We Energies
Iron Mountain Hydro Operations
800 Industrial Park Drive
Iron Mountain, MI 49801
Phone 906-779-2400
www.we-energies.com

December 18, 2018

Ms. Kimberly Bose, Secretary
Federal Energy Regulatory Commission
Division of Licensing and Compliance
888 First Street NE
Washington, DC 20426

Dear Ms. Bose,

SUBJECT: Water Quality Monitoring Report

Hydro	FERC Project No.	NATDAM No.	License Article
Twin Falls	**11831**	**MI00143**	**423**

In accordance with the FERC Order Amending License and Revising Annual Charges, dated September 27, 2013, Wisconsin Electric Power Company (d.b.a We Energies) is submitting water quality monitoring data collected during the 2018 monitoring season at the Twin Falls hydroelectric project (Project).

The water quality standards for the Project can be found in the Wilderness Shores Settlement Agreement (WSSA), dated February 10, 1997. We Energies is required to ensure that flow releases from the Project maintain the state standards listed below when flows are greater than or equal to the 95 percent exceedance values:

(1) Wisconsin Electric shall not discharge water that exceeds the following maximum temperature water quality standard in degrees Fahrenheit (F):

January	38°F	July	83°F
February	38°F	August	81°F
March	41°F	September	74°F
April	56°F	October	64°F
May	70°F	November	49°F
June	80°F	December	39°F

(2) Wisconsin Electric shall not warm the Menominee River below the Project greater than 5 F above the existing water temperatures measured above the Project.

(3) Wisconsin Electric shall not cause the dissolved oxygen (DO) concentration, measured immediately downstream of the Project to be less than 5 mg/l.

In accordance with the requirements found in Article 423 of the Project license, water temperature and DO were monitored at two locations downstream of the Project: within the new tailrace and at another location downstream of where the Project's tailrace flow becomes riverine. In addition to the license required monitoring, vertical dissolved oxygen and temperature profiles were conducted upstream of the facility near the powerhouse intake.

Monitoring for DO and temperature was conducted from June 1 through September 30 with values recorded every hour using portable water quality monitoring equipment manufactured by YSI, Inc. The instrumentation was cleaned and calibrated according to the manufacturer specifications on a bi-weekly basis during the monitoring period. A post deployment calibration was conducted to determine the extent of calibration drift. Raw data for the prior monitoring period was adjusted assuming a linear degradation of calibration based upon a post calibration of the equipment. Monitoring data for calendar year 2018 can be found in Attachment 1. Monitoring equipment quality assurance documentation is included in Attachment 2.

2018 Monitoring Results

During the 2018 water quality monitoring season there were no deviations from the DO water quality standard. DO readings were above 6.0 mg/l at all times at both monitoring locations. A brief period of non-representative data was observed at the tailrace monitoring location in early August due to an equipment failure. Notification of the equipment malfunction was provided to members of the Wilderness Shores Implementation Team (WSIT)[1] on August 9, 2018. Monitoring data collected shows that DO concentrations were relatively consistent between the two monitoring locations. Hourly DO reading differences ranging from -0.7 mg/l to +0.6 mg/l, with median difference of 0.0 mg/l. A graphical comparison of the hourly DO monitoring data from the tailrace and downstream monitoring locations can be found in Attachment 1, Figures 2 through 5.

Vertical profile readings near the powerhouse intake showed that DO levels in the upstream impoundment were above the water quality standard at all depths throughout the monitoring season. Stratification of the impoundment near the intake was not observed. A comparison of the average vertical profile DO data to the daily average DO concentration measured downstream of the powerhouse shows that the operation of the facility is not adversely impacting dissolved oxygen levels downstream of the project.

Table 1: Average DO (mg/L) by monitoring location

Profile Date	Vertical Profile, Average Reservoir DO	Daily Average Tailrace DO	Daily Average Downstream DO
6/14/18	7.6	7.7	7.7
6/29/18	6.8	7.1	7.0
7/12/18	6.3	6.6	6.5
7/25/18	7.6	7.6	7.5
8/8/18	7.7	7.7	7.5
8/15/18	6.9	7.1	7.1

1 – The Wilderness Shores Implementation Team consists of representatives from Wisconsin Electric Power Company, Michigan Department of Natural Resources, Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, National Parks Service, River Alliance of Wisconsin, and the Michigan Hydro Relicensing Coalition.

8/29/18	7.3	7.3	7.3
9/11/18	7.6	7.7	7.6
9/25/18	7.7	7.8	7.8

Temperature

No deviations from the monthly temperature water quality standards were observed during the monitoring season. A comparison of the tailrace and downstream temperature data is provided in Attachment 1, Figures 6 through 9. The comparison of the monitoring data shows that water temperatures were stable between the tailrace and downstream monitoring locations, with only slight differences observed. Temperature differences between the two monitoring locations ranged from +1.1°F to -2.0°F, with a median temperature difference of 0.2°F. Vertical profile readings near the powerhouse intake showed water temperatures in the upstream impoundment were below the monthly temperature water quality standards at all depths throughout the monitoring season.

Please note that the profile data does not indicate the presence of thermal stratification near the powerhouse intake. A comparison of the average water temperature from the vertical profile data (average temperature over all depths) to daily average monitoring data from the continuous monitoring locations is provided in Table 2.

Table 2: Average Temperature (°F) by monitoring location

Profile Date	Average Reservoir Temp.	Daily Average Tailrace Temp.	Daily Average Downstream Temp.
6/14/18	66.7	67.1	67.3
6/29/18	71.7	72.5	72.6
7/12/18	75.8	75.2	74.6
7/25/18	75.3	75.1	74.7
8/08/18	73.4	73.0	72.9
8/15/18	75.2	75.4	75.1
8/29/18	70.9	70.7	70.3
9/11/18	65.7	66.2	66.2
9/25/18	63.2	63.0	63.0

Agency Consultation

The 2018 monitoring season results were provided to the members of the WSIT for review and comment on October 29, 2018. The Wisconsin Department of Natural Resources (WDNR) and Michigan Hydro Relicensing Coalition (MHRC) provided comments on the 2018 monitoring report. No other comments were received from the team members. Documentation of Agency Consultation and responses to agency comments can be found in Attachment 3.

Future Monitoring

As required by Article 423 of the Project license, We Energies has conducted two years of water quality monitoring in the tailrace and downstream of the Project where the Project's tailrace flow becomes riverine. The Project withdraws water from the entire water column of the upstream reservoir, not just the hypolimnion or epilimnion. A benefit of this configuration is that it promotes mixing of water as it passes through the powerhouse, which minimizes the potential for low DO levels or elevated water

temperatures downstream of the Project in the event the upstream reservoir is stratified near the intake. Monitoring over the past two years has demonstrated that the operation and maintenance of the Project has not caused a violation of Wisconsin Water Quality Standards. Therefore, We Energies proposes to eliminate water quality monitoring at the Project. Future monitoring could be re-established as conditions warrant as allowed per the 401 Certification and condition 4.1.14 of the WSSA.

The MHRC responded to the 2018 water quality monitoring report and commented that they have no concerns with eliminating monitoring at this time. The WDNR provided a comment recommending an additional two years of temperature monitoring at a location upstream and downstream of the Project. We respectfully disagree with the WDNR recommendation and believe the company has met the requirements of Article 423 of the Project License and that no further monitoring is necessary at this time.

Should you have any questions regarding this submittal, please do not hesitate to contact Mr. Mark Metcalf at (920) 433-1833 or by email at mark.metcalf@wecenergygroup.com.

Sincerely,

Todd Jastremski
Asset Manager Hydro Operations

MWM

Enc: Attachment 1 - 2018 Water Quality Monitoring Data (65 pages)
Attachment 2 - Monitoring Equipment Quality Assurance Data (53 pages)
Attachment 3 - Documentation of Agency Consultation (13 pages)

cc: John Zygaj – FERC CRO
Elle Gulotty – MDNR
Amira Oun – MDEQ
Cheryl Laatsch – WDNR
Nicholas Utrup – USFW
Angie Tornes – NPS
Bob Stuber - MHRC
Jim Fossum – RAW

Twin Falls Hydroelectric Project

FERC Project No. 11831

2018 Water Quality Monitoring Report

Monitoring Data

Figures

Twin Falls Hydroelectric Project - 2018 Water Quality Monitoring Locations

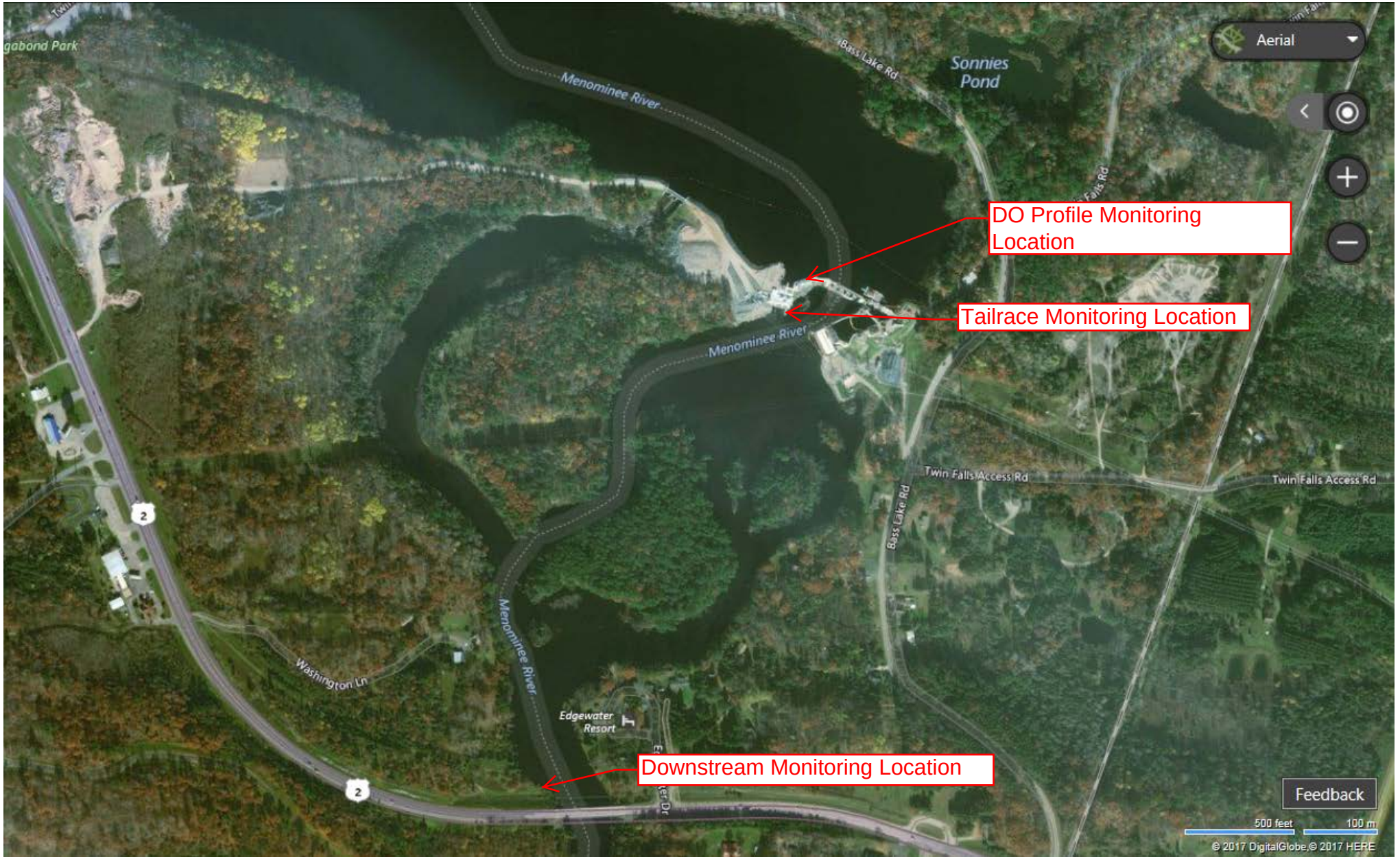
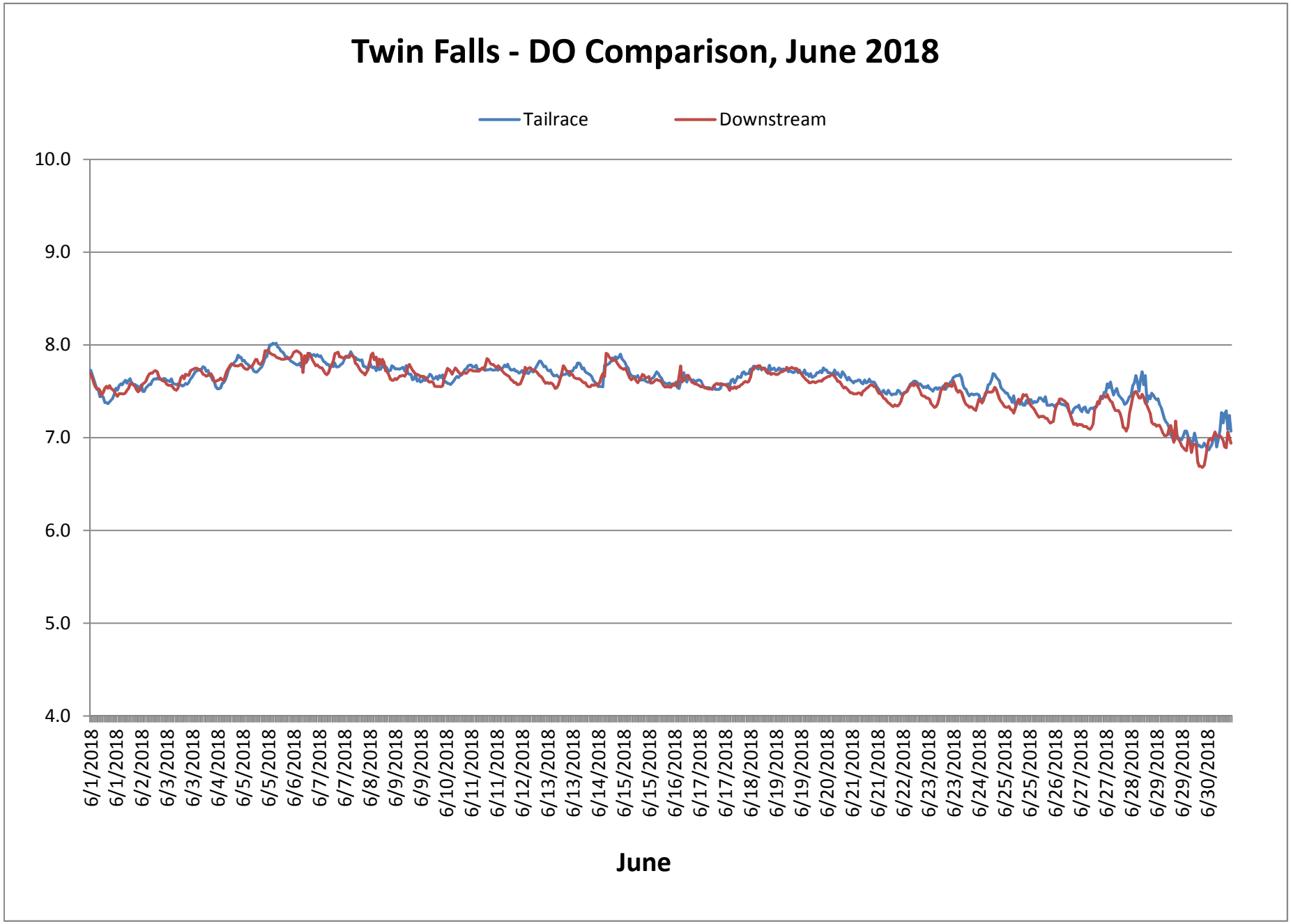


Figure 2


Twin Falls - DO Comparison, June 2018
Tailrace
Downstream
10.0
9.0
8.0
7.0
6.0
5.0
4.0
6/1/2018
6/1/2018
6/2/2018
6/3/2018
6/3/2018
6/4/2018
6/5/2018
6/5/2018
6/6/2018
6/7/2018
6/7/2018
6/8/2018
6/9/2018
6/9/2018
6/10/2018
6/11/2018
6/11/2018
6/12/2018
6/13/2018
6/13/2018
6/14/2018
6/15/2018
6/15/2018
6/16/2018
6/17/2018
6/17/2018
6/18/2018
6/19/2018
6/19/2018
6/20/2018
6/21/2018
6/21/2018
6/22/2018
6/23/2018
6/23/2018
6/24/2018
6/25/2018
6/25/2018
6/26/2018
6/27/2018
6/27/2018
6/28/2018
6/29/2018
6/29/2018
6/30/2018
June

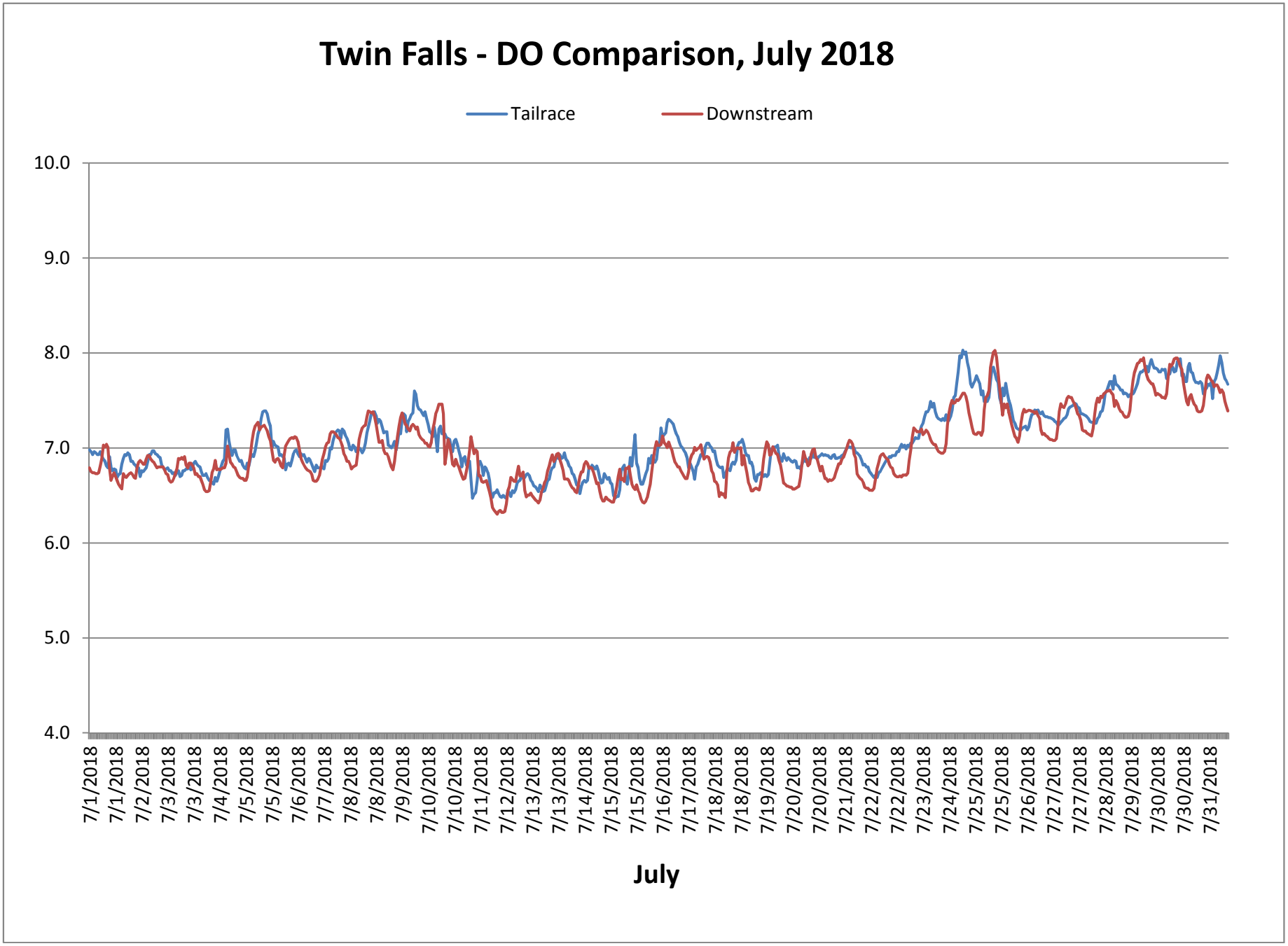

Twin Falls - DO Comparison, July 2018
Tailrace
Downstream
10.0
9.0
8.0
7.0
6.0
5.0
4.0
7/1/2018
7/1/2018
7/2/2018
7/3/2018
7/3/2018
7/4/2018
7/5/2018
7/5/2018
7/6/2018
7/7/2018
7/8/2018
7/8/2018
7/9/2018
7/10/2018
7/10/2018
7/11/2018
7/12/2018
7/13/2018
7/13/2018
7/14/2018
7/15/2018
7/15/2018
7/16/2018
7/17/2018
7/18/2018
7/18/2018
7/19/2018
7/20/2018
7/20/2018
7/21/2018
7/22/2018
7/22/2018
7/23/2018
7/24/2018
7/25/2018
7/25/2018
7/26/2018
7/27/2018
7/27/2018
7/28/2018
7/29/2018
7/30/2018
7/30/2018
7/31/2018
July

Figure 4

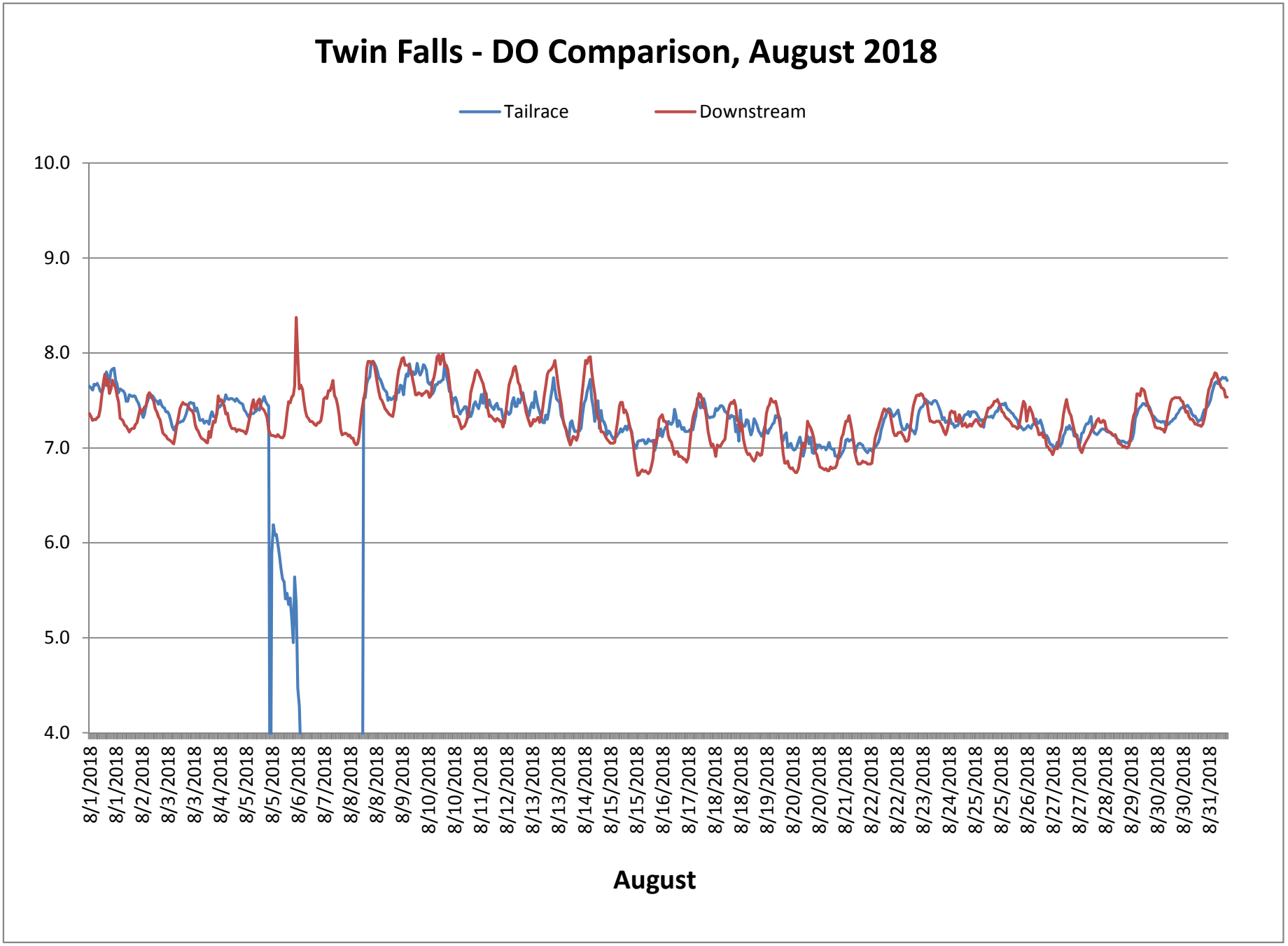

Twin Falls - DO Comparison, August 2018
Tailrace
Downstream
10.0
9.0
8.0
7.0
6.0
5.0
4.0
8/1/2018
8/1/2018
8/2/2018
8/3/2018
8/3/2018
8/4/2018
8/5/2018
8/5/2018
8/6/2018
8/7/2018
8/8/2018
8/8/2018
8/9/2018
8/10/2018
8/10/2018
8/11/2018
8/12/2018
8/13/2018
8/13/2018
8/14/2018
8/15/2018
8/15/2018
8/16/2018
8/17/2018
8/18/2018
8/18/2018
8/19/2018
8/20/2018
8/20/2018
8/21/2018
8/22/2018
8/22/2018
8/23/2018
8/24/2018
8/25/2018
8/25/2018
8/26/2018
8/27/2018
8/27/2018
8/28/2018
8/29/2018
8/30/2018
8/30/2018
8/31/2018
August

Figure 5

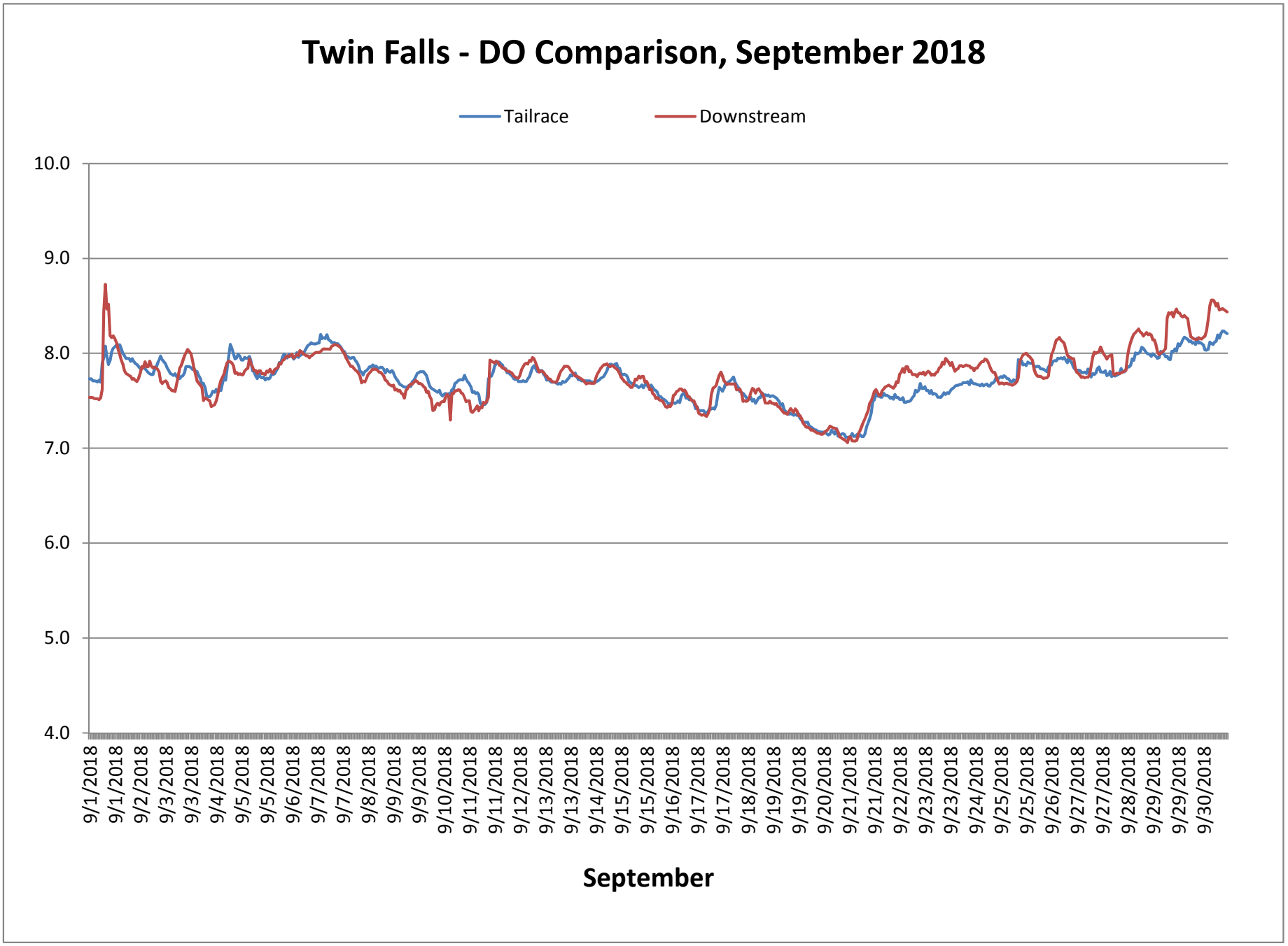

Twin Falls - DO Comparison, September 2018
Tailrace
Downstream
10.0
9.0
8.0
7.0
6.0
5.0
4.0
9/1/2018
9/1/2018
9/2/2018
9/3/2018
9/3/2018
9/4/2018
9/5/2018
9/5/2018
9/6/2018
9/7/2018
9/7/2018
9/8/2018
9/9/2018
9/9/2018
9/10/2018
9/11/2018
9/11/2018
9/12/2018
9/13/2018
9/13/2018
9/14/2018
9/15/2018
9/15/2018
9/16/2018
9/17/2018
9/17/2018
9/18/2018
9/19/2018
9/19/2018
9/20/2018
9/21/2018
9/21/2018
9/22/2018
9/23/2018
9/23/2018
9/24/2018
9/25/2018
9/25/2018
9/26/2018
9/27/2018
9/27/2018
9/28/2018
9/29/2018
9/29/2018
9/30/2018
September

Figure 6

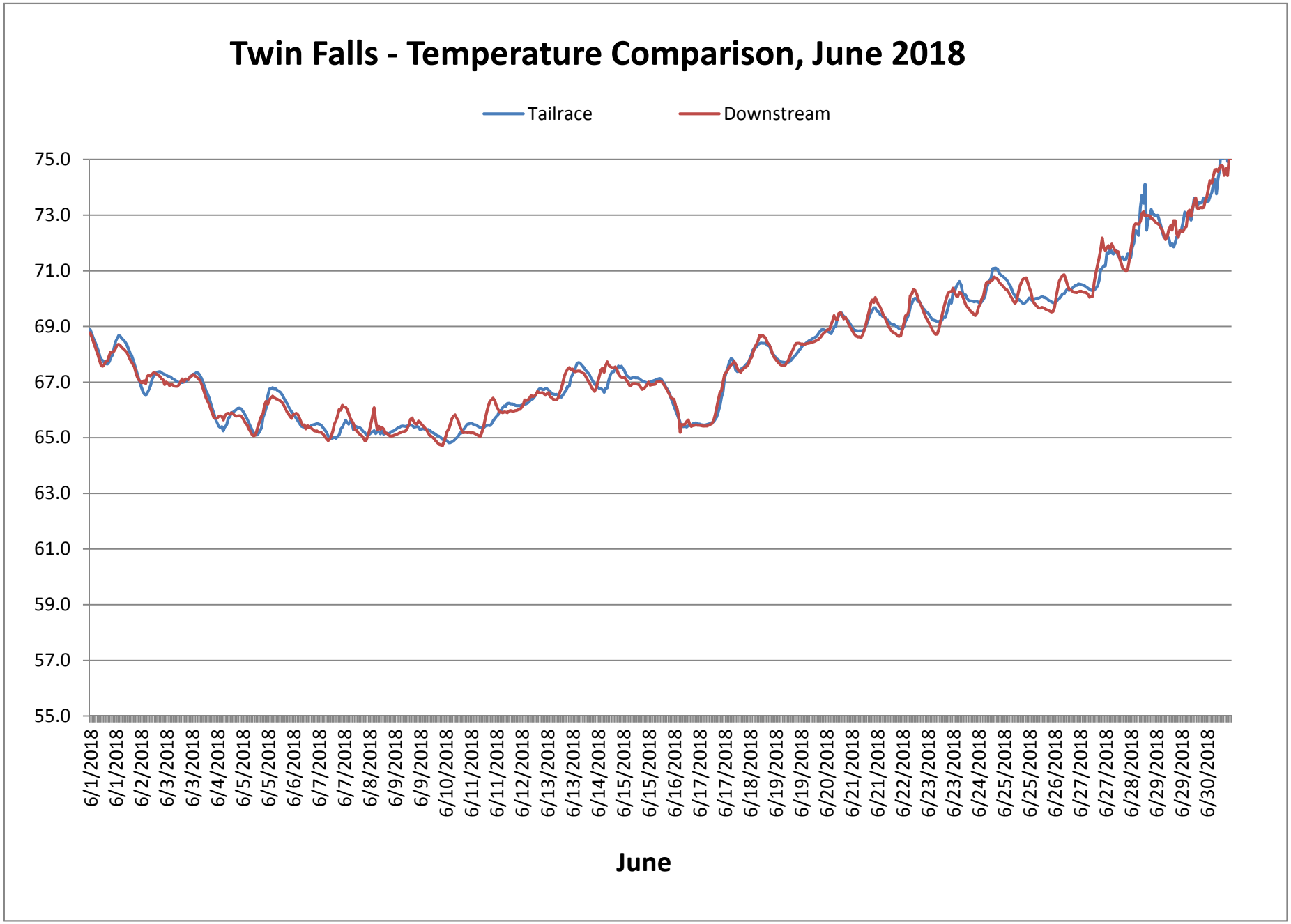

Twin Falls - Temperature Comparison, June 2018
Tailrace
Downstream
75.0
73.0
71.0
69.0
67.0
65.0
63.0
61.0
59.0
57.0
55.0
6/1/2018
6/1/2018
6/2/2018
6/3/2018
6/3/2018
6/4/2018
6/5/2018
6/5/2018
6/6/2018
6/7/2018
6/7/2018
6/8/2018
6/9/2018
6/9/2018
6/10/2018
6/11/2018
6/11/2018
6/12/2018
6/13/2018
6/13/2018
6/14/2018
6/15/2018
6/15/2018
6/16/2018
6/17/2018
6/17/2018
6/18/2018
6/19/2018
6/19/2018
6/20/2018
6/21/2018
6/21/2018
6/22/2018
6/23/2018
6/23/2018
6/24/2018
6/25/2018
6/25/2018
6/26/2018
6/27/2018
6/27/2018
6/28/2018
6/29/2018
6/29/2018
6/30/2018
June

Figure 7

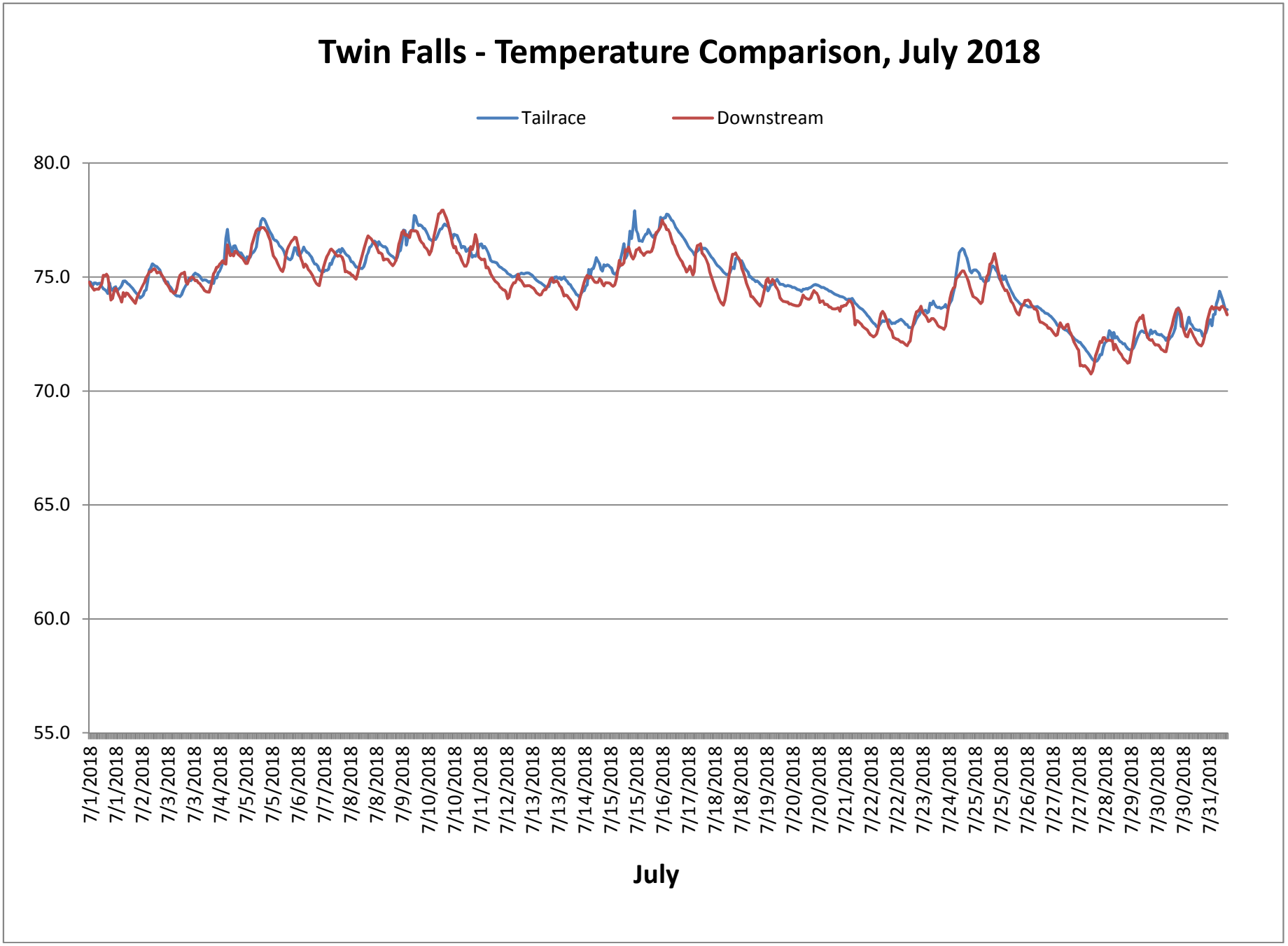

Twin Falls - Temperature Comparison, July 2018
Tailrace
Downstream
80.0
75.0
70.0
65.0
60.0
55.0
7/1/2018
7/1/2018
7/2/2018
7/3/2018
7/3/2018
7/4/2018
7/5/2018
7/5/2018
7/6/2018
7/7/2018
7/8/2018
7/8/2018
7/9/2018
7/10/2018
7/10/2018
7/11/2018
7/12/2018
7/13/2018
7/13/2018
7/14/2018
7/15/2018
7/15/2018
7/16/2018
7/17/2018
7/18/2018
7/18/2018
7/19/2018
7/20/2018
7/20/2018
7/21/2018
7/22/2018
7/22/2018
7/23/2018
7/24/2018
7/25/2018
7/25/2018
7/26/2018
7/27/2018
7/27/2018
7/28/2018
7/29/2018
7/30/2018
7/30/2018
7/31/2018
July

Figure 8

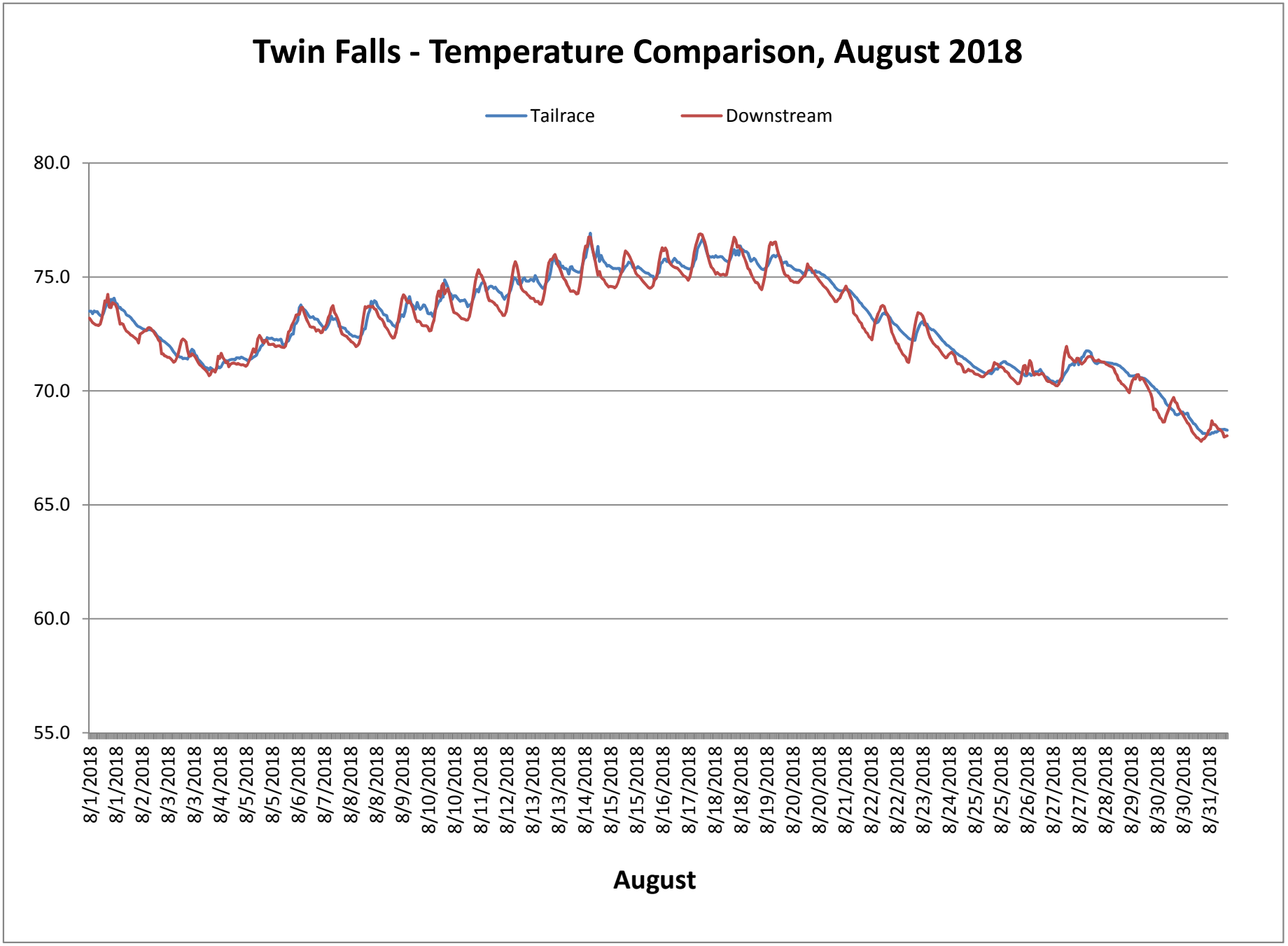
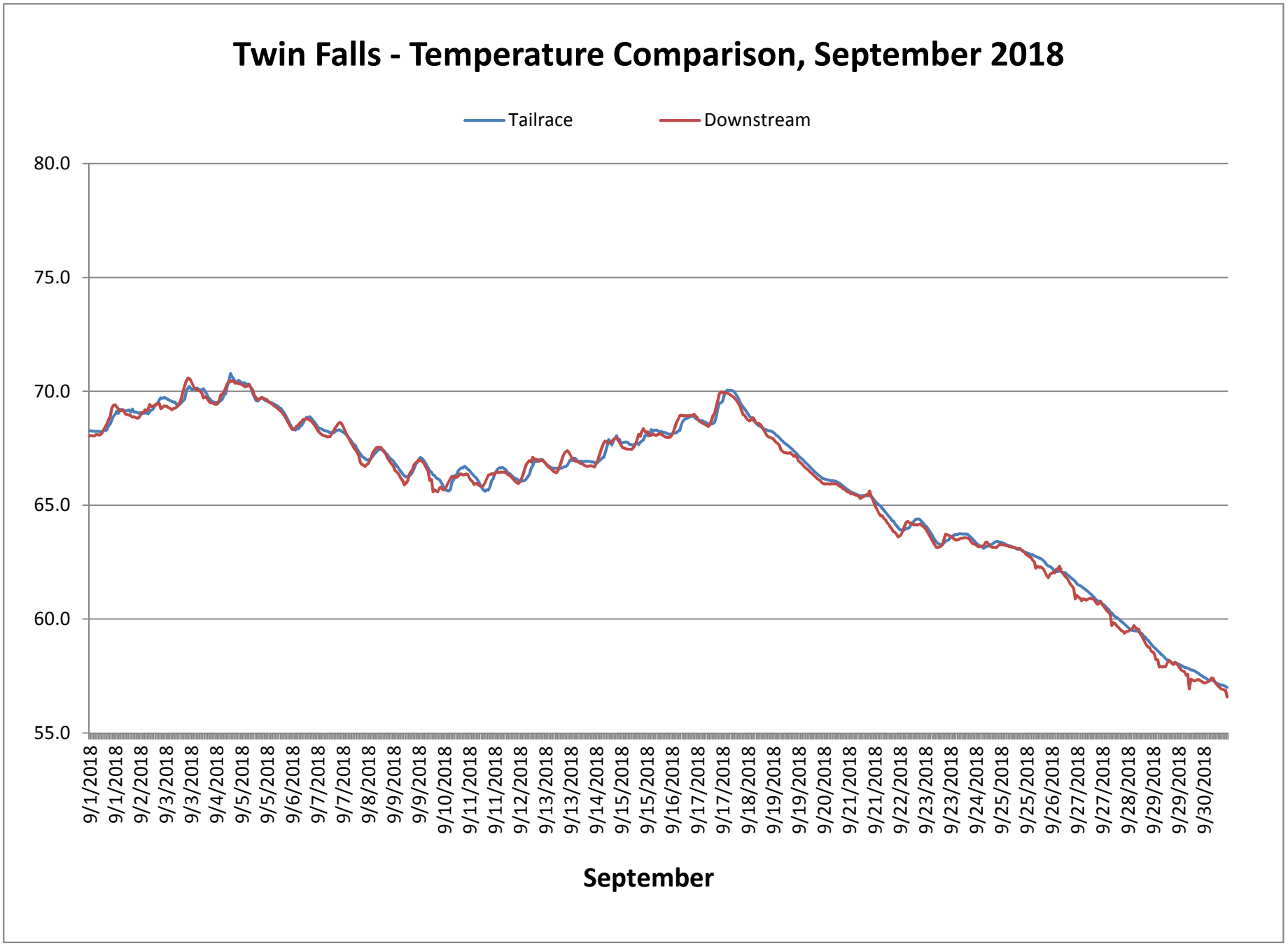
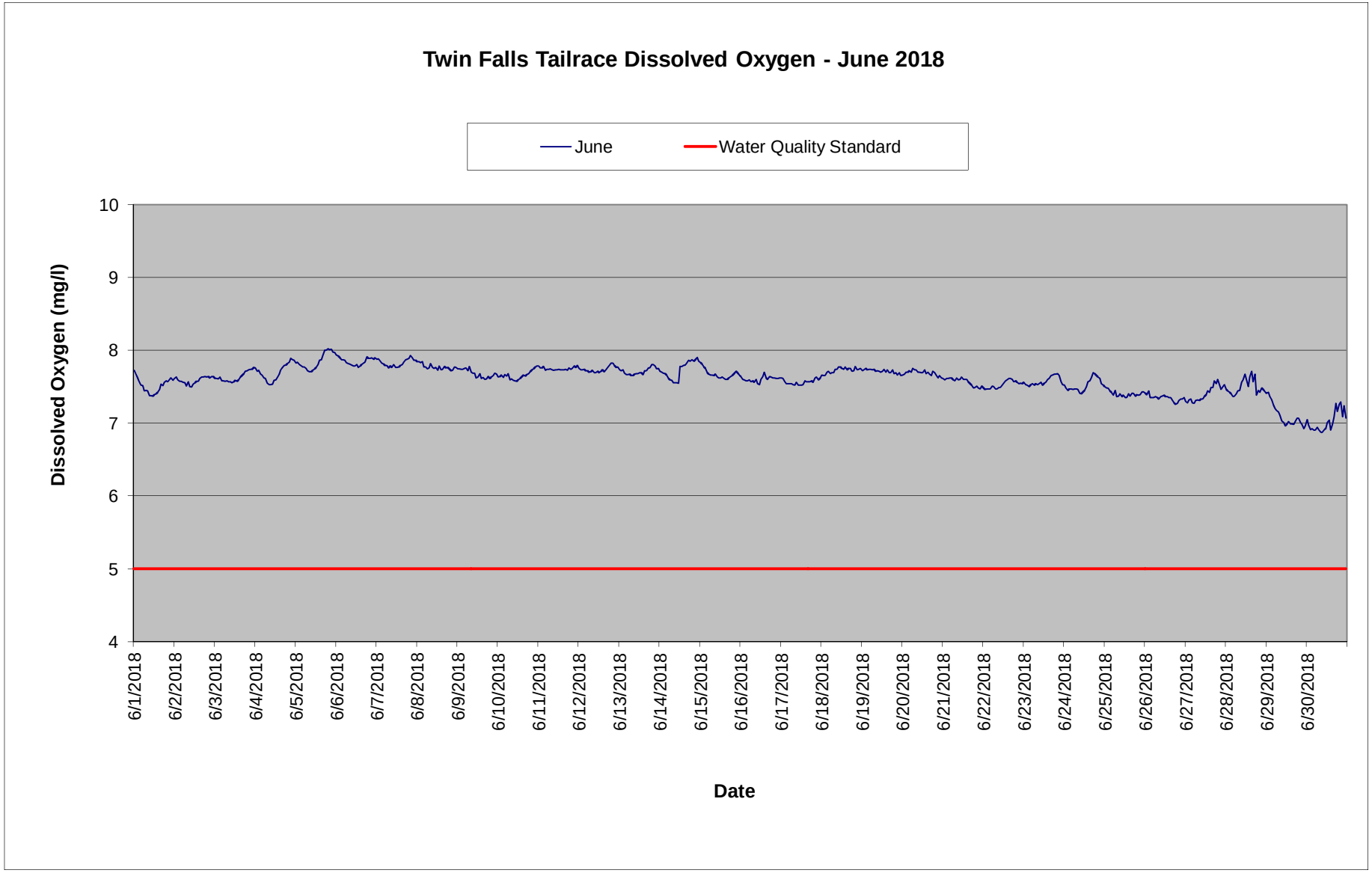

Twin Falls - Temperature Comparison, August 2018
Tailrace
Downstream
80.0
75.0
70.0
65.0
60.0
55.0
8/1/2018
8/1/2018
8/2/2018
8/3/2018
8/3/2018
8/4/2018
8/5/2018
8/5/2018
8/6/2018
8/7/2018
8/8/2018
8/8/2018
8/9/2018
8/10/2018
8/10/2018
8/11/2018
8/12/2018
8/13/2018
8/13/2018
8/14/2018
8/15/2018
8/15/2018
8/16/2018
8/17/2018
8/18/2018
8/18/2018
8/19/2018
8/20/2018
8/20/2018
8/21/2018
8/22/2018
8/22/2018
8/23/2018
8/24/2018
8/25/2018
8/25/2018
8/26/2018
8/27/2018
8/27/2018
8/28/2018
8/29/2018
8/30/2018
8/30/2018
8/31/2018
August

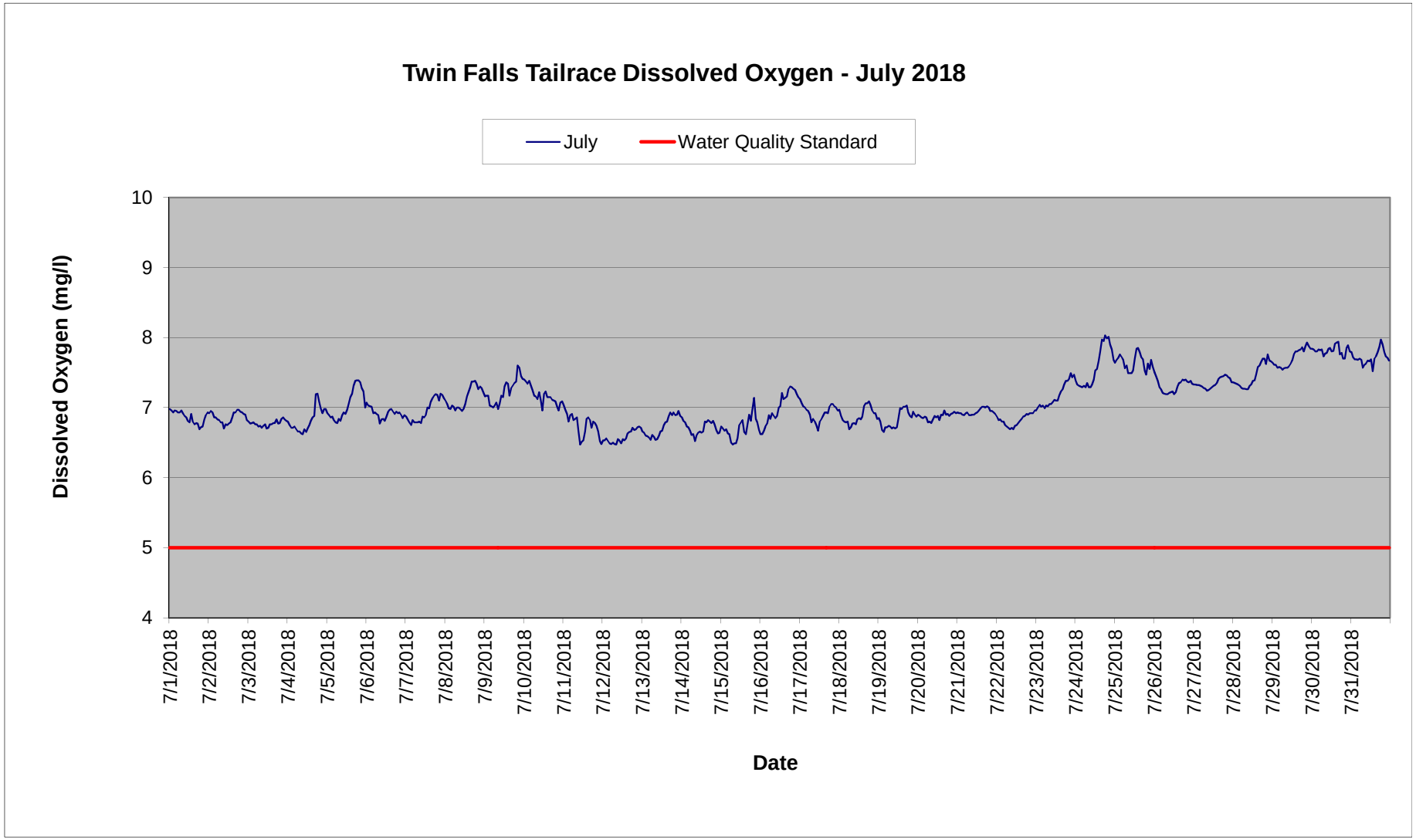
Figure 9

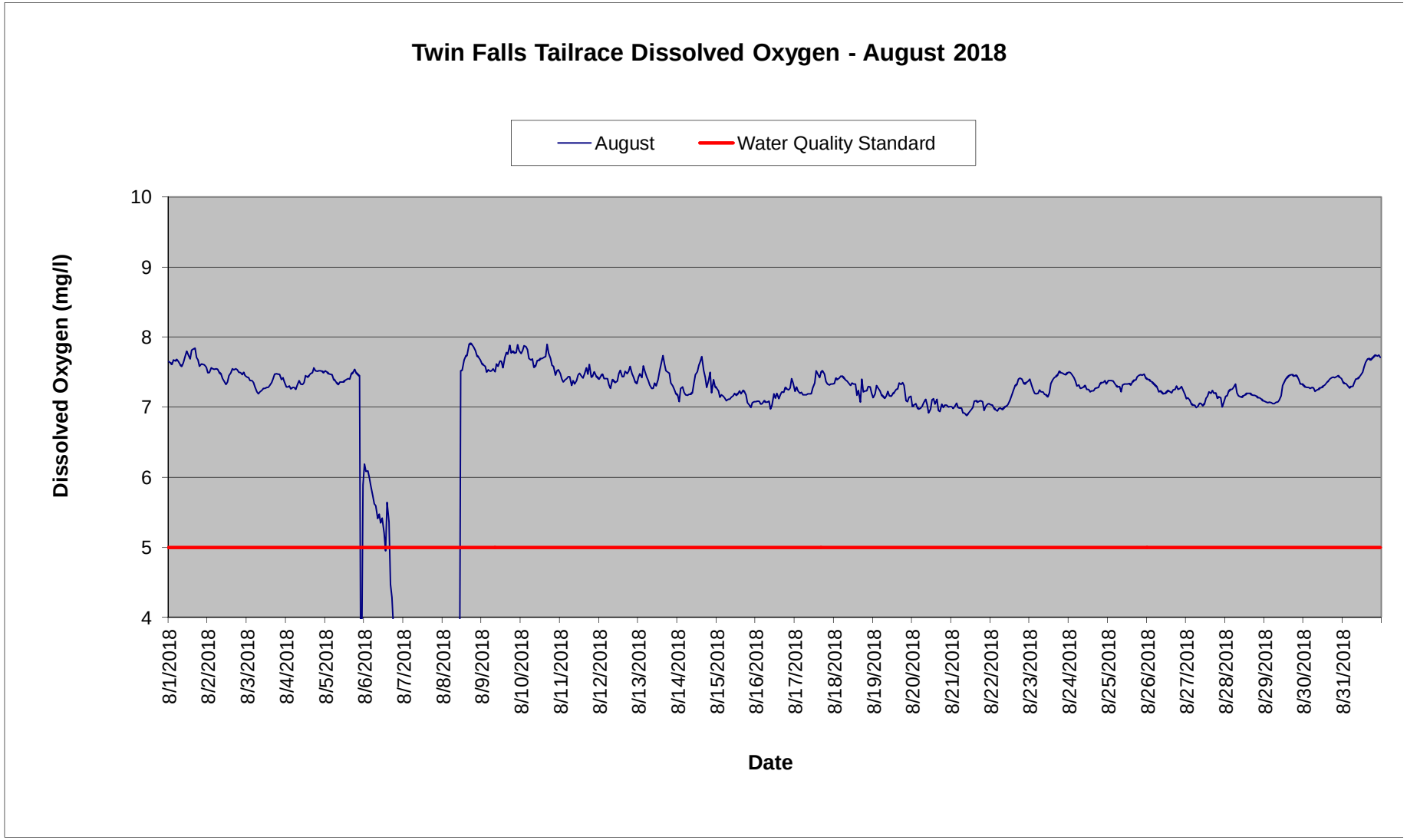

Twin Falls - Temperature Comparison, September 2018
Tailrace
Downstream
80.0
75.0
70.0
65.0
60.0
55.0
9/1/2018
9/1/2018
9/2/2018
9/3/2018
9/3/2018
9/4/2018
9/5/2018
9/5/2018
9/6/2018
9/7/2018
9/7/2018
9/8/2018
9/9/2018
9/9/2018
9/10/2018
9/11/2018
9/11/2018
9/12/2018
9/13/2018
9/13/2018
9/14/2018
9/15/2018
9/15/2018
9/16/2018
9/17/2018
9/17/2018
9/18/2018
9/19/2018
9/19/2018
9/20/2018
9/21/2018
9/21/2018
9/22/2018
9/23/2018
9/23/2018
9/24/2018
9/25/2018
9/25/2018
9/26/2018
9/27/2018
9/27/2018
9/28/2018
9/29/2018
9/29/2018
9/30/2018
September

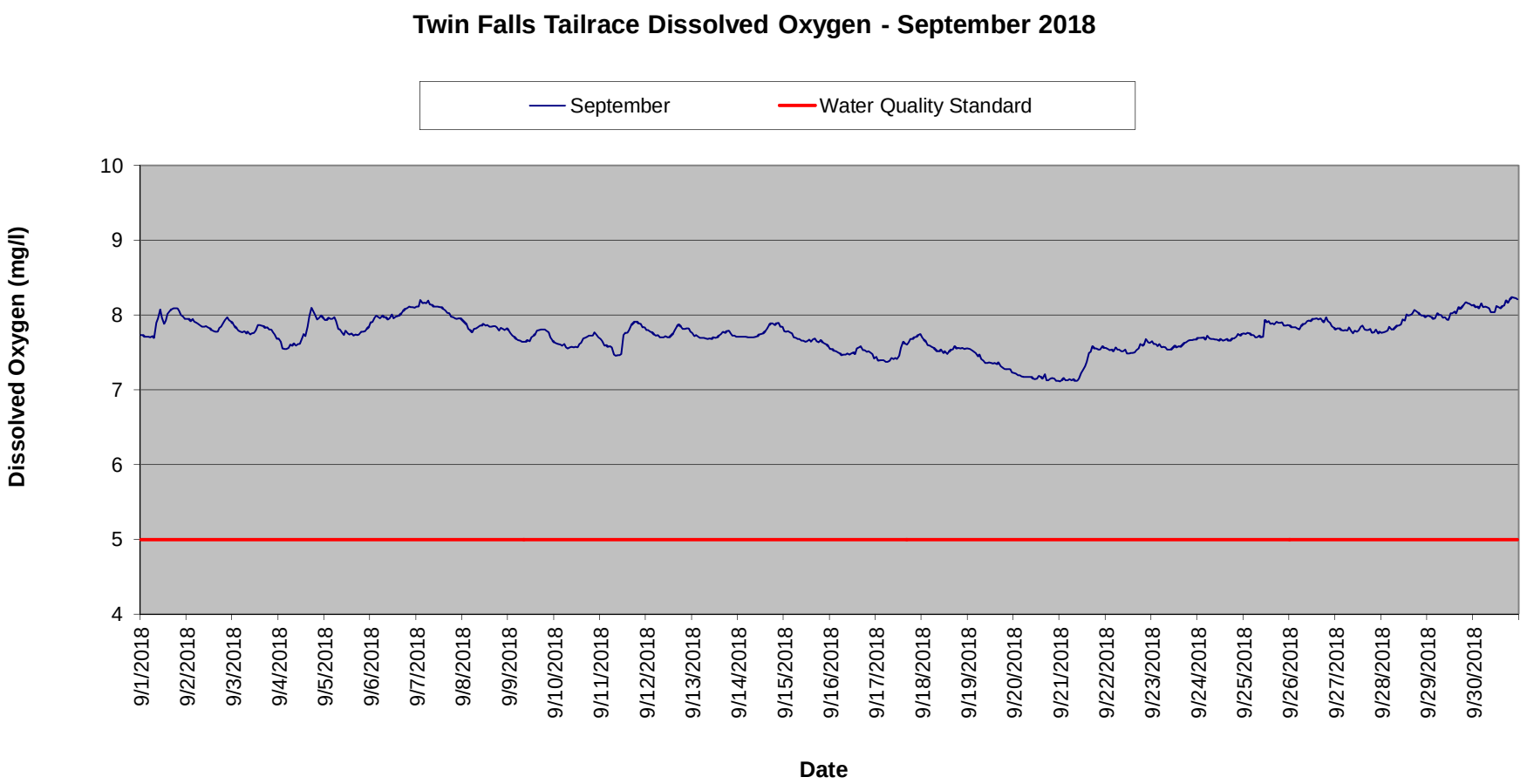
Tailrace Monitoring Location

Water Quality Data


Twin Falls Tailrace Dissolved Oxygen - June 2018
June
Water Quality Standard
Dissolved Oxygen (mg/l)
10
9
8
7
6
5
4
6/1/2018
6/2/2018
6/3/2018
6/4/2018
6/5/2018
6/6/2018
6/7/2018
6/8/2018
6/9/2018
6/10/2018
6/11/2018
6/12/2018
6/13/2018
6/14/2018
6/15/2018
6/16/2018
6/17/2018
6/18/2018
6/19/2018
6/20/2018
6/21/2018
6/22/2018
6/23/2018
6/24/2018
6/25/2018
6/26/2018
6/27/2018
6/28/2018
6/29/2018
6/30/2018
Date


Twin Falls Tailrace Dissolved Oxygen - July 2018
July
Water Quality Standard
Dissolved Oxygen (mg/l)
10
9
8
7
6
5
4
7/1/2018
7/2/2018
7/3/2018
7/4/2018
7/5/2018
7/6/2018
7/7/2018
7/8/2018
7/9/2018
7/10/2018
7/11/2018
7/12/2018
7/13/2018
7/14/2018
7/15/2018
7/16/2018
7/17/2018
7/18/2018
7/19/2018
7/20/2018
7/21/2018
7/22/2018
7/23/2018
7/24/2018
7/25/2018
7/26/2018
7/27/2018
7/28/2018
7/29/2018
7/30/2018
7/31/2018
Date


Twin Falls Tailrace Dissolved Oxygen - August 2018
August
Water Quality Standard
Dissolved Oxygen (mg/l)
10
9
8
7
6
5
4
8/1/2018
8/2/2018
8/3/2018
8/4/2018
8/5/2018
8/6/2018
8/7/2018
8/8/2018
8/9/2018
8/10/2018
8/11/2018
8/12/2018
8/13/2018
8/14/2018
8/15/2018
8/16/2018
8/17/2018
8/18/2018
8/19/2018
8/20/2018
8/21/2018
8/22/2018
8/23/2018
8/24/2018
8/25/2018
8/26/2018
8/27/2018
8/28/2018
8/29/2018
8/30/2018
8/31/2018
Date


Twin Falls Tailrace Dissolved Oxygen - September 2018
September
Water Quality Standard
Dissolved Oxygen (mg/l)
10
9
8
7
6
5
4
9/1/2018
9/2/2018
9/3/2018
9/4/2018
9/5/2018
9/6/2018
9/7/2018
9/8/2018
9/9/2018
9/10/2018
9/11/2018
9/12/2018
9/13/2018
9/14/2018
9/15/2018
9/16/2018
9/17/2018
9/18/2018
9/19/2018
9/20/2018
9/21/2018
9/22/2018
9/23/2018
9/24/2018
9/25/2018
9/26/2018
9/27/2018
9/28/2018
9/29/2018
9/30/2018
Date

Twin 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	7.7	7.6	7.6	7.8	7.8	7.9	7.9	7.8	7.7	7.6	7.8	7.8	7.7	7.7	7.8	7.6
10000	7.7	7.6	7.6	7.7	7.8	7.9	7.9	7.8	7.7	7.6	7.8	7.7	7.7	7.7	7.8	7.6
20000	7.6	7.6	7.6	7.7	7.8	7.9	7.9	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.8	7.6
30000	7.6	7.6	7.6	7.7	7.8	7.9	7.8	7.8	7.7	7.6	7.8	7.7	7.7	7.7	7.8	7.6
40000	7.5	7.6	7.6	7.7	7.8	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.6
50000	7.5	7.6	7.6	7.6	7.8	7.9	7.8	7.8	7.8	7.6	7.7	7.7	7.7	7.6	7.7	7.6
60000	7.4	7.6	7.6	7.6	7.7	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.7	7.6
70000	7.5	7.5	7.6	7.5	7.7	7.8	7.8	7.8	7.8	7.6	7.7	7.7	7.7	7.6	7.7	7.6
80000	7.4	7.6	7.6	7.5	7.7	7.8	7.8	7.8	7.7	7.6	7.7	7.7	7.7	7.6	7.7	7.6
90000	7.4	7.5	7.6	7.5	7.7	7.8	7.8	7.8	7.7	7.6	7.7	7.7	7.7	7.6	7.7	7.6
100000	7.4	7.5	7.6	7.5	7.7	7.8	7.8	7.8	7.7	7.6	7.7	7.7	7.7	7.6	7.6	7.5
110000	7.4	7.5	7.6	7.6	7.7	7.8	7.8	7.8	7.6	7.6	7.7	7.7	7.7	7.6	7.6	7.5
120000	7.4	7.6	7.6	7.6	7.8	7.8	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.6	7.6
130000	7.4	7.6	7.6	7.6	7.8	7.8	7.8	7.8	7.7	7.6	7.7	7.7	7.7	7.8	7.6	7.6
140000	7.4	7.6	7.6	7.7	7.9	7.8	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.6	7.7
150000	7.5	7.6	7.6	7.7	7.9	7.8	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.8	7.6	7.6
160000	7.5	7.6	7.7	7.8	7.9	7.8	7.8	7.8	7.6	7.6	7.7	7.7	7.7	7.8	7.6	7.6
170000	7.5	7.6	7.7	7.8	8.0	7.8	7.9	7.8	7.6	7.7	7.7	7.8	7.8	7.9	7.6	7.6
180000	7.6	7.6	7.7	7.8	8.0	7.9	7.9	7.8	7.6	7.7	7.8	7.8	7.8	7.9	7.6	7.6
190000	7.6	7.6	7.7	7.8	8.0	7.9	7.9	7.7	7.6	7.7	7.7	7.8	7.8	7.9	7.7	7.6
200000	7.6	7.6	7.7	7.8	8.0	7.9	7.9	7.7	7.6	7.7	7.8	7.8	7.8	7.9	7.7	7.6
210000	7.6	7.6	7.7	7.9	8.0	7.9	7.9	7.7	7.7	7.7	7.8	7.8	7.8	7.9	7.7	7.6
220000	7.6	7.6	7.7	7.9	8.0	7.9	7.9	7.8	7.7	7.8	7.8	7.8	7.7	7.9	7.7	7.6
230000	7.6	7.6	7.8	7.9	8.0	7.9	7.9	7.8	7.7	7.8	7.8	7.8	7.8	7.9	7.7	7.6
Daily Max	7.7	7.6	7.8	7.9	8.0	7.9	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.8	7.7
Daily Min	7.4	7.5	7.6	7.5	7.7	7.8	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.6	7.6	7.5
Average	7.5	7.6	7.6	7.7	7.8	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.6

Lidense Minimum DO: 5.0 mg/l

Twin 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	7.6	7.7	7.7	7.7	7.6	7.5	7.6	7.5	7.5	7.4	7.3	7.5	7.4	7.1
10000	7.6	7.7	7.7	7.7	7.6	7.5	7.5	7.5	7.5	7.4	7.3	7.4	7.4	7.0
20000	7.6	7.7	7.8	7.7	7.6	7.5	7.5	7.5	7.5	7.4	7.3	7.4	7.4	6.9
30000	7.5	7.7	7.7	7.7	7.6	7.5	7.5	7.5	7.4	7.4	7.3	7.4	7.3	6.9
40000	7.5	7.7	7.7	7.7	7.6	7.5	7.5	7.5	7.4	7.4	7.3	7.4	7.3	6.9
50000	7.5	7.7	7.7	7.7	7.6	7.5	7.5	7.5	7.4	7.4	7.3	7.4	7.2	6.9
60000	7.5	7.7	7.7	7.8	7.6	7.5	7.5	7.5	7.5	7.4	7.3	7.4	7.2	6.9
70000	7.5	7.7	7.7	7.7	7.6	7.5	7.5	7.5	7.4	7.4	7.3	7.4	7.2	6.9
80000	7.5	7.7	7.7	7.7	7.6	7.5	7.5	7.5	7.4	7.3	7.3	7.5	7.1	6.9
90000	7.6	7.7	7.7	7.7	7.6	7.5	7.5	7.4	7.4	7.4	7.3	7.6	7.0	6.9
100000	7.5	7.8	7.7	7.7	7.6	7.5	7.6	7.4	7.4	7.4	7.3	7.6	7.0	6.9
110000	7.5	7.8	7.7	7.7	7.6	7.5	7.5	7.4	7.4	7.4	7.4	7.7	7.0	6.9
120000	7.5	7.8	7.7	7.7	7.6	7.6	7.6	7.5	7.4	7.4	7.4	7.6	7.0	7.0
130000	7.5	7.7	7.7	7.7	7.6	7.6	7.6	7.5	7.4	7.4	7.4	7.5	7.0	7.0
140000	7.6	7.8	7.7	7.7	7.6	7.6	7.6	7.6	7.4	7.4	7.4	7.6	7.0	6.9
150000	7.6	7.7	7.7	7.7	7.6	7.6	7.6	7.6	7.4	7.4	7.5	7.7	7.0	7.0
160000	7.6	7.8	7.7	7.7	7.5	7.6	7.7	7.6	7.4	7.3	7.5	7.6	7.0	7.1
170000	7.6	7.8	7.7	7.7	7.5	7.6	7.7	7.7	7.4	7.3	7.6	7.7	7.0	7.3
180000	7.6	7.7	7.7	7.7	7.5	7.6	7.7	7.7	7.4	7.3	7.5	7.4	7.1	7.2
190000	7.6	7.7	7.7	7.7	7.5	7.6	7.7	7.7	7.4	7.3	7.6	7.5	7.1	7.3
200000	7.6	7.8	7.7	7.7	7.5	7.6	7.7	7.6	7.4	7.3	7.5	7.4	7.0	7.3
210000	7.6	7.7	7.7	7.6	7.5	7.5	7.7	7.6	7.4	7.3	7.5	7.5	7.0	7.1
220000	7.6	7.7	7.7	7.7	7.5	7.6	7.6	7.5	7.4	7.3	7.5	7.5	6.9	7.2
230000	7.6	7.8	7.7	7.6	7.5	7.5	7.5	7.5	7.4	7.4	7.5	7.4	7.0	7.1
Daily Max	7.6	7.8	7.8	7.8	7.6	7.6	7.7	7.7	7.5	7.4	7.6	7.7	7.4	7.3
Daily Min	7.5	7.7	7.7	7.6	7.5	7.5	7.5	7.4	7.4	7.3	7.3	7.4	6.9	6.9
Average	7.6	7.7	7.7	7.7	7.6	7.5	7.6	7.5	7.4	7.3	7.4	7.5	7.1	7.0

Twin 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	7.0	6.9	6.8	6.8	6.9	7.1	6.9	7.1	7.2	7.4	7.0	6.5	6.7	6.9	6.7	6.6
10000	7.0	7.0	6.8	6.8	6.9	7.0	6.8	7.1	7.2	7.4	7.0	6.5	6.6	6.8	6.7	6.6
20000	6.9	6.9	6.8	6.7	6.9	7.0	6.8	7.0	7.2	7.3	6.9	6.6	6.6	6.8	6.7	6.7
30000	7.0	6.9	6.8	6.7	6.9	7.0	6.8	7.0	7.0	7.4	6.8	6.5	6.6	6.7	6.7	6.7
40000	7.0	6.9	6.8	6.7	6.8	6.9	6.8	7.0	7.0	7.3	6.9	6.5	6.6	6.7	6.6	6.8
50000	6.9	6.8	6.8	6.7	6.8	6.9	6.8	7.0	7.0	7.3	6.9	6.5	6.5	6.7	6.6	6.9
60000	6.9	6.8	6.7	6.7	6.8	6.9	6.8	7.0	7.0	7.2	6.8	6.5	6.6	6.6	6.5	6.8
70000	7.0	6.8	6.7	6.7	6.8	6.9	6.8	7.0	7.1	7.2	6.8	6.5	6.6	6.6	6.5	6.9
80000	6.9	6.8	6.7	6.6	6.8	6.8	6.8	7.0	7.0	7.1	6.9	6.5	6.5	6.5	6.5	6.9
90000	6.9	6.7	6.7	6.6	6.9	6.8	6.8	7.0	7.1	7.2	6.7	6.6	6.6	6.6	6.5	6.9
100000	6.9	6.8	6.8	6.7	6.9	6.8	6.9	7.0	7.2	7.1	6.5	6.5	6.6	6.6	6.6	6.9
110000	6.8	6.8	6.7	6.7	6.9	6.8	6.9	7.0	7.2	7.0	6.5	6.5	6.7	6.7	6.8	7.0
120000	6.8	6.8	6.7	6.7	7.0	6.9	6.9	7.1	7.3	7.2	6.5	6.6	6.7	6.6	6.8	7.0
130000	6.9	6.8	6.8	6.8	7.1	6.9	7.0	7.2	7.4	7.2	6.7	6.5	6.8	6.7	6.8	7.2
140000	6.8	6.9	6.8	6.8	7.2	7.0	7.0	7.2	7.3	7.2	6.8	6.6	6.8	6.8	6.7	7.1
150000	6.8	6.9	6.8	6.9	7.2	7.0	7.1	7.3	7.2	7.2	6.9	6.6	6.8	6.8	6.6	7.1
160000	6.8	6.9	6.8	6.9	7.3	6.9	7.1	7.4	7.3	7.2	6.8	6.7	6.9	6.8	6.8	7.2
170000	6.8	7.0	6.8	7.2	7.4	6.9	7.2	7.4	7.3	7.1	6.7	6.7	6.9	6.8	6.9	7.3
180000	6.7	7.0	6.8	7.2	7.4	6.9	7.2	7.4	7.4	7.1	6.8	6.7	6.9	6.8	6.8	7.3
190000	6.7	6.9	6.8	7.1	7.4	6.9	7.2	7.3	7.4	7.1	6.8	6.7	6.9	6.8	7.0	7.3
200000	6.7	6.9	6.8	7.0	7.4	6.9	7.1	7.3	7.6	7.0	6.7	6.7	6.9	6.8	7.1	7.3
210000	6.8	6.9	6.9	6.9	7.3	6.9	7.2	7.3	7.6	7.0	6.7	6.7	6.9	6.7	6.8	7.3
220000	6.9	6.9	6.8	7.0	7.2	6.9	7.2	7.3	7.5	7.1	6.5	6.7	7.0	6.6	6.8	7.2
230000	6.9	6.8	6.8	7.0	7.0	6.9	7.1	7.2	7.4	7.1	6.5	6.7	6.9	6.6	6.7	7.2
Daily Max	7.0	7.0	6.9	7.2	7.4	7.1	7.2	7.4	7.6	7.4	7.0	6.7	7.0	6.9	7.1	7.3
Daily Min	6.7	6.7	6.7	6.6	6.8	6.8	6.8	7.0	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.6
Average	6.9	6.9	6.8	6.8	7.0	6.9	7.0	7.1	7.2	7.2	6.8	6.6	6.7	6.7	6.7	7.0

License Minimum Dissolved Oxygen: 5.0 mg/l

Twin 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	7.1	7.0	6.9	6.9	6.9	6.9	7.0	7.4	7.6	7.5	7.3	7.4	7.6	7.8	7.8
10000	7.1	6.9	6.8	6.9	6.9	6.8	7.0	7.3	7.7	7.5	7.3	7.4	7.6	7.8	7.7
20000	7.0	6.8	6.7	6.9	6.9	6.8	7.0	7.3	7.7	7.4	7.3	7.3	7.6	7.8	7.7
30000	7.0	6.8	6.7	6.9	6.9	6.8	7.0	7.3	7.8	7.3	7.3	7.3	7.6	7.8	7.7
40000	7.0	6.8	6.7	6.9	6.9	6.8	7.0	7.3	7.7	7.3	7.3	7.3	7.6	7.8	7.7
50000	7.0	6.8	6.7	6.9	6.9	6.8	7.0	7.3	7.7	7.2	7.3	7.3	7.6	7.8	7.7
60000	6.9	6.7	6.7	6.8	6.9	6.7	7.0	7.3	7.6	7.2	7.3	7.3	7.5	7.8	7.7
70000	6.8	6.7	6.7	6.8	6.9	6.7	7.0	7.4	7.6	7.2	7.3	7.3	7.6	7.7	7.6
80000	6.8	6.8	6.7	6.8	6.9	6.7	7.1	7.3	7.5	7.2	7.2	7.3	7.6	7.8	7.6
90000	6.8	6.8	6.7	6.8	6.9	6.7	7.1	7.3	7.5	7.2	7.3	7.3	7.6	7.8	7.6
100000	6.8	6.8	6.7	6.9	6.9	6.7	7.1	7.3	7.5	7.2	7.3	7.3	7.6	7.8	7.7
110000	6.7	6.8	6.7	6.9	6.9	6.7	7.1	7.4	7.5	7.2	7.3	7.3	7.6	7.9	7.7
120000	6.8	6.9	6.8	6.9	6.9	6.8	7.1	7.5	7.7	7.2	7.3	7.4	7.7	7.8	7.7
130000	6.8	6.8	7.0	6.8	7.0	6.8	7.1	7.6	7.8	7.2	7.3	7.4	7.8	7.8	7.5
140000	6.9	6.9	7.0	6.9	7.0	6.8	7.2	7.7	7.9	7.3	7.4	7.5	7.8	7.9	7.7
150000	6.9	7.0	7.0	6.9	7.0	6.8	7.2	7.8	7.8	7.4	7.4	7.6	7.8	7.9	7.7
160000	6.9	7.1	7.0	7.0	7.0	6.9	7.3	8.0	7.7	7.4	7.4	7.6	7.8	7.9	7.8
170000	6.9	7.1	7.0	6.9	7.0	6.9	7.3	8.0	7.7	7.4	7.4	7.7	7.8	7.8	7.9
180000	7.0	7.1	6.9	6.9	7.0	6.9	7.4	8.0	7.5	7.4	7.5	7.7	7.9	7.8	8.0
190000	7.1	7.0	6.9	6.9	7.0	6.9	7.4	8.0	7.5	7.4	7.5	7.7	7.8	7.7	7.9
200000	7.1	7.0	6.9	6.9	7.0	6.9	7.4	8.0	7.6	7.4	7.5	7.6	7.9	7.7	7.8
210000	7.0	6.9	6.9	6.9	7.0	6.9	7.5	7.9	7.6	7.4	7.4	7.8	7.9	7.9	7.7
220000	7.0	6.9	6.9	6.9	6.9	6.9	7.4	7.8	7.7	7.4	7.4	7.7	7.9	7.9	7.7
230000	7.0	6.8	6.9	6.9	6.9	7.0	7.5	7.7	7.6	7.3	7.4	7.7	7.8	7.8	7.7
Daily Max	7.1	7.1	7.0	7.0	7.0	7.0	7.5	8.0	7.9	7.5	7.5	7.8	7.9	7.9	8.0
Daily Min	6.7	6.7	6.7	6.8	6.9	6.7	7.0	7.3	7.5	7.2	7.2	7.3	7.5	7.7	7.5
Average	6.9	6.9	6.8	6.9	6.9	6.8	7.2	7.6	7.6	7.3	7.3	7.5	7.7	7.8	7.7

Twin 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	7.7	7.5	7.4	7.3	7.5	6.2	2.0	1.6	7.6	7.8	7.5	7.4	7.4	7.2	7.3	7.1
10000	7.6	7.5	7.4	7.3	7.5	6.1	1.8	1.6	7.6	7.8	7.4	7.5	7.5	7.1	7.2	7.1
20000	7.6	7.6	7.4	7.3	7.5	6.1	1.7	1.5	7.6	7.9	7.4	7.5	7.4	7.3	7.1	7.1
30000	7.7	7.6	7.4	7.3	7.5	6.0	1.5	1.6	7.5	7.9	7.4	7.4	7.6	7.3	7.2	7.0
40000	7.7	7.5	7.4	7.3	7.5	5.9	1.5	1.4	7.5	7.8	7.4	7.4	7.5	7.2	7.2	7.1
50000	7.7	7.6	7.3	7.3	7.4	5.7	1.5	1.3	7.5	7.7	7.4	7.4	7.4	7.2	7.1	7.1
60000	7.7	7.5	7.2	7.3	7.4	5.6	1.4	1.3	7.5	7.7	7.4	7.3	7.4	7.2	7.1	7.1
70000	7.6	7.5	7.2	7.3	7.4	5.6	1.5	1.3	7.5	7.7	7.3	7.3	7.3	7.2	7.1	7.1
80000	7.6	7.5	7.2	7.4	7.3	5.4	1.4	1.3	7.5	7.6	7.4	7.4	7.3	7.2	7.1	7.1
90000	7.6	7.4	7.2	7.3	7.4	5.5	1.3	1.3	7.6	7.6	7.3	7.4	7.3	7.2	7.1	7.0
100000	7.7	7.4	7.3	7.3	7.4	5.4	1.3	1.3	7.6	7.7	7.4	7.4	7.3	7.3	7.2	7.0
110000	7.8	7.3	7.3	7.4	7.4	5.4	1.6	7.5	7.7	7.7	7.5	7.4	7.3	7.5	7.2	7.2
120000	7.8	7.4	7.3	7.5	7.4	5.2	1.5	7.5	7.7	7.7	7.5	7.5	7.4	7.5	7.2	7.1
130000	7.7	7.5	7.3	7.4	7.4	5.0	1.6	7.7	7.6	7.7	7.4	7.5	7.5	7.6	7.2	7.2
140000	7.8	7.5	7.3	7.5	7.4	5.6	1.6	7.7	7.7	7.7	7.4	7.4	7.6	7.7	7.2	7.1
150000	7.8	7.6	7.4	7.5	7.4	5.4	1.5	7.7	7.8	7.7	7.5	7.4	7.7	7.7	7.2	7.2
160000	7.8	7.5	7.4	7.5	7.5	4.5	1.5	7.9	7.8	7.9	7.6	7.5	7.6	7.5	7.2	7.2
170000	7.7	7.6	7.5	7.6	7.5	4.3	1.5	7.9	7.9	7.8	7.5	7.5	7.5	7.4	7.2	7.2
180000	7.7	7.5	7.5	7.5	7.5	3.7	1.4	7.9	7.8	7.7	7.6	7.5	7.5	7.3	7.2	7.3
190000	7.6	7.5	7.5	7.5	7.5	3.4	1.4	7.9	7.8	7.6	7.4	7.6	7.5	7.4	7.1	7.3
200000	7.6	7.5	7.5	7.5	7.5	3.0	1.4	7.8	7.8	7.6	7.4	7.5	7.3	7.5	7.0	7.2
210000	7.6	7.5	7.4	7.5	7.4	2.7	1.5	7.7	7.8	7.5	7.5	7.4	7.3	7.2	7.0	7.3
220000	7.6	7.5	7.4	7.5	2.2	2.4	1.4	7.7	7.9	7.5	7.4	7.4	7.3	7.4	7.1	7.4
230000	7.6	7.5	7.4	7.5	5.9	2.3	1.5	7.7	7.8	7.5	7.4	7.3	7.2	7.3	7.1	7.3
Daily Max	7.8	7.6	7.5	7.6	7.5	6.2	2.0	7.9	7.9	7.9	7.6	7.6	7.7	7.7	7.3	7.4
Daily Min	7.6	7.3	7.2	7.3	2.2	2.3	1.3	1.3	7.5	7.5	7.3	7.3	7.2	7.1	7.0	7.0
Average	7.7	7.5	7.3	7.4	7.1	4.8	1.5	4.8	7.7	7.7	7.4	7.4	7.4	7.3	7.1	7.2

Equipment failure. Readings are not representative.

License Minimum Dissolved Oxygen: 5.0 mg/l

Twin 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	7.2	7.3	7.1	7.0	7.0	7.0	7.4	7.5	7.4	7.4	7.1	7.2	7.1	7.3	7.4
10000	7.3	7.4	7.2	7.0	7.0	7.0	7.3	7.5	7.4	7.4	7.1	7.2	7.1	7.3	7.3
20000	7.2	7.4	7.3	7.0	7.0	7.0	7.2	7.5	7.4	7.4	7.1	7.2	7.1	7.3	7.3
30000	7.2	7.4	7.3	7.0	7.1	7.0	7.2	7.4	7.4	7.4	7.1	7.3	7.1	7.3	7.3
40000	7.2	7.4	7.2	7.0	7.0	6.9	7.2	7.4	7.3	7.3	7.0	7.3	7.1	7.3	7.3
50000	7.2	7.4	7.2	7.0	7.0	7.0	7.2	7.3	7.3	7.3	7.0	7.3	7.1	7.3	7.3
60000	7.2	7.4	7.2	7.0	7.0	7.0	7.2	7.3	7.3	7.3	7.0	7.3	7.1	7.3	7.3
70000	7.2	7.4	7.1	7.1	6.9	7.0	7.2	7.3	7.3	7.2	7.0	7.2	7.1	7.2	7.4
80000	7.2	7.4	7.2	7.1	6.9	7.0	7.2	7.3	7.2	7.2	7.1	7.2	7.1	7.2	7.4
90000	7.2	7.3	7.2	7.0	6.9	7.0	7.2	7.3	7.3	7.2	7.0	7.1	7.1	7.3	7.4
100000	7.2	7.3	7.2	6.9	6.9	7.0	7.2	7.3	7.3	7.2	7.0	7.1	7.2	7.3	7.4
110000	7.3	7.3	7.2	7.0	6.9	7.1	7.1	7.3	7.3	7.2	7.0	7.2	7.3	7.3	7.5
120000	7.3	7.3	7.2	7.1	7.0	7.1	7.2	7.3	7.3	7.2	7.1	7.2	7.3	7.3	7.5
130000	7.5	7.3	7.2	7.1	7.0	7.2	7.3	7.2	7.3	7.2	7.2	7.2	7.4	7.3	7.6
140000	7.5	7.2	7.3	7.0	7.1	7.2	7.4	7.2	7.3	7.2	7.2	7.2	7.4	7.4	7.6
150000	7.4	7.2	7.3	7.1	7.1	7.3	7.4	7.2	7.4	7.2	7.2	7.2	7.4	7.4	7.7
160000	7.5	7.1	7.3	7.0	7.1	7.3	7.4	7.3	7.4	7.2	7.2	7.2	7.5	7.4	7.7
170000	7.5	7.4	7.3	6.9	7.1	7.4	7.5	7.3	7.4	7.3	7.2	7.2	7.5	7.4	7.7
180000	7.5	7.2	7.3	7.0	7.1	7.4	7.5	7.3	7.4	7.3	7.2	7.2	7.4	7.4	7.7
190000	7.4	7.2	7.3	7.0	7.1	7.4	7.5	7.3	7.5	7.3	7.1	7.2	7.5	7.4	7.7
200000	7.3	7.2	7.1	7.0	7.0	7.4	7.5	7.4	7.5	7.3	7.1	7.1	7.4	7.4	7.7
210000	7.3	7.3	7.1	7.0	7.0	7.3	7.5	7.4	7.5	7.3	7.1	7.1	7.4	7.4	7.7
220000	7.3	7.3	7.1	7.0	7.0	7.4	7.5	7.4	7.5	7.2	7.0	7.1	7.3	7.4	7.7
230000	7.3	7.2	7.2	7.0	7.0	7.4	7.5	7.3	7.4	7.2	7.1	7.1	7.3	7.4	7.7
Daily Max	7.5	7.4	7.3	7.1	7.1	7.4	7.5	7.5	7.5	7.4	7.2	7.3	7.5	7.4	7.7
Daily Min	7.2	7.1	7.1	6.9	6.9	6.9	7.1	7.2	7.2	7.2	7.0	7.1	7.1	7.2	7.3
Average	7.3	7.3	7.2	7.0	7.0	7.2	7.3	7.3	7.4	7.3	7.1	7.2	7.3	7.3	7.5

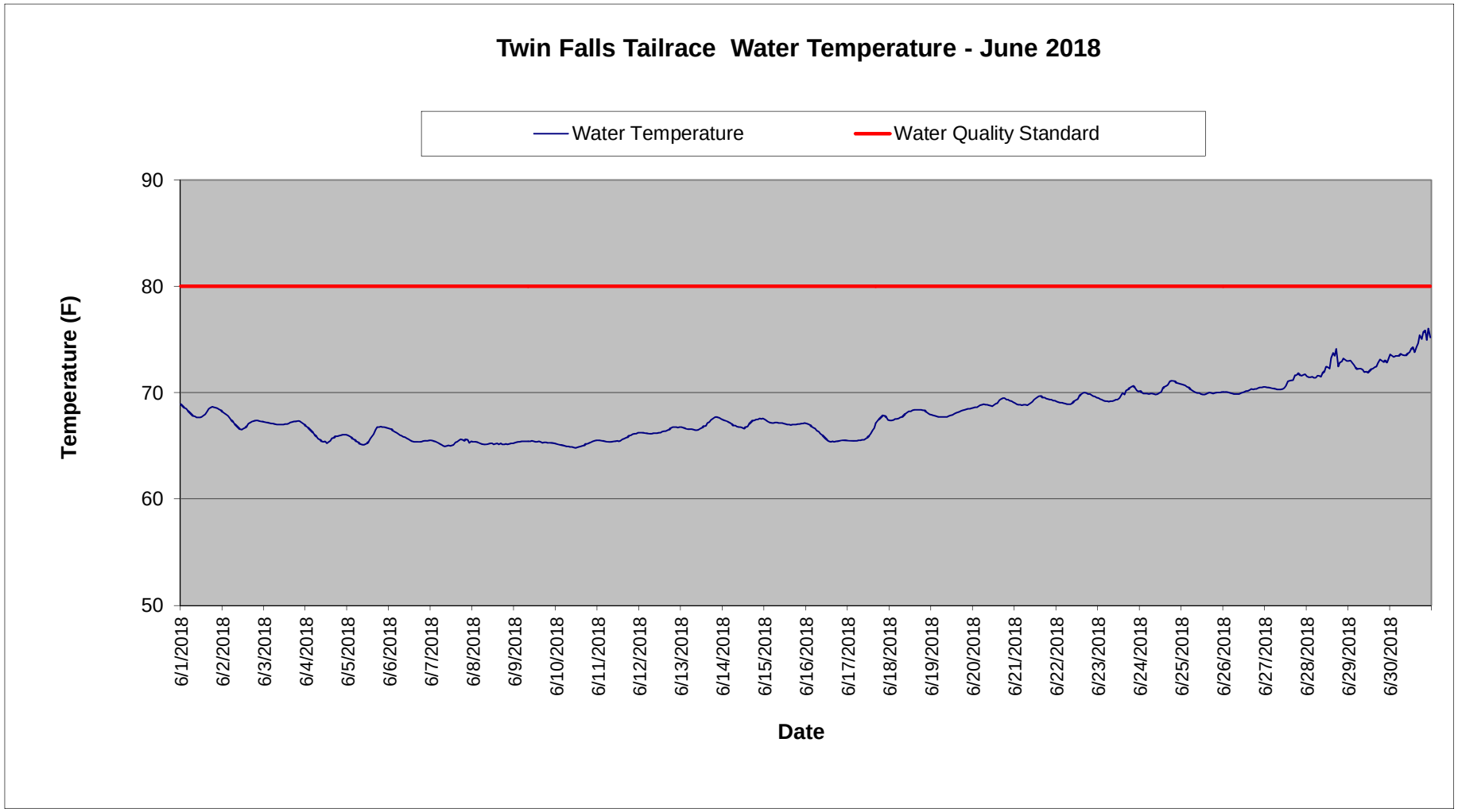
Twin Falls Tailrace Dissolved Oxygen Summary - September 2018

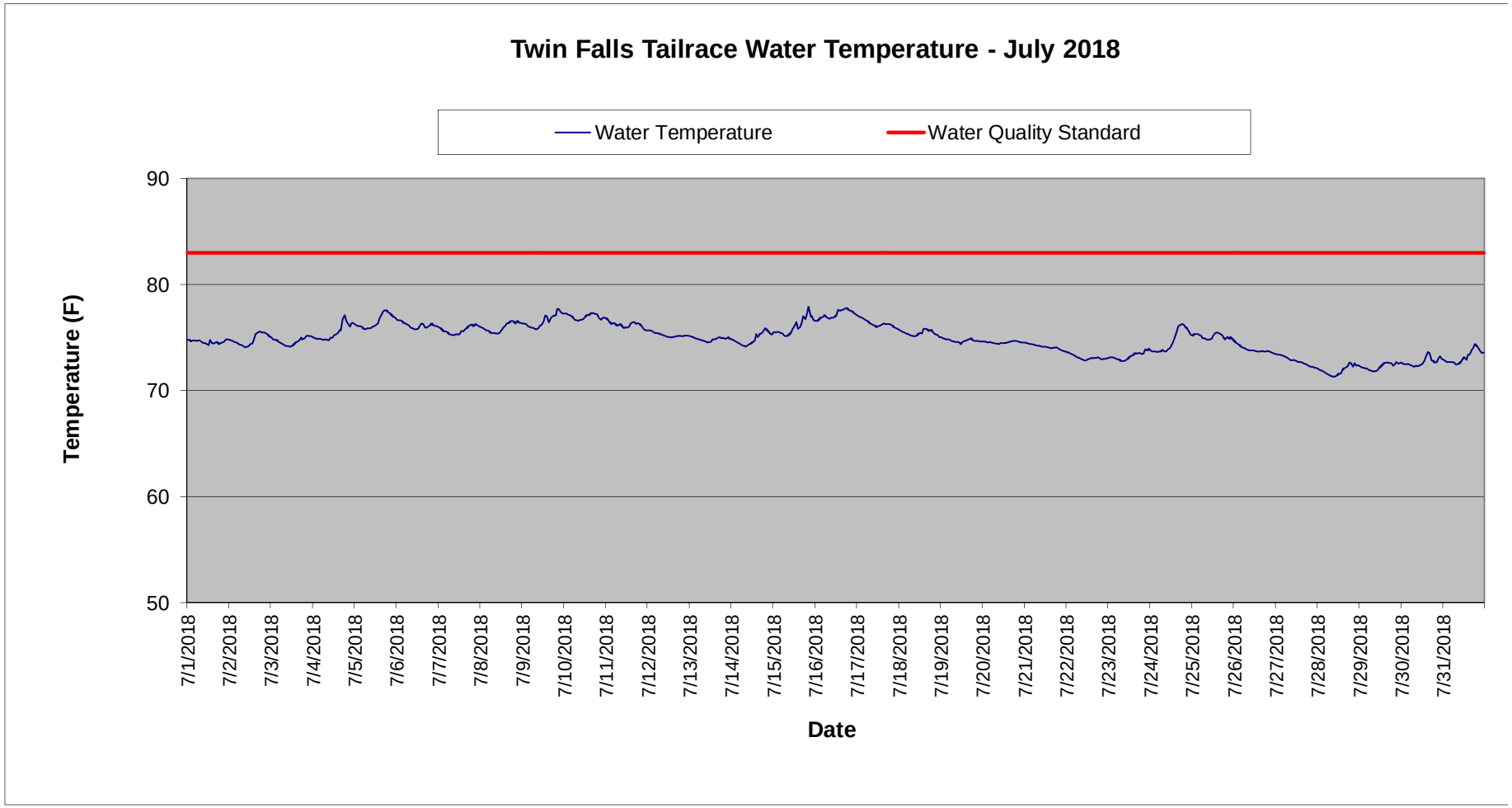
Time HHMMSS	09/01/18	09/02/18	09/03/18	09/04/18	09/05/18	09/06/18	09/07/18	09/08/18	09/09/18	09/10/18	09/11/18	09/12/18	09/13/18	09/14/18	09/15/18	09/16/18
0	7.7	7.9	7.9	7.7	7.9	7.9	8.1	7.9	7.8	7.6	7.7	7.8	7.8	7.7	7.8	7.5
10000	7.7	7.9	7.8	7.6	7.9	7.9	8.1	7.9	7.8	7.6	7.6	7.8	7.7	7.7	7.8	7.5
20000	7.7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

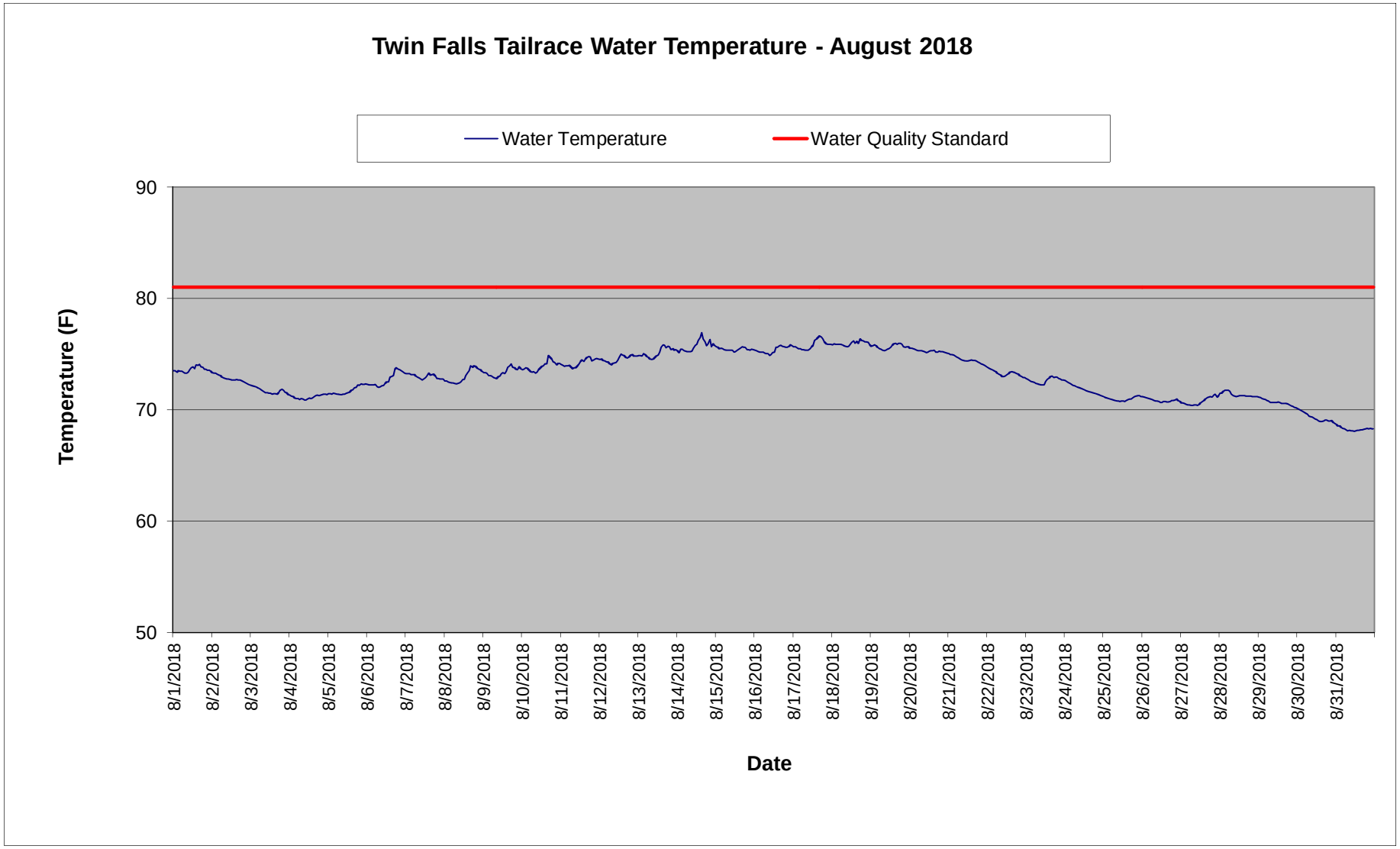
License Minimum Dissolved Oxygen: 5.0 mg/l

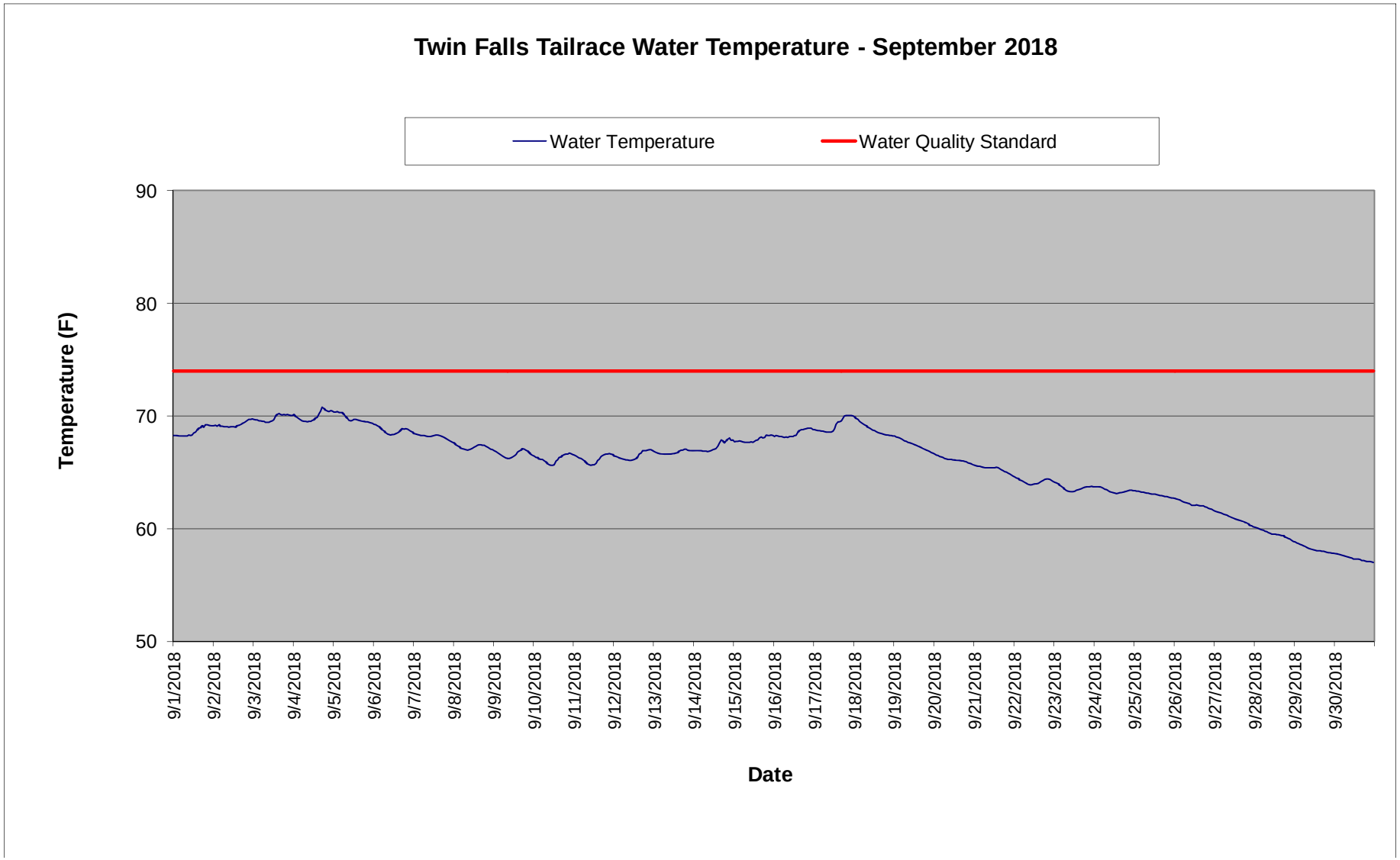
Twin Falls Tailrace Dissolved Oxygen Summary - September 2018

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	7.4	7.7	7.6	7.2	7.1	7.6	7.6	7.7	7.8	7.9	7.8	7.8	8.0	8.1
10000	7.4	7.7	7.5	7.2	7.1	7.5	7.6	7.7	7.7	7.8	7.8	7.8	8.0	8.1
20000	7.4	7.6	7.5	7.2	7.2	7.5	7.6	7.7	7.8	7.8	7.8	7.8	8.0	8.1
30000	7.4	7.6	7.5	7.2	7.1	7.5	7.6	7.7	7.8	7.8	7.8	7.8	7.9	8.1
40000	7.4	7.6	7.5	7.2	7.1	7.5	7.6	7.7	7.7	7.8	7.8	7.8	8.0	8.2
50000	7.4	7.6	7.4	7.2	7.1	7.6	7.6	7.7	7.7	7.8	7.8	7.8	8.0	8.1
60000	7.4	7.6	7.5	7.2	7.1	7.5	7.6	7.7	7.7	7.9	7.8	7.8	8.0	8.1
70000	7.4	7.5	7.4	7.2	7.1	7.5	7.6	7.7	7.7	7.9	7.8	7.8	8.0	8.1
80000	7.4	7.5	7.4	7.2	7.1	7.5	7.5	7.7	7.7	7.9	7.8	7.9	8.0	8.1
90000	7.4	7.5	7.4	7.2	7.1	7.5	7.5	7.7	7.7	7.9	7.8	7.9	8.0	8.0
100000	7.4	7.5	7.4	7.1	7.2	7.5	7.5	7.7	7.7	7.9	7.8	7.9	7.9	8.0
110000	7.4	7.5	7.4	7.1	7.2	7.5	7.6	7.7	7.9	7.9	7.8	7.9	7.9	8.0
120000	7.5	7.5	7.4	7.1	7.3	7.5	7.6	7.7	7.9	7.9	7.8	7.9	8.0	8.1
130000	7.6	7.5	7.3	7.2	7.3	7.5	7.6	7.7	7.9	7.9	7.8	8.0	8.0	8.1
140000	7.6	7.5	7.4	7.2	7.4	7.5	7.6	7.7	7.9	8.0	7.9	8.0	8.0	8.1
150000	7.6	7.5	7.3	7.1	7.5	7.5	7.6	7.7	7.9	7.9	7.8	8.0	8.0	8.1
160000	7.6	7.5	7.4	7.2	7.5	7.5	7.6	7.7	7.9	8.0	7.8	8.0	8.1	8.1
170000	7.6	7.6	7.3	7.1	7.6	7.6	7.6	7.7	7.9	7.9	7.8	8.1	8.1	8.2
180000	7.7	7.6	7.3	7.1	7.5	7.6	7.6	7.7	7.9	7.9	7.8	8.1	8.1	8.2
190000	7.7	7.6	7.3	7.1	7.5	7.6	7.7	7.7	7.9	8.0	7.8	8.0	8.1	8.2
200000	7.7	7.6	7.3	7.2	7.5	7.6	7.7	7.7	7.9	7.9	7.8	8.0	8.2	8.2
210000	7.7	7.6	7.3	7.1	7.5	7.7	7.7	7.7	7.9	7.9	7.8	8.0	8.2	8.2
220000	7.7	7.5	7.3	7.1	7.6	7.6	7.7	7.7	7.9	7.8	7.8	8.0	8.1	8.2
230000	7.7	7.6	7.2	7.1	7.6	7.6	7.7	7.7	7.9	7.8	7.8	8.0	8.1	8.2
Daily Max	7.7	7.7	7.6	7.2	7.6	7.7	7.7	7.7	7.9	8.0	7.9	8.1	8.2	8.2
Daily Min	7.4	7.5	7.2	7.1	7.1	7.5	7.5	7.7	7.7	7.8	7.8	7.8	7.9	8.0
Average	7.5	7.6	7.4	7.2	7.3	7.5	7.6	7.7	7.8	7.9	7.8	7.9	8.0	8.1


Twin Falls Tailrace Water Temperature - June 2018
Water Temperature
Water Quality Standard
Temperature (F)
90
80
70
60
50
6/1/2018
6/2/2018
6/3/2018
6/4/2018
6/5/2018
6/6/2018
6/7/2018
6/8/2018
6/9/2018
6/10/2018
6/11/2018
6/12/2018
6/13/2018
6/14/2018
6/15/2018
6/16/2018
6/17/2018
6/18/2018
6/19/2018
6/20/2018
6/21/2018
6/22/2018
6/23/2018
6/24/2018
6/25/2018
6/26/2018
6/27/2018
6/28/2018
6/29/2018
6/30/2018
Date


Twin Falls Tailrace Water Temperature - July 2018
Water Temperature
Water Quality Standard
Temperature (F)
90
80
70
60
50
7/1/2018
7/2/2018
7/3/2018
7/4/2018
7/5/2018
7/6/2018
7/7/2018
7/8/2018
7/9/2018
7/10/2018
7/11/2018
7/12/2018
7/13/2018
7/14/2018
7/15/2018
7/16/2018
7/17/2018
7/18/2018
7/19/2018
7/20/2018
7/21/2018
7/22/2018
7/23/2018
7/24/2018
7/25/2018
7/26/2018
7/27/2018
7/28/2018
7/29/2018
7/30/2018
7/31/2018
Date


Twin Falls Tailrace Water Temperature - August 2018
Water Temperature
Water Quality Standard
Temperature (F)
90
80
70
60
50
8/1/2018
8/2/2018
8/3/2018
8/4/2018
8/5/2018
8/6/2018
8/7/2018
8/8/2018
8/9/2018
8/10/2018
8/11/2018
8/12/2018
8/13/2018
8/14/2018
8/15/2018
8/16/2018
8/17/2018
8/18/2018
8/19/2018
8/20/2018
8/21/2018
8/22/2018
8/23/2018
8/24/2018
8/25/2018
8/26/2018
8/27/2018
8/28/2018
8/29/2018
8/30/2018
8/31/2018
Date


Twin Falls Tailrace Water Temperature - September 2018
Water Temperature
Water Quality Standard
Temperature (F)
90
80
70
60
50
9/1/2018
9/2/2018
9/3/2018
9/4/2018
9/5/2018
9/6/2018
9/7/2018
9/8/2018
9/9/2018
9/10/2018
9/11/2018
9/12/2018
9/13/2018
9/14/2018
9/15/2018
9/16/2018
9/17/2018
9/18/2018
9/19/2018
9/20/2018
9/21/2018
9/22/2018
9/23/2018
9/24/2018
9/25/2018
9/26/2018
9/27/2018
9/28/2018
9/29/2018
9/30/2018
Date

Twin 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	68.9	68.2	67.2	66.8	66.0	66.6	65.5	65.4	65.3	65.2	65.5	66.2	66.8	67.5	67.5	67.1
10000	68.7	68.1	67.2	66.7	65.9	66.6	65.5	65.4	65.3	65.1	65.5	66.2	66.7	67.4	67.4	67.0
20000	68.6	68.0	67.2	66.6	65.8	66.4	65.4	65.4	65.4	65.1	65.5	66.2	66.7	67.3	67.3	66.9
30000	68.5	67.8	67.2	66.4	65.7	66.3	65.4	65.3	65.4	65.1	65.5	66.2	66.6	67.2	67.2	66.8
40000	68.3	67.6	67.1	66.2	65.6	66.2	65.3	65.2	65.4	65.1	65.4	66.2	66.6	67.1	67.1	66.7
50000	68.1	67.4	67.1	66.0	65.4	66.1	65.2	65.2	65.4	65.0	65.4	66.2	66.6	67.0	67.1	66.6
60000	67.9	67.3	67.1	65.9	65.3	66.0	65.1	65.1	65.4	64.9	65.4	66.2	66.6	66.9	67.2	66.4
70000	67.8	67.0	67.0	65.7	65.2	65.9	65.0	65.1	65.4	64.9	65.4	66.1	66.5	66.9	67.2	66.3
80000	67.8	66.9	67.0	65.5	65.1	65.9	65.0	65.1	65.4	64.9	65.4	66.2	66.5	66.8	67.2	66.1
90000	67.7	66.7	67.0	65.4	65.1	65.8	65.0	65.2	65.4	64.9	65.4	66.2	66.5	66.8	67.2	66.0
100000	67.7	66.6	67.0	65.4	65.2	65.7	65.0	65.2	65.5	64.8	65.4	66.2	66.5	66.8	67.1	65.9
110000	67.6	66.5	67.0	65.4	65.2	65.6	65.0	65.3	65.4	64.8	65.5	66.2	66.6	66.7	67.1	65.7
120000	67.7	66.6	67.0	65.2	65.4	65.5	65.0	65.2	65.4	64.8	65.4	66.3	66.7	66.6	67.0	65.5
130000	67.9	66.7	67.1	65.4	65.7	65.4	65.1	65.2	65.4	64.9	65.5	66.3	66.8	66.8	67.0	65.4
140000	68.0	66.9	67.1	65.5	65.9	65.4	65.3	65.2	65.4	64.9	65.6	66.4	66.9	66.8	67.0	65.4
150000	68.2	67.1	67.2	65.7	66.1	65.4	65.4	65.1	65.4	65.0	65.7	66.4	67.2	67.1	67.0	65.4
160000	68.5	67.2	67.2	65.8	66.5	65.4	65.5	65.2	65.3	65.0	65.8	66.5	67.3	67.3	67.0	65.4
170000	68.6	67.3	67.3	65.9	66.8	65.4	65.6	65.1	65.3	65.2	65.8	66.5	67.4	67.4	67.0	65.4
180000	68.7	67.4	67.3	65.9	66.8	65.4	65.6	65.2	65.3	65.2	66.0	66.7	67.5	67.4	67.0	65.4
190000	68.6	67.4	67.3	66.0	66.8	65.4	65.5	65.2	65.3	65.3	66.0	66.7	67.7	67.5	67.0	65.5
200000	68.6	67.4	67.3	66.0	66.7	65.5	65.6	65.1	65.3	65.3	66.1	66.8	67.7	67.5	67.1	65.5
210000	68.5	67.3	67.2	66.1	66.8	65.5	65.6	65.2	65.3	65.4	66.1	66.7	67.7	67.6	67.1	65.5
220000	68.5	67.3	67.2	66.1	66.7	65.5	65.3	65.2	65.3	65.5	66.1	66.7	67.6	67.5	67.1	65.5
230000	68.4	67.3	67.0	66.0	66.7	65.5	65.4	65.2	65.2	65.5	66.2	66.8	67.5	67.6	67.1	65.5
Daily Max	68.9	68.2	67.3	66.8	66.8	66.6	65.6	65.4	65.5	65.5	66.2	66.8	67.7	67.6	67.5	67.1
Daily Min	67.6	66.5	67.0	65.2	65.1	65.4	65.0	65.1	65.2	64.8	65.4	66.1	66.5	66.6	67.0	65.4
Average	68.2	67.2	67.1	65.9	65.9	65.8	65.3	65.2	65.4	65.1	65.6	66.4	67.0	67.1	67.1	66.0

Monthly average: 68.4
License Maximum: 80 F

Twin 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	65.5	67.4	67.9	68.6	69.0	69.1	69.5	70.1	70.8	70.1	70.5	71.6	73.0	73.6
10000	65.5	67.4	67.8	68.6	68.9	69.1	69.4	70.0	70.7	70.0	70.5	71.5	73.0	73.4
20000	65.5	67.4	67.8	68.6	68.9	69.1	69.3	69.9	70.7	70.0	70.5	71.4	72.8	73.3
30000	65.5	67.5	67.7	68.7	68.9	69.1	69.2	69.9	70.6	70.0	70.5	71.5	72.6	73.5
40000	65.5	67.5	67.7	68.8	68.8	69.0	69.2	69.9	70.5	69.9	70.4	71.4	72.4	73.4
50000	65.5	67.6	67.7	68.9	68.8	69.0	69.2	69.9	70.3	69.9	70.4	71.4	72.2	73.5
60000	65.5	67.7	67.7	68.9	68.8	68.9	69.2	69.9	70.2	69.9	70.3	71.6	72.3	73.6
70000	65.5	67.7	67.7	68.9	68.8	68.9	69.2	69.9	70.1	69.9	70.3	71.6	72.3	73.5
80000	65.5	67.8	67.7	68.8	68.9	68.9	69.2	69.9	70.0	69.8	70.3	71.5	72.2	73.5
90000	65.6	68.0	67.7	68.8	69.0	69.0	69.2	69.8	70.0	69.9	70.3	71.9	71.9	73.5
100000	65.7	68.2	67.8	68.8	69.1	69.2	69.3	69.9	69.9	70.0	70.4	72.0	72.0	73.7
110000	65.7	68.2	67.9	68.7	69.3	69.3	69.3	70.0	69.9	70.0	70.5	72.4	71.9	73.8
120000	65.9	68.3	67.9	68.8	69.5	69.4	69.5	70.1	69.8	70.1	70.7	72.4	72.0	74.1
130000	66.1	68.3	68.0	69.0	69.6	69.7	69.7	70.4	69.8	70.2	71.1	72.3	72.2	74.3
140000	66.5	68.4	68.1	69.0	69.7	69.8	70.0	70.5	69.9	70.2	71.1	73.3	72.3	73.8
150000	66.6	68.4	68.2	69.3	69.7	70.0	69.8	70.7	69.9	70.3	71.2	73.7	72.4	74.3
160000	67.1	68.4	68.2	69.4	69.5	70.0	70.2	70.7	70.0	70.3	71.2	73.4	72.5	74.6
170000	67.4	68.4	68.3	69.5	69.5	70.0	70.3	71.1	70.0	70.3	71.7	74.1	72.8	75.4
180000	67.5	68.4	68.3	69.5	69.4	69.9	70.4	71.1	69.9	70.3	71.6	72.5	73.1	75.0
190000	67.7	68.3	68.4	69.4	69.4	69.9	70.5	71.1	70.0	70.4	71.8	72.8	73.0	75.6
200000	67.9	68.3	68.4	69.3	69.3	69.8	70.6	71.1	70.0	70.4	71.6	72.9	72.9	75.9
210000	67.8	68.2	68.5	69.3	69.3	69.7	70.5	70.9	70.0	70.5	71.6	73.2	73.0	74.9
220000	67.7	68.0	68.5	69.2	69.2	69.6	70.2	70.8	70.0	70.5	71.7	73.1	72.8	76.0
230000	67.4	68.0	68.5	69.1	69.2	69.5	70.1	70.8	70.0	70.5	71.7	73.0	73.2	75.2
Daily Max	67.9	68.4	68.5	69.5	69.7	70.0	70.6	71.1	70.8	70.5	71.8	74.1	73.2	76.0
Daily Min	65.5	67.4	67.7	68.6	68.8	68.9	69.2	69.8	69.8	69.8	70.3	71.4	71.9	73.3
Average	66.3	68.0	68.0	69.0	69.2	69.4	69.7	70.3	70.1	70.1	70.9	72.4	72.5	74.2

Twin 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	74.8	74.8	75.0	75.0	76.2	76.7	76.0	76.0	76.3	77.3	76.8	75.7	75.1	74.8	75.5	76.6
10000	74.8	74.7	74.8	74.9	76.1	76.6	75.9	75.9	76.3	77.2	76.7	75.6	75.1	74.7	75.5	76.6
20000	74.6	74.7	74.8	74.8	76.1	76.6	75.7	75.8	76.3	77.1	76.5	75.6	75.0	74.7	75.5	76.7
30000	74.7	74.6	74.8	74.9	76.1	76.5	75.6	75.7	76.1	77.1	76.3	75.5	74.9	74.5	75.5	76.9
40000	74.7	74.5	74.6	74.9	76.0	76.4	75.6	75.7	76.0	77.0	76.3	75.4	74.9	74.5	75.4	76.9
50000	74.7	74.4	74.5	74.8	75.8	76.3	75.5	75.5	75.9	76.8	76.3	75.4	74.8	74.4	75.4	77.1
60000	74.7	74.3	74.4	74.8	75.8	76.2	75.3	75.4	75.9	76.7	76.1	75.3	74.8	74.2	75.2	77.0
70000	74.7	74.3	74.3	74.8	75.9	76.1	75.2	75.4	75.8	76.6	76.2	75.3	74.7	74.2	75.1	76.8
80000	74.6	74.2	74.2	74.8	75.9	75.9	75.2	75.4	75.8	76.6	76.3	75.3	74.7	74.1	75.2	76.7
90000	74.5	74.1	74.2	74.7	75.9	75.9	75.2	75.4	75.9	76.7	76.1	75.2	74.6	74.3	75.3	76.9
100000	74.4	74.1	74.2	75.0	76.0	75.8	75.3	75.4	76.1	76.6	75.9	75.1	74.5	74.4	75.4	76.9
110000	74.4	74.2	74.1	75.0	76.1	75.8	75.3	75.5	76.2	76.8	75.9	75.1	74.6	74.4	75.8	77.0
120000	74.3	74.4	74.2	75.2	76.2	75.8	75.3	75.6	76.5	76.9	75.9	75.0	74.6	74.6	76.1	77.1
130000	74.8	74.4	74.4	75.2	76.3	76.1	75.6	75.9	77.1	77.1	76.0	75.0	74.8	74.7	76.5	77.6
140000	74.5	74.8	74.5	75.4	76.8	76.3	75.6	76.1	77.0	77.1	76.3	75.0	74.8	75.3	75.8	77.5
150000	74.4	75.3	74.6	75.6	77.1	76.3	75.8	76.3	76.4	77.2	76.4	75.1	74.9	75.0	75.9	77.6
160000	74.5	75.4	74.7	75.8	77.5	76.0	75.9	76.3	76.7	77.3	76.4	75.1	75.0	75.4	76.4	77.6
170000	74.6	75.6	75.0	76.7	77.6	75.9	76.1	76.5	77.0	77.3	76.3	75.1	75.0	75.4	77.0	77.8
180000	74.4	75.5	74.8	77.1	77.5	76.0	76.1	76.6	77.0	77.2	76.3	75.2	74.9	75.6	76.7	77.7
190000	74.5	75.5	74.9	76.6	77.4	76.2	76.2	76.5	77.0	77.1	76.2	75.1	75.0	75.8	77.2	77.6
200000	74.5	75.5	75.1	76.3	77.3	76.3	76.1	76.3	77.7	76.8	76.1	75.1	74.9	75.7	77.9	77.5
210000	74.6	75.4	75.2	76.0	77.1	76.2	76.3	76.6	77.7	76.7	75.9	75.2	74.9	75.6	77.1	77.5
220000	74.8	75.3	75.1	76.4	77.0	76.1	76.2	76.4	77.4	76.9	75.7	75.2	75.0	75.3	76.9	77.3
230000	74.8	75.1	75.1	76.4	76.9	76.0	76.0	76.4	77.3	76.8	75.7	75.2	74.9	75.3	76.6	77.2
Daily Max	74.8	75.6	75.2	77.1	77.6	76.7	76.3	76.6	77.7	77.3	76.8	75.7	75.1	75.8	77.9	77.8
Daily Min	74.3	74.1	74.1	74.7	75.8	75.8	75.2	75.4	75.8	76.6	75.7	75.0	74.5	74.1	75.1	76.6
Average	74.6	74.8	74.7	75.5	76.5	76.2	75.7	75.9	76.6	77.0	76.2	75.2	74.8	74.9	76.0	77.2

Monthly average: 74.8

License Maximum Monthly Average: 83 F

Twin Falls Tailrace Temperature 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	77.1	75.7	75.0	74.6	74.5	73.6	73.1	73.8	75.3	74.8	73.5	72.1	72.4	72.6	73.0
10000	77.0	75.6	74.9	74.6	74.5	73.6	73.1	73.7	75.2	74.7	73.4	72.0	72.3	72.6	72.9
20000	76.9	75.5	74.9	74.6	74.4	73.5	73.1	73.7	75.3	74.5	73.4	72.0	72.2	72.5	72.8
30000	76.8	75.5	74.8	74.5	74.4	73.4	73.1	73.7	75.3	74.4	73.4	71.9	72.1	72.5	72.7
40000	76.7	75.4	74.8	74.5	74.4	73.3	73.0	73.6	75.3	74.3	73.3	71.8	72.1	72.5	72.7
50000	76.6	75.3	74.8	74.5	74.3	73.2	72.9	73.7	75.2	74.1	73.3	71.7	72.1	72.5	72.7
60000	76.5	75.2	74.7	74.5	74.3	73.2	72.9	73.7	75.2	74.0	73.2	71.6	72.0	72.4	72.7
70000	76.4	75.2	74.6	74.4	74.2	73.1	72.8	73.8	74.9	74.0	73.1	71.5	71.9	72.3	72.6
80000	76.2	75.1	74.6	74.4	74.2	73.0	72.8	73.7	74.9	73.9	73.0	71.4	71.8	72.2	72.4
90000	76.2	75.1	74.6	74.4	74.2	72.9	72.8	73.7	74.8	73.8	72.9	71.3	71.8	72.3	72.5
100000	76.1	75.2	74.6	74.5	74.1	72.8	72.9	73.9	74.8	73.8	72.8	71.3	71.8	72.3	72.6
110000	76.0	75.3	74.4	74.5	74.1	72.8	73.0	74.0	74.8	73.8	72.9	71.3	71.9	72.4	72.7
120000	76.1	75.4	74.5	74.5	74.1	72.9	73.2	74.3	74.9	73.8	72.8	71.4	72.1	72.4	73.0
130000	76.1	75.4	74.7	74.5	74.1	73.0	73.3	74.6	75.2	73.7	72.7	71.6	72.3	72.6	73.1
140000	76.2	75.8	74.7	74.5	74.0	73.1	73.3	75.1	75.4	73.7	72.7	71.6	72.4	72.8	72.9
150000	76.3	75.8	74.8	74.5	74.0	73.0	73.5	75.1	75.5	73.7	72.7	71.9	72.6	73.3	73.4
160000	76.3	75.8	74.8	74.6	74.0	73.1	73.5	75.6	75.4	73.7	72.6	72.1	72.6	73.6	73.4
170000	76.2	75.6	74.9	74.6	74.0	73.1	73.5	76.1	75.3	73.7	72.5	72.2	72.6	73.5	73.8
180000	76.3	75.7	74.8	74.7	74.1	73.1	73.5	76.2	75.2	73.7	72.5	72.3	72.6	72.8	74.0
190000	76.2	75.6	74.7	74.6	74.0	73.0	73.4	76.3	75.0	73.7	72.4	72.6	72.6	72.8	74.4
200000	76.1	75.4	74.7	74.6	73.9	73.0	73.5	76.2	74.8	73.7	72.3	72.6	72.3	72.6	74.2
210000	76.0	75.3	74.7	74.6	73.8	73.0	73.9	76.0	75.1	73.7	72.2	72.2	72.4	72.7	74.0
220000	75.9	75.2	74.6	74.5	73.7	73.0	73.8	75.8	74.9	73.6	72.2	72.6	72.7	73.0	73.7
230000	75.8	75.0	74.6	74.5	73.7	73.0	73.9	75.6	75.0	73.5	72.1	72.3	72.5	73.2	73.6
Daily Max	77.1	75.8	75.0	74.7	74.5	73.6	73.9	76.3	75.5	74.8	73.5	72.6	72.7	73.6	74.4
Daily Min	75.8	75.0	74.4	74.4	73.7	72.8	72.8	73.6	74.8	73.5	72.1	71.3	71.8	72.2	72.4
Average	76.3	75.4	74.7	74.5	74.1	73.1	73.2	74.6	75.1	73.9	72.8	71.9	72.3	72.7	73.1

Twin 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	73.5	73.4	72.2	71.3	71.5	72.3	73.2	72.6	73.3	73.6	74.1	74.5	74.9	75.3	75.7	75.4
10000	73.5	73.3	72.2	71.2	71.5	72.2	73.2	72.6	73.3	73.6	74.0	74.6	74.9	75.1	75.6	75.3
20000	73.4	73.3	72.1	71.2	71.4	72.3	73.3	72.5	73.3	73.8	73.9	74.4	74.8	75.4	75.5	75.2
30000	73.5	73.2	72.0	71.0	71.5	72.2	73.2	72.5	73.1	73.7	74.0	74.4	75.1	75.5	75.5	75.2
40000	73.5	73.1	72.0	71.0	71.5	72.2	73.2	72.4	73.1	73.6	74.0	74.3	75.0	75.3	75.5	75.2
50000	73.5	73.0	71.9	71.0	71.4	72.3	73.1	72.4	73.0	73.4	74.0	74.3	74.8	75.3	75.4	75.2
60000	73.4	73.0	71.8	70.9	71.4	72.0	73.0	72.4	72.9	73.4	73.9	74.1	74.7	75.2	75.4	75.1
70000	73.3	72.9	71.7	71.0	71.3	72.0	72.9	72.3	72.9	73.4	73.7	74.0	74.6	75.2	75.4	75.0
80000	73.3	72.8	71.6	71.0	71.3	72.1	72.9	72.4	72.8	73.3	73.8	74.2	74.5	75.2	75.4	75.0
90000	73.4	72.8	71.5	70.9	71.4	72.2	72.8	72.4	73.0	73.4	73.8	74.2	74.6	75.2	75.4	74.9
100000	73.6	72.8	71.5	70.9	71.4	72.2	72.7	72.5	73.0	73.6	73.9	74.3	74.7	75.5	75.4	75.0
110000	73.8	72.7	71.5	71.0	71.5	72.4	72.8	72.7	73.3	73.7	74.1	74.4	74.8	75.8	75.2	75.1
120000	73.8	72.7	71.5	71.1	71.5	72.5	72.9	72.7	73.3	73.9	74.4	74.7	74.9	75.9	75.2	75.2
130000	73.7	72.7	71.4	71.0	71.6	72.5	73.1	73.1	73.3	74.0	74.5	75.0	75.2	76.2	75.3	75.6
140000	74.0	72.7	71.4	71.1	71.7	72.9	73.3	73.3	73.5	74.1	74.3	74.9	75.6	76.5	75.5	75.6
150000	74.0	72.7	71.4	71.2	71.8	73.0	73.1	73.5	73.8	74.1	74.6	74.9	75.8	76.9	75.5	75.8
160000	74.1	72.7	71.4	71.3	72.0	73.1	73.2	73.9	74.0	74.9	74.7	74.7	75.8	76.3	75.7	75.8
170000	73.8	72.7	71.6	71.3	72.0	73.7	73.2	73.8	74.1	74.7	74.8	74.7	75.6	76.1	75.6	75.7
180000	73.8	72.6	71.7	71.3	72.2	73.8	73.0	74.0	73.8	74.6	74.7	74.7	75.7	75.8	75.6	75.7
190000	73.6	72.5	71.8	71.3	72.2	73.6	72.8	73.9	73.8	74.3	74.4	74.9	75.6	75.9	75.4	75.6
200000	73.7	72.4	71.8	71.4	72.3	73.6	72.8	73.7	73.7	74.2	74.5	75.0	75.4	76.3	75.4	75.6
210000	73.6	72.4	71.6	71.4	72.3	73.5	72.8	73.6	73.6	74.0	74.6	74.8	75.5	75.7	75.4	75.7
220000	73.5	72.3	71.5	71.4	72.3	73.4	72.8	73.6	73.9	74.2	74.6	74.8	75.4	75.9	75.5	75.8
230000	73.5	72.2	71.4	71.4	72.3	73.3	72.7	73.5	73.7	74.2	74.6	74.8	75.4	75.8	75.4	75.8
Daily Max	74.1	73.4	72.2	71.4	72.3	73.8	73.3	74.0	74.1	74.9	74.8	75.0	75.8	76.9	75.7	75.8
Daily Min	73.3	72.2	71.4	70.9	71.3	72.0	72.7	72.3	72.8	73.3	73.7	74.0	74.5	75.1	75.2	74.9
Average	73.6	72.8	71.7	71.1	71.7	72.7	73.0	73.0	73.4	73.9	74.2	74.6	75.1	75.7	75.4	75.4

Monthly average: 73.1

License Maximum Monthly Average: 81 F

Twin Falls Tailrace Temperature 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	75.6	75.9	75.7	75.5	75.1	73.8	72.8	72.6	71.2	71.2	70.6	71.5	71.1	70.1	68.7
10000	75.6	75.9	75.7	75.5	75.0	73.7	72.7	72.5	71.1	71.1	70.6	71.5	71.1	70.0	68.6
20000	75.6	75.9	75.8	75.5	74.9	73.7	72.6	72.5	71.0	71.1	70.6	71.7	71.0	70.0	68.5
30000	75.5	75.9	75.7	75.4	74.9	73.6	72.6	72.4	71.0	71.1	70.5	71.8	71.0	69.9	68.4
40000	75.5	75.9	75.6	75.4	74.8	73.5	72.5	72.3	71.0	71.0	70.4	71.8	70.9	69.8	68.3
50000	75.4	75.9	75.5	75.3	74.7	73.4	72.4	72.2	70.9	71.0	70.4	71.7	70.8	69.7	68.3
60000	75.4	75.8	75.4	75.3	74.7	73.3	72.4	72.1	70.9	70.9	70.4	71.7	70.8	69.6	68.2
70000	75.4	75.7	75.3	75.3	74.6	73.2	72.3	72.1	70.8	70.8	70.4	71.4	70.7	69.4	68.1
80000	75.4	75.7	75.3	75.3	74.5	73.1	72.3	72.0	70.8	70.8	70.4	71.3	70.7	69.4	68.1
90000	75.4	75.7	75.4	75.2	74.4	73.0	72.2	72.0	70.8	70.8	70.4	71.2	70.7	69.3	68.1
100000	75.5	75.7	75.4	75.1	74.4	73.0	72.2	71.9	70.7	70.7	70.4	71.2	70.7	69.3	68.1
110000	75.7	75.9	75.5	75.2	74.4	73.0	72.2	71.8	70.8	70.7	70.5	71.2	70.7	69.2	68.1
120000	75.8	76.1	75.6	75.3	74.4	73.1	72.5	71.8	70.8	70.7	70.6	71.3	70.7	69.1	68.1
130000	76.2	76.2	75.8	75.3	74.4	73.3	72.7	71.7	70.8	70.8	70.8	71.3	70.7	69.0	68.2
140000	76.4	76.0	75.9	75.3	74.5	73.4	72.9	71.7	70.8	70.8	70.9	71.3	70.6	68.9	68.1
150000	76.5	76.2	75.9	75.4	74.4	73.4	73.0	71.6	70.9	70.7	70.9	71.3	70.6	69.0	68.2
160000	76.6	76.0	75.9	75.2	74.4	73.4	73.0	71.6	71.0	70.7	71.1	71.2	70.6	69.0	68.2
170000	76.6	76.4	76.0	75.2	74.4	73.4	72.9	71.5	70.9	70.8	71.1	71.2	70.5	69.1	68.2
180000	76.4	76.2	76.0	75.3	74.3	73.3	72.9	71.5	71.1	70.8	71.2	71.2	70.5	69.1	68.3
190000	76.1	76.2	75.9	75.2	74.2	73.2	72.9	71.4	71.2	70.8	71.1	71.2	70.4	69.0	68.3
200000	75.9	76.1	75.6	75.2	74.1	73.1	72.8	71.4	71.2	70.9	71.3	71.2	70.4	69.0	68.3
210000	75.9	76.1	75.6	75.2	74.1	73.0	72.7	71.3	71.3	70.9	71.4	71.2	70.3	69.0	68.3
220000	75.9	76.0	75.6	75.1	74.0	72.9	72.7	71.3	71.3	70.8	71.1	71.2	70.2	68.8	68.3
230000	75.9	75.8	75.7	75.1	73.9	72.9	72.7	71.2	71.2	70.7	71.3	71.2	70.2	68.8	68.3
Daily Max	76.6	76.4	76.0	75.5	75.1	73.8	73.0	72.6	71.3	71.2	71.4	71.8	71.1	70.1	68.7
Daily Min	75.4	75.7	75.3	75.1	73.9	72.9	72.2	71.2	70.7	70.7	70.4	71.2	70.2	68.8	68.1
Average	75.8	76.0	75.7	75.3	74.5	73.3	72.6	71.9	71.0	70.9	70.8	71.4	70.7	69.3	68.3

Twin Falls Tailrace Temperature 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	68.3	69.2	69.7	70.1	70.4	69.3	68.5	67.6	66.9	66.4	66.5	66.4	66.9	66.9	67.7	68.2
10000	68.3	69.2	69.7	70.0	70.4	69.2	68.4	67.5	66.8	66.3	66.4	66.4	66.7	66.9	67.7	68.3
20000	68.3	69.1	69.6	69.9	70.4	69.1	68.4	67.4	66.7	66.3	66.4	66.3	66.7	66.9	67.8	68.2
30000	68.2	69.2	69.6	69.7	70.3	69.0	68.3	67.3	66.7	66.2	66.3	66.3	66.7	66.9	67.8	68.2
40000	68.2	69.1	69.6	69.7	70.3	68.9	68.3	67.2	66.6	66.2	66.2	66.2	66.6	66.9	67.8	68.2
50000	68.2	69.1	69.5	69.6	70.3	68.8	68.3	67.1	66.5	66.1	66.1	66.2	66.6	66.9	67.7	68.1
60000	68.2	69.1	69.5	69.5	70.1	68.6	68.3	67.1	66.4	66.0	66.0	66.2	66.6	66.9	67.7	68.1
70000	68.2	69.0	69.4	69.5	69.9	68.5	68.2	67.0	66.3	65.9	65.9	66.1	66.6	66.9	67.6	68.1
80000	68.2	69.1	69.4	69.5	69.8	68.4	68.2	67.0	66.3	65.8	65.7	66.1	66.6	66.9	67.7	68.1
90000	68.3	69.0	69.4	69.5	69.6	68.4	68.2	67.0	66.2	65.7	65.7	66.1	66.6	66.9	67.7	68.2
100000	68.3	69.0	69.5	69.5	69.6	68.3	68.2	67.1	66.3	65.6	65.6	66.1	66.6	66.9	67.7	68.2
110000	68.3	69.0	69.6	69.6	69.6	68.4	68.2	67.1	66.3	65.6	65.7	66.1	66.7	67.0	67.7	68.2
120000	68.5	69.0	69.7	69.7	69.7	68.3	68.3	67.2	66.4	65.7	65.7	66.2	66.7	67.1	67.8	68.3
130000	68.6	69.0	70.0	69.8	69.7	68.5	68.3	67.3	66.6	66.0	65.8	66.2	66.7	67.1	67.8	68.3
140000	68.8	69.1	70.1	69.9	69.7	68.5	68.3	67.4	66.8	66.1	66.1	66.4	66.8	67.3	67.9	68.6
150000	68.9	69.2	70.2	70.2	69.6	68.6	68.3	67.4	66.9	66.3	66.2	66.6	66.9	67.6	68.0	68.7
160000	69.0	69.2	70.1	70.4	69.6	68.8	68.2	67.4	67.0	66.4	66.4	66.7	67.0	67.9	68.1	68.8
170000	69.1	69.3	70.1	70.8	69.5	68.9	68.2	67.4	67.1	66.5	66.5	66.9	67.0	67.8	68.0	68.8
180000	69.0	69.4	70.1	70.6	69.5	68.9	68.1	67.4	67.1	66.6	66.6	66.9	67.1	67.6	68.1	68.8
190000	69.2	69.5	70.1	70.5	69.5	68.9	68.0	67.3	67.0	66.6	66.6	66.9	67.1	67.8	68.3	68.9
200000	69.2	69.6	70.1	70.4	69.5	68.8	67.9	67.2	66.9	66.6	66.6	67.0	67.0	67.9	68.3	68.9
210000	69.2	69.7	70.1	70.4	69.4	68.7	67.9	67.1	66.8	66.7	66.7	67.0	66.9	68.1	68.3	68.9
220000	69.1	69.7	70.1	70.5	69.4	68.6	67.8	67.0	66.6	66.7	66.6	67.0	66.9	67.8	68.3	68.9
230000	69.2	69.7	70.1	70.4	69.3	68.6	67.7	67.0	66.5	66.6	66.6	66.9	66.9	67.9	68.3	68.8
Daily Max	69.2	69.7	70.2	70.8	70.4	69.3	68.5	67.6	67.1	66.7	66.7	67.0	67.1	68.1	68.3	68.9
Daily Min	68.2	69.0	69.4	69.5	69.3	68.3	67.7	67.0	66.2	65.6	65.6	66.1	66.6	66.9	67.6	68.1
Average	68.6	69.2	69.8	70.0	69.8	68.7	68.2	67.2	66.6	66.2	66.2	66.5	66.8	67.3	67.9	68.4

Monthly average: 65.9

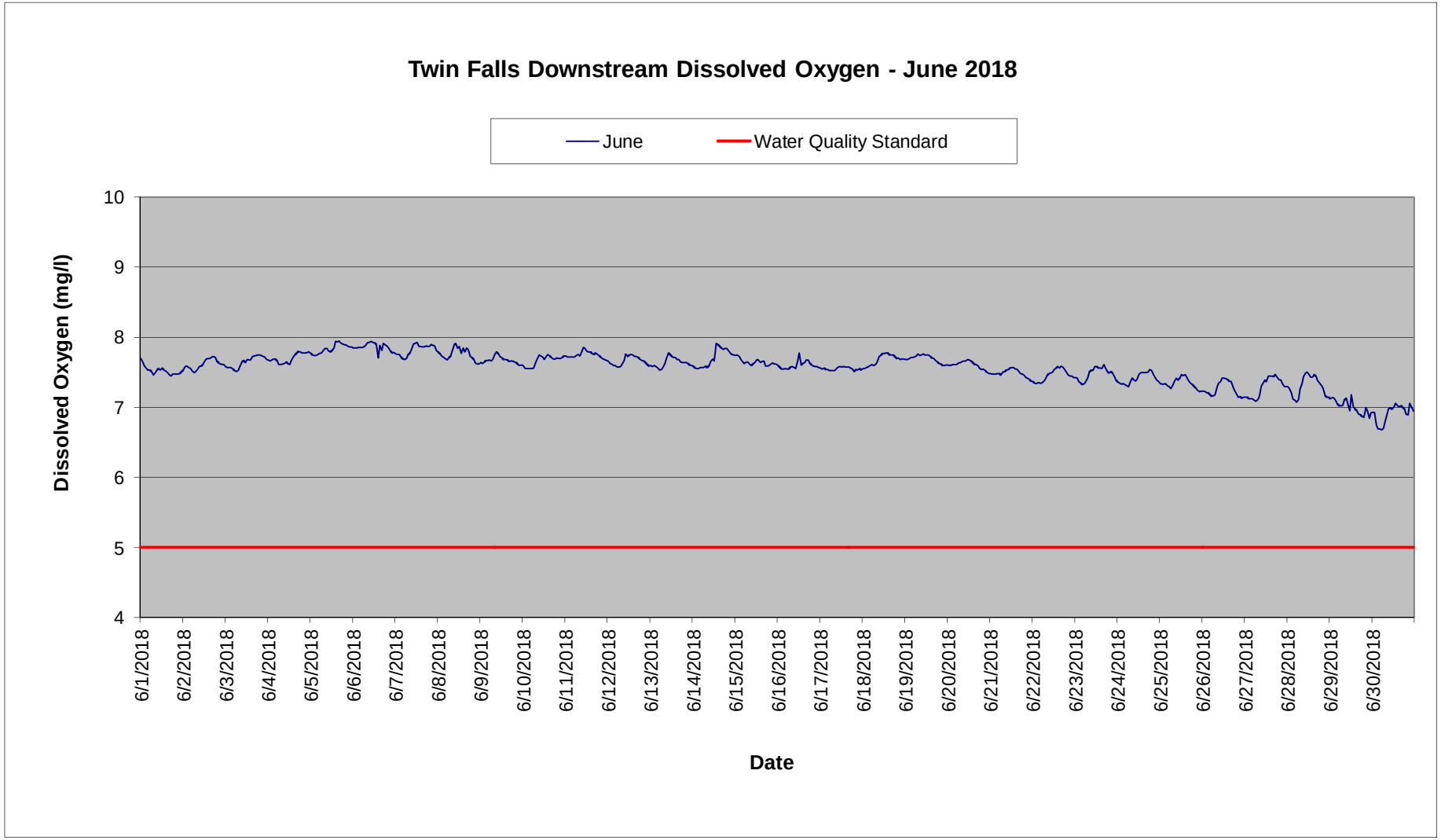
License Maximum Monthly Average: 74 F

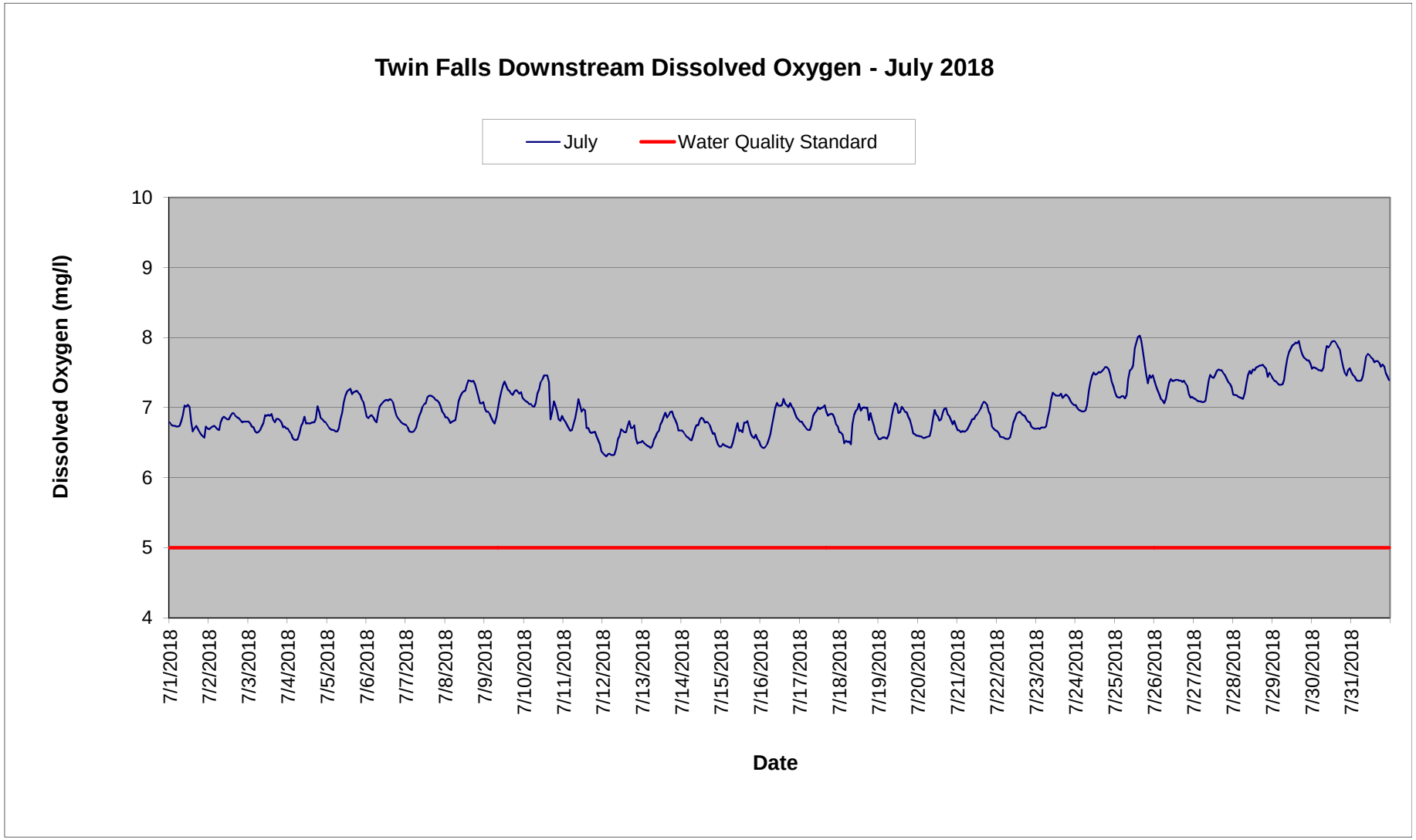
Twin Falls Tailrace Temperature Summary - September 2018

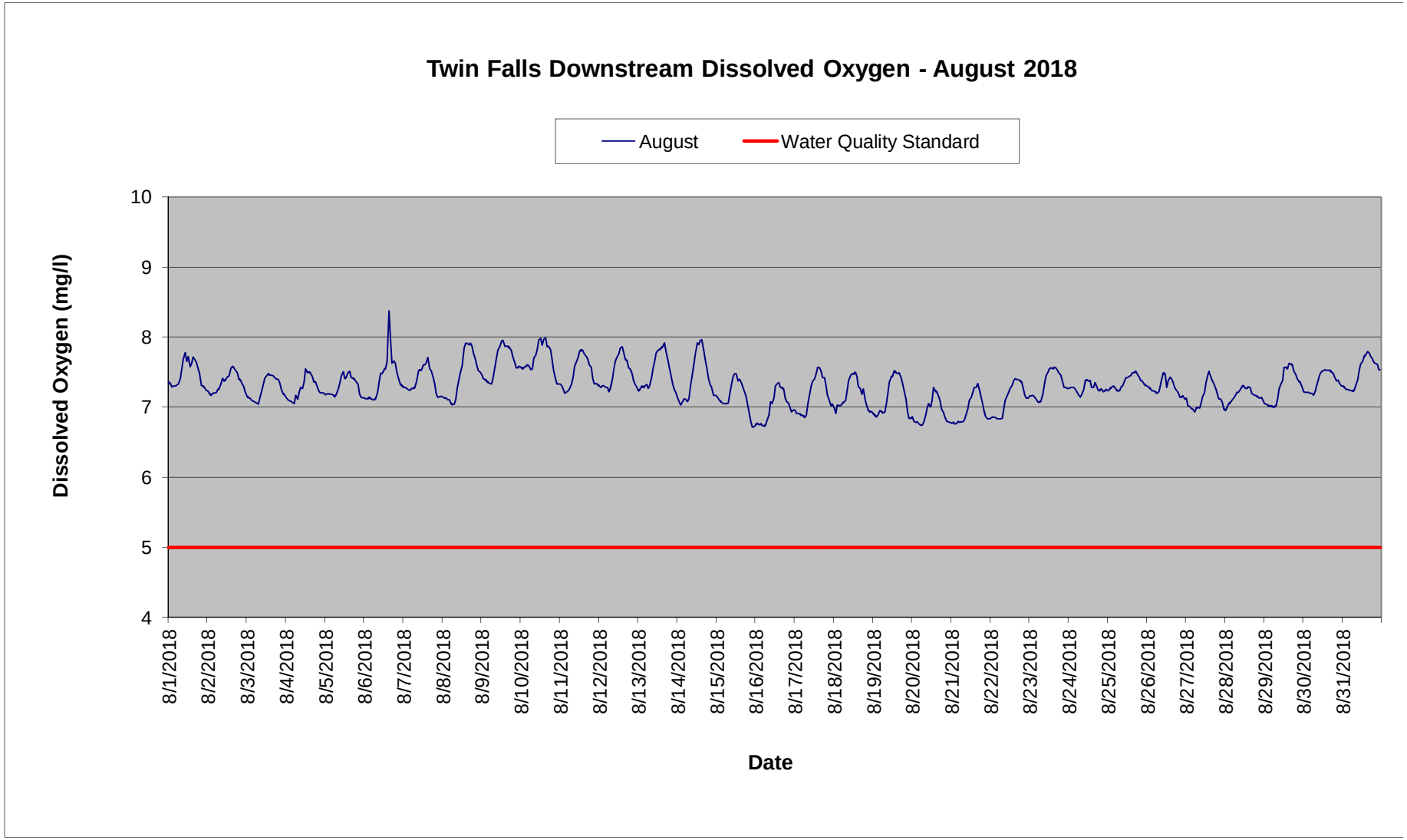
Time HHMMSS	09/17/18	09/18/18	09/19/18	09/20/18	09/21/18	09/22/18	09/23/18	09/24/18	09/25/18	09/26/18	09/27/18	09/28/18	09/29/18	09/30/18
0	68.8	69.9	68.2	66.6	65.6	64.6	64.1	63.7	63.4	62.7	61.6	60.1	58.8	57.8
10000	68.7	69.8	68.1	66.6	65.6	64.5	64.1	63.7	63.3	62.7	61.5	60.1	58.7	57.8
20000	68.7	69.7	68.1	66.5	65.6	64.4	64.0	63.7	63.3	62.6	61.5	60.0	58.7	57.7
30000	68.7	69.5	68.0	66.4	65.5	64.3	63.9	63.7	63.3	62.6	61.4	60.0	58.6	57.7
40000	68.7	69.4	68.0	66.4	65.5	64.3	63.8	63.7	63.2	62.5	61.4	59.9	58.5	57.7
50000	68.6	69.3	67.9	66.3	65.5	64.2	63.6	63.6	63.2	62.4	61.3	59.9	58.5	57.6
60000	68.6	69.2	67.8	66.3	65.4	64.1	63.5	63.5	63.2	62.3	61.3	59.8	58.4	57.6
70000	68.6	69.1	67.7	66.2	65.4	64.0	63.4	63.5	63.2	62.3	61.2	59.7	58.3	57.5
80000	68.6	69.0	67.7	66.2	65.4	63.9	63.3	63.4	63.1	62.3	61.1	59.7	58.3	57.5
90000	68.6	68.9	67.6	66.1	65.4	63.9	63.3	63.3	63.1	62.2	61.1	59.6	58.2	57.4
100000	68.6	68.8	67.6	66.1	65.4	63.9	63.3	63.3	63.1	62.1	61.0	59.5	58.2	57.4
110000	68.6	68.8	67.5	66.1	65.4	63.9	63.3	63.2	63.1	62.1	60.9	59.5	58.1	57.3
120000	68.9	68.7	67.5	66.1	65.4	64.0	63.3	63.2	63.1	62.1	60.9	59.5	58.1	57.3
130000	69.3	68.6	67.4	66.1	65.4	64.0	63.4	63.1	63.0	62.1	60.8	59.5	58.1	57.3
140000	69.5	68.5	67.3	66.1	65.4	64.0	63.5	63.2	63.0	62.1	60.8	59.5	58.0	57.3
150000	69.5	68.5	67.3	66.1	65.3	64.1	63.5	63.2	62.9	62.0	60.7	59.4	58.1	57.3
160000	69.6	68.5	67.2	66.0	65.2	64.2	63.6	63.2	62.9	62.0	60.7	59.4	58.0	57.2
170000	69.8	68.4	67.1	66.0	65.1	64.3	63.6	63.2	62.9	62.0	60.6	59.4	58.0	57.2
180000	70.0	68.3	67.0	66.0	65.1	64.4	63.7	63.3	62.9	61.9	60.6	59.3	58.0	57.1
190000	70.0	68.3	67.0	65.9	65.0	64.4	63.7	63.3	62.8	61.9	60.5	59.2	57.9	57.1
200000	70.0	68.3	66.9	65.9	65.0	64.4	63.7	63.4	62.8	61.8	60.4	59.1	57.9	57.1
210000	70.0	68.3	66.8	65.8	64.9	64.4	63.7	63.4	62.8	61.8	60.3	59.1	57.9	57.1
220000	70.0	68.3	66.8	65.7	64.8	64.3	63.8	63.4	62.7	61.7	60.3	59.0	57.8	57.0
230000	70.0	68.2	66.7	65.7	64.7	64.2	63.7	63.4	62.7	61.6	60.2	58.9	57.8	57.0
Daily Max	70.0	69.9	68.2	66.6	65.6	64.6	64.1	63.7	63.4	62.7	61.6	60.1	58.8	57.8
Daily Min	68.6	68.2	66.7	65.7	64.7	63.9	63.3	63.1	62.7	61.6	60.2	58.9	57.8	57.0
Average	69.2	68.9	67.5	66.1	65.3	64.2	63.6	63.4	63.0	62.2	60.9	59.5	58.2	57.4

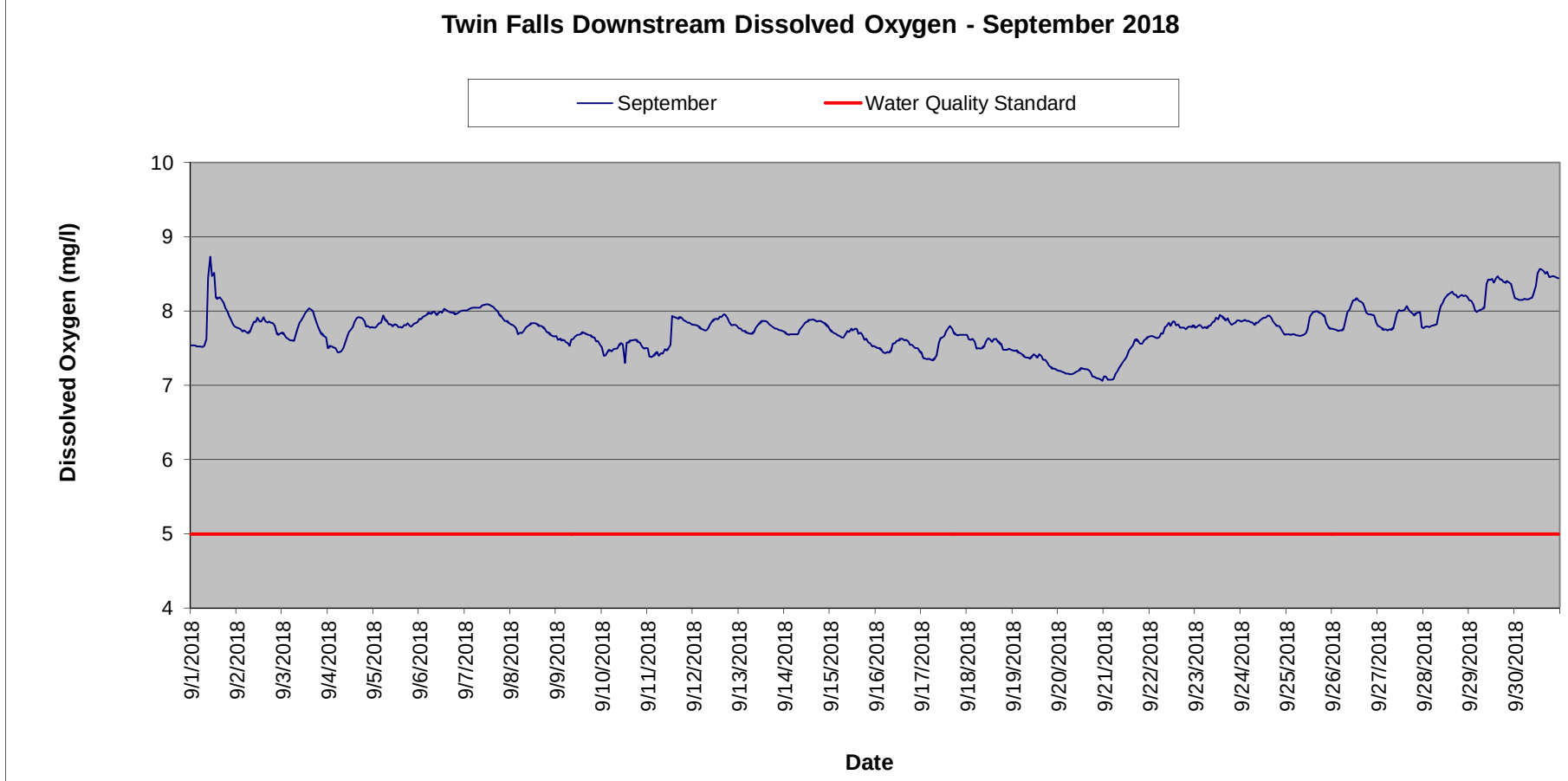
Downstream Monitoring Location

Water Quality Data


Twin Falls Downstream Dissolved Oxygen - June 2018
June
Water Quality Standard
Dissolved Oxygen (mg/l)
10
9
8
7
6
5
4
6/1/2018
6/2/2018
6/3/2018
6/4/2018
6/5/2018
6/6/2018
6/7/2018
6/8/2018
6/9/2018
6/10/2018
6/11/2018
6/12/2018
6/13/2018
6/14/2018
6/15/2018
6/16/2018
6/17/2018
6/18/2018
6/19/2018
6/20/2018
6/21/2018
6/22/2018
6/23/2018
6/24/2018
6/25/2018
6/26/2018
6/27/2018
6/28/2018
6/29/2018
6/30/2018
Date


Twin Falls Downstream Dissolved Oxygen - July 2018
July
Water Quality Standard
Dissolved Oxygen (mg/l)
10
9
8
7
6
5
4
7/1/2018
7/2/2018
7/3/2018
7/4/2018
7/5/2018
7/6/2018
7/7/2018
7/8/2018
7/9/2018
7/10/2018
7/11/2018
7/12/2018
7/13/2018
7/14/2018
7/15/2018
7/16/2018
7/17/2018
7/18/2018
7/19/2018
7/20/2018
7/21/2018
7/22/2018
7/23/2018
7/24/2018
7/25/2018
7/26/2018
7/27/2018
7/28/2018
7/29/2018
7/30/2018
7/31/2018
Date


Twin Falls Downstream Dissolved Oxygen - August 2018
August
Water Quality Standard
Dissolved Oxygen (mg/l)
10
9
8
7
6
5
4
8/1/2018
8/2/2018
8/3/2018
8/4/2018
8/5/2018
8/6/2018
8/7/2018
8/8/2018
8/9/2018
8/10/2018
8/11/2018
8/12/2018
8/13/2018
8/14/2018
8/15/2018
8/16/2018
8/17/2018
8/18/2018
8/19/2018
8/20/2018
8/21/2018
8/22/2018
8/23/2018
8/24/2018
8/25/2018
8/26/2018
8/27/2018
8/28/2018
8/29/2018
8/30/2018
8/31/2018
Date


Twin Falls Downstream Dissolved Oxygen - September 2018
September
Water Quality Standard
Dissolved Oxygen (mg/l)
10
9
8
7
6
5
4
9/1/2018
9/2/2018
9/3/2018
9/4/2018
9/5/2018
9/6/2018
9/7/2018
9/8/2018
9/9/2018
9/10/2018
9/11/2018
9/12/2018
9/13/2018
9/14/2018
9/15/2018
9/16/2018
9/17/2018
9/18/2018
9/19/2018
9/20/2018
9/21/2018
9/22/2018
9/23/2018
9/24/2018
9/25/2018
9/26/2018
9/27/2018
9/28/2018
9/29/2018
9/30/2018
Date

Twin Falls Downstream 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	7.7	7.5	7.6	7.7	7.8	7.8	7.8	7.8	7.6	7.6	7.7	7.7	7.6	7.6	7.7	7.6
10000	7.7	7.6	7.6	7.7	7.7	7.8	7.8	7.8	7.6	7.6	7.7	7.6	7.6	7.6	7.7	7.6
20000	7.6	7.6	7.6	7.7	7.7	7.8	7.8	7.7	7.6	7.6	7.7	7.6	7.6	7.5	7.7	7.5
30000	7.5	7.6	7.6	7.7	7.7	7.9	7.7	7.7	7.7	7.6	7.7	7.6	7.6	7.5	7.7	7.5
40000	7.5	7.6	7.5	7.7	7.8	7.9	7.7	7.7	7.7	7.6	7.7	7.6	7.6	7.6	7.6	7.6
50000	7.5	7.5	7.5	7.7	7.8	7.9	7.7	7.7	7.7	7.5	7.7	7.6	7.5	7.6	7.6	7.5
60000	7.5	7.5	7.5	7.6	7.8	7.9	7.7	7.7	7.7	7.6	7.7	7.6	7.5	7.6	7.6	7.5
70000	7.5	7.5	7.5	7.6	7.8	7.9	7.7	7.7	7.7	7.6	7.8	7.6	7.6	7.6	7.6	7.6
80000	7.5	7.5	7.6	7.6	7.8	7.9	7.8	7.8	7.8	7.7	7.7	7.6	7.6	7.6	7.6	7.6
90000	7.5	7.6	7.6	7.6	7.8	7.9	7.8	7.9	7.8	7.7	7.8	7.7	7.7	7.6	7.6	7.6
100000	7.6	7.6	7.7	7.6	7.8	7.9	7.9	7.9	7.8	7.7	7.9	7.8	7.8	7.7	7.6	7.6
110000	7.5	7.6	7.6	7.6	7.8	7.9	7.9	7.8	7.7	7.7	7.8	7.7	7.8	7.7	7.6	7.7
120000	7.6	7.7	7.7	7.6	7.8	7.9	7.9	7.9	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.8
130000	7.5	7.7	7.7	7.7	7.8	7.9	7.9	7.8	7.7	7.7	7.8	7.8	7.7	7.9	7.7	7.6
140000	7.5	7.7	7.7	7.7	7.9	7.7	7.9	7.8	7.7	7.8	7.8	7.7	7.7	7.9	7.6	7.6
150000	7.5	7.7	7.7	7.7	7.9	7.9	7.9	7.8	7.7	7.7	7.8	7.7	7.7	7.9	7.6	7.6
160000	7.5	7.7	7.7	7.8	7.9	7.8	7.9	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7
170000	7.4	7.7	7.7	7.8	7.9	7.9	7.9	7.8	7.7	7.7	7.8	7.7	7.6	7.8	7.6	7.7
180000	7.5	7.7	7.7	7.8	7.9	7.9	7.9	7.7	7.7	7.7	7.8	7.7	7.6	7.8	7.6	7.6
190000	7.5	7.7	7.7	7.8	7.9	7.9	7.9	7.7	7.6	7.7	7.7	7.7	7.6	7.8	7.6	7.6
200000	7.5	7.6	7.7	7.8	7.9	7.8	7.9	7.7	7.6	7.7	7.7	7.7	7.6	7.8	7.6	7.6
210000	7.5	7.6	7.7	7.8	7.9	7.8	7.9	7.6	7.6	7.7	7.7	7.6	7.6	7.8	7.6	7.6
220000	7.5	7.6	7.7	7.8	7.9	7.8	7.9	7.6	7.6	7.7	7.7	7.6	7.6	7.8	7.6	7.6
230000	7.5	7.6	7.7	7.8	7.9	7.8	7.8	7.6	7.6	7.7	7.7	7.6	7.6	7.7	7.6	7.6
Daily Max	7.7	7.7	7.7	7.8	7.9	7.9	7.9	7.9	7.8	7.8	7.9	7.8	7.8	7.9	7.7	7.8
Daily Min	7.4	7.5	7.5	7.6	7.7	7.7	7.7	7.6	7.6	7.5	7.7	7.6	7.5	7.5	7.6	7.5
Average	7.5	7.6	7.6	7.7	7.8	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.6	7.7	7.6	7.6

License Minimum DO: 5.0 mg/l

Twin Falls Downstream 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	7.6	7.5	7.7	7.6	7.5	7.4	7.4	7.4	7.3	7.2	7.1	7.3	7.1	6.9
10000	7.5	7.5	7.7	7.6	7.5	7.3	7.4	7.3	7.3	7.2	7.1	7.3	7.1	6.9
20000	7.6	7.6	7.7	7.6	7.5	7.3	7.4	7.3	7.3	7.2	7.1	7.2	7.1	6.7
30000	7.5	7.6	7.7	7.6	7.5	7.4	7.3	7.3	7.3	7.2	7.1	7.1	7.1	6.7
40000	7.5	7.6	7.7	7.6	7.5	7.3	7.3	7.3	7.3	7.2	7.1	7.1	7.1	6.7
50000	7.5	7.6	7.7	7.6	7.5	7.3	7.3	7.3	7.3	7.2	7.1	7.1	7.0	6.7
60000	7.5	7.6	7.7	7.6	7.5	7.4	7.4	7.3	7.3	7.2	7.1	7.1	7.0	6.7
70000	7.5	7.6	7.8	7.6	7.5	7.4	7.4	7.4	7.3	7.2	7.1	7.3	7.0	6.8
80000	7.5	7.6	7.7	7.6	7.5	7.5	7.5	7.4	7.4	7.3	7.1	7.3	7.1	6.9
90000	7.6	7.7	7.7	7.7	7.5	7.5	7.5	7.4	7.4	7.3	7.3	7.4	7.1	7.0
100000	7.6	7.7	7.8	7.7	7.5	7.5	7.5	7.4	7.4	7.4	7.3	7.5	7.1	7.0
110000	7.6	7.8	7.7	7.7	7.6	7.5	7.6	7.4	7.4	7.4	7.4	7.5	7.0	7.0
120000	7.6	7.8	7.7	7.7	7.6	7.5	7.6	7.5	7.5	7.4	7.4	7.5	7.2	7.0
130000	7.6	7.8	7.7	7.7	7.6	7.6	7.6	7.5	7.5	7.4	7.4	7.4	7.0	7.1
140000	7.6	7.8	7.7	7.6	7.5	7.6	7.6	7.5	7.5	7.4	7.4	7.4	7.0	7.0
150000	7.6	7.7	7.7	7.6	7.5	7.6	7.6	7.5	7.4	7.4	7.4	7.5	7.0	7.0
160000	7.6	7.7	7.7	7.6	7.5	7.6	7.6	7.5	7.4	7.4	7.4	7.4	6.9	7.0
170000	7.6	7.7	7.7	7.6	7.5	7.6	7.6	7.5	7.3	7.3	7.5	7.4	6.9	7.0
180000	7.5	7.7	7.6	7.6	7.5	7.5	7.5	7.5	7.3	7.2	7.4	7.3	6.9	7.0
190000	7.5	7.7	7.6	7.5	7.5	7.5	7.5	7.5	7.3	7.2	7.4	7.3	6.9	6.9
200000	7.5	7.7	7.6	7.5	7.4	7.5	7.5	7.5	7.3	7.1	7.4	7.3	7.0	6.9
210000	7.5	7.7	7.6	7.5	7.4	7.4	7.5	7.4	7.2	7.2	7.3	7.2	7.0	7.1
220000	7.6	7.7	7.6	7.5	7.4	7.4	7.4	7.4	7.2	7.1	7.3	7.1	6.8	7.0
230000	7.5	7.7	7.6	7.5	7.4	7.4	7.4	7.4	7.2	7.1	7.3	7.1	6.9	6.9
Daily Max	7.6	7.8	7.8	7.7	7.6	7.6	7.6	7.5	7.5	7.4	7.5	7.5	7.2	7.1
Daily Min	7.5	7.5	7.6	7.5	7.4	7.3	7.3	7.3	7.2	7.1	7.1	7.1	6.8	6.7
Average	7.5	7.7	7.7	7.6	7.5	7.5	7.5	7.4	7.3	7.3	7.3	7.3	7.0	6.9

Twin Falls Downstream 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	6.8	6.7	6.8	6.7	6.8	6.9	6.8	6.9	7.0	7.1	6.8	6.3	6.5	6.7	6.4	6.5
10000	6.8	6.7	6.8	6.7	6.7	6.9	6.7	6.9	6.9	7.1	6.8	6.3	6.5	6.7	6.5	6.4
20000	6.7	6.7	6.7	6.6	6.7	6.9	6.7	6.8	6.9	7.1	6.8	6.3	6.5	6.6	6.5	6.4
30000	6.7	6.7	6.7	6.6	6.7	6.9	6.7	6.8	6.9	7.1	6.7	6.3	6.5	6.6	6.5	6.4
40000	6.7	6.7	6.7	6.5	6.7	6.9	6.7	6.8	6.9	7.1	6.7	6.3	6.4	6.6	6.4	6.5
50000	6.7	6.7	6.6	6.5	6.7	6.8	6.7	6.8	6.8	7.0	6.7	6.3	6.4	6.5	6.4	6.5
60000	6.7	6.7	6.7	6.6	6.7	6.8	6.7	6.8	6.8	7.0	6.8	6.3	6.5	6.5	6.4	6.6
70000	6.8	6.8	6.7	6.6	6.7	6.9	6.8	7.0	6.9	7.1	6.9	6.3	6.5	6.6	6.5	6.8
80000	6.9	6.9	6.7	6.7	6.8	7.0	6.9	7.1	7.0	7.2	7.0	6.4	6.6	6.7	6.6	6.9
90000	7.0	6.9	6.8	6.8	6.9	7.1	6.9	7.2	7.1	7.3	7.1	6.6	6.6	6.7	6.7	7.0
100000	7.0	6.9	6.9	6.9	7.1	7.1	7.0	7.2	7.2	7.4	7.0	6.6	6.7	6.7	6.8	7.1
110000	7.0	6.8	6.9	6.8	7.2	7.1	7.1	7.2	7.3	7.4	6.9	6.7	6.8	6.8	6.7	7.0
120000	7.0	6.8	6.9	6.8	7.2	7.1	7.1	7.2	7.4	7.5	7.0	6.7	6.8	6.9	6.7	7.0
130000	6.8	6.9	6.9	6.8	7.3	7.1	7.2	7.3	7.3	7.5	7.0	6.6	6.9	6.8	6.6	7.0
140000	6.7	6.9	6.9	6.8	7.3	7.1	7.2	7.4	7.3	7.5	6.7	6.6	6.9	6.8	6.8	7.1
150000	6.7	6.9	6.8	6.8	7.2	7.1	7.2	7.4	7.2	7.4	6.7	6.7	6.9	6.8	6.8	7.1
160000	6.7	6.9	6.8	6.8	7.2	7.1	7.2	7.4	7.2	6.8	6.6	6.8	6.9	6.8	6.8	7.0
170000	6.7	6.9	6.8	6.8	7.2	7.0	7.1	7.4	7.2	6.9	6.6	6.7	6.9	6.7	6.7	7.0
180000	6.7	6.9	6.8	7.0	7.2	6.9	7.1	7.3	7.2	7.1	6.6	6.7	6.9	6.7	6.6	7.1
190000	6.6	6.8	6.8	6.9	7.2	6.9	7.1	7.3	7.3	7.0	6.7	6.7	6.9	6.6	6.6	7.0
200000	6.6	6.8	6.8	6.9	7.2	6.8	7.1	7.2	7.2	6.9	6.6	6.6	6.8	6.6	6.6	7.0
210000	6.6	6.8	6.7	6.8	7.1	6.8	7.0	7.1	7.2	6.8	6.5	6.5	6.8	6.5	6.6	6.9
220000	6.7	6.8	6.7	6.8	7.1	6.8	6.9	7.1	7.2	6.8	6.5	6.5	6.7	6.5	6.6	6.9
230000	6.7	6.8	6.7	6.8	7.0	6.8	6.9	7.1	7.1	6.9	6.4	6.5	6.7	6.4	6.5	6.8
Daily Max	7.0	6.9	6.9	7.0	7.3	7.1	7.2	7.4	7.4	7.5	7.1	6.8	6.9	6.9	6.8	7.1
Daily Min	6.6	6.7	6.6	6.5	6.7	6.8	6.7	6.8	6.8	6.8	6.4	6.3	6.4	6.4	6.4	6.4
Average	6.8	6.8	6.8	6.7	7.0	6.9	6.9	7.1	7.1	7.1	6.8	6.5	6.7	6.7	6.6	6.8

License Minimum Dissolved Oxygen: 5.0 mg/l

Twin Falls Downstream 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	6.8	6.6	6.5	6.6	6.7	6.7	6.7	7.0	7.2	7.4	7.1	7.2	7.4	7.6	7.5
10000	6.8	6.6	6.5	6.6	6.7	6.6	6.7	7.0	7.2	7.3	7.1	7.2	7.4	7.6	7.5
20000	6.8	6.6	6.6	6.6	6.6	6.6	6.7	7.0	7.1	7.2	7.1	7.2	7.4	7.6	7.4
30000	6.7	6.5	6.6	6.6	6.7	6.6	6.7	7.0	7.1	7.2	7.1	7.2	7.3	7.6	7.4
40000	6.7	6.5	6.6	6.6	6.7	6.6	6.7	6.9	7.2	7.1	7.1	7.1	7.3	7.5	7.4
50000	6.7	6.5	6.6	6.6	6.7	6.6	6.7	6.9	7.2	7.1	7.1	7.1	7.3	7.5	7.4
60000	6.7	6.5	6.6	6.6	6.7	6.6	6.7	7.0	7.1	7.1	7.1	7.1	7.3	7.5	7.4
70000	6.7	6.5	6.7	6.6	6.7	6.6	6.9	7.0	7.2	7.1	7.1	7.2	7.4	7.6	7.4
80000	6.9	6.8	6.9	6.7	6.8	6.6	7.0	7.2	7.4	7.3	7.2	7.4	7.6	7.8	7.6
90000	6.9	6.9	7.0	6.8	6.8	6.7	7.1	7.4	7.5	7.4	7.4	7.5	7.7	7.9	7.7
100000	6.9	7.0	7.1	7.0	6.8	6.8	7.2	7.5	7.6	7.4	7.5	7.5	7.8	7.9	7.8
110000	7.0	7.0	7.0	6.9	6.9	6.8	7.2	7.5	7.6	7.4	7.4	7.5	7.8	7.9	7.7
120000	7.0	7.1	6.9	6.9	6.9	6.9	7.2	7.5	7.8	7.4	7.4	7.5	7.9	7.9	7.7
130000	7.0	7.0	6.9	6.8	6.9	6.9	7.2	7.5	7.9	7.4	7.5	7.5	7.9	7.9	7.7
140000	7.0	7.0	7.0	6.8	7.0	6.9	7.2	7.5	8.0	7.4	7.5	7.6	7.9	7.9	7.6
150000	7.0	7.0	7.0	6.9	7.0	6.9	7.2	7.5	8.0	7.4	7.5	7.6	7.9	7.9	7.7
160000	6.9	7.0	6.9	7.0	7.1	6.9	7.1	7.5	8.0	7.4	7.5	7.6	7.9	7.9	7.7
170000	6.9	7.0	6.9	7.0	7.1	6.9	7.2	7.5	7.8	7.4	7.5	7.6	7.8	7.8	7.6
180000	6.9	6.8	6.9	6.9	7.0	6.8	7.2	7.6	7.6	7.4	7.5	7.6	7.8	7.7	7.6
190000	6.9	6.9	6.8	6.9	6.9	6.8	7.2	7.6	7.5	7.3	7.5	7.6	7.7	7.6	7.6
200000	6.9	6.8	6.7	6.8	6.9	6.8	7.1	7.5	7.3	7.3	7.4	7.6	7.7	7.5	7.6
210000	6.9	6.7	6.6	6.8	6.7	6.7	7.1	7.5	7.5	7.2	7.4	7.4	7.7	7.5	7.5
220000	6.8	6.6	6.6	6.8	6.7	6.7	7.1	7.4	7.4	7.1	7.3	7.5	7.7	7.5	7.4
230000	6.7	6.6	6.6	6.7	6.7	6.7	7.0	7.3	7.5	7.2	7.3	7.5	7.6	7.6	7.4
Daily Max	7.0	7.1	7.1	7.0	7.1	6.9	7.2	7.6	8.0	7.4	7.5	7.6	7.9	7.9	7.8
Daily Min	6.7	6.5	6.5	6.6	6.6	6.6	6.7	6.9	7.1	7.1	7.1	7.1	7.3	7.5	7.4
Average	6.9	6.8	6.8	6.8	6.8	6.7	7.0	7.3	7.5	7.3	7.3	7.4	7.6	7.7	7.6

Twin Falls Downstream 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	7.4	7.2	7.2	7.1	7.2	7.1	7.3	7.1	7.5	7.6	7.3	7.3	7.2	7.1	7.2	6.8
10000	7.3	7.2	7.1	7.1	7.2	7.1	7.3	7.1	7.4	7.6	7.3	7.3	7.3	7.1	7.1	6.8
20000	7.3	7.2	7.1	7.1	7.2	7.1	7.3	7.1	7.4	7.6	7.3	7.3	7.3	7.0	7.1	6.8
30000	7.3	7.2	7.1	7.1	7.2	7.1	7.2	7.1	7.4	7.6	7.2	7.3	7.3	7.1	7.1	6.8
40000	7.3	7.2	7.1	7.1	7.2	7.1	7.2	7.1	7.4	7.6	7.2	7.3	7.3	7.1	7.1	6.7
50000	7.3	7.2	7.1	7.1	7.2	7.1	7.3	7.1	7.3	7.6	7.2	7.3	7.3	7.1	7.1	6.7
60000	7.3	7.2	7.1	7.2	7.1	7.1	7.3	7.0	7.3	7.5	7.3	7.2	7.3	7.1	7.1	6.8
70000	7.4	7.3	7.0	7.1	7.2	7.1	7.3	7.0	7.4	7.6	7.3	7.3	7.3	7.1	7.1	6.8
80000	7.5	7.3	7.1	7.2	7.3	7.2	7.4	7.1	7.6	7.7	7.4	7.4	7.4	7.3	7.2	6.9
90000	7.7	7.4	7.2	7.3	7.3	7.4	7.5	7.3	7.7	7.7	7.6	7.5	7.6	7.5	7.3	7.1
100000	7.8	7.4	7.3	7.3	7.4	7.5	7.5	7.4	7.8	7.8	7.7	7.7	7.7	7.6	7.4	7.1
110000	7.7	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.9	8.0	7.7	7.7	7.8	7.8	7.5	7.1
120000	7.7	7.4	7.5	7.5	7.4	7.5	7.6	7.6	7.9	8.0	7.8	7.8	7.8	7.9	7.5	7.3
130000	7.6	7.4	7.5	7.5	7.4	7.6	7.6	7.8	8.0	7.9	7.8	7.8	7.8	7.9	7.4	7.3
140000	7.6	7.6	7.5	7.5	7.5	7.7	7.6	7.9	7.9	8.0	7.8	7.9	7.8	8.0	7.4	7.4
150000	7.7	7.6	7.5	7.5	7.5	8.4	7.7	7.9	7.9	8.0	7.8	7.8	7.9	8.0	7.4	7.3
160000	7.7	7.6	7.4	7.4	7.4	8.0	7.6	7.9	7.9	7.9	7.7	7.7	7.9	7.8	7.3	7.3
170000	7.6	7.5	7.4	7.4	7.4	7.6	7.5	7.9	7.8	7.9	7.7	7.7	7.8	7.7	7.2	7.3
180000	7.6	7.5	7.4	7.4	7.4	7.7	7.4	7.9	7.8	7.8	7.6	7.6	7.7	7.6	7.2	7.1
190000	7.5	7.4	7.4	7.3	7.4	7.6	7.3	7.8	7.7	7.7	7.6	7.6	7.6	7.4	7.1	7.1
200000	7.3	7.4	7.4	7.2	7.3	7.5	7.2	7.7	7.6	7.5	7.4	7.5	7.5	7.3	6.9	7.1
210000	7.3	7.3	7.2	7.2	7.2	7.4	7.1	7.6	7.6	7.4	7.3	7.4	7.3	7.3	6.8	7.0
220000	7.3	7.3	7.2	7.2	7.1	7.3	7.1	7.5	7.6	7.3	7.3	7.3	7.3	7.2	6.7	6.9
230000	7.2	7.2	7.2	7.2	7.1	7.3	7.2	7.5	7.6	7.3	7.3	7.3	7.2	7.2	6.7	7.0
Daily Max	7.8	7.6	7.5	7.5	7.5	8.4	7.7	7.9	8.0	8.0	7.8	7.9	7.9	8.0	7.5	7.4
Daily Min	7.2	7.2	7.0	7.1	7.1	7.1	7.1	7.0	7.3	7.3	7.2	7.2	7.2	7.0	6.7	6.7
Average	7.5	7.4	7.3	7.3	7.3	7.4	7.4	7.5	7.6	7.7	7.5	7.5	7.5	7.4	7.1	7.0

License Minimum Dissolved Oxygen: 5.0 mg/l

Twin Falls Downstream 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	7.0	7.0	6.9	6.9	6.8	6.8	7.2	7.3	7.2	7.3	7.1	7.0	7.1	7.2	7.3
10000	6.9	6.9	6.9	6.8	6.8	6.9	7.2	7.3	7.3	7.3	7.0	7.0	7.0	7.2	7.3
20000	6.9	7.0	6.9	6.8	6.8	6.9	7.2	7.3	7.3	7.3	7.0	7.0	7.0	7.2	7.3
30000	6.9	7.0	6.9	6.8	6.8	6.9	7.1	7.3	7.3	7.2	7.0	7.1	7.0	7.2	7.2
40000	6.9	7.0	7.0	6.8	6.8	6.8	7.1	7.3	7.3	7.2	7.0	7.1	7.0	7.2	7.2
50000	6.9	7.1	6.9	6.7	6.8	6.8	7.1	7.2	7.3	7.2	6.9	7.1	7.0	7.2	7.2
60000	6.9	7.1	6.9	6.7	6.8	6.8	7.1	7.2	7.2	7.2	7.0	7.2	7.0	7.2	7.2
70000	6.9	7.1	6.9	6.8	6.8	6.8	7.1	7.1	7.2	7.2	7.0	7.2	7.0	7.2	7.2
80000	7.0	7.2	7.1	6.9	6.8	7.0	7.2	7.2	7.3	7.3	7.0	7.2	7.1	7.3	7.3
90000	7.2	7.4	7.2	7.0	6.9	7.1	7.3	7.3	7.3	7.4	7.1	7.3	7.3	7.4	7.4
100000	7.3	7.5	7.4	7.1	7.0	7.2	7.4	7.4	7.4	7.5	7.2	7.3	7.3	7.5	7.5
110000	7.4	7.5	7.4	7.0	7.1	7.2	7.5	7.4	7.4	7.5	7.2	7.3	7.4	7.5	7.6
120000	7.4	7.5	7.5	7.1	7.1	7.3	7.6	7.4	7.4	7.3	7.4	7.3	7.6	7.5	7.7
130000	7.5	7.5	7.5	7.3	7.2	7.3	7.6	7.4	7.4	7.4	7.4	7.3	7.6	7.5	7.7
140000	7.6	7.4	7.5	7.2	7.3	7.4	7.6	7.3	7.5	7.4	7.5	7.3	7.5	7.5	7.7
150000	7.6	7.3	7.5	7.2	7.3	7.4	7.6	7.3	7.5	7.4	7.4	7.3	7.6	7.5	7.8
160000	7.5	7.3	7.5	7.2	7.3	7.4	7.6	7.4	7.5	7.4	7.4	7.2	7.6	7.5	7.8
170000	7.4	7.2	7.4	7.1	7.3	7.4	7.5	7.3	7.5	7.3	7.3	7.2	7.6	7.5	7.7
180000	7.4	7.3	7.3	7.0	7.2	7.4	7.5	7.2	7.5	7.2	7.3	7.2	7.5	7.5	7.7
190000	7.3	7.1	7.2	6.9	7.1	7.4	7.5	7.2	7.4	7.2	7.2	7.2	7.5	7.4	7.6
200000	7.2	7.0	7.1	6.9	6.9	7.3	7.4	7.3	7.4	7.1	7.1	7.1	7.4	7.4	7.6
210000	7.1	7.0	6.9	6.8	6.9	7.2	7.3	7.2	7.4	7.1	7.1	7.1	7.4	7.4	7.6
220000	7.0	6.9	6.8	6.8	6.8	7.1	7.3	7.2	7.3	7.2	7.1	7.1	7.4	7.3	7.5
230000	7.0	6.9	6.8	6.8	6.8	7.1	7.3	7.3	7.3	7.1	7.0	7.1	7.3	7.3	7.5
Daily Max	7.6	7.5	7.5	7.3	7.3	7.4	7.6	7.4	7.5	7.5	7.5	7.3	7.6	7.5	7.8
Daily Min	6.9	6.9	6.8	6.7	6.8	6.8	7.1	7.1	7.2	7.1	6.9	7.0	7.0	7.2	7.2
Average	7.2	7.2	7.1	6.9	7.0	7.1	7.3	7.3	7.4	7.3	7.2	7.2	7.3	7.4	7.5

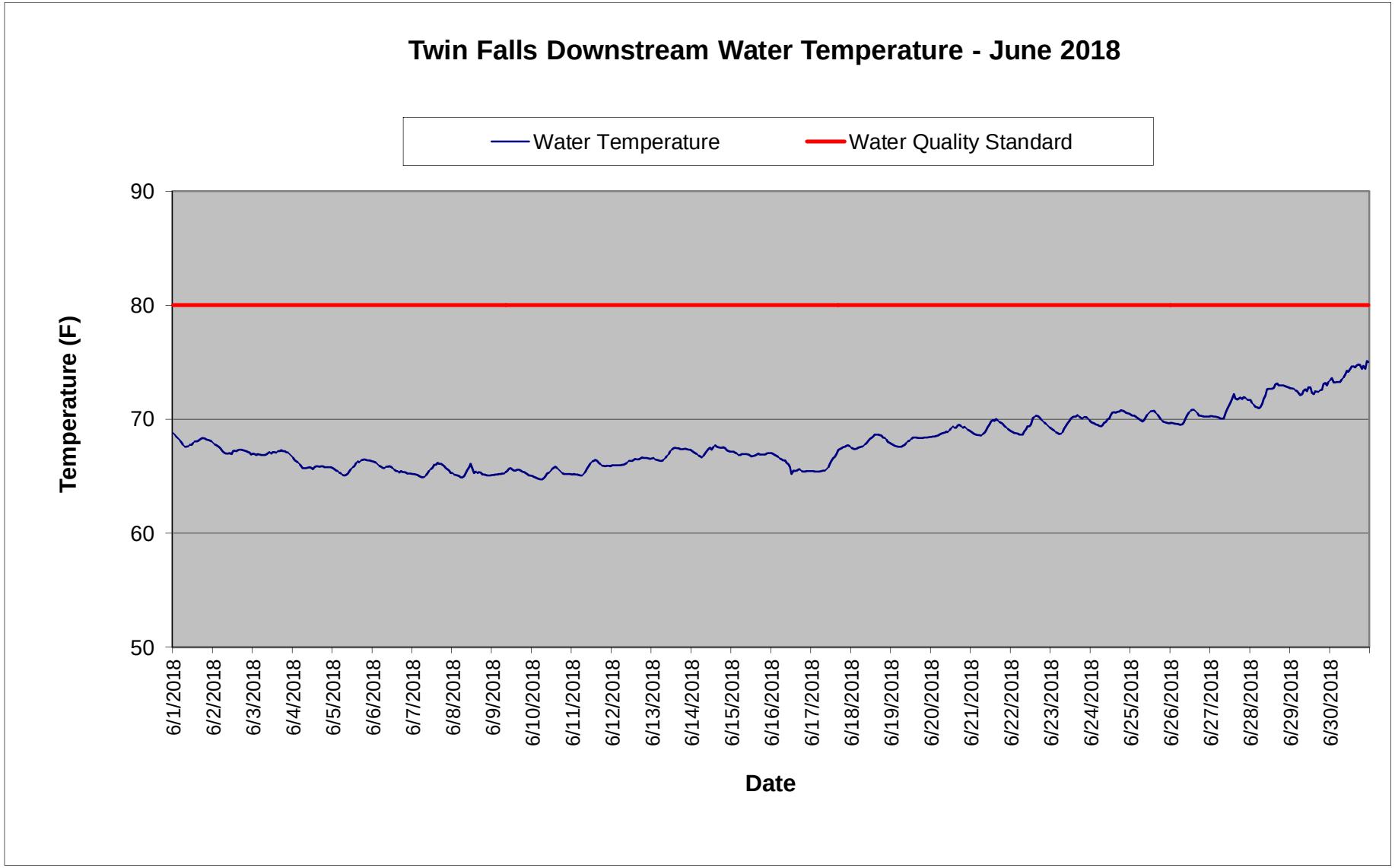
Twin Falls Downstream Dissolved Oxygen Summary - September 2018

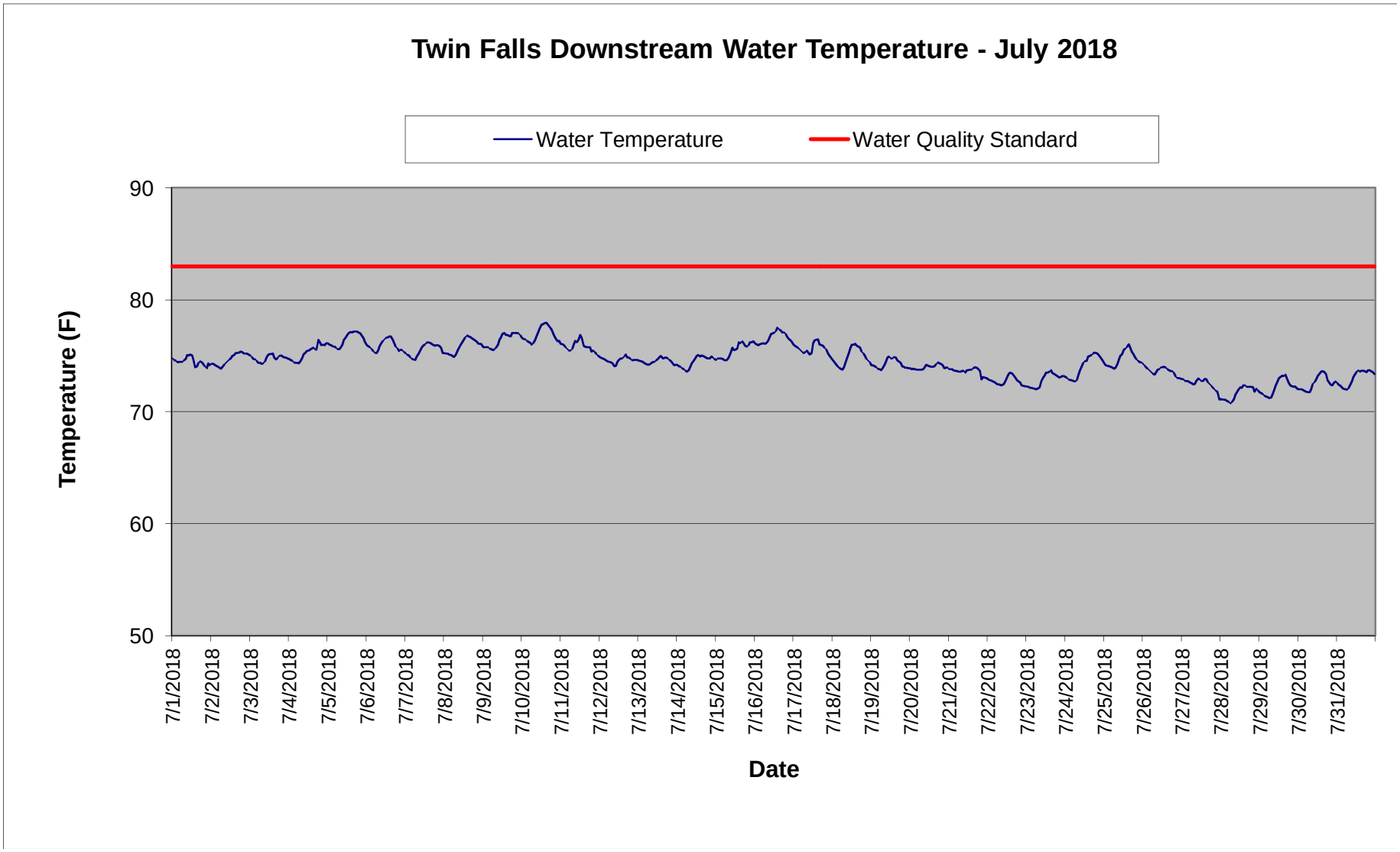
Time HHMMSS	09/01/18	09/02/18	09/03/18	09/04/18	09/05/18	09/06/18	09/07/18	09/08/18	09/09/18	09/10/18	09/11/18	09/12/18	09/13/18	09/14/18	09/15/18	09/16/18
0	7.5	7.8	7.7	7.5	7.8	7.9	8.0	7.8	7.7	7.5	7.5	7.8	7.8	7.7	7.7	7.5
10000	7.5	7.8	7.7	7.5	7.8	7.9	8.0	7.8	7.6	7.4	7.4	7.8	7.8	7.7	7.7	7.5
20000	7.5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

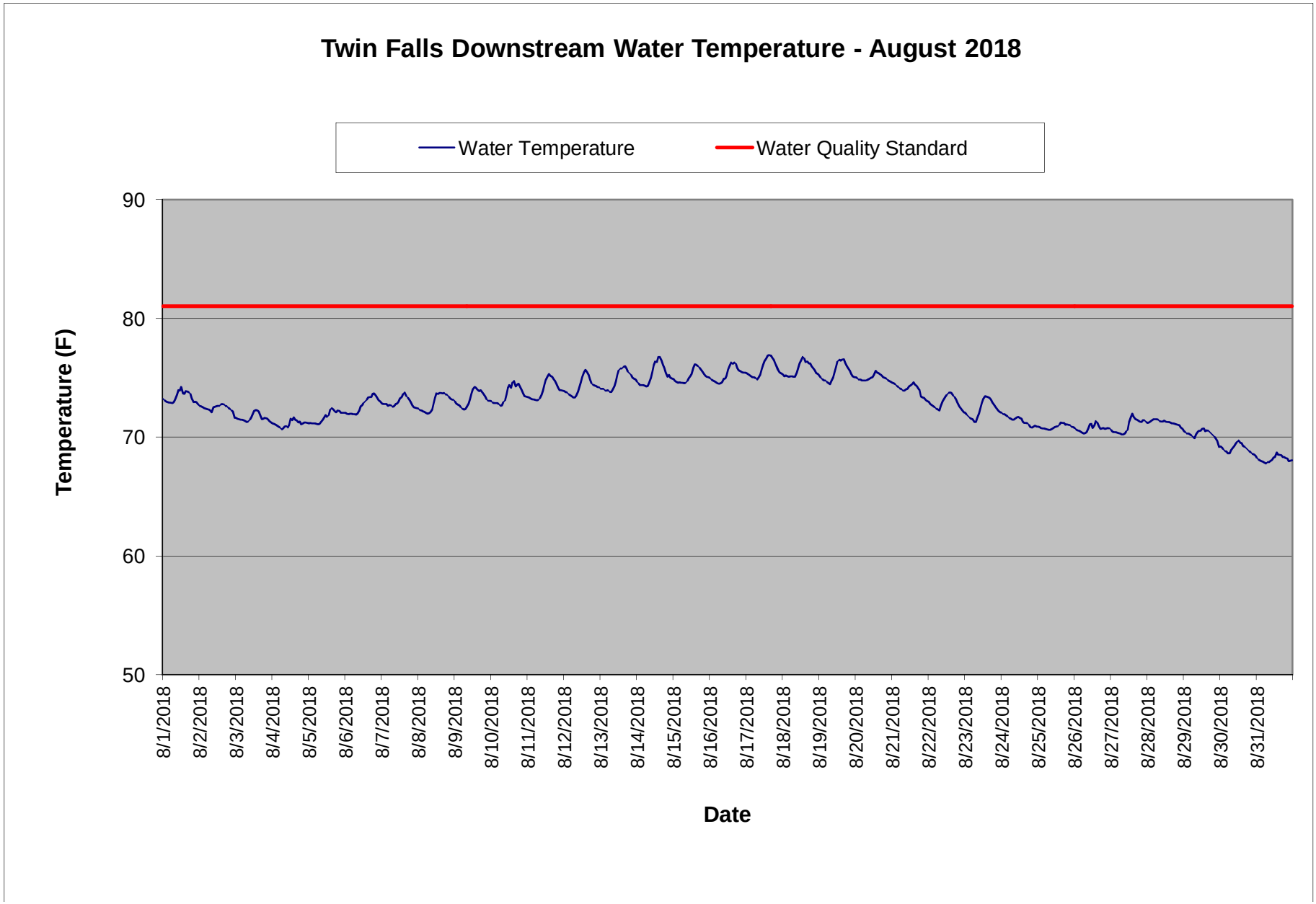
License Minimum Dissolved Oxygen: 5.0 mg/l

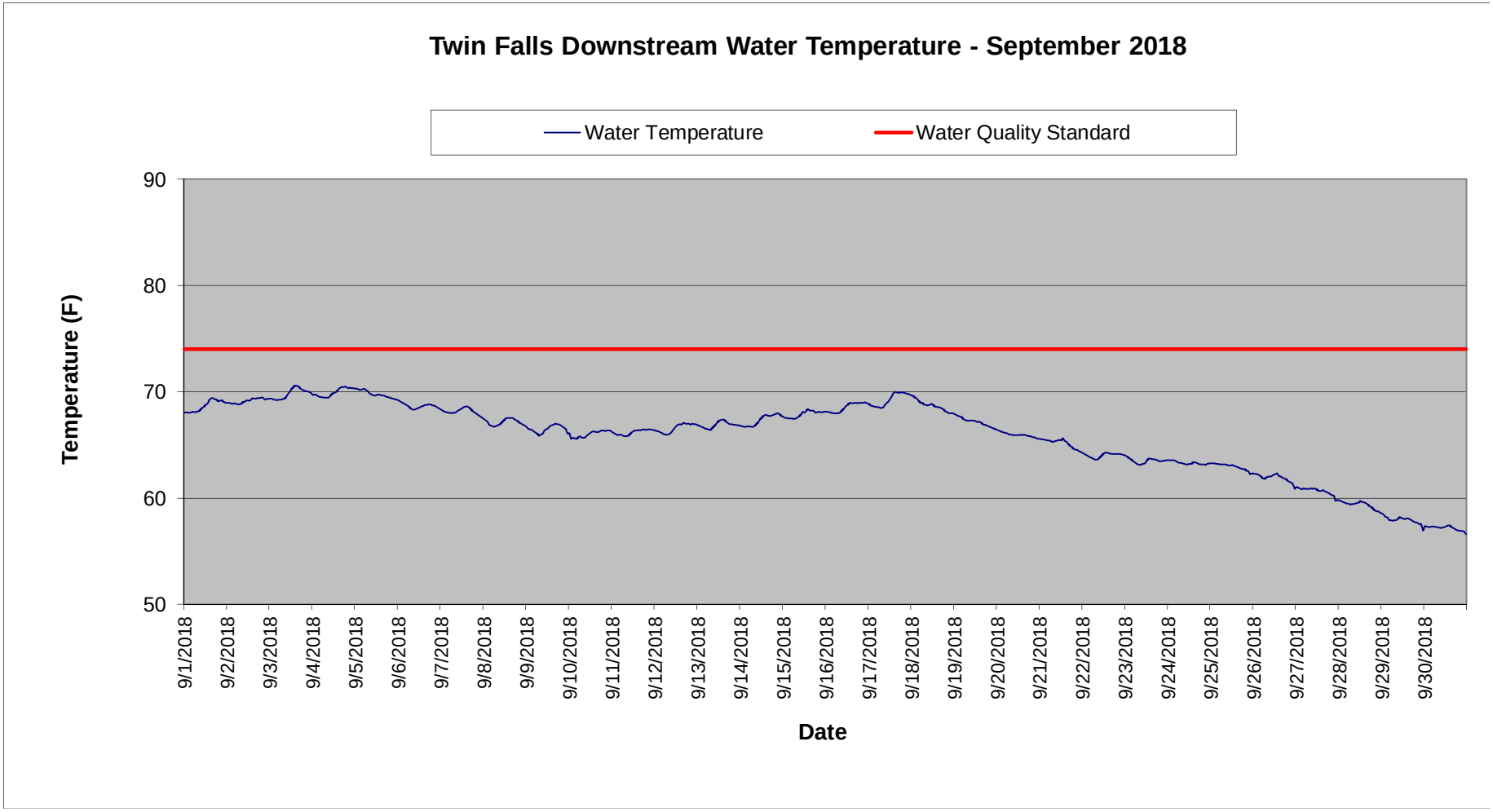
Twin Falls Downstream Dissolved Oxygen Summary - September 2018

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	7.4	7.7	7.5	7.2	7.1	7.7	7.8	7.9	7.7	7.8	7.8	7.8	8.1	8.2
10000	7.4	7.6	7.5	7.2	7.1	7.7	7.8	7.9	7.7	7.8	7.8	7.8	8.1	8.2
20000	7.4	7.6	7.5	7.2	7.1	7.7	7.8	7.9	7.7	7.7	7.8	7.8	8.1	8.1
30000	7.3	7.6	7.4	7.2	7.1	7.6	7.8	7.9	7.7	7.7	7.7	7.8	8.0	8.1
40000	7.4	7.6	7.4	7.2	7.1	7.6	7.8	7.9	7.7	7.7	7.8	7.8	8.0	8.1
50000	7.3	7.5	7.4	7.2	7.1	7.7	7.8	7.8	7.7	7.7	7.7	7.8	8.0	8.2
60000	7.3	7.5	7.4	7.1	7.2	7.7	7.8	7.8	7.7	7.8	7.7	7.8	8.0	8.2
70000	7.4	7.5	7.4	7.1	7.2	7.7	7.8	7.8	7.7	7.9	7.7	7.8	8.0	8.2
80000	7.4	7.5	7.4	7.2	7.2	7.8	7.8	7.8	7.7	8.0	7.8	8.0	8.0	8.2
90000	7.6	7.5	7.4	7.2	7.3	7.8	7.8	7.8	7.7	8.0	7.9	8.1	8.4	8.2
100000	7.6	7.6	7.4	7.2	7.3	7.8	7.9	7.9	7.7	8.1	8.0	8.1	8.4	8.2
110000	7.6	7.6	7.4	7.2	7.4	7.8	7.9	7.9	7.8	8.1	8.0	8.2	8.4	8.3
120000	7.7	7.6	7.4	7.2	7.4	7.9	7.9	7.9	7.9	8.1	8.0	8.2	8.4	8.5
130000	7.7	7.6	7.4	7.2	7.5	7.9	7.9	7.9	8.0	8.2	8.0	8.2	8.4	8.6
140000	7.8	7.6	7.4	7.2	7.5	7.8	7.9	7.9	8.0	8.1	8.0	8.2	8.4	8.6
150000	7.8	7.6	7.4	7.2	7.5	7.8	7.9	7.9	8.0	8.1	8.1	8.3	8.5	8.5
160000	7.8	7.6	7.3	7.2	7.6	7.8	7.9	7.9	8.0	8.1	8.0	8.2	8.4	8.5
170000	7.7	7.6	7.3	7.2	7.6	7.8	7.9	7.9	8.0	8.0	8.0	8.2	8.4	8.5
180000	7.7	7.5	7.3	7.1	7.6	7.8	7.9	7.8	8.0	8.0	8.0	8.2	8.4	8.5
190000	7.7	7.5	7.3	7.1	7.6	7.8	7.8	7.8	7.9	8.0	7.9	8.2	8.4	8.5
200000	7.7	7.5	7.2	7.1	7.6	7.8	7.8	7.8	7.9	8.0	8.0	8.2	8.4	8.5
210000	7.7	7.5	7.2	7.1	7.6	7.8	7.8	7.8	7.8	7.9	8.0	8.2	8.4	8.5
220000	7.7	7.5	7.2	7.1	7.6	7.8	7.9	7.7	7.8	7.9	8.0	8.2	8.4	8.4
230000	7.7	7.5	7.2	7.1	7.6	7.8	7.9	7.7	7.8	7.8	7.8	8.2	8.3	8.4
Daily Max	7.8	7.7	7.5	7.2	7.6	7.9	7.9	7.9	8.0	8.2	8.1	8.3	8.5	8.6
Daily Min	7.3	7.5	7.2	7.1	7.1	7.6	7.8	7.7	7.7	7.7	7.7	7.8	8.0	8.1
Average	7.6	7.6	7.4	7.2	7.4	7.8	7.8	7.8	7.8	7.9	7.9	8.1	8.3	8.3


Twin Falls Downstream Water Temperature - June 2018
Water Temperature
Water Quality Standard
Temperature (F)
90
80
70
60
50
6/1/2018
6/2/2018
6/3/2018
6/4/2018
6/5/2018
6/6/2018
6/7/2018
6/8/2018
6/9/2018
6/10/2018
6/11/2018
6/12/2018
6/13/2018
6/14/2018
6/15/2018
6/16/2018
6/17/2018
6/18/2018
6/19/2018
6/20/2018
6/21/2018
6/22/2018
6/23/2018
6/24/2018
6/25/2018
6/26/2018
6/27/2018
6/28/2018
6/29/2018
6/30/2018
Date


Twin Falls Downstream Water Temperature - July 2018
Water Temperature
Water Quality Standard
Temperature (F)
90
80
70
60
50
7/1/2018
7/2/2018
7/3/2018
7/4/2018
7/5/2018
7/6/2018
7/7/2018
7/8/2018
7/9/2018
7/10/2018
7/11/2018
7/12/2018
7/13/2018
7/14/2018
7/15/2018
7/16/2018
7/17/2018
7/18/2018
7/19/2018
7/20/2018
7/21/2018
7/22/2018
7/23/2018
7/24/2018
7/25/2018
7/26/2018
7/27/2018
7/28/2018
7/29/2018
7/30/2018
7/31/2018
Date


Twin Falls Downstream Water Temperature - August 2018
Water Temperature
Water Quality Standard
Temperature (F)
90
80
70
60
50
8/1/2018
8/2/2018
8/3/2018
8/4/2018
8/5/2018
8/6/2018
8/7/2018
8/8/2018
8/9/2018
8/10/2018
8/11/2018
8/12/2018
8/13/2018
8/14/2018
8/15/2018
8/16/2018
8/17/2018
8/18/2018
8/19/2018
8/20/2018
8/21/2018
8/22/2018
8/23/2018
8/24/2018
8/25/2018
8/26/2018
8/27/2018
8/28/2018
8/29/2018
8/30/2018
8/31/2018
Date


Twin Falls Downstream Water Temperature - September 2018
Water Temperature
Water Quality Standard
Temperature (F)
90
80
70
60
50
9/1/2018
9/2/2018
9/3/2018
9/4/2018
9/5/2018
9/6/2018
9/7/2018
9/8/2018
9/9/2018
9/10/2018
9/11/2018
9/12/2018
9/13/2018
9/14/2018
9/15/2018
9/16/2018
9/17/2018
9/18/2018
9/19/2018
9/20/2018
9/21/2018
9/22/2018
9/23/2018
9/24/2018
9/25/2018
9/26/2018
9/27/2018
9/28/2018
9/29/2018
9/30/2018
Date

Twin Falls Downstream 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	68.8	68.0	67.0	66.6	65.7	66.3	65.2	65.3	65.1	65.0	65.2	66.0	66.6	67.2	67.2	67.0
10000	68.6	67.8	67.0	66.4	65.6	66.3	65.2	65.2	65.1	64.9	65.2	66.0	66.6	67.1	67.2	67.0
20000	68.5	67.7	66.9	66.3	65.5	66.2	65.2	65.1	65.1	64.9	65.2	66.0	66.5	67.0	67.1	66.9
30000	68.3	67.6	66.9	66.2	65.5	66.1	65.1	65.1	65.2	64.8	65.1	66.0	66.4	66.9	67.0	66.8
40000	68.1	67.5	66.9	66.0	65.3	65.9	65.0	65.0	65.2	64.8	65.1	66.0	66.4	66.8	66.9	66.7
50000	68.0	67.3	66.9	65.9	65.2	65.9	65.0	64.9	65.2	64.7	65.1	66.0	66.4	66.7	66.9	66.6
60000	67.8	67.2	66.8	65.7	65.1	65.8	64.9	64.9	65.2	64.7	65.1	66.0	66.4	66.7	66.9	66.5
70000	67.6	67.1	66.8	65.7	65.1	65.7	64.9	65.0	65.3	64.9	65.2	66.0	66.4	66.8	67.0	66.4
80000	67.6	67.0	66.9	65.7	65.1	65.8	65.1	65.3	65.4	65.0	65.4	66.1	66.6	67.0	66.9	66.4
90000	67.6	67.0	67.0	65.8	65.2	65.8	65.2	65.5	65.5	65.2	65.7	66.2	66.8	67.2	66.9	66.2
100000	67.8	67.0	67.1	65.8	65.5	65.9	65.5	65.8	65.7	65.3	65.9	66.4	67.0	67.4	66.9	66.1
110000	67.8	66.9	67.0	65.8	65.6	65.8	65.6	66.1	65.7	65.5	66.1	66.3	67.2	67.5	66.8	65.8
120000	67.9	67.2	67.1	65.6	65.8	65.7	65.8	65.6	65.6	65.7	66.3	66.4	67.3	67.4	66.7	65.2
130000	68.1	67.3	67.1	65.8	65.9	65.6	66.0	65.3	65.5	65.8	66.4	66.4	67.5	67.6	66.8	65.5
140000	68.1	67.2	67.1	65.9	66.2	65.4	66.0	65.4	65.5	65.8	66.4	66.5	67.5	67.7	66.8	65.5
150000	68.1	67.3	67.2	65.9	66.3	65.5	66.2	65.3	65.6	65.7	66.3	66.5	67.4	67.6	66.9	65.5
160000	68.2	67.3	67.2	65.8	66.2	65.3	66.1	65.4	65.6	65.6	66.2	66.5	67.5	67.6	67.0	65.6
170000	68.3	67.3	67.3	65.9	66.4	65.4	66.1	65.3	65.5	65.4	66.0	66.6	67.4	67.5	66.9	65.6
180000	68.4	67.3	67.2	65.9	66.4	65.4	66.0	65.2	65.4	65.3	65.9	66.7	67.4	67.5	66.9	65.5
190000	68.3	67.2	67.2	65.8	66.5	65.4	65.9	65.2	65.4	65.2	65.9	66.6	67.4	67.5	66.9	65.4
200000	68.2	67.2	67.1	65.8	66.4	65.3	65.7	65.1	65.3	65.2	65.9	66.6	67.4	67.5	66.9	65.4
210000	68.2	67.1	67.1	65.8	66.4	65.3	65.6	65.1	65.2	65.2	65.9	66.6	67.4	67.3	67.0	65.5
220000	68.1	67.1	67.0	65.8	66.4	65.2	65.5	65.1	65.1	65.2	65.9	66.6	67.3	67.2	67.0	65.5
230000	68.1	66.9	66.8	65.8	66.4	65.2	65.3	65.1	65.1	65.2	65.9	66.5	67.3	67.2	67.0	65.5
Daily Max	68.8	68.0	67.3	66.6	66.5	66.3	66.2	66.1	65.7	65.8	66.4	66.7	67.5	67.7	67.2	67.0
Daily Min	67.6	66.9	66.8	65.6	65.1	65.2	64.9	64.9	65.1	64.7	65.1	66.0	66.4	66.7	66.7	65.2
Average	68.1	67.3	67.0	65.9	65.8	65.7	65.5	65.3	65.3	65.2	65.7	66.3	67.0	67.3	66.9	66.0

Monthly average: 68.4
License Maximum: 80 F

Twin Falls Downstream 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	65.4	67.5	67.8	68.4	68.9	68.9	69.2	69.8	70.4	69.7	70.3	71.7	72.7	73.4
10000	65.4	67.4	67.8	68.5	68.8	68.9	69.1	69.7	70.3	69.7	70.3	71.4	72.7	73.6
20000	65.4	67.4	67.7	68.5	68.7	68.8	69.0	69.6	70.3	69.6	70.2	71.3	72.7	73.2
30000	65.4	67.4	67.6	68.5	68.6	68.8	68.9	69.5	70.2	69.6	70.2	71.1	72.5	73.2
40000	65.4	67.5	67.6	68.6	68.6	68.7	68.8	69.5	70.1	69.6	70.2	71.0	72.5	73.3
50000	65.4	67.5	67.6	68.6	68.6	68.7	68.7	69.4	70.0	69.6	70.2	71.0	72.3	73.3
60000	65.4	67.6	67.6	68.7	68.6	68.6	68.7	69.4	69.9	69.5	70.0	71.0	72.1	73.3
70000	65.5	67.6	67.7	68.8	68.7	68.7	68.9	69.5	69.8	69.5	70.1	71.4	72.2	73.5
80000	65.5	67.8	67.8	68.8	68.8	68.9	69.2	69.7	69.9	69.7	70.1	71.8	72.5	73.7
90000	65.6	67.9	67.9	68.9	69.1	69.1	69.4	69.8	70.2	70.1	70.6	72.1	72.6	74.0
100000	65.8	68.1	68.1	68.9	69.3	69.4	69.6	70.0	70.4	70.4	70.9	72.6	72.5	74.2
110000	66.1	68.3	68.1	69.1	69.6	69.4	69.9	70.1	70.6	70.6	71.2	72.7	72.8	74.1
120000	66.4	68.4	68.3	69.2	69.8	69.5	70.1	70.4	70.7	70.7	71.5	72.7	72.8	74.4
130000	66.6	68.5	68.4	69.4	69.9	70.1	70.2	70.6	70.7	70.8	71.8	72.7	72.3	74.6
140000	66.7	68.7	68.4	69.3	69.9	70.2	70.2	70.6	70.7	70.9	72.2	72.8	72.2	74.6
150000	67.0	68.6	68.4	69.2	70.0	70.3	70.2	70.6	70.6	70.7	71.8	73.1	72.5	74.6
160000	67.3	68.7	68.4	69.5	69.9	70.3	70.4	70.6	70.4	70.5	71.7	73.1	72.4	74.7
170000	67.4	68.6	68.4	69.5	69.8	70.2	70.2	70.7	70.2	70.3	71.8	73.0	72.4	74.8
180000	67.5	68.6	68.3	69.4	69.7	70.0	70.1	70.8	70.0	70.3	71.9	73.0	72.5	74.8
190000	67.5	68.4	68.4	69.3	69.6	69.9	70.1	70.7	69.8	70.3	71.8	73.0	72.6	74.4
200000	67.6	68.3	68.4	69.3	69.4	69.7	70.2	70.7	69.8	70.2	72.0	73.0	73.1	74.7
210000	67.7	68.2	68.4	69.2	69.3	69.6	70.2	70.6	69.7	70.2	71.8	72.9	73.2	74.4
220000	67.7	68.0	68.4	69.1	69.2	69.5	70.1	70.5	69.7	70.2	71.7	72.9	73.0	75.1
230000	67.6	67.9	68.4	69.0	69.0	69.3	70.0	70.5	69.7	70.2	71.7	72.8	73.3	75.0
Daily Max	67.7	68.7	68.4	69.5	70.0	70.3	70.4	70.8	70.7	70.9	72.2	73.1	73.3	75.1
Daily Min	65.4	67.4	67.6	68.4	68.6	68.6	68.7	69.4	69.7	69.5	70.0	71.0	72.1	73.2
Average	66.4	68.0	68.1	69.0	69.2	69.4	69.6	70.1	70.2	70.1	71.1	72.2	72.6	74.1

Twin Falls Downstream 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	74.8	74.3	75.0	74.7	76.1	75.9	75.2	75.3	75.7	76.6	76.1	74.9	74.6	74.2	74.6	76.1
10000	74.6	74.3	74.9	74.6	76.0	75.8	75.1	75.2	75.8	76.5	76.0	74.8	74.5	74.1	74.8	76.0
20000	74.5	74.2	74.7	74.5	75.9	75.8	75.0	75.2	75.8	76.5	75.9	74.8	74.5	74.0	74.8	76.0
30000	74.4	74.1	74.7	74.4	75.9	75.6	74.9	75.1	75.8	76.3	75.7	74.7	74.4	73.9	74.7	76.0
40000	74.5	74.0	74.5	74.4	75.8	75.4	74.7	75.1	75.7	76.3	75.6	74.6	74.3	73.8	74.7	76.1
50000	74.5	73.9	74.4	74.4	75.7	75.3	74.7	75.0	75.6	76.2	75.5	74.5	74.3	73.7	74.6	76.1
60000	74.5	73.8	74.4	74.3	75.6	75.2	74.6	74.9	75.5	76.0	75.5	74.5	74.2	73.6	74.6	76.1
70000	74.6	74.1	74.3	74.5	75.6	75.5	75.0	75.1	75.6	76.1	75.6	74.4	74.2	73.7	74.7	76.1
80000	74.7	74.2	74.3	74.8	75.8	75.9	75.2	75.4	75.7	76.4	76.0	74.3	74.4	74.0	74.9	76.3
90000	75.1	74.4	74.5	75.1	76.0	76.2	75.5	75.7	76.0	76.8	76.3	74.1	74.5	74.3	75.3	76.6
100000	75.0	74.5	74.8	75.3	76.4	76.3	75.7	75.9	76.4	77.1	76.2	74.1	74.4	74.5	75.7	77.0
110000	75.1	74.7	75.1	75.4	76.6	76.5	75.9	76.2	76.7	77.4	76.5	74.5	74.6	74.8	75.5	77.0
120000	75.0	74.8	75.2	75.4	76.9	76.6	76.0	76.4	77.0	77.8	76.9	74.6	74.7	75.0	75.5	77.1
130000	74.5	75.0	75.2	75.6	77.0	76.7	76.2	76.7	77.0	77.8	76.6	74.7	74.9	75.1	75.6	77.2
140000	74.0	75.1	75.2	75.6	77.1	76.7	76.2	76.8	76.8	77.9	75.9	74.7	75.0	75.0	76.2	77.5
150000	74.1	75.2	74.8	75.7	77.1	76.7	76.2	76.7	76.9	77.9	75.8	74.9	74.8	75.0	76.1	77.3
160000	74.4	75.2	74.7	75.6	77.2	76.4	76.1	76.7	76.8	77.8	75.8	75.1	74.8	75.0	76.3	77.2
170000	74.5	75.3	74.9	75.6	77.2	76.1	76.0	76.6	76.7	77.6	75.8	74.9	74.8	74.9	76.1	77.1
180000	74.4	75.4	75.0	76.4	77.2	75.8	75.9	76.5	77.0	77.4	75.8	74.8	74.8	74.8	75.9	77.1
190000	74.2	75.3	75.0	76.2	77.1	75.7	75.9	76.4	77.0	77.1	75.4	74.7	74.6	74.8	75.8	76.9
200000	74.1	75.2	75.0	75.9	77.0	75.4	75.9	76.2	77.0	76.8	75.4	74.6	74.5	74.8	75.9	76.7
210000	73.9	75.2	74.8	76.0	76.8	75.6	75.9	76.1	77.0	76.5	75.3	74.6	74.3	74.9	76.2	76.5
220000	74.3	75.2	74.9	75.9	76.6	75.5	75.7	76.1	77.0	76.3	75.1	74.6	74.2	74.9	76.2	76.4
230000	74.1	75.1	74.7	76.1	76.2	75.3	75.2	76.0	76.8	76.3	75.0	74.6	74.2	74.7	76.3	76.2
Daily Max	75.1	75.4	75.2	76.4	77.2	76.7	76.2	76.8	77.0	77.9	76.9	75.1	75.0	75.1	76.3	77.5
Daily Min	73.9	73.8	74.3	74.3	75.6	75.2	74.6	74.9	75.5	76.0	75.0	74.1	74.2	73.6	74.6	76.0
Average	74.5	74.7	74.8	75.3	76.4	75.9	75.5	75.9	76.4	76.9	75.8	74.6	74.5	74.5	75.5	76.6

Monthly average: 74.5

License Maximum Monthly Average: 83 F

Twin Falls Downstream Temperature 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	76.0	74.6	74.2	73.9	73.8	72.9	72.3	73.1	74.5	74.4	73.0	71.1	71.9	72.1	72.7
10000	75.9	74.4	74.1	73.8	73.8	72.8	72.2	73.0	74.3	74.3	72.9	71.1	71.8	72.0	72.6
20000	75.8	74.3	74.0	73.8	73.8	72.8	72.1	72.9	74.1	74.1	72.9	71.1	71.7	72.0	72.4
30000	75.7	74.1	74.0	73.8	73.7	72.7	72.2	72.8	74.1	73.9	72.8	71.1	71.6	72.0	72.3
40000	75.5	73.9	73.9	73.8	73.7	72.7	72.1	72.8	74.1	73.8	72.8	71.1	71.4	71.9	72.1
50000	75.4	73.8	73.8	73.7	73.6	72.6	72.0	72.8	74.0	73.7	72.7	71.0	71.4	71.8	72.1
60000	75.2	73.8	73.7	73.7	73.6	72.5	72.0	72.7	73.9	73.5	72.6	70.9	71.3	71.8	72.0
70000	75.3	74.0	73.9	73.7	73.6	72.4	72.1	72.8	73.8	73.4	72.5	70.7	71.2	71.7	72.0
80000	75.5	74.4	74.2	73.8	73.6	72.4	72.2	73.3	73.9	73.3	72.4	70.9	71.2	71.7	72.1
90000	75.3	74.8	74.5	74.0	73.7	72.4	72.7	73.7	74.3	73.6	72.5	71.1	71.6	72.0	72.3
100000	75.1	75.2	74.9	74.2	73.5	72.5	72.9	74.1	74.7	73.7	72.8	71.5	71.9	72.5	72.7
110000	75.2	75.7	75.0	74.1	73.7	72.7	73.2	74.4	75.0	73.8	73.0	71.7	72.3	72.7	73.1
120000	76.1	76.0	74.7	74.1	73.7	73.1	73.5	74.5	75.1	74.0	72.9	71.9	72.7	72.9	73.3
130000	76.4	76.0	74.8	74.0	73.8	73.4	73.5	74.6	75.6	74.0	72.7	72.2	73.0	73.2	73.6
140000	76.4	76.1	74.9	74.0	73.8	73.5	73.6	74.9	75.6	74.0	72.8	72.1	73.1	73.4	73.7
150000	76.5	75.9	74.8	74.1	73.9	73.4	73.7	74.9	75.8	73.9	72.9	72.3	73.2	73.6	73.6
160000	76.0	75.8	74.6	74.3	74.0	73.2	73.5	75.0	76.0	73.8	72.9	72.3	73.2	73.6	73.7
170000	76.0	75.7	74.5	74.4	73.9	73.0	73.4	75.1	75.7	73.7	72.6	72.2	73.3	73.5	73.6
180000	75.9	75.4	74.4	74.3	73.8	72.8	73.3	75.2	75.4	73.6	72.5	72.2	72.9	73.4	73.6
190000	75.7	75.2	74.1	74.3	73.6	72.7	73.2	75.3	75.1	73.6	72.3	72.2	72.6	72.8	73.6
200000	75.6	75.0	74.0	74.2	72.9	72.6	73.1	75.3	74.9	73.5	72.1	72.2	72.4	72.6	73.7
210000	75.2	74.7	73.9	73.9	73.1	72.3	73.1	75.1	74.7	73.2	72.0	72.2	72.3	72.4	73.7
220000	75.0	74.6	73.9	73.9	73.1	72.3	73.2	75.0	74.5	73.0	71.9	71.8	72.2	72.4	73.6
230000	74.9	74.4	73.9	74.0	73.0	72.3	73.2	74.8	74.4	73.0	71.8	72.1	72.3	72.6	73.5
Daily Max	76.5	76.1	75.0	74.4	74.0	73.5	73.7	75.3	76.0	74.4	73.0	72.3	73.3	73.6	73.7
Daily Min	74.9	73.8	73.7	73.7	72.9	72.3	72.0	72.7	73.8	73.0	71.8	70.7	71.2	71.7	72.0
Average	75.6	74.9	74.3	74.0	73.6	72.8	72.8	74.1	74.7	73.7	72.6	71.6	72.2	72.5	73.0

Twin Falls Downstream 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	73.2	72.6	71.6	71.1	71.2	72.0	72.8	72.4	73.0	73.0	73.4	73.9	74.1	74.6	74.9	74.9
10000	73.1	72.6	71.5	71.1	71.2	72.0	72.8	72.3	72.8	72.9	73.3	73.8	74.1	74.5	74.7	74.8
20000	73.0	72.5	71.5	71.0	71.2	71.9	72.8	72.2	72.7	72.9	73.2	73.7	74.1	74.4	74.6	74.8
30000	72.9	72.4	71.5	71.0	71.1	72.0	72.8	72.1	72.7	72.9	73.2	73.6	73.9	74.4	74.6	74.7
40000	72.9	72.4	71.5	70.9	71.1	72.0	72.6	72.1	72.5	72.9	73.2	73.5	73.9	74.4	74.6	74.6
50000	72.9	72.4	71.4	70.8	71.1	71.9	72.7	72.1	72.4	72.8	73.1	73.4	73.9	74.3	74.6	74.5
60000	72.9	72.3	71.3	70.7	71.1	71.9	72.7	71.9	72.3	72.6	73.1	73.3	73.8	74.3	74.6	74.5
70000	72.9	72.2	71.3	70.7	71.1	71.9	72.6	72.0	72.3	72.6	73.1	73.3	73.8	74.3	74.5	74.5
80000	73.2	72.1	71.3	70.9	71.3	72.0	72.6	72.1	72.5	72.9	73.3	73.5	74.0	74.6	74.6	74.6
90000	73.5	72.5	71.5	70.9	71.4	72.3	72.8	72.3	72.8	73.1	73.6	73.8	74.3	75.0	74.7	74.9
100000	73.9	72.5	71.7	70.8	71.6	72.6	72.8	72.8	73.2	73.6	73.9	74.2	74.7	75.5	75.0	74.9
110000	73.9	72.6	71.9	71.1	71.9	72.7	73.0	73.3	73.6	74.1	74.4	74.6	75.2	76.0	75.1	75.2
120000	74.2	72.6	72.2	71.5	71.7	72.9	73.2	73.7	74.0	74.4	74.8	75.0	75.6	76.4	75.3	75.7
130000	73.7	72.6	72.3	71.4	71.9	73.0	73.4	73.6	74.2	74.1	75.1	75.4	75.8	76.3	75.8	76.0
140000	73.7	72.8	72.2	71.7	72.3	73.1	73.6	73.7	74.1	74.6	75.3	75.7	75.8	76.7	76.1	76.3
150000	73.9	72.8	72.2	71.5	72.4	73.3	73.7	73.7	74.0	74.7	75.1	75.5	75.9	76.7	76.1	76.2
160000	73.8	72.7	71.8	71.4	72.3	73.4	73.4	73.7	73.9	74.3	75.1	75.2	76.0	76.4	76.0	76.3
170000	73.8	72.6	71.5	71.2	72.2	73.4	73.3	73.7	74.0	74.4	74.9	74.8	75.8	76.1	75.9	76.2
180000	73.6	72.6	71.5	71.3	72.1	73.6	73.2	73.6	73.8	74.5	74.7	74.5	75.5	75.8	75.7	75.8
190000	73.3	72.5	71.6	71.1	72.2	73.7	73.0	73.6	73.6	74.3	74.5	74.4	75.4	75.4	75.6	75.6
200000	72.9	72.4	71.6	71.2	72.2	73.5	72.7	73.4	73.4	73.9	74.1	74.3	75.2	75.1	75.3	75.5
210000	73.0	72.2	71.5	71.2	72.0	73.3	72.5	73.2	73.2	73.7	74.0	74.3	75.0	75.2	75.1	75.5
220000	72.9	72.2	71.4	71.2	72.0	73.1	72.5	73.2	73.0	73.4	74.0	74.2	74.9	75.0	75.1	75.4
230000	72.8	71.6	71.2	71.2	72.0	73.0	72.4	73.1	73.1	73.4	73.9	74.2	74.8	74.9	75.0	75.4
Daily Max	74.2	72.8	72.3	71.7	72.4	73.7	73.7	73.7	74.2	74.7	75.3	75.7	76.0	76.7	76.1	76.3
Daily Min	72.8	71.6	71.2	70.7	71.1	71.9	72.4	71.9	72.3	72.6	73.1	73.3	73.8	74.3	74.5	74.5
Average	73.3	72.5	71.6	71.1	71.7	72.7	72.9	72.9	73.2	73.6	74.0	74.3	74.8	75.3	75.1	75.3

Monthly average: 72.8

License Maximum Monthly Average: 81 F

Twin Falls Downstream Temperature 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	75.4	75.3	75.1	75.0	74.6	73.0	72.1	72.0	70.9	70.8	70.6	71.2	70.5	69.2	68.2
10000	75.3	75.1	75.0	75.0	74.5	72.8	71.9	71.9	70.8	70.6	70.5	71.2	70.4	69.1	68.1
20000	75.2	75.2	74.9	74.8	74.4	72.7	71.8	71.9	70.8	70.6	70.4	71.3	70.3	69.0	68.0
30000	75.1	75.1	74.8	74.8	74.3	72.6	71.6	71.8	70.7	70.5	70.4	71.4	70.3	68.8	68.0
40000	75.1	75.1	74.8	74.8	74.2	72.5	71.6	71.7	70.7	70.5	70.4	71.5	70.2	68.8	67.9
50000	75.0	75.1	74.7	74.8	74.1	72.4	71.5	71.6	70.7	70.4	70.3	71.5	70.1	68.6	67.9
60000	75.0	75.1	74.5	74.8	74.0	72.3	71.3	71.5	70.6	70.3	70.3	71.5	70.0	68.6	67.8
70000	74.9	75.1	74.4	74.8	73.9	72.2	71.3	71.5	70.6	70.3	70.2	71.5	69.9	68.9	67.9
80000	75.0	75.1	74.7	74.8	73.9	72.6	71.6	71.5	70.6	70.4	70.2	71.3	70.2	69.1	67.9
90000	75.3	75.4	75.0	74.9	74.0	73.0	72.0	71.6	70.7	70.8	70.3	71.3	70.4	69.2	68.0
100000	75.7	75.8	75.4	75.0	74.1	73.2	72.5	71.7	70.8	71.1	70.5	71.3	70.5	69.4	68.1
110000	76.1	76.2	75.9	75.0	74.3	73.4	72.9	71.7	70.9	71.1	70.6	71.4	70.5	69.6	68.3
120000	76.4	76.4	76.3	75.2	74.3	73.5	73.2	71.6	70.9	70.8	71.3	71.3	70.7	69.7	68.3
130000	76.6	76.7	76.5	75.6	74.5	73.7	73.4	71.5	70.9	71.0	71.7	71.3	70.7	69.5	68.7
140000	76.9	76.6	76.4	75.4	74.6	73.8	73.4	71.3	71.0	71.3	72.0	71.3	70.5	69.5	68.5
150000	76.9	76.3	76.5	75.4	74.4	73.7	73.4	71.2	71.2	71.2	71.7	71.2	70.6	69.3	68.5
160000	76.9	76.4	76.5	75.3	74.3	73.5	73.3	71.2	71.2	70.9	71.5	71.2	70.5	69.2	68.5
170000	76.6	76.2	76.2	75.2	74.1	73.4	73.1	71.2	71.2	70.7	71.5	71.1	70.4	69.1	68.3
180000	76.5	76.2	76.0	75.0	73.9	73.2	72.9	71.1	71.0	70.7	71.4	71.1	70.3	69.0	68.3
190000	76.2	76.0	75.8	75.0	73.4	72.9	72.7	70.8	71.1	70.7	71.3	71.1	70.2	68.8	68.3
200000	75.9	75.8	75.6	74.9	73.3	72.6	72.5	70.8	71.0	70.7	71.3	71.0	70.0	68.7	68.2
210000	75.6	75.6	75.3	74.8	73.3	72.4	72.3	70.9	71.0	70.7	71.4	71.0	69.9	68.6	68.0
220000	75.4	75.4	75.1	74.7	73.1	72.3	72.2	71.0	70.9	70.8	71.4	70.8	69.7	68.5	68.0
230000	75.4	75.3	75.1	74.6	73.0	72.1	72.1	70.9	70.8	70.7	71.3	70.7	69.2	68.4	68.0
Daily Max	76.9	76.7	76.5	75.6	74.6	73.8	73.4	72.0	71.2	71.3	72.0	71.5	70.7	69.7	68.7
Daily Min	74.9	75.1	74.4	74.6	73.0	72.1	71.3	70.8	70.6	70.3	70.2	70.7	69.2	68.4	67.8
Average	75.8	75.7	75.4	75.0	74.0	72.9	72.4	71.4	70.9	70.7	70.9	71.2	70.3	69.0	68.2

Twin Falls Downstream Temperature 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	68.0	69.0	69.3	69.7	70.3	69.2	68.3	67.4	66.7	66.1	66.2	66.4	66.8	66.8	67.6	68.1
10000	68.1	69.0	69.3	69.8	70.3	69.1	68.2	67.3	66.5	65.6	66.1	66.3	66.8	66.7	67.5	68.1
20000	68.0	68.9	69.3	69.7	70.2	69.0	68.1	67.2	66.5	65.7	66.0	66.3	66.7	66.7	67.5	68.1
30000	68.0	68.9	69.2	69.6	70.2	68.9	68.1	66.9	66.4	65.6	65.9	66.2	66.6	66.7	67.5	68.0
40000	68.1	68.9	69.2	69.5	70.2	68.8	68.0	66.8	66.3	65.6	65.9	66.1	66.6	66.7	67.5	68.0
50000	68.1	68.8	69.2	69.5	70.3	68.7	68.0	66.8	66.2	65.7	66.0	66.0	66.5	66.7	67.5	68.0
60000	68.1	68.8	69.3	69.5	70.2	68.6	68.0	66.7	66.1	65.8	65.9	66.0	66.5	66.7	67.5	68.0
70000	68.1	68.8	69.3	69.4	70.1	68.4	68.0	66.8	65.9	65.7	65.8	66.0	66.4	66.7	67.5	68.0
80000	68.2	68.9	69.4	69.4	69.9	68.3	68.0	66.8	66.0	65.7	65.8	66.0	66.5	66.8	67.6	68.1
90000	68.3	69.1	69.5	69.5	69.7	68.3	68.1	67.0	66.1	65.7	65.9	66.2	66.7	67.0	67.7	68.2
100000	68.5	69.1	69.7	69.6	69.7	68.4	68.3	67.1	66.4	65.9	66.0	66.3	66.9	67.1	67.9	68.4
110000	68.6	69.2	70.0	69.9	69.6	68.5	68.4	67.3	66.5	66.0	66.2	66.6	67.1	67.4	68.1	68.6
120000	68.8	69.2	70.2	69.9	69.7	68.5	68.5	67.4	66.6	66.2	66.3	66.8	67.3	67.6	68.0	68.8
130000	68.9	69.2	70.4	70.0	69.7	68.6	68.6	67.5	66.8	66.3	66.3	66.9	67.4	67.7	68.2	68.9
140000	69.3	69.4	70.6	70.1	69.7	68.7	68.6	67.5	66.9	66.3	66.4	67.0	67.4	67.8	68.4	69.0
150000	69.4	69.3	70.6	70.3	69.7	68.8	68.6	67.5	66.9	66.2	66.4	66.9	67.3	67.8	68.2	68.9
160000	69.4	69.3	70.5	70.4	69.6	68.8	68.5	67.5	67.0	66.2	66.3	67.1	67.2	67.7	68.2	68.9
170000	69.3	69.4	70.3	70.4	69.6	68.8	68.3	67.4	67.0	66.3	66.5	67.0	67.1	67.7	68.2	68.9
180000	69.2	69.4	70.2	70.5	69.5	68.8	68.2	67.3	66.9	66.4	66.4	67.0	67.0	67.8	68.0	68.9
190000	69.1	69.5	70.1	70.5	69.5	68.7	68.0	67.3	66.9	66.4	66.4	67.0	66.9	67.9	68.1	68.9
200000	69.2	69.5	70.1	70.4	69.4	68.7	67.9	67.1	66.8	66.3	66.5	66.9	66.9	67.9	68.1	68.9
210000	69.2	69.2	70.0	70.4	69.3	68.6	67.8	67.0	66.6	66.3	66.4	67.0	66.9	68.0	68.1	68.9
220000	69.1	69.3	70.0	70.3	69.3	68.5	67.7	66.9	66.5	66.4	66.5	67.0	66.8	67.9	68.1	69.0
230000	69.0	69.4	69.9	70.3	69.2	68.4	67.5	66.8	66.1	66.3	66.4	66.9	66.8	67.7	68.1	68.9
Daily Max	69.4	69.5	70.6	70.5	70.3	69.2	68.6	67.5	67.0	66.4	66.5	67.1	67.4	68.0	68.4	69.0
Daily Min	68.0	68.8	69.2	69.4	69.2	68.3	67.5	66.7	65.9	65.6	65.8	66.0	66.4	66.7	67.5	68.0
Average	68.7	69.1	69.8	69.9	69.8	68.7	68.2	67.1	66.5	66.0	66.2	66.6	66.9	67.3	67.9	68.5

Monthly average: 65.8

License Maximum Monthly Average: 74 F

Twin Falls Downstream Temperature 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	68.9	69.7	67.9	66.4	65.6	64.2	64.0	63.6	63.3	62.3	61.0	59.8	58.6	57.4
10000	68.7	69.6	67.8	66.4	65.5	64.2	63.9	63.6	63.3	62.3	61.0	59.7	58.5	57.3
20000	68.7	69.5	67.8	66.3	65.5	64.0	63.8	63.6	63.3	62.2	60.9	59.7	58.2	57.3
30000	68.6	69.3	67.7	66.2	65.5	64.0	63.6	63.6	63.2	62.2	60.8	59.6	58.2	57.3
40000	68.6	69.2	67.6	66.1	65.4	63.8	63.5	63.5	63.2	62.0	60.9	59.5	57.9	57.3
50000	68.5	69.0	67.4	66.1	65.4	63.8	63.4	63.4	63.2	61.9	60.9	59.5	57.9	57.3
60000	68.5	68.9	67.4	66.1	65.4	63.7	63.3	63.3	63.2	61.8	60.8	59.4	57.9	57.3
70000	68.5	68.8	67.3	66.0	65.3	63.6	63.2	63.3	63.1	62.0	60.9	59.4	57.9	57.3
80000	68.5	68.8	67.3	65.9	65.3	63.6	63.1	63.3	63.2	62.0	60.9	59.5	57.9	57.2
90000	68.7	68.7	67.3	65.9	65.4	63.7	63.2	63.2	63.1	62.1	60.9	59.5	58.0	57.2
100000	68.9	68.7	67.3	65.9	65.4	63.9	63.2	63.2	63.1	62.0	60.9	59.6	58.2	57.2
110000	69.0	68.8	67.3	65.9	65.5	64.1	63.3	63.2	63.1	62.2	60.8	59.6	58.1	57.3
120000	69.3	68.8	67.2	65.9	65.4	64.2	63.5	63.2	63.1	62.2	60.7	59.7	58.1	57.3
130000	69.6	68.6	67.1	65.9	65.6	64.3	63.7	63.2	63.0	62.3	60.6	59.6	58.0	57.4
140000	69.9	68.6	67.2	65.9	65.4	64.2	63.7	63.4	63.0	62.1	60.7	59.6	58.1	57.4
150000	70.0	68.6	67.1	65.9	65.3	64.2	63.7	63.4	62.9	62.0	60.8	59.5	58.1	57.3
160000	70.0	68.5	67.0	65.9	65.1	64.2	63.6	63.3	62.8	61.9	60.6	59.4	58.0	57.2
170000	69.9	68.4	66.9	65.9	64.9	64.1	63.6	63.2	62.8	61.8	60.6	59.2	57.9	57.1
180000	69.9	68.3	66.8	65.8	64.8	64.1	63.5	63.2	62.7	61.8	60.5	59.1	57.8	57.0
190000	69.9	68.2	66.7	65.8	64.6	64.1	63.5	63.1	62.7	61.6	60.4	59.0	57.7	56.9
200000	69.9	68.1	66.7	65.7	64.5	64.1	63.5	63.2	62.6	61.5	60.3	58.9	57.7	56.9
210000	69.9	68.0	66.6	65.7	64.5	64.2	63.5	63.1	62.5	61.4	60.2	58.8	57.5	56.9
220000	69.8	68.0	66.6	65.6	64.4	64.1	63.5	63.2	62.2	61.3	59.7	58.8	57.6	56.9
230000	69.7	68.0	66.5	65.6	64.4	64.1	63.6	63.3	62.3	60.9	59.8	58.6	56.9	56.6
Daily Max	70.0	69.7	67.9	66.4	65.6	64.3	64.0	63.6	63.3	62.3	61.0	59.8	58.6	57.4
Daily Min	68.5	68.0	66.5	65.6	64.4	63.6	63.1	63.1	62.2	60.9	59.7	58.6	56.9	56.6
Average	69.2	68.7	67.2	66.0	65.2	64.0	63.5	63.3	63.0	61.9	60.7	59.4	57.9	57.2

Vertical Profile Data

Twin Falls Hydroelectric Project -
2018 Profile Data

Date	6/14/2018
Time	10:30
Weather:	Overcast, 70F, light wind
Secchi Disk Depth	6'0"

Depth (meters)	DO mg/l	Temp °F
0.5	7.63	66.8
1.0	7.64	66.8
1.5	7.63	66.8
2.0	7.63	66.7
2.5	7.63	66.7
3.0	7.63	66.7
3.5	7.63	66.7
4.0	7.62	66.7
4.5	7.61	66.7
5.0	7.60	66.7
5.5	7.59	66.7
6.0	7.58	66.7
6.5	7.58	66.7
7.0	7.58	66.7
7.5	7.58	66.7
Comparison Readings		
0.5 m	7.79	67.1
7.5 m	7.72	67

Date	6/29/2018
Time	10:15
Weather:	Cloudy, 80F, 10 mph wind
Secchi Disk Depth	5'0"

Depth (m)	DO mg/l	Temp °F
0.5	6.99	72.1
1.0	6.96	72.0
1.5	6.93	71.9
2.0	6.88	71.8
2.5	6.87	71.8
3.0	6.90	71.8
3.5	6.82	71.6
4.0	6.82	71.6
4.5	6.85	71.7
5.0	6.84	71.6
5.5	6.83	71.6
6.0	6.76	71.4
6.5	6.73	71.4
7.0	6.72	71.3
Comparison Readings		
0.5 m	6.97	72.3
7.0 m	6.69	71.5

Date	7/12/2018
Time	11:45
Weather:	Sunny, Mid 70's, 5 mph wind.
Secchi Disk Depth	5' 9"

Depth (m)	DO mg/l	Temp °F
0.5	7.09	76.8
1.0	7.04	76.8
1.5	6.91	76.6
2.0	6.51	76.2
2.5	6.44	76.0
3.0	6.28	75.8
3.5	6.10	75.6
4.0	6.08	75.5
4.5	6.11	75.5
5.0	6.02	75.4
5.5	5.94	75.4
6.0	5.90	75.3
6.5	5.88	75.2
7.0	5.82	75.1
Comparison Readings		
0.5 m	7.09	76.8
7.0 m	5.78	75.3

Twin Falls Hydroelectric Project - 2018 Profile Data

Date	7/25/2018
Time	11:05
Weather:	Partly Sunny, 70F, NW wind 5-10. Chop on water
Secchi Disk Depth - 5' 2"	

Depth (m)	DO mg/l	Temp °F
0.5	8.15	76.0
1.0	8.14	76.0
1.5	8.13	76.0
2.0	8.08	76.0
2.5	7.93	75.8
3.0	7.70	75.6
3.5	7.55	75.3
4.0	7.87	75.7
4.5	7.69	75.5
5.0	7.21	74.8
5.5	7.09	74.6
6.0	6.83	74.3
6.5	6.77	74.2
7.0	6.63	73.9
Comparison Readings		
0.5 m	8.17	76.4
7.0 m	6.69	74.2

Date	8/8/2018
Time	11:10
Weather:	Clear, 75F, calm winds
Secchi Disk Depth - 6' 3"	

Depth (m)	DO mg/l	Temp °F
0.5	7.97	74.0
1.0	7.92	73.9
1.5	7.86	73.9
2.0	7.80	73.8
2.5	7.74	73.6
3.0	7.64	73.4
3.5	7.65	73.3
4.0	7.59	73.2
4.5	7.48	73.0
5.0	7.51	73.0
5.5	7.60	73.0
6.0	7.55	73.0
6.5	7.51	73.0
7.0	7.42	72.9
Comparison Readings		
0.5 m	8.00	74.2
7.0 m	7.46	73.1

Date	8/15/2018
Time	11:25
Weather:	Partly sunny, 70F, calm winds
Secchi Disk Depth	6' 9"

Depth (m)	DO mg/l	Temp °F
0.5	7.74	76.3
1.0	7.52	76.0
1.5	7.50	76.0
2.0	7.20	75.6
2.5	7.07	75.5
3.0	7.00	75.3
3.5	6.91	75.2
4.0	6.77	75.0
4.5	6.61	74.8
5.0	6.63	74.8
5.5	6.56	74.8
6.0	6.26	74.4
6.5	6.14	74.3
7.0	6.14	74.2
Comparison Readings		
0.5 m	7.73	76.6
7.0 m	6.15	74.4

Twin Falls Hydroelectric Project -
2018 Profile Data

Date:	8/29/2018	
Time	11:00	
Weather:	Cloudy, 60F, 10 mph wind	
Secchi Disk Depth	6' 0"	
	DO	Temp
Depth (m)	mg/l	°F
0.5	7.29	70.8
1.0	7.29	70.8
1.5	7.29	70.9
2.0	7.28	70.9
2.5	7.28	70.9
3.0	7.27	70.9
3.5	7.26	70.9
4.0	7.26	70.9
4.5	7.25	70.9
5.0	7.24	70.9
5.5	7.24	70.9
6.0	7.24	70.9
6.5	7.23	70.9
7.0	7.23	70.9
Comparison Readings		
0.5 m	7.30	71.0
7.0 m	7.23	71.2

Date	9/11/2018	
Time	11:36	
Weather:	Sunny, low 70's, light wind	
Secchi Disk Depth	5' 0"	
	DO	Temp
Depth (m)	mg/l	°F
0.5	7.66	65.7
1.0	7.65	65.7
1.5	7.65	65.7
2.0	7.64	65.7
2.5	7.63	65.7
3.0	7.63	65.7
3.5	7.63	65.7
4.0	7.62	65.7
4.5	7.62	65.7
5.0	7.61	65.7
5.5	7.61	65.7
6.0	7.60	65.7
6.5	7.59	65.7
7.0	7.59	65.7
Comparison Readings		
0.5 m	7.67	65.9
7.0 m	7.60	66.0

Date	9/25/2018	
Time	10:15	
Weather:	Cloudy, 60F, NW wind 5-10	
Secchi Disk Depth	5'0"	
	DO	Temp
Depth (m)	mg/l	°F
0.5	7.73	63.2
1.0	7.71	63.2
1.5	7.70	63.2
2.0	7.69	63.2
2.5	7.68	63.2
3.0	7.67	63.2
3.5	7.67	63.2
4.0	7.66	63.2
4.5	7.66	63.2
5.0	7.65	63.2
5.5	7.65	63.2
6.0	7.65	63.2
6.5	7.64	63.2
7.0	7.63	63.2
Comparison Readings		
0.5 m	7.73	63.4
7.0 m	7.65	63.5

Twin Falls Hydroelectric Project

FERC Project No. 11831

2018 Water Quality Monitoring Report

QA Data

Tailrace Monitoring Location

QA Data

Field Notes for Datasonde Deployment

Date/Time: 5/30/18 Analyst: MWM

Location: Twin Tanks Datasonde Serial #: 13C10683

Calibration Information Datasonde Battery [volts]: 3.2

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	~	~
10.00 Std	~	~

pH Cal. Temp.: ~

Conductivity (mS/cm) Before Cal. After Cal. Cell Constant Zero Conductivity Calibration (optional)

0.286 Std 0.3108 0.2861 5.06 Before ~ After ~

Barometric Pressure (mm Hg): 725

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	84.8	95.4	1.02
mg/L D.O.	~~84.8~~ 6.95	7.82	
Temp – °F	77.2	77.8	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter # 1

	Before Calibration	After Calibration
% Saturation	94.5	100.0
mg/L D.O.	8.02	8.47
Temp – °F	72.5	72.5

Post Calibration Slope = 103.9

Create File for Test Program N/A **Start Test:** _____ **End Test:** _____

Forgot hand held

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	**(Must be within 0.5 mg/L D.O.)**
% Saturation			
mg/L D.O.			
Temp – °F			

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 5/30/18 10:02 Battery Life (Number of Days): 246.4

Notes: Future deployment for 2018

Field Notes for Datasonde Deployment

Date/Time: 6/14/18 0950 Analyst: HCM

Location: Twin Falls Trail/Race Datasonde Serial #: 13L100326

Calibration Information Datasonde Battery [volts]: 3.1

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	~	~
10.00 Std	~	~

pH Cal. Temp.: ~

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.296 Std	0.2692	0.2962	5.56	Before ~ After ~

Barometric Pressure (mm Hg) 733

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	96.6	96.5	
mg/L D.O.	8.62	8.57	1.07
Temp – °F	69.4	70.1	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter # 2 (6/13/18

	Before Calibration	After Calibration
% Saturation	98.1	100.0
mg/L D.O.	8.62	8.69
Temp – °F	69.8	69.9

Post Calibration Slope = 105.9

Create File for Test Program ✓ **Start Test:** 1010 6 **End Test:** 1024

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	(Must be within 0.5 mg/L D.O.)
% Saturation	93.9	85.9	
mg/L D.O.	7.75	7.04	OR- Deploy
Temp – °F	66.5	66.8	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 6/14/18 11:00 Battery Life (Number of Days): 6/16.4

Notes: Deployed @ ~1105 A.M.

Field Notes for Datasonde Post Calibration

Date/Time: 6/14/18 11:15 Analyst: RWM

Location: Tesla Tail Datasonde Serial #: 13K100688

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	—

pH Temp Reading.: —

Conductivity (mS/cm) : 0.296 Std. Conc. 0.280 Observed

Barometric Pressure (mm Hg) 733

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	98.0	96.5	
mg/L D.O.	8.39	8.08	1.00
Temp – °F	73.7	75.7	

Notes:

362 readings - All Dec. ↑ 7 mg/L

Field Notes for Datasonde Deployment

Date/Time: 6/22/18 0945 Analyst: MCM

Location: Twin Tailrace Datasonde Serial #: 14D101261

Calibration Information Datasonde Battery [volts]: 3.1

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	—
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
6.286 Std	0.3090	0.2863	4.79	Before — After —

Barometric Pressure (mm Hg) 726

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	93.4	95.5	1.00
mg/L D.O.	7.63	7.77	
Temp – °F	78.1	78.5	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter # 1 - 30m cable

	Before Calibration	After Calibration
% Saturation	99.4	100.0
mg/L D.O.	8.63	8.69
Temp – °F	69.7	69.8

Post Calibration Slope = 104.6

Create File for Test Program ✓ **Start Test:** 0957 **End Test:** 1009

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	**(Must be within 0.5 mg/L D.O.)**
% Saturation	82.8	85.1	
mg/L D.O.	7.16	7.25	OK - Deploy
Temp – °F	72.6	72.3	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight**

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 6/22/18 1100 Battery Life (Number of Days): 6d6.4

Notes: Deployed @ 1050

Field Notes for Datasonde Post Calibration

Date/Time: 6/20/13 1055 Analyst: MGM

Location: Truth Tailrace Datasonde Serial #: 13L100326

Ending Datasonde Battery [volts]: 7.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	
10.00 Std.	

pH Temp Reading.:

Conductivity (mS/cm) : 0.286 Std. Conc. 0.322 Observed @ 80°

Barometric Pressure (mm Hg) 726

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	93.5	98.5	
mg/L D.O.	8.62	7.70	1.16
Temp – °F	78.4	79.4	

Notes:

360 readings. Air D.O. ↑ 7 mg/L

Field Notes for Datasonde Deployment

Date/Time: 7/11/18 10:47 Analyst: MWM

Location: Twin Tail Pass Datasonde Serial #: 13L100691

Calibration Information Datasonde Battery [volts]: 3.0

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	~	~
10.00 Std	~	~

pH Cal. Temp.: ~

Conductivity (mS/cm)

	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.236 Std	0.3136	0.2862	5.22	Before ~ After ~

Barometric Pressure (mm Hg) 736

YSI Datasonde Dissolved Oxygen

	Before Calibration	After Calibration	DO Probe Gain
% Saturation	96.4	96.8	1.04
mg/L D.O.	8.36	8.36	
Temp – °F	73.6	73.9	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter # 2 - 30m cable

	Before Calibration	After Calibration
% Saturation	99.6	100.0
mg/L D.O.	8.64	8.64
Temp – °F	70.7	70.7

Post Calibration Slope = 104.9

Create File for Test Program ✓ **Start Test:** 1057 **End Test:** 1109

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	(Must be within 0.5 mg/L D.O.)
% Saturation	87.5	89.0	
mg/L D.O.	7.22	7.30	OK. Deploy
Temp – °F	77.1	77.0	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 7/11/18 1200 Battery Life (Number of Days):

Notes: Deployed @ 1130

Field Notes for Datasonde Post Calibration

Date/Time: 7/11/18 07 1135 Analyst: MWM

Location: Twin Tailrace Datasonde Serial #: 14D10(260

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed	
7.00 Std.	~	pH Temp Reading.: —
10.00 Std.	~	

Conductivity (mS/cm) : 0.286 Std. Conc. 0.2713 Observed

Barometric Pressure (mm Hg) 736

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	96.5	96.9	
mg/L D.O.	7.96	7.94	1.00
Temp – °F	77.3	77.8	

Notes:

289 readings - All D.O. ↑ 6 mg/L

Field Notes for Datasonde Deployment

Date/Time: 7/25/18 0940 Analyst: MWH

Location: Twin Tahoe Datasonde Serial #: 13L0G689

Calibration Information Datasonde Battery [volts]: 3.0

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	—
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.1280 Std	0.2490	0.2862	5.31	Before — After —

Barometric Pressure (mm Hg) 731

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	96.2	96.3	6.96
mg/L D.O.	8.44	8.45	
Temp – °F	70.9	71.3	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 0948 **End Test:** 1000

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	(Must be within 0.5 mg/L D.O.)
% Saturation	94.8	100.5	
mg/L D.O.	7.93	8.04	OL. Replace
Temp – °F	75.8	76.3	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 7/25/18 1100 Battery Life (Number of Days): 666.4

Notes: _____

Field Notes for Datasonde Post Calibration

Date/Time: 7/25/18 1055 Analyst: MWH

Location: Twin Falls Datasonde Serial #: 13210691

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	~
10.00 Std.	~

pH Temp Reading.: —

Conductivity (mS/cm) : 0.286 Std. Conc. 0.2892 Observed

Barometric Pressure (mm Hg) 730

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	96.3	96.1	
mg/L D.O.	8.32	8.22	1.03
Temp – °F	72.7	73.7	

Notes:

335 data points All D.O. ↑ 6 mg/L

Field Notes for Datasonde Deployment

Date/Time: 8/8/18 0940 Analyst: MWM

Location: Toma Tahoe Datasonde Serial #: 13L100691

Calibration Information Datasonde Battery [volts]: 3.0

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	~	~
10.00 Std	~	~

pH Cal. Temp.: ~

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.186 Std	0.2795	0.2861	5.32	Before ~ After ~

Barometric Pressure (mm Hg) 728

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	93.8	95.9	1.06
mg/L D.O.	8.09	8.25	
Temp – °F	72.9	73.1	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 0948 **End Test:** 1006

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	(Must be within 0.5 mg/L D.O.)
% Saturation	92.6	93.6	
mg/L D.O.	7.92	7.71	ok - Deploy
Temp – °F	73.6	73.3	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 8-8-18 1100 Battery Life (Number of Days): 598.1

Notes:

Field Notes for Datasonde Post Calibration

Date/Time: 8-8-18 1055 Analyst: MWH

Location: Twin Tail Datasonde Serial #: 13K100699

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	—

pH Temp Reading.: —

Conductivity (mS/cm) : 0.28K Std. Conc. 0.2973 Observed

Barometric Pressure (mm Hg) 729

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	96.0	95.9	
mg/L D.O.	7.69	7.66	0.96
Temp – °F	80.0	80.3	

Notes:

336 readings - D.O. ↓ 5 mg/L on 8/6/18 - Very Sudden Drop

* film / macroinvertebrates covering DO sensor cap.

8/9/18 - Spoke w/ YSI Service rep. Sudden D.O. Drop & Return to Normal an indicator of Sensor failure. Probe needs to be replaced.

Field Notes for Datasonde Deployment

Date/Time: 8/15/18 0930 Analyst: MWM

Location: Twin Tailrace Datasonde Serial #: 14D101641

Calibration Information Datasonde Battery [volts]: 3.0

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	✓
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.287 Std	0.2817	0.2873	5.38	Before — After —

Barometric Pressure (mm Hg) 732

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	94.7	96.3	1.04
mg/L D.O.	8.27	8.39	
Temp – °F	71.7	72.0	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter # See twin Probe page

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 0942 **End Test:** 1000

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter
% Saturation	96.0	100.0
mg/L D.O.	8.00	7.96
Temp – °F	76.2	76.4

(Must be within 0.5 mg/L D.O.) OK - Deploy

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 8/15/18 1100 Battery Life (Number of Days): 598.1

Notes: _____

Field Notes for Datasonde Post Calibration

Date/Time: 8.15.18 1047 Analyst: MWM

Location: Twin Falls Res Datasonde Serial #: 13C100691

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	—

pH Temp Reading.: —

Conductivity (mS/cm) : 0.287 Std. Conc. 0.2890 Observed

Barometric Pressure (mm Hg) 731

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	97.9	96.2	
mg/L D.O.	8.38	8.19	1.09
Temp – °F	73.6	74.1	

Notes:

168 readings - All DO. T. 7 mg/L

Field Notes for Datasonde Deployment

Date/Time: 8/29/18 0910 Analyst: MWM

Location: Tioga Tailrace Datasonde Serial #: 13D 102527

Calibration Information Datasonde Battery [volts]: 2.9

pH (s.u.)	Before Cal.	After Cal.
7.00 Std		
10.00 Std		

pH Cal. Temp.:

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.2860 Std	0.2540	0.2861	5.86	Before ~ After —

Barometric Pressure (mm Hg) 731

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	95.1	96.3	0.95
mg/L D.O.	9.34	9.46	
Temp – °F	61.2	61.2	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter # 2

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

← See Profile log sheet

Post Calibration Slope =

Create File for Test Program ✓ **Start Test:** 0939 **End Test:** 0957

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter
% Saturation	82.1	85.6
mg/L D.O.	7.25	7.25
Temp – °F	70.1	70.8

(Must be within 0.5 mg/L D.O.) ok - Replay

Create File for Datasonde **Remove calibration cup, Replace with weight**

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 8/29/18 1100 Battery Life (Number of Days): 593.9

96% batt. capacity

Notes:

Field Notes for Datasonde Post Calibration

Date/Time: 8-29-18 1035 Analyst: MWM

Location: Twin Tail Datasonde Serial #: 14D10164I

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed	
7.00 Std.	-	pH Temp Reading.: -
10.00 Std.	-	

Conductivity (mS/cm) : 0.1286 Std. Conc. 0.2474 Observed

Barometric Pressure (mm Hg) 731

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	96.9	96.2	
mg/L D.O.	9.56	9.43	1.03
Temp – °F	60.8	61.4	

Notes:

336 readings - All D.O. ↑ 6.9 mg/L

Field Notes for Datasonde Deployment

Date/Time: 9/11/18 1005 Analyst: MWM

Location: Twin Tarn Datasonde Serial #: 14D104261

Calibration Information Datasonde Battery [volts]: 3.0

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	—
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.287 Std	0.2743	0.2873	5.45	Before — After —

Barometric Pressure (mm Hg): 734

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	96.2	96.6	1.01
mg/L D.O.	8.38	8.39	
Temp – °F	72.0	72.2	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 1015 **End Test:** 1033

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	(Must be within 0.5 mg/L D.O.)
% Saturation	84.3	87.1	
mg/L D.O.	7.90	7.72	Ok - Deploy
Temp – °F	66.4	67.1	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 9/11/18 1100 Battery Life (Number of Days): 598.1

Notes: _____

Field Notes for Datasonde Post Calibration

Date/Time: 9/11/18 to 1127 Analyst: MWM

Location: Twin Trail Datasonde Serial #: 13L100327

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed
7.00 Std.	–
10.00 Std.	–

pH Temp Reading.: –

Conductivity (mS/cm) : 0.287 Std. Conc. 0.3102 Observed

Barometric Pressure (mm Hg) 732

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	97.6	96.3	
mg/L D.O.	8.62	8.42	0.93
Temp – °F	70.8	71.6	

Notes:

313 readings - All D.O. ↑ 7 mg/L

Field Notes for Datasonde Deployment

Date/Time: 9/25/13 0930 Analyst: MWM

Location: Twin Tailrace Datasonde Serial #: 14D101641

Calibration Information Datasonde Battery [volts]: 2.9

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	~	~
10.00 Std	~	~

pH Cal. Temp.: ~

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.290 Std	0.3067	0.2901	5.64	Before ~ After ~

Barometric Pressure (mm Hg): 727

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	92.2	95.7	1.05
mg/L D.O.	8.53	8.85	
Temp – °F	66.4	66.4	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter # 2

	Before Calibration	After Calibration
% Saturation	100.3	100.0
mg/L D.O.	8.90	8.86
Temp – °F	68.7	68.7

Post Calibration Slope = 103.3

Create File for Test Program ✓ **Start Test:** 0936 **End Test:** 0951

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter
% Saturation	81.8	84.1
mg/L D.O.	7.86	7.70
Temp – °F	63.1	63.2

(Must be within 0.5 mg/L D.O.) OK. Deploy

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 9/25/13 10:00 Battery Life (Number of Days): 586.1

Notes: Deployed btwn 10:00 + 11:00

Field Notes for Datasonde Post Calibration

Date/Time: 9/25/18 10:45 Analyst: MM

Location: Texia Tail Datasonde Serial #: 14D101261

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed	
7.00 Std.	–	pH Temp Reading.: –
10.00 Std.	–	

Conductivity (mS/cm) : 0.290 Std. Conc. 0.2589 Observed

Barometric Pressure (mm Hg) 728

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	96.5	95.8	
mg/L D.O.	9.46	9.29	1.00
Temp – °F	62.0	62.3	

Notes:

336 readings - All D.O. ↑ 7 mg/L

Field Notes for Datasonde Post Calibration

Date/Time: 10/1/18 0940 Analyst: MWM

Location: Twin Tadpole Datasonde Serial #: 14D 10764

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	✓

pH Temp Reading.: —

Conductivity (mS/cm) : 0.290 Std. Conc. 0.2964 Observed

Barometric Pressure (mm Hg) 741

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	100.4	97.5	
mg/L D.O.	11.54	11.15	1.02
Temp – °F	48.6	49.0	

Notes:

144 readings - All D.O. > 7 mg/L

Removed for 2018 Monitoring Season

Downstream Monitoring Location

QA Data

Field Notes for Datasonde Deployment

Date/Time: 5/30/12 9:35 Analyst: MM

Location: Twin Downstream Datasonde Serial #: 14D10164

Calibration Information Datasonde Battery [volts]: 3.2

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	—
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
6.286 Std	6.3086	6.2861	5.12	Before _____ After _____

Barometric Pressure (mm Hg) 725

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	86.0	95.3	1.04
mg/L D.O.	7.09	7.82	
Temp – °F	77.3	77.7	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program _____ **Start Test:** _____ **End Test:** _____

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	**(Must be within 0.5 mg/L D.O.)**
% Saturation			
mg/L D.O.			
Temp – °F			

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 5/30/12 10:00 Battery Life (Number of Days): 6/6.4

Notes: _____

Field Notes for Datasonde Deployment

Date/Time: 6/14/18 10:10 Analyst: HWM

Location: Twin Falls downstream Datasonde Serial #: 13E100327

Calibration Information Datasonde Battery [volts]: 3.1

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	—
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.296 Std	0.2753	0.2962	5.42	Before — After —

Barometric Pressure (mm Hg) 733

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	96.0	96.5	0.95
mg/L D.O.	8.36	8.35	
Temp – °F	72.0	72.5	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 10:15 **End Test:** 1027

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	**(Must be within 0.5 mg/L D.O.)**
% Saturation	84.4	85.8	
mg/L D.O.	7.79	7.64	OK - Deploy
Temp – °F	66.6	66.8	

Create File for Datasonde _____ **Remove calibration cup, Replace with weight** _____

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 6/14/18 12:00 Battery Life (Number of Days): 616.4

Notes: Deployed @ 12:10 pm

Field Notes for Datasonde Post Calibration

Date/Time: 6/14/18 12:10 Analyst: KWM

Location: Twin Coo Bridge Datasonde Serial #: 14D10164

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	—

pH Temp Reading.: —

Conductivity (mS/cm) : 0.296 Std. Conc. 0.2884 Observed

Barometric Pressure (mm Hg) 734

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	98.2	96.3	
mg/L D.O.	9.00	8.65	1.03
Temp – °F	67.3	69.0	

Notes:

363 readings. All D.O. ↑ 7 mg/L

Field Notes for Datasonde Deployment

Date/Time: 6/29/18 1000 Analyst: MWH

Location: Twin Co Bridge Datasonde Serial #: 13L100689

Calibration Information Datasonde Battery [volts]: 3.1

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	—
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.236 Std	0.3161	0.2367	4.68	Before — After —

Barometric Pressure (mm Hg) 726

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	94.1	95.8	
mg/L D.O.	7.52	7.63	0.96
Temp – °F	80.3	80.7	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 1009 **End Test:** 1027

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	**(Must be within 0.5 mg/L D.O.)**
% Saturation	80.2	83.7	
mg/L D.O.	6.99	7.61	OL. Deploy
Temp – °F	71.9	72.1	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 6/29/18 1100 Battery Life (Number of Days): _____

Notes: Deployed @ 1126.

Field Notes for Datasonde Post Calibration

Date/Time: 6/20/18 1120 Analyst: MWM

Location: Tunco Bridge Datasonde Serial #: 13C10327

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	-
10.00 Std.	-

pH Temp Reading.: -

Conductivity (mS/cm) : 0.286 Std. Conc. 0.3242 Observed

Barometric Pressure (mm Hg) 726

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	96.8	95.6	
mg/L D.O.	7.70	7.59	0.93
Temp – °F	80.6	81.3	

Notes:

360 Readings - All D.O. ↑ 7 mg/L

Field Notes for Datasonde Deployment

Date/Time: 7/11/18 11:00 Analyst: MWM

Location: Twin Co Bridge Datasonde Serial #: 13L100670

Calibration Information Datasonde Battery [volts]: 3.1

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	—
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm) Before Cal. After Cal. Cell Constant Zero Conductivity Calibration (optional)

0.2960 Std 0.3173 0.2862 5.09 Before — After —

Barometric Pressure (mm Hg) 736

YSI Datasonde Dissolved Oxygen

	Before Calibration	After Calibration	DO Probe Gain
% Saturation	97.1	96.7	1.05
mg/L D.O.	8.18	8.13	
Temp – °F	75.2	75.4	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 1109 **End Test:** 1127

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	**(Must be within 0.5 mg/L D.O.)**
% Saturation	86.3	99.3	
mg/L D.O.	7.18	~~7.12~~	✓
Temp – °F	76.5	76.9	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 7/11/18 1200 Battery Life (Number of Days): 616.4

Notes: Deployed @ 12:30

Field Notes for Datasonde Post Calibration

Date/Time: 7/16/18 12:35 Analyst: MWM

Location: Tesino Bridge Datasonde Serial #: 13L/100688

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	—

pH Temp Reading.: —

Conductivity (mS/cm) : 0.286 Std. Conc. 0.2685 Observed

Barometric Pressure (mm Hg) 736

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	97.0	96.8	
mg/L D.O.	~~8~~ 7.97	7.89	0.96
Temp – °F	77.5	78.4	

Notes:

290 readings - Air D.O. 7.6 mg/L

Field Notes for Datasonde Deployment

Date/Time: 7/26/18 0955 Analyst: HM

Location: Tooth @ Bridge Datasonde Serial #: 14D101261

Calibration Information Datasonde Battery [volts]: 3.0

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	-	-
10.00 Std	-	-

pH Cal. Temp.: -

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.236 Std	0.2642	0.2361	5.18	Before - After -

Barometric Pressure (mm Hg) 731

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	95.6	96.3	1.01
mg/L D.O.	8.12	8.16	
Temp – °F	74.3	74.6	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 1000 **End Test:** 1021

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	**(Must be within 0.5 mg/L D.O.)**
% Saturation	97.3	100.4	
mg/L D.O.	8.11	8.04	ok - Deploy
Temp – °F	76.2	76.2	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 7/26/18 1100 Battery Life (Number of Days): 616.4

Notes: Deployed @ 1135

Field Notes for Datasonde Post Calibration

Date/Time: 7/25/18 1135 Analyst: MWM

Location: Twin @ Bridge Datasonde Serial #: 136/00690

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	
10.00 Std.	

pH Temp Reading.: ______

Conductivity (mS/cm) : 0.286 Std. Conc. 0.2840 Observed

Barometric Pressure (mm Hg) ~~736~~ 731

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	97.2	96.1	
mg/L D.O.	8.16	8.01	1.091
Temp – °F	75.4	76.2	

Notes:

336 readings – All DO ↑ 6 mg/L

Field Notes for Datasonde Deployment

Date/Time: 8/8/18 0955 Analyst: MGM

Location: Twin @ bridge Datasonde Serial #: 13C100690

Calibration Information Datasonde Battery [volts]: 3.0

pH (s.u.)	Before Cal.	After Cal.
7.00 Std		
10.00 Std		

pH Cal. Temp.:

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.2860 Std	0.2769	0.2862	5.24	Before — After —

Barometric Pressure (mm Hg) 729

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	93.7	95.9	1.06
mg/L D.O.	8.08	8.25	
Temp – °F	72.9	73.1	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope =

Create File for Test Program ✓ **Start Test:** 10:00 **End Test:** 1021

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	(Must be within 0.5 mg/L D.O.)
% Saturation	93.5	95.7	
mg/L D.O.	7.99	7.81	ok - by by
Temp – °F	74.0	74.6	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 8-8-18 1100 Battery Life (Number of Days): 611.0

Notes:

Field Notes for Datasonde Post Calibration

Date/Time: 8/8/18 1205 Analyst: HWM

Location: Twin @ bridge Datasonde Serial #: 14D/KYC61

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed	
7.00 Std.	—	pH Temp Reading.: —
10.00 Std.	—	

Conductivity (mS/cm) : 0.286 Std. Conc. 0.3038 Observed

Barometric Pressure (mm Hg) 729

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	96.4	96.0	
mg/L D.O.	7.84	7.67	1.01
Temp – °F	78.3	80.5	

Notes:

338 Reading - All D.O. ↑ 7 mg/L

Field Notes for Datasonde Deployment

Date/Time: 8/15/18 0947 Analyst: MWH

Location: Twin C Bridge Datasonde Serial #: 13L100688

Calibration Information Datasonde Battery [volts]: 2.9

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	–	–
10.00 Std	–	–

pH Cal. Temp.: –

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.287 Std	0.2878	0.2871	5.31	Before – After –

Barometric Pressure (mm Hg) 732

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	95.5	96.3	1.00
mg/L D.O.	8.26	8.31	
Temp – °F	72.6	72.8	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter # - See Turin Profile par

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 0954 **End Test:** 1006

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter
% Saturation	94.4	100.0
mg/L D.O.	7.98	7.98
Temp – °F	76.2	76.4

(Must be within 0.5 mg/L D.O.) OK. Deploy

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight**_____

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 8/15/18 1100 Battery Life (Number of Days): 594.7

Notes: _____

Field Notes for Datasonde Post Calibration

Date/Time: 8/15/18 1207 Analyst: MWM

Location: Twin Bridge Datasonde Serial #: 13L100690

Ending Datasonde Battery [volts]: 3.0

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	—

pH Temp Reading.: —

Conductivity (mS/cm) : 0.287 Std. Conc. 0.2925 Observed

Barometric Pressure (mm Hg) 731

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	97.0	96.4	
mg/L D.O.	8.25	8.15	1.05
Temp – °F	74.2	74.8	

Notes:

170 readings. All D.O. @ 7 mg/L

Field Notes for Datasonde Deployment

Date/Time: 8/29/18 0940 Analyst: MLM

Location: Twin @ Bridge Datasonde Serial #: 13L100320

Calibration Information Datasonde Battery [volts]: 3.0

pH (s.u.)	Before Cal.	After Cal.
7.00 Std		
10.00 Std		

pH Cal. Temp.:

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.1226 Std	0.2488	0.2860	5.91	Before After

Barometric Pressure (mm Hg) 731

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	95.5	96.3	1.08
mg/L D.O.	9.40	9.48	
Temp – °F	61.0	61.0	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope =

Create File for Test Program ✓ **Start Test:** 0948 **End Test:** 1003

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter
% Saturation	82.3	85.5
mg/L D.O.	7.26	7.23
Temp – °F	70.7	70.8

(Must be within 0.5 mg/L D.O.) ok - deploy

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 8/29/18 1100 Battery Life (Number of Days): 600.3

97.3% battery life

Notes:

Field Notes for Datasonde Post Calibration

Date/Time: 8/29/18 1132 Analyst: MWM

Location: Twin @ Bridg Datasonde Serial #: 13C KG688

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed
7.00 Std.	✓
10.00 Std.	–

pH Temp Reading.: –

Conductivity (mS/cm) : 0.286 Std. Conc. 0.2580 Observed

Barometric Pressure (mm Hg) 734

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	95.4	96.5	
mg/L D.O.	8.92	9.01	1.01
Temp – °F	65.5	65.6	

Notes:

337 readings - All D.O. ↑ 6 mg/L

Field Notes for Datasonde Deployment

Date/Time: 9/11/18 1020 Analyst: MLS M

Location: Twin @ Bridge Datasonde Serial #: 13C 100688

Calibration Information Datasonde Battery [volts]: 2.9

pH (s.u.)	Before Cal.	After Cal.
7.00 Std		
10.00 Std		

pH Cal. Temp.:

Conductivity (mS/cm) Before Cal. After Cal. Cell Constant Zero Conductivity Calibration (optional)

0.287 Std 0.1832 ~~0.2871~~ 5.35 Before – After –

Barometric Pressure (mm Hg) 734

YSI Datasonde Dissolved Oxygen

	Before Calibration	After Calibration	DO Probe Gain
% Saturation	95.8	96.7	1.01
mg/L D.O.	8.35	8.42	
Temp – °F	71.9	72.0	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope =

Create File for Test Program ✓ **Start Test:** 1024 **End Test:** 1034

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	(Must be within 0.5 mg/L D.O.)
% Saturation	84.7	87.5	
mg/L D.O.	7.83	~~7.85~~ 7.76	OK- Deploy
Temp – °F	66.4	67.1	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 9/11/18 11:00 Battery Life (Number of Days): 581.1

Notes:

Field Notes for Datasonde Post Calibration

Date/Time: 9/11/18 Analyst: MWM

Location: Twin @ Bridge Datasonde Serial #: 13C100326

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	—

pH Temp Reading.: —

Conductivity (mS/cm) : 0.2871 Std. Conc. 0.3219 Observed

Barometric Pressure (mm Hg) 732

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	98.1	96.4	
mg/L D.O.	8.67	8.41	1.00
Temp – °F	70.7	71.9	

Notes:

314 readings All D.O. ↑ 1 mg/L

Field Notes for Datasonde Deployment

Date/Time: 9/25/18 0939 Analyst: MM

Location: Twin C bridge Datasonde Serial #: 13L100326

Calibration Information Datasonde Battery [volts]: 2.9

pH (s.u.)	Before Cal.	After Cal.
7.00 Std	—	—
10.00 Std	—	—

pH Cal. Temp.: —

Conductivity (mS/cm)	Before Cal.	After Cal.	Cell Constant	Zero Conductivity Calibration (optional)
0.290 Std	0.3036	0.2900	5.64	Before — After —

Barometric Pressure (mm Hg) 728

YSI Datasonde Dissolved Oxygen	Before Calibration	After Calibration	DO Probe Gain
% Saturation	93.4	95.9	1.08
mg/L D.O.	8.66	8.90	
Temp – °F	66.2	66.1	

DO Handheld Meter Calibration - DO Meter Model: Hach HQ30d Meter #

	Before Calibration	After Calibration
% Saturation		
mg/L D.O.		
Temp – °F		

Post Calibration Slope = _____

Create File for Test Program ✓ **Start Test:** 0945 **End Test:** 1000

Test Program Readings

	YSI Datasonde	Hach HQ30d Meter	(Must be within 0.5 mg/L D.O.)
% Saturation	81.0	84.1	
mg/L D.O.	7.78	7.70	OK - Deploy
Temp – °F	63.0	63.2	

Create File for Datasonde ✓ **Remove calibration cup, Replace with weight** ✓

Re-calibration - REQUIRED if outside 0.5 mg/l limit

	Before Cal.	After Cal.	Datasonde	Hach HQ30d Meter
% Saturation				
mg/L D.O.				
Temp – °F				

Check File Status

File Start 9/25/18 1100 Battery Life (Number of Days): 588.2

Notes: _____

Field Notes for Datasonde Post Calibration

Date/Time: 9/25/18 1145 Analyst: MCM

Location: Twin @ Bridge Datasonde Serial #: 13L100688

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed
7.00 Std.	—
10.00 Std.	—

pH Temp Reading.: —

Conductivity (mS/cm) : 0.290 Std. Conc. 0.2665 Observed

Barometric Pressure (mm Hg) 728

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	97.3	95.7	
mg/L D.O.	9.37	9.19	1.00
Temp – °F	62.9	63.2	

Notes:

337 readings - All D.O. > 7 mg/L

Field Notes for Datasonde Post Calibration

Date/Time: 10/1/18 ~~0955~~ 0935 Analyst: MWM

Location: Twin @ Bridge Datasonde Serial #: 13C100320

Ending Datasonde Battery [volts]: 2.9

Calibration Information

pH (s.u.):	Observed
7.00 Std.	–
10.00 Std.	–

pH Temp Reading.: –

Conductivity (mS/cm) : 0.290 Std. Conc. 0.2583 Observed

Barometric Pressure (mm Hg) 741

Dissolved Oxygen	Before Calibrate	After Calibrate	Gain
% Saturation	99.8	97.5	
mg/L D.O.	10.65	10.42	1.06
Temp – °F	54.3	54.3	

Notes:

Removed @ 8:45 a.m. for monitoring season

143 readings - All D.O. ↑ 7 mg/L

Vertical Profiles

QA Data

Twin Falls – Water Quality Profile

Date/Time: 6/14/18 10:45 Analyst: MWM

Weather Conditions: Overcast, 70° light wind Barometric Pressure: 733

Secchi Disk Reading: 6' 0"

Calibration Date	6/14/18	
Meter 1 - 30m	Before Calibration	After Calibration
D.O.	8.28	8.35
% Sat	98.3	100.0
Temp. °F	71.5	72.2
DO Calib. % Slope	N/A	104 %
Meter 2 - 15m		
D.O.	8.33	8.22
% Sat	101.1	100.0
Temp. °F	73.7	73.9
DO Calib. % Slope	N/A	98.3 %

Profile Readings:

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	7.63	66.8	8.5 meters		
1.0 meters	7.64	66.8	9.0 meters		
1.5 meters	7.63	66.8	9.5 meters		
2.0 meters	7.63	66.7	10.0 meters		
2.5 meters	7.63	66.7			
3.0 meters	7.63	66.7			
3.5 meters	7.63	66.7	Comparison	Readings	
4.0 meters	7.62	66.7	0.5 m	7.74	67.1
4.5 meters	7.61	66.8	7.5 m	7.72	67.0
5.0 meters	7.60	66.7			
5.5 meters	7.59	66.7			
6.0 meters	7.58	66.7			
6.5 meters	7.58	66.7			
7.0 meters	7.58	66.7			
7.5 meters	7.58	66.7			
8.0 meters	—	—			

Twin Falls – Water Quality Profile

Date/Time: 6/29/18 ~15 Analyst: MWM

Weather Conditions: Cloudy, 80°, Humid 10 mph winds Barometric Pressure:

Secchi Disk Reading: 5'

Calibration Date	6-29-18	
Meter 1 30m	Before Calibration	After Calibration
D.O.	8.65	8.69
% Sat	99.4	100.0
Temp. °F	69.7	69.8
DO Calib. % Slope	N/A	104.6
Meter 2 15m		
D.O.	8.44	8.64
% Sat	97.5	100.0
Temp. °F	70.6	~~70.0~~ 70.6
DO Calib. % Slope	N/A	100.8

Profile Readings:

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	6.99	72.1	8.5 meters		
1.0 meters	6.96	72.0	9.0 meters		
1.5 meters	6.93	71.9	9.5 meters		
2.0 meters	6.88	71.8	10.0 meters		
2.5 meters	6.87	71.8			
3.0 meters	6.90	71.8			
3.5 meters	6.82	71.6	Comparison Readings		
4.0 meters	6.82	71.6	0.5 m	6.97	72.3
4.5 meters	6.85	71.7	7.0 m	6.69	71.5
5.0 meters	6.84	71.6			
5.5 meters	6.83	71.6			
6.0 meters	6.74	71.4			
6.5 meters	6.73	71.4			
7.0 meters	6.72	71.3			
7.5 meters					
8.0 meters					

Twin Falls – Water Quality Profile

Date/Time: 7/11/18 1145 Analyst: MWM

Weather Conditions: Sunny, Mid 70's, 5 mph winds Barometric Pressure:

Secchi Disk Reading: 5' 9"

Calibration Date		
Meter 1 - 15m	Before Calibration	After Calibration
D.O.	8.55	8.65
% Sat	98.9	100.0
Temp. °F	71.2	71.2
DO Calib. % Slope	N/A	101.9
Meter 2 - 30m		
D.O.	8.64	8.67
% Sat	99.0	100.0
Temp. °F	70.7	70.7
DO Calib. % Slope	N/A	104.9

Profile Readings: Meter 2

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	7.09	76.9	8.5 meters		
1.0 meters	7.04	76.8	9.0 meters		
1.5 meters	6.91	76.6	9.5 meters		
2.0 meters	6.51	76.2	10.0 meters		
2.5 meters	6.44	76.0			
3.0 meters	6.28	75.8			
3.5 meters	6.10	75.6	Comparison		
4.0 meters	6.04	75.5	0.5m	7.09	76.8
4.5 meters	6.11	75.5	7.0m	5.78	75.3
5.0 meters	6.02	75.4			
5.5 meters	5.94	75.4			
6.0 meters	5.90	75.3			
6.5 meters	5.88	75.2			
7.0 meters	5.82	75.1			
7.5 meters					
8.0 meters					

Twin Falls – Water Quality Profile

Date/Time: 7/25/18 1105 Analyst: MWH

Weather Conditions: Partly Sunny, Winds 5-10 choppy on water Barometric Pressure:

Secchi Disk Reading: 5'2"

Calibration Date	7-24-18	
Meter 1 - 30m	Before Calibration	After Calibration
D.O.	8.96	8.73
% Sat	101.3	100.0
Temp. °F	69.5	69.6
DO Calib. % Slope	N/A	103.6
Meter 2 - 10m Cable		
D.O.	8.75	8.76
% Sat	99.9	100.0
Temp. °F	69.5	69.6
DO Calib. % Slope	N/A	101.9

Profile Readings:

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	8.15	76.0	8.5 meters		
1.0 meters	8.14	76.0	9.0 meters		
1.5 meters	8.13	76.0	9.5 meters		
2.0 meters	8.08	76.0	10.0 meters		
2.5 meters	7.93	75.8			
3.0 meters	7.70	75.6	Meter #2		
3.5 meters	7.55	75.3	0.5m	8.17	76.4
4.0 meters	7.87	75.1	7.0m	6.69	74.2
4.5 meters	7.69	75.5			
5.0 meters	7.21	74.8			
5.5 meters	7.09	74.6			
6.0 meters	6.93	74.3			
6.5 meters	6.11	74.2			
7.0 meters	6.63	73.9			
7.5 meters					
8.0 meters					

Twin Falls – Water Quality Profile

Date/Time: 8-9-18 1140 Analyst: KLCM

Weather Conditions: Sunny, Calm winds, 70° Barometric Pressure: _____

Secchi Disk Reading: 6'3"

Calibration Date		
Meter 1 - 30m Cable	Before Calibration	After Calibration
D.O.	9.60	8.94
% Sat	100.6	100.6
Temp. °F	67.5	67.6
DO Calib. % Slope	N/A	103.0
Meter 2 - 10m Cable		
D.O.	8.87	8.82
% Sat	100.5	100.0
Temp. °F	69.0	69.0
DO Calib. % Slope	N/A	101.4

Profile Readings:

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	7.97	74.0	8.5 meters		
1.0 meters	7.92	73.9	9.0 meters		
1.5 meters	7.86	73.9	9.5 meters		
2.0 meters	7.80	73.8	10.0 meters		
2.5 meters	7.74	73.6			
3.0 meters	7.64	73.4			
3.5 meters	7.65	73.3			
4.0 meters	7.59	73.2	0.5 M	8.00	74.2
4.5 meters	7.48	73.0	7.0 M	7.46	73.1
5.0 meters	7.51	73.0			
5.5 meters	7.60	73.0			
6.0 meters	7.55	73.0			
6.5 meters	7.51	73.0			
7.0 meters	7.42	72.9			
7.5 meters					
8.0 meters					

Twin Falls – Water Quality Profile

Date/Time: 8/15/18 11:25 Analyst: MGM

Weather Conditions: Partly Sunny 76° Calm wind Barometric Pressure:

Secchi Disk Reading: 6' 9"

Calibration Date	8-14-18 15:35	
Meter 1 - 30m	Before Calibration	After Calibration
D.O.	8.54	8.58 ~~8.58~~
% Sat	99.5	100.0 ~~99.7~~
Temp. °F	70.9	~~71.1~~
DO Calib. % Slope	N/A	103.4
Meter 2 - 15m		
D.O.	8.58	8.60
% Sat	97.7	100.0
Temp. °F	71.1	71.1
DO Calib. % Slope	N/A	101.6

Profile Readings:

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	7.74	76.3	8.5 meters		
1.0 meters	7.52	76.0	9.0 meters		
1.5 meters	7.50	76.0	9.5 meters		
2.0 meters	7.20	75.6	10.0 meters		
2.5 meters	7.07	75.5			
3.0 meters	7.00	75.3			
3.5 meters	6.91	75.2			
4.0 meters	6.77	75.0	Comparison Readings		
4.5 meters	6.61	~~75~~ 74.8	0.5m	7.73	76.6
5.0 meters	6.63	74.8	7.0m	6.15	74.4
5.5 meters	6.56	74.8			
6.0 meters	6.26	74.4			
6.5 meters	6.14	74.3			
7.0 meters	6.14	74.2			
7.5 meters					
8.0 meters					

Twin Falls – Water Quality Profile

Date/Time: 8-29-18 1100 Analyst: MWM

Weather Conditions: Cloudy, 60° F, 10mph winds Barometric Pressure: _____

Secchi Disk Reading: 6' 0"

Calibration Date	8/28/18 1530	
Meter 1 – 10m	Before Calibration	After Calibration
D.O.	8.73	8.67
% Sat	100.6	100.0
Temp. °F	69.9	69.9
DO Calib. % Slope	N/A	100.9
Meter 2 - 30 m		
D.O.	8.71	8.72
% Sat	100.6	100.0
Temp. °F	69.1	69.2
DO Calib. % Slope	N/A	102.8

Profile Readings:

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	7.29	70.8	8.5 meters		
1.0 meters	7.29	70.8	9.0 meters		
1.5 meters	7.29	70.9	9.5 meters		
2.0 meters	7.28	70.9	10.0 meters		
2.5 meters	7.28	70.9			
3.0 meters	7.27	70.9			
3.5 meters	7.26	70.9			
4.0 meters	7.26	70.9	Comparison	Readings	
4.5 meters	7.25	70.9	0.5m	7.30	71.0
5.0 meters	7.24	70.9	7.0m	7.23	71.2
5.5 meters	7.24	70.9			
6.0 meters	7.24	70.9			
6.5 meters	7.23	70.9			
7.0 meters	7.23	70.9			
7.5 meters					
8.0 meters					

Twin Falls – Water Quality Profile

Date/Time: 9/11/18 1136 Analyst: MWM

Weather Conditions: Sunny, lows 70's, light wind Barometric Pressure: _____

Secchi Disk Reading: 5' 0"

Calibration Date	9/10/18	
Meter 1 - 10m	Before Calibration	After Calibration
D.O.	8.45	8.48
% Sat	99.5	100.0
Temp. °F	72.8	72.9
DO Calib. % Slope	N/A	101.3
Meter 2 - 30m cable		
D.O.	8.45	8.52
% Sat	99.2	100.0
Temp. °F	72.3	72.3
DO Calib. % Slope	N/A	103.6

Profile Readings: Meter #2

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	7.66	65.7	8.5 meters		
1.0 meters	7.65	65.7	9.0 meters		
1.5 meters	7.65	65.7	9.5 meters		
2.0 meters	7.64	65.7	10.0 meters		
2.5 meters	7.63	65.7			
3.0 meters	7.63	65.7			
3.5 meters	7.63	65.7			
4.0 meters	7.62	65.7	Comparison Readings		
4.5 meters	7.61	65.7	0.5 m	7.67	65.9
5.0 meters	7.61	65.7	7.0 m	7.60	66.0
5.5 meters	7.61	65.7			
6.0 meters	7.60	65.7			
6.5 meters	7.59	65.7			
7.0 meters	7.59	65.7			
7.5 meters					
8.0 meters					

Twin Falls – Water Quality Profile

Date/Time: 9/25/18 1015 Analyst: MM

Weather Conditions: Cloudy, 60°, NW wind 5-10 Barometric Pressure: 728

Secchi Disk Reading: 5' 0"

Calibration Date	9/24/18	
Meter 1 - 15m	Before Calibration	After Calibration
D.O.	8.85	8.85
% Sat	99.9	100.0
Temp. °F	69.1	69.2
DO Calib. % Slope	N/A	101.4
Meter 2 - 30m cable		
D.O.	8.90	8.96
% Sat	100.3	100.0
Temp. °F	68.7	68.7
DO Calib. % Slope	N/A	103.3

Profile Readings: Meter #2

Depth	D.O. mg/L	Temp °F	Depth	D.O. mg/L	Temp °F
0.5 meters	7.73	63.2	8.5 meters		
1.0 meters	7.71	63.2	9.0 meters		
1.5 meters	7.70		9.5 meters		
2.0 meters	7.69		10.0 meters		
2.5 meters	7.68				
3.0 meters	7.67				
3.5 meters	7.67		Comparison Readings - Meter 1		
4.0 meters	7.66		0.5m	7.73	63.4
4.5 meters	7.66		7.0 meter	7.65	63.5
5.0 meters	7.65				
5.5 meters	7.65				
6.0 meters	7.65				
6.5 meters	7.64				
7.0 meters	7.65				
7.5 meters					
8.0 meters					

Twin Falls Hydroelectric Project

FERC Project No. 11831

2018 Water Quality Monitoring Report

Documentation of Agency Consultation

From:	Metcalf, Mark W
To:	GulottyE@michigan.gov; Laatsch, Cheryl; Utrup, Nick; Jim Fossum ; Angie Tornes; Bob Stuber
Cc:	Grisar, Mike L; Barens, Jeffrey D; Jastremski, Todd P; Oun, Amira
Subject:	Twin Falls Hydroelectric Project (FERC No. 11831) - 2018 Water Quality Monitoring Report
Date:	Monday, October 29, 2018 3:07:28 PM
Attachments:	20181029 TWNF Annual WQM Rpt.pdf 2018 TWNF WQ Monitoring Figures.pdf TWNF Tailrace DO Summary 2018.xlsx TWNF Tailrace Temp Summary 2018.xlsx TWNF Downstream DO Summary 2018.xlsx TWNF Downstream Temp Summary 2018.xlsx TWNF headwater 2018 profile summary.xlsx 2018 Monitoring comparison_DO.xlsx 2018 Monitoring comparison_Temp.xlsx 2018 TWNF QA data.pdf

---

Good afternoon,

In accordance with the FERC Order Amending License and Revising Annual Charges, dated September 27, 2013, Wisconsin Electric Power Company (d.b.a We Energies) is submitting water quality monitoring data collected during the 2018 monitoring season at the Twin Falls Hydroelectric project to the members of the Wilderness Shores Implementation Team for review and comment. Enclosed with this report are excel spreadsheets containing the monitoring data, in both tabular and graphical format. For your convenience, a comparison of the DO and temperature monitoring data from each of the monitoring locations is also enclosed. No deviations from the applicable water quality standards were observed during the 2018 monitoring season.

Amira – Per your request I am also providing the water quality monitoring data for your review.

Please review the enclosed data and provide any comments you may have within 30 days. Should you have any questions or concerns, please do not hesitate 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

We Energies
Iron Mountain Hydro Operations
800 Industrial Park Drive
Iron Mountain, MI 49801
Phone 906-779-2400
www.we-energies.com

October 29, 2018

To: Wilderness Shores Implementation Team[1]

SUBJECT: 2018 Water Quality Monitoring Report

Hydro	FERC Project No.	NATDAM No.	License Article
Twin Falls	**11831**	**MI00143**	**423**

In accordance with the FERC Order Amending License and Revising Annual Charges, dated September 27, 2013, Wisconsin Electric Power Company (d.b.a We Energies) is submitting water quality monitoring data collected during the 2018 monitoring season at the Twin Falls hydroelectric project for your review and comment.

The water quality standards for the Twin Falls hydroelectric project can be found in the Wilderness Shores Settlement Agreement (WSSA), dated February 10, 1997. We Energies is required to ensure that flow releases from the Project maintain the state standards listed below when flows are greater than or equal to the 95 percent exceedance values:

(1) Wisconsin Electric shall not discharge water that exceeds the following maximum temperature water quality standard in degrees Fahrenheit (F):

January	38°F	July	83°F
February	38°F	August	81°F
March	41°F	September	74°F
April	56°F	October	64°F
May	70°F	November	49°F
June	80°F	December	39°F

(2) Wisconsin Electric shall not warm the Menominee River below the Project greater than 5 F above the existing water temperatures measured above the Project.

(3) Wisconsin Electric shall not cause the dissolved oxygen (DO) concentration, measured immediately downstream of the Project to be less than 5 mg/l.

---

1 – The Wilderness Shores Implementation Team consists of representatives from Wisconsin Electric Power Company, Michigan Department of Natural Resources, Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, National Parks Service, River Alliance of Wisconsin, and the Michigan Hydro Relicensing Coalition.

In accordance with the requirements found in Article 423 of the project license, water temperature and DO is to be monitored at two locations downstream of the project: within the new tailrace and at another location downstream of where the project's tailrace flow becomes riverine. In addition to the license required monitoring, vertical dissolved oxygen and temperature profiles were conducted upstream of the facility near the powerhouse intake. A photo depicting the monitoring locations can be found in Figure 1.

Monitoring for DO and temperature was conducted from June 1 through September 30 with values recorded every hour using portable water quality monitoring equipment manufactured by YSI, Inc. The instrumentation was cleaned and calibrated according to manufacturer specification on a bi-weekly basis during the monitoring period. A post deployment calibration was conducted to determine the extent of calibration drift. Raw data for the prior monitoring period was adjusted assuming a linear degradation of calibration based upon a post calibration of the equipment. Monitoring equipment quality assurance documentation is included in Attachment 1.

2018 Monitoring Results

Dissolved Oxygen

During the 2018 water quality monitoring season, there were no deviations from the DO water quality standard. DO readings were above 6.0 mg/l at all times. A brief period of non-representative data was observed at the tailrace monitoring location in early August due to an equipment failure. Notification of the equipment malfunction was provided to members of the Wilderness Shores Implementation Team on August 9, 2018.

Figures 2 through 5 provide a comparison of the hourly DO monitoring data from the tailrace and downstream monitoring locations. The data shows that DO concentrations were relatively consistent with hourly DO reading differences between the two monitoring locations ranging from -0.7 mg/l to +0.6 mg/l, with median difference of 0.0 mg/l . Vertical profile readings near the powerhouse intake showed that DO levels in the upstream impoundment were above the water quality standard at all depths throughout the monitoring season. Stratification of the impoundment near the intake was not observed. A comparison of the average vertical profile DO data to the daily average DO concentration measured downstream of the powerhouse shows that the operation of the facility is not adversely impacting dissolved oxygen levels downstream of the project.

Table 1: Average DO (mg/L), by monitoring location

Profile Date	Vertical Profile, Average Reservoir DO	Daily Average Tailrace DO	Daily Average Downstream DO
6/14/18	7.6	7.7	7.7
6/29/18	6.8	7.1	7.0
7/12/18	6.3	6.6	6.5

Profile Date	Vertical Profile, Average Reservoir DO	Daily Average Tailrace DO	Daily Average Downstream DO
7/25/18	7.6	7.6	7.5
8/8/18	7.7	7.7	7.5
8/15/18	6.9	7.1	7.1
8/29/18	7.3	7.3	7.3
9/11/18	7.6	7.7	7.6
9/25/18	7.7	7.8	7.8

Temperature

No deviations from the temperature water quality standards were observed during the monitoring season. Figures 6 through 9 provide comparison temperature readings between the two monitoring locations. A comparison of the tailrace and downstream temperature monitoring data shows that water temperature were stable between the tailrace and downstream monitoring locations, with only slight differences observed. Temperature differences between the two monitoring locations ranged from -2.0°F to +1.1°F, with a median temperature difference of 0.2°F. Vertical profile readings near the powerhouse intake showed water temperatures in the upstream impoundment were below the water quality standards at all depths throughout the monitoring season. Please note that the profile data does not indicate the presence of thermal stratification near the powerhouse intake. A comparison of the average water temperature from the vertical profile data (average temperature over all depths) to daily average monitoring data from the continuous monitoring locations is provided in Table 2.

Table 2: Average Temperature (°F), by monitoring location

Profile Date	Average Reservoir Temp.	Daily Average Tailrace Temp.	Daily Average Downstream Temp.
6/14/18	66.7	67.1	67.3
6/29/18	71.7	72.5	72.6
7/12/18	75.8	75.2	74.6
7/25/18	75.3	75.1	74.7
8/8/18	73.4	73.0	72.9
8/15/18	75.2	75.4	75.1
8/29/18	70.9	70.7	70.3
9/11/18	65.7	66.2	66.2
9/25/18	63.2	63.0	63.0

Future Monitoring

As required by the project license, We Energies has conducted two years of water quality monitoring in the tailrace and downstream of the project where the project's tailrace flow becomes riverine. The Twin Falls hydro withdraws water from the entire water column of the upstream reservoir. This configuration promotes mixing of water being released through the powerhouse and minimizes the potential for low DO levels or elevated water temperatures downstream of the due to facility operation as the withdrawal is not limited to the hypolimnion or epilimnion of the reservoir. Over the past two monitoring seasons no deviations from the DO or temperature water quality standards were observed. DO levels measured downstream of the facility were greater than 6 mg/l during both monitoring seasons. Vertical profile measurements conducted in the upstream impoundment over the past two monitoring seasons did not indicate the presence of thermal stratification or the presence of low dissolved oxygen water near the intake.

Water quality monitoring over the past two years has demonstrated that the operation and maintenance of the facility has not caused a violation of Wisconsin Water Quality Standards. Therefore, We Energies does not propose to continue water quality monitoring activities at this time. As referenced in condition 8 of the 401 Certification for the project and further described in condition 4.1.13 of the WSSA, We Energies requests that water quality monitoring be eliminated. Future monitoring could be re-established as conditions warrant as allowed per the 401 Certification and condition 4.1.14 of the WSSA.

Enclosed with this report are spreadsheets containing the 2018 monitoring data in both tabular and graphical format. Please review the enclosed data and provide any comments you may have within 30 days of this letter. Should you have any questions or concerns, feel free to contact me at (920) 433-1833 or mark.metcalf@wecenergygroup.com .

Sincerely,

Mark Metcalf

Mark Metcalf
Principal Environmental Consultant

Enclosures – 2018 Water Quality Monitoring Figures (9 pages)
2018 Water Quality Monitoring Data (7 spreadsheets)
Attachment 1 – Quality Assurance Data (53 pages)

From: Laatsch, Cheryl - DNR
To: Metcalf, Mark W; Grisar, Mike L
Subject: FW: Twin Falls WQ follow up
Date: Wednesday, October 31, 2018 4:00:32 PM

Hi - Here are Jims Comments. Let me know if you would like to discuss in more detail.

Twin Falls did meet their requirements except for the temperature monitoring aspect. We Energies should deploy a thermistor in a riverine environment above the flowage and one at their furthest downstream monitoring location. They should collect temp data on an hourly basis for the next two year period.

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Cheryl Laatsch
Statewide FERC Coordinator
Bureau of Environmental Analysis and Sustainability
Wisconsin Dept of Natural Resources
N7725 Hwy 28
Horicon WI 53032
(T) 920-387-7869 (Fax) 920-387-7888
Cheryl.laatsch@wisconsin.gov


dnr.wi.gov

Response to Comments from the Wisconsin Department of Natural Resources

Comment: Twin Falls did meet their requirements except for the temperature monitoring aspect. We Energies should deploy a thermistor in a riverine environment above the flowage and one at their furthest downstream monitoring location. They should collect temp data on an hourly basis for the next two year period.

Response: We disagree with the Department's comment that the company did not meet the temperature monitoring requirements and that an additional two years of water quality monitoring for temperature should be conducted upstream and downstream of the project. Article 423 of the FERC license for the Twin Falls powerhouse contains a requirement to conduct water quality monitoring. The article specifically states that "Beginning on the first day of June after the licensee commences operation of the new powerhouse, the licensee shall monitor water temperature and dissolved oxygen concentrations within the new tailrace and at another location downstream of where the project's tailrace flows become riverine. Monitoring shall be continuous, recording values every hour, from June 1 through September 30 for two years. Upon completing the first monitoring year, the licensee shall consult with members of the Wilderness Shores Implementation Team to discuss corrective actions, if necessary, and to develop possible changes for the second monitoring year." We Energies believes the company has met the monitoring requirements of Article 423 and that no further monitoring is necessary at this time.

During the 2017 water quality monitoring season, We Energies conducted continuous water quality monitoring downstream of the facility as required by the License. In addition to this monitoring, vertical profiles were conducted near the powerhouse intake along with the installation of a continuous water quality monitor on the upstream side of the dam. The upstream monitoring was performed to document water quality of the water upstream of the powerhouse in the event that a deviation was observed downstream of the project. No water quality deviations were observed upstream or downstream of the project. After the 2017 water quality monitoring season, the monitoring data was provided to the resource agencies and at that time We Energies had proposed to discontinue the continuous monitoring upstream of the facility for temperature and DO, which was agreed to by WDNR staff. We Energies then conducted a second year of continuous monitoring downstream of the powerhouse, along with conducting vertical DO and temperature profiles in the impoundment near the powerhouse intake. No deviations from the dissolved oxygen or maximum water temperatures have been observed over the past two monitoring years.

One of the water quality standards listed in the WSSA is a requirement that "Wisconsin Electric shall not warm the Michigamme, Paint and Menominee Rivers below the Projects covered by this Settlement greater than 5 F above the existing water temperatures measured above the

listed Projects." The Twin Falls hydro withdraws water from the entire water column of the upstream reservoir, not just the hypolimnion or epilimnion of the reservoir. This configuration promotes mixing of water as it passes through the powerhouse and minimizes the potential for low DO levels or elevated water temperatures downstream of the facility. Previous monitoring conducted at the WSSA projects did not reveal compliance issues with this water quality standard at any of the WSSA projects, and monitoring for temperature upstream and downstream of the WSSA projects has not been required at any of the project locations since the initial monitoring occurred. At this project, *if* monitoring data should indicate a greater than 5 degree F difference in water temperature upstream of the project compared to downstream, there is no practical corrective action that could be taken. Vertical profiles conducted near the powerhouse intake in 2017 and 2018 did not reveal thermal stratification was present near the powerhouse intake, therefore, colder water is not available to be released to mitigate downstream temperatures.

Monitoring data collected prior to construction of the new powerhouse did not reveal any deviations from water quality standards, and monitoring data collected over the past two monitoring seasons did not reveal any deviations downstream of the powerhouse nor potential water quality issues in the water being withdrawn from the impoundment. Therefore, there is no reason to believe the facility is not meeting the water quality standards. As we stated in the annual report, future monitoring could be re-established as conditions warrant as allowed per the 401 Certification and condition 4.1.14 of the WSSA. We believe the company has met the requirements of Article 423 of the Project License. Any future monitoring at Twin Falls should be discussed and agreed upon with the Wilderness Shores Implementation Team.

From:	Bob Stuber
To:	Metcalf, Mark W
Cc:	angie_tornes@nps.gov; Barens, Jeffrey D; Grisar, Mike L; GulottyE@michigan.gov; Jastremski, Todd P; Jim Fossum; Laatsch, Cheryl; Oun, Amira; Utrup, Nick
Subject:	Re: Twin Falls Hydroelectric Project (FERC No. 11831) - 2018 Water Quality Monitoring Report
Date:	Tuesday, November 27, 2018 8:33:35 AM

Mr. Metcalf - the Michigan Hydro Relicensing Coalition (MHRC) has reviewed the Twin Falls hydroelectric project water quality report. The MHRC has no concerns for the proposed course of action as it is consistent with the terms of the Wilderness Shores Settlement Agreement.

Bob Stuber
MHRC Executive Director

On Mon, Oct 29, 2018, 16:08 Metcalf, Mark W <mark.metcalf@wecenergygroup.com> wrote:

> Good afternoon,
>
> In accordance with the FERC Order Amending License and Revising Annual Charges, dated September 27, 2013, Wisconsin Electric Power Company (d.b.a We Energies) is submitting water quality monitoring data collected during the 2018 monitoring season at the Twin Falls Hydroelectric project to the members of the Wilderness Shores Implementation Team for review and comment. Enclosed with this report are excel spreadsheets containing the monitoring data, in both tabular and graphical format. For your convenience, a comparison of the DO and temperature monitoring data from each of the monitoring locations is also enclosed. No deviations from the applicable water quality standards were observed during the 2018 monitoring season.
>
> Amira – Per your request I am also providing the water quality monitoring data for your review.
>
> Please review the enclosed data and provide any comments you may have within 30 days. Should you have any questions or concerns, please do not hesitate 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*

Response to Comments from the Michigan Hydro Relicensing Coalition

Comment: The Michigan Hydro Relicensing Coalition (MHRC) has reviewed the Twin Falls hydroelectric project water quality report. The MHRC has no concerns for the proposed course of action as it is consistent with the terms of the Wilderness Shores Settlement Agreement.

Response: Comment noted.

Response to Comments from the Resource Agencies

The Michigan Department of Natural Resources, U.S. Fish & Wildlife Service, National Parks Service and River Alliance of Wisconsin did not provide comments on the 2018 water quality monitoring report.