | 8.1 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.1 |
| 60000 | 8.0 | 8.1 | 8.1 | 8.1 | 7.8 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 |
| 70000 | 8.0 | 8.1 | 8.1 | 8.1 | 7.7 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 |
| 80000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.7 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 |
| 90000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.8 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 |
| 100000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.9 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 |
| 110000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.9 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 |
| 120000 | 8.1 | 8.2 | 8.3 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 |
| 130000 | 8.2 | 8.2 | 8.3 | 8.1 | 7.9 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.2 | 8.1 | 8.2 | 8.2 |
| 140000 | 8.2 | 8.2 | 8.3 | 8.1 | 7.9 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.2 | 8.2 | 8.2 |
| 150000 | 8.2 | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.2 | 8.2 | 8.2 |
| 160000 | 8.2 | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 |
| 170000 | 8.1 | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.2 | 8.2 |
| 180000 | 8.1 | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.2 | 8.1 |
| 190000 | 8.1 | 8.2 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.1 |
| 200000 | 8.1 | 8.2 | 8.2 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.1 |
| 210000 | 8.1 | 8.1 | 8.2 | 8.0 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.0 | 8.1 | 8.1 |
| 220000 | 8.1 | 8.1 | 8.2 | 8.0 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.0 | 8.1 | 8.1 |
| 230000 | 8.0 | 8.1 | 8.2 | 8.1 | 8.0 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.1 |
| Daily Max | 8.2 | 8.2 | 8.3 | 8.2 | 8.0 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 7.9 | 8.0 | 8.2 | 8.2 | 8.2 | 8.2 |
| Daily Min | 8.0 | 8.0 | 8.1 | 8.0 | 7.7 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 |
| Average | 8.1 | 8.1 | 8.2 | 8.1 | 7.9 | 8.0 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 7.9 | 8.0 | 8.1 | 8.1 | 8.1 |

License maximum pH: 9
 License minimum pH: 6

High Falls Tailrace pH Summary - September 2018

| Time HHMMSS | 09/17/18 | 09/18/18 | 09/19/18 | 09/20/18 | 09/21/18 | 09/22/18 | 09/23/18 | 09/24/18 | 09/25/18 | 09/26/18 | 09/27/18 | 09/28/18 | 09/29/18 | 09/30/18 |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0 | 8.1 | 8.2 | 8.1 | 8.1 | 8.1 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 |
| 10000 | 8.1 | 8.2 | 8.1 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 |
| 20000 | 8.1 | 8.2 | 8.1 | 8.1 | 8.1 | 7.9 | 8.0 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 |
| 30000 | 8.1 | 8.2 | 8.1 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 |
| 40000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 50000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 60000 | 8.1 | 8.1 | 8.2 | 8.1 | 7.8 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 70000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.8 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 80000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| 90000 | 8.1 | 8.2 | 8.2 | 8.1 | 7.9 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| 100000 | 8.1 | 8.1 | 8.2 | 8.2 | 7.8 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 |
| 110000 | 8.1 | 8.1 | 8.2 | 8.2 | 7.9 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 8.0 |
| 120000 | 8.1 | 8.1 | 8.2 | 8.2 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| 130000 | 8.2 | 8.1 | 8.2 | 8.2 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| 140000 | 8.1 | 8.1 | 8.2 | 8.2 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| 150000 | 8.1 | 8.1 | 8.2 | 8.2 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.0 | 8.1 | 8.1 |
| 160000 | 8.2 | 8.2 | 8.2 | 8.2 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 8.0 | 8.1 | 8.1 | 8.0 | 8.1 |
| 170000 | 8.1 | 8.2 | 8.2 | 8.2 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 | 8.1 |
| 180000 | 8.2 | 8.1 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| 190000 | 8.2 | 8.1 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 200000 | 8.3 | 8.0 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.1 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 210000 | 8.3 | 8.1 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| 220000 | 8.3 | 8.1 | 8.1 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| 230000 | 8.2 | 8.1 | 8.1 | 8.1 | 8.0 | 8.0 | 8.1 | 8.1 | 8.0 | 7.9 | 8.0 | 8.0 | 8.0 | 8.0 |
| Daily Max | 8.3 | 8.2 | 8.2 | 8.2 | 8.1 | 8.0 | 8.1 | 8.1 | 8.1 | 8.0 | 8.1 | 8.1 | 8.1 | 8.1 |
| Daily Min | 8.1 | 8.0 | 8.1 | 8.1 | 7.8 | 7.9 | 8.0 | 8.0 | 8.0 | 7.9 | 7.9 | 8.0 | 8.0 | 8.0 |
| Average | 8.1 | 8.1 | 8.2 | 8.1 | 8.0 | 8.0 | 8.0 | 8.1 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |

Attachment B

Documentation of Agency Consultation

From: [Metcalf, Mark W](#)
To: [Laatsch, Cheryl](#); [Utrup, Nick](#)
Cc: [Hudak, Andy](#); [Brandt, Edward S](#); [Bosacki, William K](#); [Grisar, Mike L](#)
Subject: WPS High Falls hydroelectric project - Annual water quality monitoring report (FERC No. 2595)
Date: Wednesday, October 10, 2018 12:50:24 PM
Attachments: [20181010 HIF Annual WQM Rpt.pdf](#)
[High Falls Bridge DO Summary 2018.xlsx](#)
[High Falls Bridge pH Summary 2018.xlsx](#)
[High Falls Bridge Temp Summary 2018.xlsx](#)

Good afternoon 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 2018 monitoring season for your review and comment. During the 2018 monitoring season, no deviations from the water quality standards for dissolved oxygen, pH, or temperature were observed. One period of non-representative DO monitoring data was observed in August, which was reported to you on August 22.

As identified in the monitoring plan, the monitoring data is being provided 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

office: 920-433-1833

mobile: 920-246-2717

Please note my email address has changed: mark.metcalf@wecenergygroup.com



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

October 10, 2018

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: 2018 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 2018 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

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.

During the 2018 monitoring season, there was one period in August when non-representative DO data was recorded. On August 19, DO concentrations suddenly dropped below 5.0 mg/L between readings at 21:00 and 22:00. Data readings returned above 5.0 mg/L by 01:00 on August 20, and again dropped below 5.0 mg/L by 23:00 that evening. On August 21, the datasonde was changed out with a clean datasonde after the 11:00 reading. It was discovered that the low DO readings was due to excessive biofouling of the DO sensor. Immediately following exchanging monitoring equipment, DO readings returned to approximately 8.0 mg/L. No other potential deviations from the DO, pH, or temperature water quality standards were observed during the monitoring season.

Enclosed with this report are excel spreadsheets containing the monitoring data, in both tabular and graphical format, with the periods of missing data identified. 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,



Mark Metcalf
Principal Environmental Consultant

Enc.

cc: Mr. Ed Brandt - WPS
Mr. Bill Bosacki – WPS
Mr. Mike Grisar - WBS

Response to Comments from the Wisconsin Department of Natural Resources

The Wisconsin Department of Natural Resources did not provide comments on the 2018 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 2018 water quality monitoring report.