



**Wisconsin Public Service Corporation**

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February 7, 2011

FERC Projects: 2525, 2595, 2522,  
2546, 2560, 2581

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

Dear Secretary Bose:

2011 Water Quality Monitoring Report – WPSC Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for the Wisconsin Public Service Corporation (WPS) Hydroelectric facilities along the Peshtigo River, WPS is submitting water quality monitoring data collected during the 2011 monitoring season. Water quality monitoring was conducted at the following projects: Caldron Falls (FERC No. 2525), High Falls (FERC No. 2595), Johnson Falls (FERC No. 2522), Sandstone Rapids (FERC No. 2546), Potato Rapids (FERC No. 2560), and Peshtigo River (FERC No. 2581).

During the 2011 monitoring season, data was collected using portable water quality monitoring equipment manufactured by Hydrolab, Inc. As described in the water quality monitoring plans for the projects, the instrumentation was cleaned and calibrated according to manufacturer specification every 7-10 days during the monitoring period. A post deployment calibration was conducted to determine the extent of calibration drift. Raw data was adjusted assuming a linear degradation of calibration based upon a post calibration of the equipment. The water quality monitoring equipment used to monitor dissolved oxygen has an accuracy of +/- 0.2 mg/l, per the manufacturer. For compliance purposes, dissolved oxygen concentrations more than 0.2 mg/l below the applicable water quality standard are potential deviations.

Monitoring for dissolved oxygen (DO), temperature, and pH was conducted continuously on an hourly basis from June 1<sup>st</sup> through September 30<sup>th</sup>. The DO water quality standard at all of the developments except Johnson Falls is 5.0 mg/l. Downstream of Johnson Falls, the DO water quality standard is 6 mg/l. The water quality standard for pH at all locations is 6.0 standard units (s.u.) to 9.0 s.u. The temperature standard applicable to all facilities except Johnson Falls is 89°F. The Johnson Falls Hydroelectric project does not have a numeric temperature limitation. Per the water quality monitoring plan, the limitation for temperature at this location

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is “water temperature shall not be altered from natural background to the extent that trout populations are adversely affected”.

The following is a summary of the monitoring results for the 2011 monitoring season:

#### Caldron Falls Hydroelectric Project

Water quality monitoring at the Caldron Falls project was conducted at the following locations:

- Upstream of the Caldron Falls Dam in the Caldron Falls reservoir, approximately 1 meter above the bottom of the reservoir near the powerhouse intake, and
- In the tailrace of the Caldron Falls Powerhouse downstream of the confluence of the spillway and powerhouse release.

At the upstream monitoring location, deviations from the DO water quality standard were observed between June 14<sup>th</sup> and September 19<sup>th</sup>. The deviations were due to a natural stratification of the impoundment. No deviations from the pH or temperature standards were observed at the upstream monitoring location.

Downstream of the powerhouse, deviations from the DO water quality standard were observed intermittently between July 23<sup>rd</sup> and August 4<sup>th</sup>. On July 23<sup>rd</sup>, the deviations from the DO standard occurred while the facility was in peaking operation and was releasing over 400 CFS of water through the powerhouse. Between July 27<sup>th</sup> and August 4<sup>th</sup>, the periods of low DO readings correspond to periods of low river flow while refilling the Caldron Falls reservoir after completion of peaking operation. The cause of the low readings was due to low levels of dissolved oxygen in the hypolimnion of the reservoir (where water is being withdrawn and subsequently released through the powerhouse) and a lack of aeration flow into the Peshtigo River. As reported to the Commission on August 9, 2011, WPSC was not releasing the required 56 cfs of aeration flow through a sluice gate at the times the deviations were observed. This was corrected on August 12<sup>th</sup>, and no deviations were observed after this date.

Downstream of the powerhouse, there were periods when the water quality monitoring equipment was not in the river during periods of low river flow (reservoir refilling after peaking). These periods are identified in the attached monitoring data. At the downstream monitoring location, the Peshtigo River is shallow and rocky. When the monitoring equipment was retrieved for maintenance and calibration while the facility was peaking, monitors were not able to be safely placed in the river at a location where it was known that the monitor would be under water at all times. Consequently, during refill periods when river flows decreased (and water levels receded), the monitor came out of the water, resulting in periods of non-representative data at this monitoring location. WPSC will be proposing to amend the water quality monitoring plan for this project to address monitoring issues observed in a separate filing.

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There are no temperature deviations during the monitoring season at this location to note. During the monitoring season, there was one period in September when high pH values were observed downstream of the powerhouse while the monitor was in the water, however; these readings are the result of equipment malfunction and are not representative of actual river conditions. Water quality monitoring at the Caldron Falls upstream monitoring location and downstream at the Parkway Road Bridge monitoring location did not reveal pH deviations, confirming that the high readings observed at the Caldron Falls downstream monitoring location were the result of an equipment malfunction.

#### High Falls Hydroelectric Project

Water quality monitoring at the High Falls Hydroelectric project was conducted at the following locations:

- Upstream of the High Falls Reservoir at the Parkway Road bridge crossing the Peshtigo River,
- Downstream of the High Falls Powerhouse, at the High Falls Road bridge.

At the upstream monitoring location, the only potential deviations from the DO standard to note occurred on June 23<sup>rd</sup> and 24<sup>th</sup> while the Caldron Falls facility was conducting peaking operations and was releasing over 400 CFS of water through the powerhouse. As stated above, the low DO readings were due to low levels of dissolved oxygen in the hypolimnion of the reservoir (where water is being withdrawn and subsequently released through the powerhouse) and a lack of aeration flow into the Peshtigo River. No deviations from the pH or temperature water quality standards were observed.

At the monitoring location downstream of the High Falls Powerhouse, there was one hourly reading below the DO water quality standard on June 18<sup>th</sup>. At the time of the low reading, approximately 30 cfs of aeration flow was being released through the spillway. Dissolved oxygen readings the hour before and after the low reading were 7.5 mg/l and 6.6 mg/l, respectively. Therefore; this reading is an anomaly and is likely due to an equipment malfunction. There were no deviations from the pH or temperature standards at this monitoring location.

#### Johnson Falls Hydroelectric Project

At the Johnson Falls Hydroelectric Project, water quality monitoring was conducted in the tailrace of the facility, approximately 40 to 60 feet downstream of the powerhouse. No pH deviations were observed during the monitoring season. Potential deviations from the DO water quality standard were observed intermittently between July 11<sup>th</sup> and August 10<sup>th</sup>. The low DO levels were likely influenced by warm water temperatures observed. Water temperatures during this time period ranged between 70°F and 76°F, while the monthly average water temperature for July and August was over 72°F.

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Please note that the Johnson Falls tailrace monitoring location is approximately 40 to 60 feet downstream of the powerhouse. Based upon monitoring experience and data from the Caldron Falls and Parkway Road Bridge monitoring locations, WPS believes dissolved oxygen levels do increase and the water quality standard is being met within a short distance from the powerhouse. On August 22<sup>nd</sup>, in stream readings were taken with a handheld dissolved oxygen monitor to determine how much dissolved oxygen levels improve with distance from the powerhouse. Readings were taken at four locations: immediately downstream of the powerhouse, at the tailrace monitoring location, approximately 250 feet downstream of the monitoring location, and approximately 500 feet downstream of the monitoring location. The readings show that dissolved oxygen levels increased 0.4 mg/l within approximately 500 feet of the powerhouse. Therefore, dissolved oxygen levels are improving with distance from the powerhouse and the water quality standard is being met within a short distance from the facility. A map depicting the monitoring locations below the Johnson Falls Powerhouse and the water quality readings from August 22<sup>nd</sup> is included with the monitoring data.

#### Sandstone Rapids Hydroelectric Project

At the Sandstone Rapids facility, water quality monitoring was conducted in the tailrace of the powerhouse. No deviations from the DO, pH or temperature water quality standards were observed during the monitoring season. Please note that the facility was off-line from July 18<sup>th</sup> through the end of the monitoring season due to planned electrical upgrades at the facility. Consequently, all water, except for leakage through the units, was being released through the facility's spillway between July 18<sup>th</sup> and the end of the monitoring season.

#### Potato Rapids Hydroelectric Project

Water quality monitoring at the Potato Rapids Hydroelectric project was conducted at the following locations:

- Upstream of the Potato Rapids Powerhouse in the Potato Rapids reservoir,
- In the tailrace of the Potato Rapids Powerhouse

At the upstream monitoring location, the monitor was located adjacent to the powerhouse approximately 1 meter above the bottom of the reservoir. Deviations from the dissolved oxygen standard were observed intermittently throughout the monitoring season. The likely cause of the deviations is a natural stratification of the impoundment. Unlike the Caldron Falls reservoir, the Potato Rapids reservoir is a shallow water body. This feature makes the reservoir more susceptible to changes in dissolved oxygen levels due to weather related events, such as rainfall or high winds. Consequently, the reservoir does not stratify in the same manner as a deep reservoir (continuously until fall turnover). This results in intermittent readings below the water quality standard rather than continuously low readings, as was observed at the Caldron Falls upstream monitoring location. There were no deviations from the pH or temperature water quality standard at the upstream monitoring location.

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At the monitoring location downstream of the Potato Rapids powerhouse, there are no deviations from the DO, pH or temperature water quality standards to note.

Peshtigo Hydroelectric Project

Water quality monitoring at the Peshtigo Hydroelectric Project was conducted in the tailrace of the powerhouse. No deviations from the dissolved oxygen, pH or temperature water quality standards were observed during the 2011 monitoring season.

WPS consulted with the Wisconsin Department of Natural Resources and U.S. Fish & Wildlife Service regarding the 2011 water quality monitoring data. Documentation of agency consultation is enclosed with the water quality monitoring data. Please note that there was one instance where WPS provided a notice of potential deviations from the water quality standards, however, a corresponding report to FERC was not submitted due to an oversight. On September 23, 2011, WPS provided the resource agencies with a notice regarding low dissolved oxygen levels observed in the Caldron Falls Reservoir which were due to the natural stratification of the impoundment. The correspondence also contained a notice that there was one hourly reading below the Johnson Falls project below the water quality standard. The low reading was due to an equipment malfunction. To prevent future reporting omissions, when potential deviations are observed WPS will enter a reporting requirement commitment into its internal commitment and compliance tracking system to assure the deviation reports are submitted to the resource agencies and to the FERC.

On October 28, 2011, WPS submitted the 2011 water quality monitoring report to the resource agencies for review and comment. No comments were received from the resource agencies on the water quality monitoring data. Should you have any questions or concerns with this submittal, please do not hesitate to call Mr. Mark Metcalf at (920) 433-1833.

Sincerely,



Terry P. Jensky  
Vice President - Energy Supply Operations

Enc: 2011 Water Quality Monitoring Report

cc:	Mr. Gil Snyder, WPSC - D2	Mr. Ed Brandt, WPSC - CRI
	Mr. Shawn Puzen, IBS - D2	Mr. Bill Bosacki, WPSC - CRI
	Ms. Joan Johaneck, WPSC - D2	Mr. Howard Giesler, WPSC - PUL
	Mr. Bruce Crocker, WPSC - D2	Mr. Bill Bloczynski, WPSC - MERH
	Mr. John Myers, IBS - D2	Ms. Peggy Harding, FERC - CRO
	Mr. Dave Giesler, IBS - D2	

**Wisconsin Public Service Corporation  
Peshtigo River Hydroelectric Projects**

**FERC Project Nos.**

**2525, 2595, 2522, 2546, 2560, 2581**

**2011 Water Quality Monitoring Data**

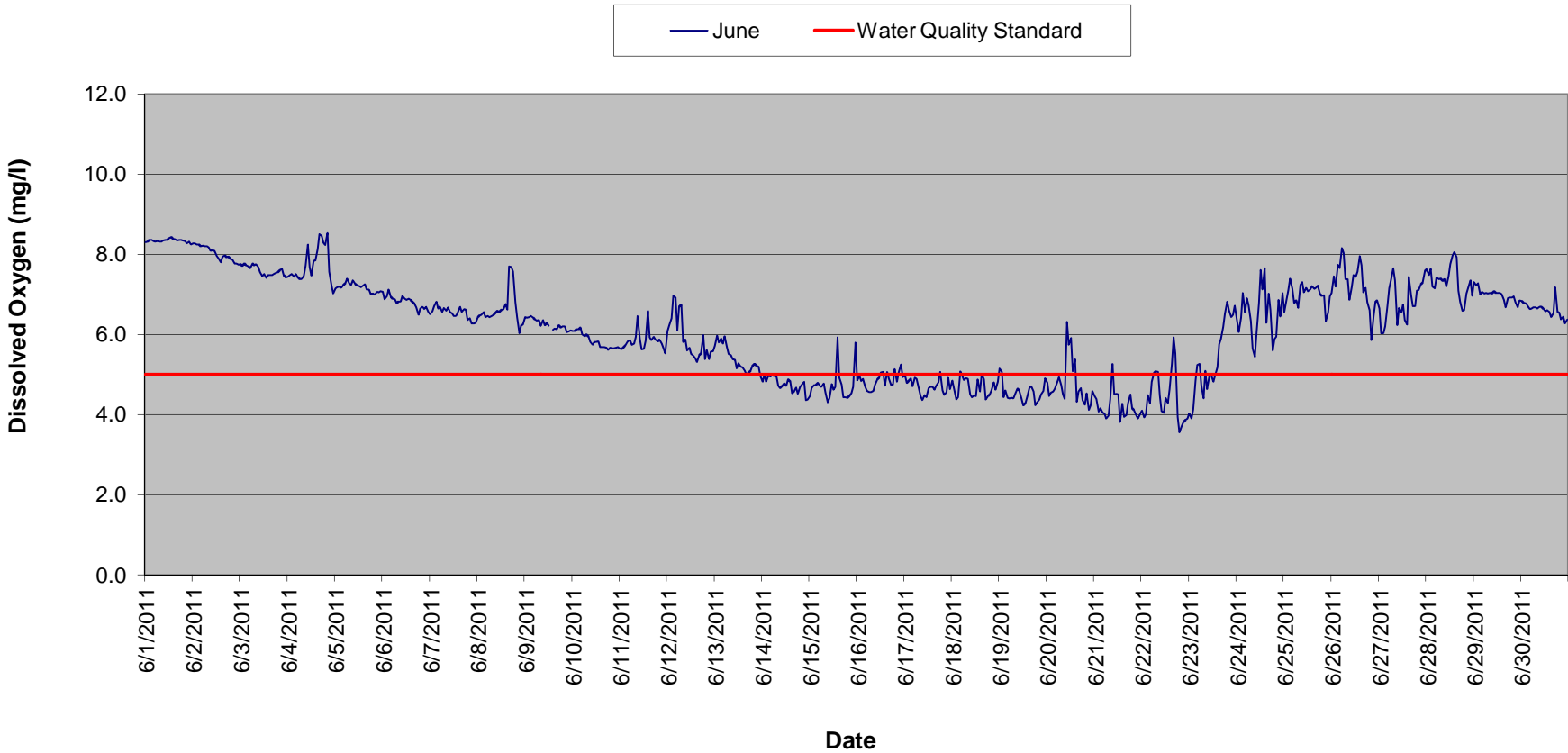
**Caldron Falls Hydroelectric Project**

**FERC Project No. 2525**

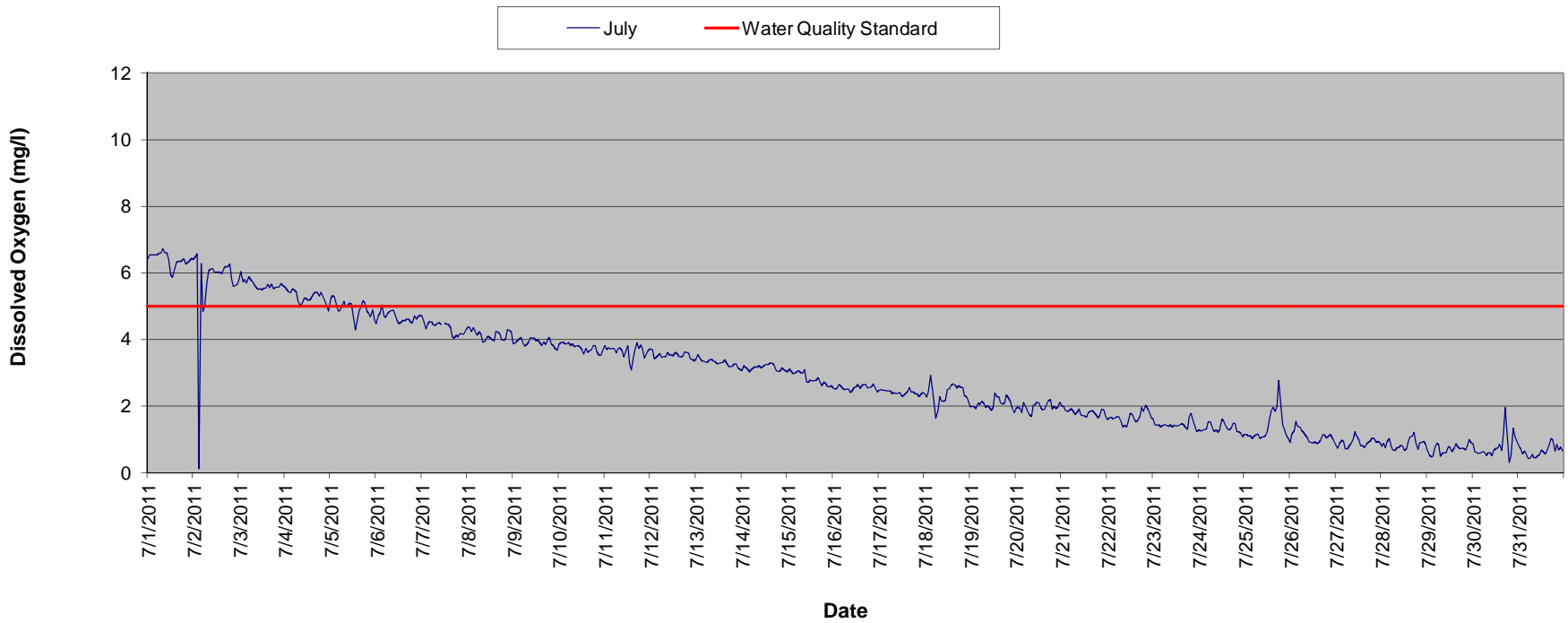
## **Caldron Falls Headwater Monitoring Location**



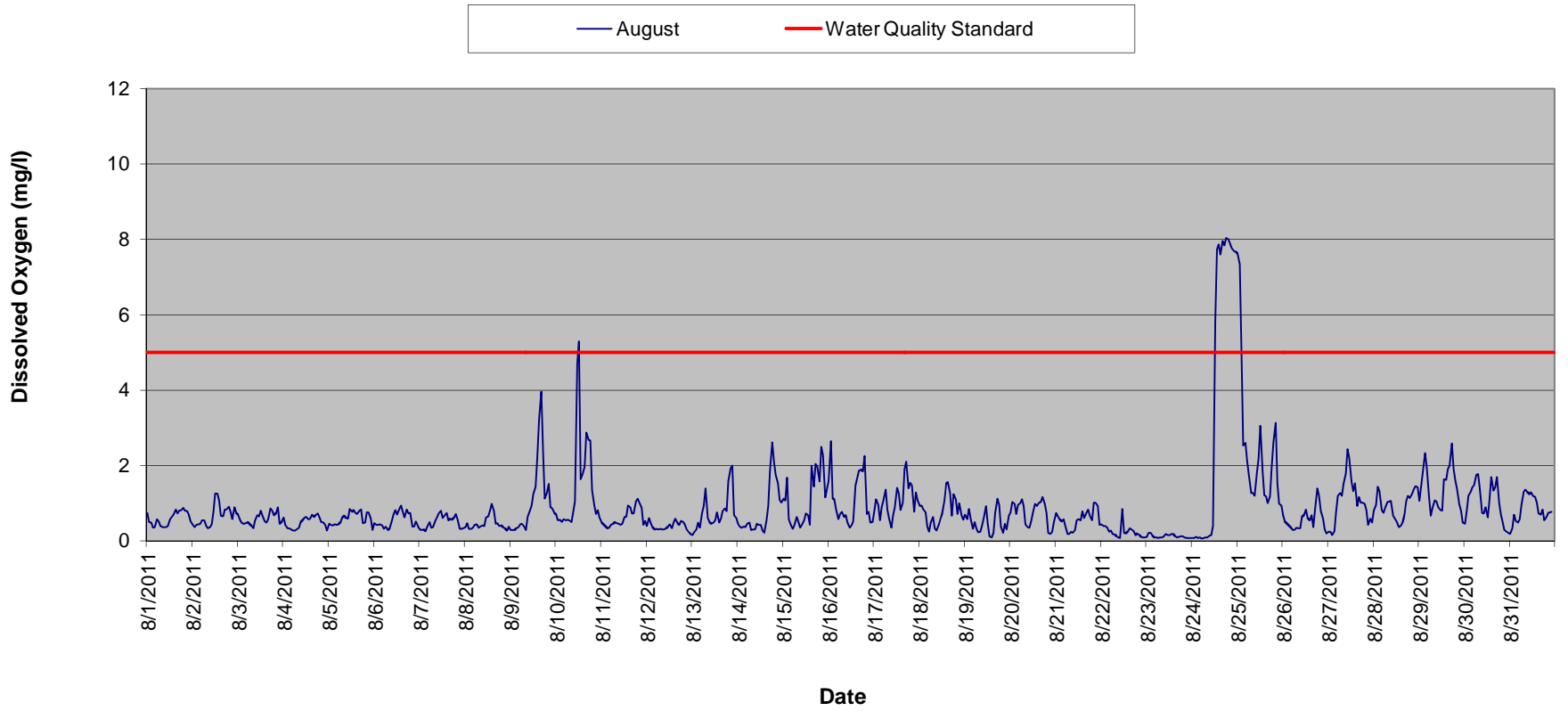
### Caldron Falls Headwater Dissolved Oxygen - June 2011



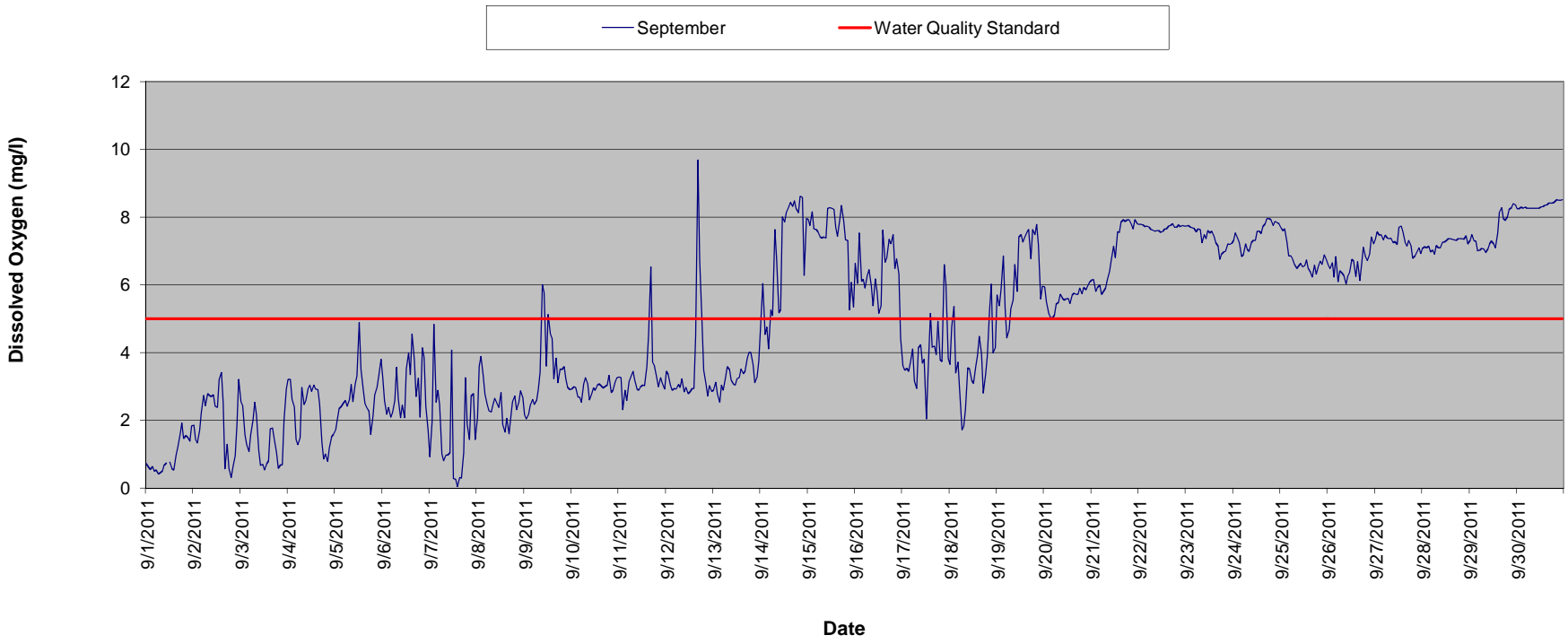
### Caldron Falls Headwater Dissolved Oxygen - July 2011



### Caldron Falls Headwater Dissolved Oxygen - August 2011



Caldron Falls Headwater Dissolved Oxygen - September 2011



Caldron Falls Headwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	8.3	8.3	7.8	7.4	7.2	7.1	6.5	6.4	6.4	6.1	5.7	6.1	5.7	4.8	4.5	4.9
10000	8.3	8.3	7.7	7.5	7.2	6.9	6.6	6.5	6.4	6.1	5.7	6.2	6.0	5.0	4.7	5.0
20000	8.4	8.3	7.8	7.5	7.2	7.0	6.7	6.5	6.4	6.1	5.7	6.4	5.8	4.8	4.7	4.8
30000	8.4	8.3	7.7	7.4	7.2	7.1	6.8	6.6	6.5	6.1	5.8	7.0	5.9	5.0	4.7	4.9
40000	8.3	8.2	7.7	7.5	7.2	6.9	6.7	6.4	6.4	6.2	5.8	6.9	5.8	5.0	4.8	4.7
50000	8.3	8.2	7.7	7.4	7.3	6.9	6.7	6.5	6.4	6.0	5.9	6.1	6.0	5.0	4.7	4.6
60000	8.3	8.2	7.8	7.4	7.4	6.9	6.6	6.4	6.4	6.0	5.8	6.7	5.7	5.0	4.7	4.6
70000	8.3	8.2	7.7	7.4	7.3	6.8	6.7	6.5	6.4	6.0	5.8	6.8	5.5	5.0	4.8	4.6
80000	8.3	8.2	7.8	7.5	7.2	6.8	6.6	6.5	6.2	5.9	6.0	5.8	5.5	4.7	4.6	4.6
90000	8.4	8.1	7.7	7.7	7.4	6.8	6.7	6.5	6.4	5.8	6.5	5.9	5.4	4.7	4.3	4.8
100000	8.4	8.1	7.6	8.3	7.3	7.0	6.6	6.6	6.2	5.8	5.9	5.6	5.4	4.7	4.4	4.9
110000	8.4	8.1	7.5	7.7	7.2	6.9	6.5	6.6	6.3	5.8	5.6	5.7	5.2	4.8	4.8	4.9
120000	8.4	8.0	7.5	7.5	7.2	6.9	6.5	6.6	6.2	5.8	5.6	5.5	5.3	4.7	4.6	5.1
130000	8.4	7.9	7.4	7.8	7.2	6.9	6.5	6.6	6.1	5.8	5.8	5.5	5.2	4.9	4.7	5.1
140000	8.4	7.8	7.5	7.9	7.2	6.9	6.6	6.8	6.1	5.7	6.6	5.4	5.2	4.8	5.9	4.7
150000	8.4	7.9	7.5	8.1	7.3	6.8	6.7	6.6	6.2	5.7	5.9	5.3	5.1	4.5	4.9	5.1
160000	8.4	8.0	7.5	8.5	7.1	6.8	6.6	7.7	6.1	5.7	5.9	5.5	5.0	4.6	4.8	4.9
170000	8.4	7.9	7.5	8.5	7.1	6.7	6.6	7.7	6.2	5.7	6.0	5.5	5.1	4.7	4.4	4.7
180000	8.4	7.9	7.5	8.3	7.0	6.5	6.6	7.6	6.2	5.6	5.9	6.0	5.1	4.5	4.4	4.8
190000	8.4	7.9	7.6	8.2	7.0	6.7	6.4	6.8	6.2	5.7	5.8	5.4	5.2	4.7	4.4	5.1
200000	8.3	7.9	7.6	8.5	7.0	6.7	6.4	6.4	6.2	5.7	5.9	5.6	5.3	4.8	4.5	4.8
210000	8.3	7.8	7.7	7.6	7.1	6.6	6.3	6.0	6.1	5.7	5.8	5.4	5.2	4.8	4.5	5.1
220000	8.3	7.8	7.5	7.2	7.1	6.7	6.3	6.2	6.1	5.7	5.7	5.6	5.2	4.4	4.7	5.3
230000	8.3	7.8	7.4	7.0	7.1	6.6	6.3	6.3	6.1	5.7	5.5	5.6	5.0	4.4	5.8	4.9
Daily Max	8.4	8.3	7.8	8.5	7.4	7.1	6.8	7.7	6.5	6.2	6.6	7.0	6.0	5.0	5.9	5.3
Daily Min	8.3	7.8	7.4	7.0	7.0	6.5	6.3	6.0	6.1	5.6	5.5	5.3	5.0	4.4	4.3	4.6
Average	8.3	8.0	7.6	7.7	7.2	6.8	6.5	6.6	6.3	5.8	5.8	5.9	5.4	4.8	4.7	4.9

Missing data due to equipment maintenance

Low readings due to reservoir stratification

Water Quality Standard - 5.0 mg/l

Caldron Falls Headwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	5.0	4.8	5.2	4.8	4.5	4.1	4.0	6.3	6.6	7.0	6.6	7.6	7.3	6.8
10000	4.8	4.7	5.1	4.5	4.4	3.9	3.9	6.1	6.9	7.5	6.0	7.5	7.2	6.8
20000	4.8	4.4	4.4	4.5	4.1	4.0	4.1	6.4	7.1	7.2	6.0	7.6	7.3	6.8
30000	4.9	4.4	4.6	4.6	4.2	4.5	4.8	7.0	7.4	7.7	6.2	7.2	7.0	6.7
40000	4.7	5.1	4.4	4.7	4.0	4.3	5.2	6.6	7.1	7.7	6.7	7.2	7.1	6.6
50000	4.9	5.0	4.4	4.8	4.0	4.8	5.3	6.9	6.8	8.2	7.2	7.4	7.0	6.7
60000	4.9	4.9	4.4	4.9	3.9	5.0	4.7	6.7	6.9	8.0	7.4	7.4	7.0	6.7
70000	4.7	4.9	4.4	4.7	4.0	5.1	4.4	6.3	6.7	7.4	7.7	7.4	7.0	6.7
80000	4.5	4.9	4.6	4.5	4.4	5.1	5.1	5.7	7.2	7.4	7.4	7.3	7.0	6.7
90000	4.4	4.5	4.7	4.4	5.3	4.5	4.6	5.4	7.3	6.9	6.2	7.4	7.0	6.7
100000	4.5	4.4	4.6	6.3	4.5	4.1	5.0	6.1	7.1	7.2	6.7	7.2	7.1	6.7
110000	4.4	4.5	4.4	5.7	4.5	4.1	5.0	6.8	7.2	7.5	6.5	7.5	7.0	6.6
120000	4.7	4.5	4.2	5.9	4.5	4.4	4.8	7.6	7.1	7.4	6.7	7.8	7.0	6.6
130000	4.7	4.9	4.3	5.1	3.8	4.3	5.0	7.1	7.1	7.6	6.4	8.0	7.0	6.6
140000	4.7	4.6	4.4	5.4	4.3	4.6	5.2	7.7	7.2	8.0	6.2	8.1	7.0	6.6
150000	4.6	5.0	4.7	4.3	3.9	5.3	5.8	6.3	7.1	7.7	7.4	7.9	6.9	6.4
160000	4.7	4.9	4.7	4.6	4.0	5.9	5.9	7.0	7.2	7.1	7.0	7.1	6.7	6.5
170000	4.8	4.4	4.6	4.7	4.3	5.5	6.2	6.6	7.2	7.2	6.7	6.8	6.9	7.2
180000	5.1	4.5	4.2	4.4	4.5	3.9	6.5	5.6	7.0	6.8	6.7	6.6	6.9	6.6
190000	4.6	4.5	4.3	4.2	4.2	3.6	6.8	5.9	7.0	6.6	7.1	6.6	6.9	6.5
200000	4.5	4.6	4.4	4.5	4.1	3.7	6.6	5.9	7.0	5.9	7.1	7.0	7.0	6.4
210000	4.6	4.8	4.5	4.1	4.0	3.8	6.4	6.9	6.3	6.5	7.3	7.2	6.8	6.4
220000	4.9	4.6	4.6	4.2	3.9	3.9	6.5	6.5	6.6	6.8	7.3	7.4	6.7	6.3
230000	4.6	4.8	4.9	4.6	4.0	3.9	6.7	7.0	7.0	6.9	7.6	7.0	6.9	6.4
Daily Max	5.1	5.1	5.2	6.3	5.3	5.9	6.8	7.7	7.4	8.2	7.7	8.1	7.3	7.2
Daily Min	4.4	4.4	4.2	4.1	3.8	3.6	3.9	5.4	6.3	5.9	6.0	6.6	6.7	6.3
Average	4.7	4.7	4.5	4.8	4.2	4.4	5.4	6.5	7.0	7.2	6.8	7.3	7.0	6.6

Caldron Falls Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	6.4	6.4	5.8	5.6	5.2	4.5	4.7	4.4	3.9	3.8	3.8	3.7	3.4	3.1	3.0	2.6
10000	6.5	6.5	6.0	5.5	5.3	4.7	4.6	4.4	3.9	3.9	3.7	3.7	3.6	3.2	3.1	2.5
20000	6.5	6.6	5.7	5.4	5.3	4.8	4.3	4.2	3.9	3.9	3.8	3.4	3.4	3.2	3.0	2.6
30000	6.5	0.1	5.8	5.4	5.0	5.0	4.5	4.4	4.0	3.9	3.7	3.5	3.4	3.1	3.0	2.7
40000	6.5	6.3	5.7	5.5	4.9	4.7	4.5	4.2	4.1	3.9	3.7	3.5	3.3	3.0	3.0	2.6
50000	6.5	4.8	5.9	5.5	4.9	4.7	4.5	4.1	3.9	3.9	3.7	3.6	3.3	3.1	3.0	2.5
60000	6.6	5.0	5.8	5.4	5.0	4.8	4.4	4.2	3.8	3.8	3.6	3.5	3.3	3.1	3.1	2.5
70000	6.6	5.7	5.7	5.1	5.1	4.8	4.4	4.1	3.9	3.9	3.7	3.5	3.4	3.2	3.0	2.5
80000	6.7	6.1	5.6	5.0	5.0	4.9	4.5	3.9	3.9	3.8	3.8	3.5	3.4	3.2	3.0	2.5
90000	6.6	6.1	5.6	5.1	5.0	4.9	4.5	3.9	4.1	3.8	3.7	3.6	3.4	3.2	3.1	2.4
100000	6.6	6.1	5.5	5.2	5.1	4.8	4.5	4.1	4.0	3.8	3.5	3.5	3.3	3.1	2.7	2.5
110000	6.4	6.0	5.5	5.2	5.1	4.6	4.5	4.1	4.0	3.8	3.6	3.5	3.3	3.2	2.7	2.6
120000	5.9	6.0	5.5	5.2	4.7	4.5	4.5	4.0	4.0	3.7	3.8	3.5	3.3	3.2	2.8	2.6
130000	5.9	6.0	5.5	5.2	4.3	4.5	4.5	4.0	4.0	3.6	3.3	3.6	3.3	3.2	2.8	2.6
140000	6.1	6.0	5.5	5.3	4.6	4.6	4.4	3.9	3.9	3.7	3.1	3.6	3.3	3.3	2.8	2.5
150000	6.3	6.0	5.7	5.4	4.8	4.6	4.4	4.3	3.8	3.6	3.5	3.5	3.4	3.3	2.8	2.6
160000	6.3	6.1	5.6	5.4	5.0	4.6	4.1	4.2	3.9	3.7	3.7	3.5	3.3	3.3	2.9	2.7
170000	6.3	6.2	5.7	5.4	5.2	4.6	4.0	4.2	3.9	3.7	3.9	3.5	3.2	3.2	2.7	2.7
180000	6.4	6.2	5.5	5.3	5.1	4.5	4.1	4.0	4.0	3.8	3.7	3.6	3.2	3.1	2.6	2.6
190000	6.4	6.3	5.6	5.4	4.9	4.5	4.1	4.0	4.1	3.8	3.8	3.6	3.2	3.0	2.7	2.6
200000	6.3	5.8	5.6	5.3	4.8	4.7	4.2	4.0	3.9	3.6	3.7	3.6	3.3	3.0	2.7	2.6
210000	6.3	5.6	5.6	5.2	4.7	4.6	4.2	4.3	3.8	3.5	3.4	3.4	3.3	3.2	2.6	2.7
220000	6.4	5.6	5.7	5.0	4.9	4.7	4.2	4.3	3.7	3.5	3.6	3.4	3.2	3.1	2.6	2.6
230000	6.4	5.7	5.6	4.9	4.6	4.7	4.3	4.2	3.7	3.7	3.7	3.3	3.1	3.1	2.6	2.4
Daily Max	6.7	6.6	6.0	5.6	5.3	5.0	4.7	4.4	4.1	3.9	3.9	3.7	3.6	3.3	3.1	2.7
Daily Min	5.9	0.1	5.5	4.9	4.3	4.5	4.0	3.9	3.7	3.5	3.1	3.3	3.1	3.0	2.6	2.4
Average	6.4	5.7	5.7	5.3	4.9	4.7	4.4	4.1	3.9	3.8	3.6	3.5	3.3	3.2	2.8	2.6

Anomalie - likely instrument malfunction  
 Low readings due to reservoir stratification

Missing data due to equipment maintenance

Caldron Falls Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	2.5	2.4	2.0	1.9	2.0	1.6	1.6	1.3	1.2	0.9	0.8	0.8	0.7	0.9	0.8
10000	2.5	2.3	2.0	2.0	2.0	1.7	1.4	1.3	1.2	1.2	0.7	0.9	0.5	0.6	0.7
20000	2.5	2.4	2.0	1.9	1.9	1.7	1.4	1.3	1.1	1.3	0.9	0.8	0.5	0.6	0.6
30000	2.5	2.9	1.9	1.8	1.8	1.6	1.5	1.3	1.1	1.6	1.0	0.9	0.5	0.6	0.7
40000	2.5	2.5	2.1	2.1	1.9	1.6	1.4	1.3	1.0	1.4	1.0	1.0	0.7	0.6	0.5
50000	2.5	2.1	2.0	2.0	1.9	1.7	1.4	1.5	1.1	1.4	0.7	0.8	0.9	0.6	0.4
60000	2.5	1.6	2.1	1.9	1.8	1.7	1.4	1.5	1.1	1.3	0.7	0.7	0.8	0.6	0.5
70000	2.4	1.9	2.1	1.8	1.8	1.6	1.4	1.4	1.2	1.2	0.8	0.7	0.5	0.5	0.6
80000	2.4	2.3	2.0	1.7	1.8	1.4	1.4	1.2	1.0	1.1	0.9	0.8	0.6	0.6	0.5
90000	2.4	2.1	2.0	2.0	1.9	1.4	1.4	1.3	1.1	1.0	1.0	0.8	0.6	0.6	0.4
100000	2.4	2.1	2.0	2.0	1.7	1.4	1.4	1.2	1.1	0.9	1.2	0.8	0.6	0.5	0.5
110000	2.4	2.2	1.9	2.1	1.7	1.6	1.4	1.3	1.1	0.9	1.1	0.8	0.8	0.7	0.5
120000	2.3	2.5	2.0	2.1	1.7	1.8	1.4	1.6	1.2	0.9	1.0	0.7	0.8	0.7	0.7
130000	2.3	2.5	2.4	2.0	1.7	1.7	1.4	1.6	1.6	0.9	0.8	0.7	0.6	0.7	0.6
140000	2.4	2.6	2.3	1.9	1.8	1.6	1.5	1.4	1.9	0.9	0.8	0.9	0.7	0.9	0.6
150000	2.4	2.7	2.3	1.9	1.8	1.5	1.5	1.3	2.0	0.9	0.8	1.1	0.9	0.7	0.7
160000	2.6	2.6	2.1	2.1	1.9	1.6	1.4	1.3	1.8	1.0	0.9	1.1	0.8	1.2	0.9
170000	2.4	2.6	2.1	2.2	1.8	1.7	1.4	1.3	2.0	1.2	0.9	1.2	0.7	2.0	1.0
180000	2.4	2.6	2.1	2.2	1.8	2.0	1.3	1.5	2.8	1.1	1.0	0.9	0.7	1.0	1.0
190000	2.4	2.6	2.3	1.9	1.7	1.8	1.7	1.5	2.0	1.1	1.0	0.7	0.7	0.3	0.7
200000	2.4	2.6	2.2	2.0	1.7	2.0	1.8	1.2	1.4	1.1	1.0	0.9	0.7	0.5	0.9
210000	2.3	2.3	2.2	1.9	1.9	1.9	1.6	1.2	1.3	1.2	0.9	0.9	0.8	1.3	0.7
220000	2.4	2.3	2.0	2.0	1.9	1.8	1.4	1.2	1.1	1.1	0.9	0.9	1.0	1.1	0.8
230000	2.4	2.1	1.8	2.1	1.7	1.6	1.2	1.1	1.0	1.0	0.9	0.9	0.9	1.0	0.7
Daily Max	2.6	2.9	2.4	2.2	2.0	2.0	1.8	1.6	2.8	1.6	1.2	1.2	1.0	2.0	1.0
Daily Min	2.3	1.6	1.8	1.7	1.7	1.4	1.2	1.1	1.0	0.9	0.7	0.7	0.5	0.3	0.4
Average	2.4	2.4	2.1	2.0	1.8	1.7	1.4	1.3	1.4	1.1	0.9	0.9	0.7	0.8	0.7



Caldron Falls Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11	08/17/11
0	0.8	0.4	0.7	0.6	0.5	0.5	0.3	0.4	0.3	0.7	0.5	0.4	0.2	0.5	1.1	1.6	0.8
10000	0.5	0.4	0.5	0.4	0.4	0.4	0.3	0.5	0.3	0.5	0.4	0.6	0.2	0.4	1.1	2.7	1.1
20000	0.5	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.6	0.4	0.5	0.3	0.4	1.7	1.1	1.0
30000	0.4	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.4	0.5	0.4	0.6	1.1	0.6
40000	0.4	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.6	0.4	0.3	0.4	0.4	0.4	0.8	0.9
50000	0.6	0.6	0.5	0.3	0.4	0.3	0.5	0.4	0.4	0.5	0.4	0.3	0.7	0.5	0.3	0.6	1.1
60000	0.5	0.6	0.5	0.3	0.5	0.4	0.3	0.4	0.5	0.6	0.5	0.3	0.9	0.5	0.4	0.7	1.4
70000	0.4	0.4	0.4	0.3	0.6	0.3	0.4	0.3	0.4	0.5	0.5	0.3	1.4	0.3	0.6	0.8	0.8
80000	0.4	0.3	0.3	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.5	0.3	0.6	0.3	0.5	0.6	0.6
90000	0.4	0.4	0.5	0.5	0.6	0.5	0.6	0.4	0.6	0.8	0.5	0.3	0.5	0.3	0.4	0.7	0.4
100000	0.4	0.4	0.7	0.5	0.6	0.7	0.7	0.4	0.8	1.1	0.4	0.3	0.5	0.5	0.5	0.5	0.7
110000	0.4	0.8	0.7	0.6	0.9	0.8	0.8	0.6	0.9	4.7	0.5	0.4	0.5	0.4	0.5	0.4	0.9
120000	0.6	1.3	0.8	0.6	0.8	0.7	0.6	0.7	1.2	5.3	0.6	0.4	0.6	0.4	0.7	0.4	1.4
130000	0.6	1.3	0.7	0.6	0.8	0.8	0.7	0.8	1.4	1.6	0.6	0.3	0.8	0.3	0.7	0.5	1.3
140000	0.7	1.1	0.5	0.6	0.7	0.9	0.7	1.0	2.2	1.8	0.9	0.5	0.5	0.2	0.4	1.5	0.8
150000	0.8	0.7	0.5	0.7	0.7	0.8	0.5	0.8	3.2	2.0	0.9	0.6	0.6	0.5	2.0	1.7	1.0
160000	0.7	0.7	0.6	0.6	0.8	0.6	0.6	0.5	4.0	2.9	0.7	0.5	0.8	0.9	1.4	1.9	1.9
170000	0.8	0.8	0.9	0.7	0.8	0.8	0.6	0.5	2.4	2.7	0.7	0.4	0.9	1.9	2.0	1.9	2.1
180000	0.8	0.8	0.8	0.7	0.5	0.7	0.6	0.4	1.1	2.7	1.0	0.5	0.8	2.6	2.0	1.8	1.4
190000	0.9	0.9	0.7	0.6	0.5	0.7	0.7	0.4	1.3	1.4	1.1	0.5	1.6	2.1	1.6	2.3	1.6
200000	0.8	0.8	0.7	0.5	0.8	0.4	0.6	0.4	1.5	0.9	1.0	0.4	1.9	1.8	2.5	0.7	1.5
210000	0.8	0.6	0.9	0.5	0.8	0.4	0.3	0.3	0.9	0.7	0.9	0.3	2.0	1.5	2.3	0.8	0.8
220000	0.7	0.9	0.5	0.4	0.6	0.5	0.3	0.3	0.9	0.8	0.4	0.2	0.7	1.1	1.2	0.5	1.3
230000	0.5	0.8	0.5	0.3	0.3	0.4	0.3	0.4	0.7	0.6	0.5	0.2	0.6	1.0	1.4	0.5	1.1
Daily Max	0.9	1.3	0.9	0.7	0.9	0.9	0.8	1.0	4.0	5.3	1.1	0.6	2.0	2.6	2.5	2.7	2.1
Daily Min	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.2	0.2	0.2	0.3	0.4	0.4
Average	0.6	0.7	0.6	0.5	0.6	0.6	0.5	0.5	1.1	1.5	0.6	0.4	0.8	0.8	1.1	1.1	1.1

Low readings due to reservoir stratification

Caldron Falls Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	0.9	0.7	0.8	0.8	0.4	0.1	0.1	7.7	0.9	0.2	0.5	1.4	0.5	0.2
10000	0.9	0.6	1.0	0.7	0.4	0.1	0.1	7.6	0.7	0.3	0.8	1.1	0.5	0.2
20000	0.8	0.9	1.0	0.6	0.4	0.2	0.1	7.3	0.5	0.2	1.0	1.4	0.8	0.3
30000	0.8	0.6	0.7	0.5	0.4	0.2	0.1	5.0	0.5	0.2	1.4	2.0	1.2	0.7
40000	0.4	0.3	1.0	0.6	0.2	0.1	0.1	2.5	0.4	0.3	1.3	2.3	1.3	0.5
50000	0.3	0.5	1.0	0.4	0.3	0.1	0.1	2.6	0.4	0.8	0.8	1.9	1.4	0.5
60000	0.5	0.3	1.1	0.2	0.2	0.1	0.1	2.1	0.3	1.2	0.8	1.2	1.5	0.6
70000	0.6	0.2	0.9	0.2	0.2	0.1	0.1	1.7	0.3	1.3	0.9	0.7	1.8	1.0
80000	0.3	0.2	0.4	0.3	0.1	0.1	0.1	1.3	0.4	1.2	1.0	0.9	1.8	1.3
90000	0.3	0.4	0.4	0.2	0.1	0.1	0.1	1.3	0.3	1.5	1.0	1.1	1.4	1.4
100000	0.4	0.6	0.4	0.3	0.1	0.1	0.1	1.2	0.3	1.8	1.1	1.0	0.8	1.3
110000	0.6	0.9	0.5	0.6	0.9	0.2	0.2	1.8	0.6	2.4	0.7	0.9	0.7	1.2
120000	0.7	0.5	0.8	0.6	0.9	0.2	0.4	2.2	0.7	2.2	0.6	0.8	0.9	1.3
130000	1.1	0.1	1.0	0.6	0.2	0.2	5.8	3.1	0.8	1.6	0.5	0.8	0.6	1.2
140000	1.5	0.1	0.9	0.8	0.2	0.2	7.7	1.9	0.6	1.3	0.4	1.6	1.1	1.2
150000	1.6	0.2	1.0	0.6	0.3	0.2	7.9	1.2	0.5	1.5	0.4	1.6	1.7	1.0
160000	1.3	0.8	1.0	0.7	0.3	0.1	7.6	1.2	0.7	0.9	0.5	1.9	1.3	0.7
170000	0.7	1.1	1.2	0.8	0.3	0.1	8.0	1.0	0.4	1.2	0.7	2.0	1.4	0.7
180000	1.2	1.0	1.0	0.7	0.3	0.1	7.8	1.2	0.8	1.0	1.1	2.6	1.7	0.8
190000	1.1	0.4	0.8	0.6	0.2	0.1	8.0	2.0	1.4	1.0	1.2	1.9	1.0	0.6
200000	0.7	0.2	0.2	1.0	0.2	0.1	8.0	2.6	1.2	1.0	1.1	1.6	0.7	0.6
210000	1.0	0.5	0.2	1.0	0.2	0.1	7.9	3.1	0.8	0.8	1.2	1.4	0.5	0.7
220000	0.7	0.3	0.3	0.9	0.1	0.1	7.8	1.5	0.6	0.4	1.4	1.0	0.3	0.8
230000	0.6	0.7	0.5	0.4	0.1	0.1	7.7	1.0	0.3	0.6	1.5	0.8	0.2	0.8
Daily Max	1.6	1.1	1.2	1.0	0.9	0.2	8.0	7.7	1.4	2.4	1.5	2.6	1.8	1.4
Daily Min	0.3	0.1	0.2	0.2	0.1	0.1	0.1	1.0	0.3	0.2	0.4	0.7	0.2	0.2
Average	0.8	0.5	0.7	0.6	0.3	0.1	3.6	2.7	0.6	1.0	0.9	1.4	1.0	0.8

Low readings due to reservoir stratification

Caldron Falls Headwater Dissolved Oxygen Summary - September 2011

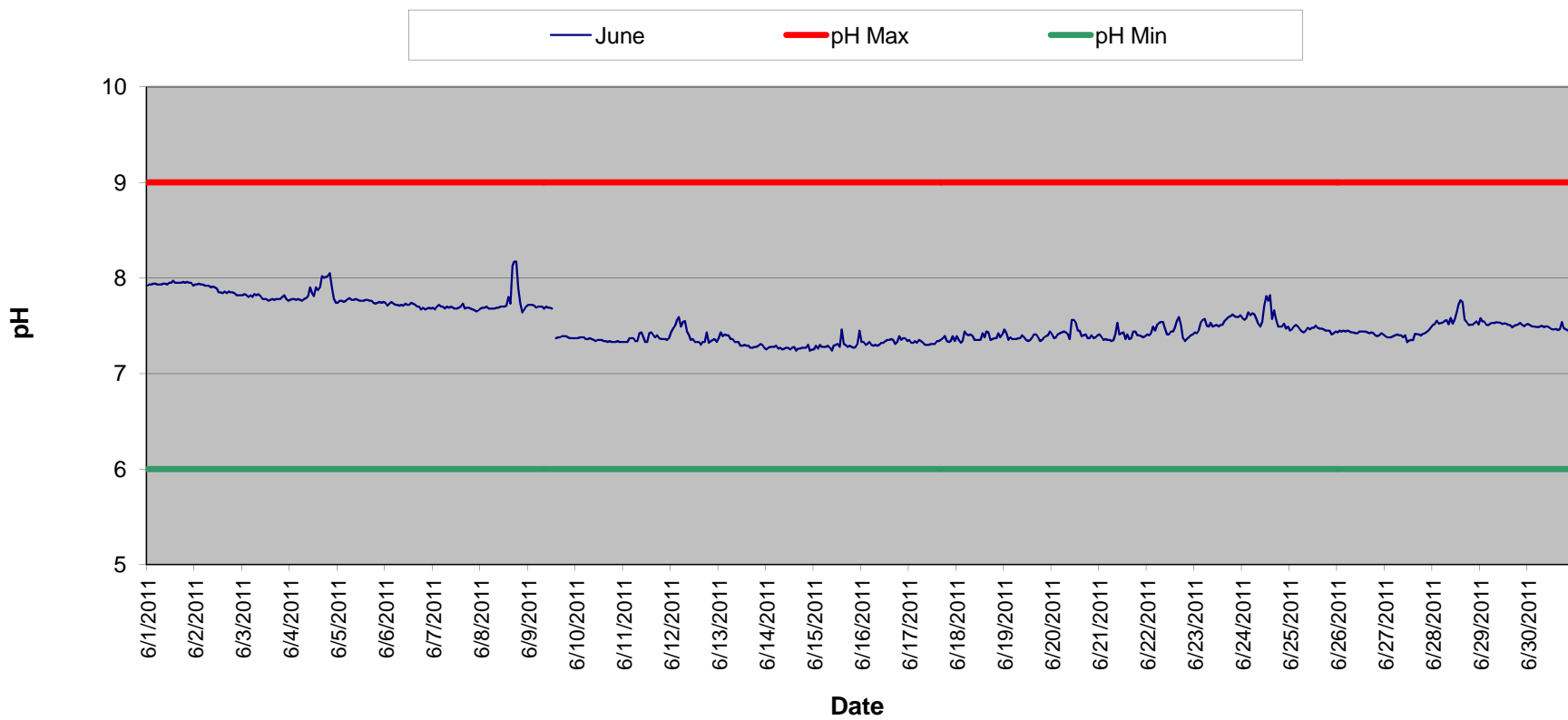
Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	0.7	1.9	2.5	3.2	1.7	3.3	0.9	2.1	2.2	2.9	3.3	3.5	2.9	5.1	7.9	6.6
10000	0.6	1.4	2.4	3.2	2.0	2.6	2.0	3.6	2.0	3.0	3.3	3.4	3.1	6.0	7.8	6.1
20000	0.6	1.3	1.6	2.6	2.3	2.2	4.8	3.9	2.2	3.0	2.3	3.0	2.8	4.5	8.2	7.5
30000	0.7	1.7	1.3	2.4	2.4	2.4	2.5	3.3	2.5	2.7	2.9	2.9	2.5	4.8	7.7	6.1
40000	0.5	2.3	1.1	1.4	2.5	2.1	2.9	2.8	2.6	2.7	2.6	2.9	3.0	4.1	7.6	6.2
50000	0.5	2.7	1.6	1.3	2.6	2.2	2.5	2.5	2.5	2.5	3.2	2.9	2.9	5.3	7.6	5.9
60000	0.4	2.4	2.0	1.5	2.4	2.6	1.0	2.3	2.6	3.1	3.3	3.1	3.3	5.1	7.4	6.3
70000	0.5	2.8	2.5	3.0	2.6	3.6	0.8	2.3	2.9	3.3	3.5	3.0	3.6	7.6	7.4	6.5
80000	0.5	2.7	2.2	2.5	3.1	2.6	1.0	2.5	3.4	3.1	3.2	3.2	3.5	6.8	7.4	6.0
90000	0.7	2.7	1.1	2.6	2.6	2.1	1.0	2.7	6.0	2.6	2.9	2.8	3.2	5.2	7.4	5.4
100000	0.8	2.8	0.7	2.9	3.1	2.5	1.0	2.5	5.8	2.8	2.9	3.0	3.1	5.3	8.3	6.2
110000	2.4	2.4	0.7	3.0	3.3	2.1	4.1	2.4	3.6	3.0	3.0	2.8	3.0	8.0	8.3	5.8
120000	0.8	2.4	0.5	2.9	4.9	3.5	0.3	2.8	5.1	2.9	3.0	2.9	3.2	7.9	8.3	5.2
130000	0.6	3.2	0.7	3.0	3.5	4.0	0.3	1.9	4.6	3.0	3.0	2.9	3.3	8.2	8.2	5.4
140000	0.5	3.4	0.8	2.9	2.9	3.3	0.0	1.7	4.4	3.1	3.6	2.9	3.5	8.3	7.7	7.6
150000	1.0	2.5	1.8	2.9	2.5	4.6	0.3	2.1	3.2	3.0	4.5	4.5	3.4	8.4	7.4	6.7
160000	1.2	0.6	1.8	2.5	2.4	3.8	0.3	1.6	3.8	3.0	6.5	9.7	3.5	8.3	7.9	6.8
170000	1.6	1.3	1.5	1.4	2.3	2.7	1.0	2.1	3.1	3.0	3.7	6.7	3.9	8.5	8.4	7.3
180000	1.9	0.6	1.0	0.9	1.6	3.3	3.3	2.5	3.5	3.0	3.6	5.0	4.0	8.3	7.9	7.2
190000	1.5	0.3	0.6	1.0	2.1	2.1	1.9	2.7	3.5	3.3	3.3	3.5	4.0	8.1	7.3	7.5
200000	1.6	0.6	0.7	0.8	2.8	4.1	1.4	2.3	3.6	2.8	3.0	3.1	3.7	8.6	7.3	6.5
210000	1.5	1.0	0.7	1.2	3.0	3.9	2.7	2.5	3.2	2.9	3.3	2.7	3.1	8.6	5.3	6.8
220000	1.4	1.9	2.0	1.5	3.3	2.4	2.8	2.9	3.0	3.2	3.1	3.0	3.3	6.3	6.1	6.3
230000	1.8	3.2	2.9	1.6	3.8	1.7	1.4	2.7	2.9	3.3	2.9	2.9	3.8	8.0	5.4	4.4
Daily Max	1.9	3.4	2.9	3.2	4.9	4.6	4.8	3.9	6.0	3.3	6.5	9.7	4.0	8.6	8.4	7.6
Daily Min	0.4	0.3	0.5	0.8	1.6	1.7	0.0	1.6	2.0	2.5	2.3	2.7	2.5	4.1	5.3	4.4
Average	0.9	2.0	1.4	2.2	2.7	2.9	1.7	2.5	3.4	3.0	3.3	3.6	3.3	6.9	7.5	6.3

Low readings due to reservoir stratification  
 Missing data due to equipment maintenance

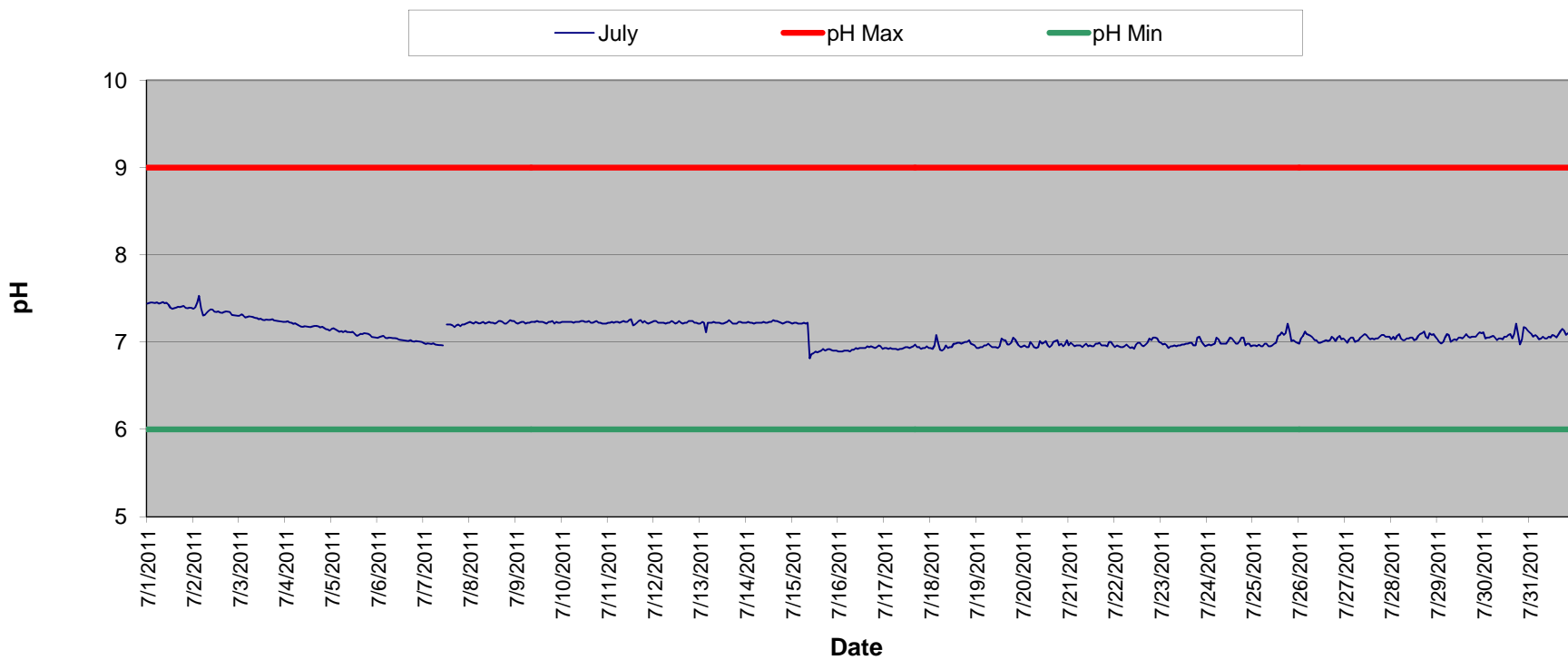
Caldron Falls Headwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	3.6	3.7	5.7	6.0	6.1	7.8	7.7	7.3	7.7	6.6	7.4	7.1	7.3	8.2
10000	3.5	4.8	5.4	5.5	6.2	7.8	7.8	7.5	7.6	6.5	7.6	7.1	7.5	8.2
20000	3.5	5.4	5.9	5.2	5.8	7.8	7.7	7.4	7.7	6.7	7.5	7.1	7.3	8.3
30000	3.5	3.4	6.9	5.0	5.9	7.7	7.7	7.3	7.3	6.2	7.5	7.1	7.3	8.3
40000	3.7	3.7	5.3	5.0	6.0	7.7	7.7	6.8	6.9	6.8	7.3	7.0	7.0	8.3
50000	4.1	2.9	4.4	5.1	5.7	7.7	7.6	6.9	6.9	6.1	7.5	7.0	7.0	8.3
60000	3.2	1.7	4.7	5.4	5.8	7.6	7.7	7.2	6.8	6.4	7.4	6.9	7.1	8.3
70000	2.9	1.8	5.3	5.5	5.9	7.6	7.6	7.1	6.6	6.4	7.4	7.2	7.1	8.3
80000	4.1	2.3	5.6	5.7	6.1	7.6	7.3	7.0	6.5	6.3	7.4	7.1	7.0	8.3
90000	4.2	3.6	6.6	5.6	6.4	7.6	7.5	7.3	6.6	6.0	7.2	7.1	7.1	8.3
100000	3.7	3.5	5.8	5.6	6.7	7.6	7.4	7.3	6.6	6.3	7.3	7.3	7.2	8.3
110000	3.8	3.2	7.4	5.6	7.1	7.6	7.6	7.3	6.5	6.4	7.2	7.3	7.3	8.3
120000	2.1	3.1	7.5	5.6	6.8	7.6	7.5	7.6	6.6	6.8	7.7	7.3	7.2	8.3
130000	3.5	3.6	7.3	5.5	7.6	7.7	7.6	7.6	6.7	6.7	7.7	7.4	7.1	8.3
140000	5.2	3.9	7.4	5.7	7.6	7.7	7.4	7.5	6.5	6.2	7.6	7.4	7.5	8.3
150000	4.2	4.5	7.6	5.8	7.9	7.7	7.2	7.7	6.4	6.7	7.3	7.4	8.1	8.4
160000	4.2	4.0	7.6	5.7	7.9	7.8	7.1	7.8	6.2	6.1	7.1	7.3	8.3	8.4
170000	4.0	2.8	6.8	5.7	7.9	7.8	6.8	8.0	6.6	6.6	7.3	7.3	8.0	8.4
180000	4.9	3.4	7.6	5.9	7.9	7.7	6.9	8.0	6.3	7.1	7.2	7.4	7.9	8.4
190000	3.8	3.9	7.5	5.7	7.9	7.7	7.0	7.9	6.6	6.8	6.8	7.4	8.0	8.5
200000	3.7	5.3	7.8	5.9	7.8	7.8	7.0	7.8	6.7	6.7	6.9	7.4	8.2	8.5
210000	6.6	6.0	7.2	5.9	7.7	7.7	7.2	7.9	6.6	6.9	7.0	7.3	8.3	8.5
220000	6.0	4.0	5.6	6.0	7.9	7.8	7.2	7.8	6.9	7.4	7.1	7.5	8.4	8.5
230000	3.8	4.2	6.0	6.1	7.8	7.7	7.2	7.8	6.8	7.2	6.9	7.2	8.4	8.5
Daily Max	6.6	6.0	7.8	6.1	7.9	7.8	7.8	8.0	7.7	7.4	7.7	7.5	8.4	8.5
Daily Min	2.1	1.7	4.4	5.0	5.7	7.6	6.8	6.8	6.2	6.0	6.8	6.9	7.0	8.2
Average	4.0	3.7	6.4	5.6	6.9	7.7	7.4	7.5	6.8	6.6	7.3	7.2	7.6	8.3

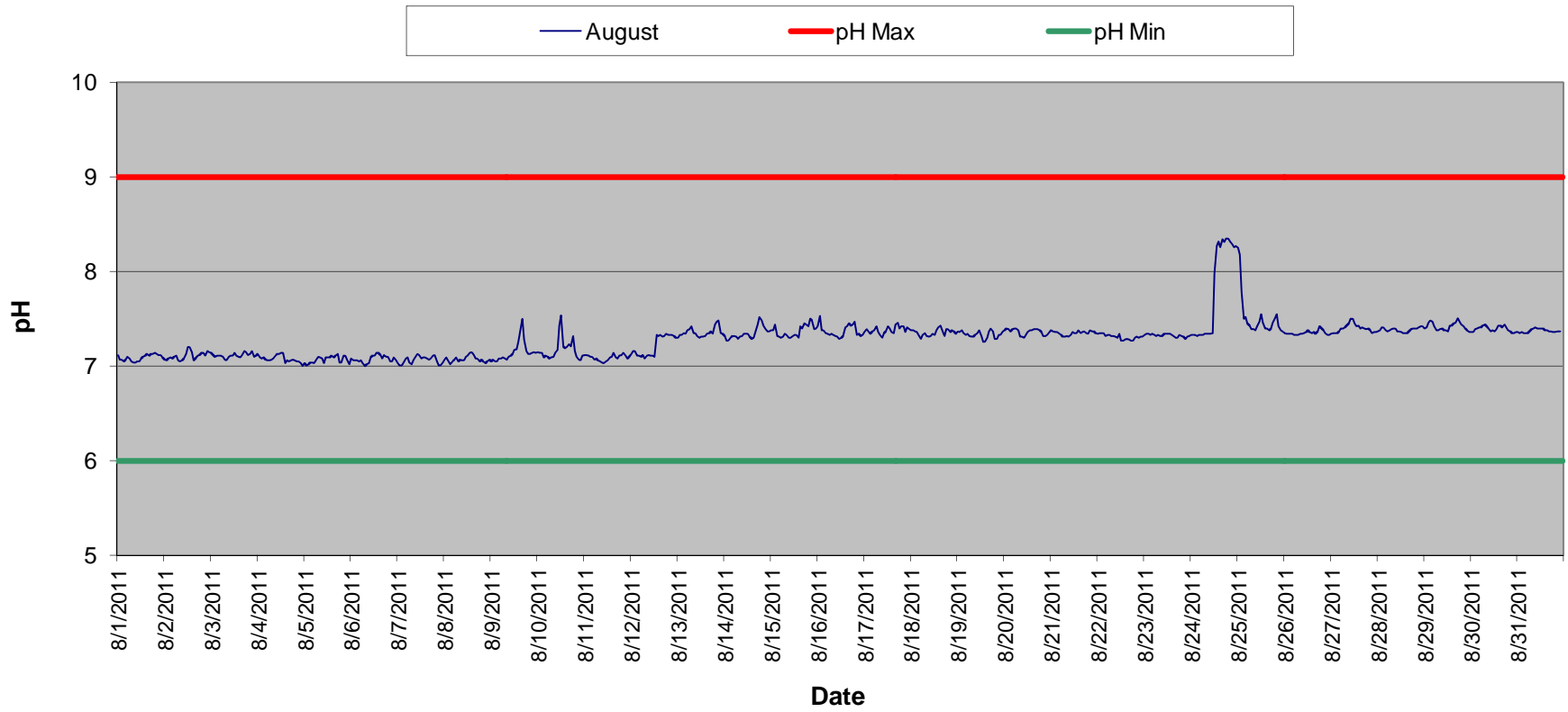
### Caldron Falls Headwater pH Summary - June 2011



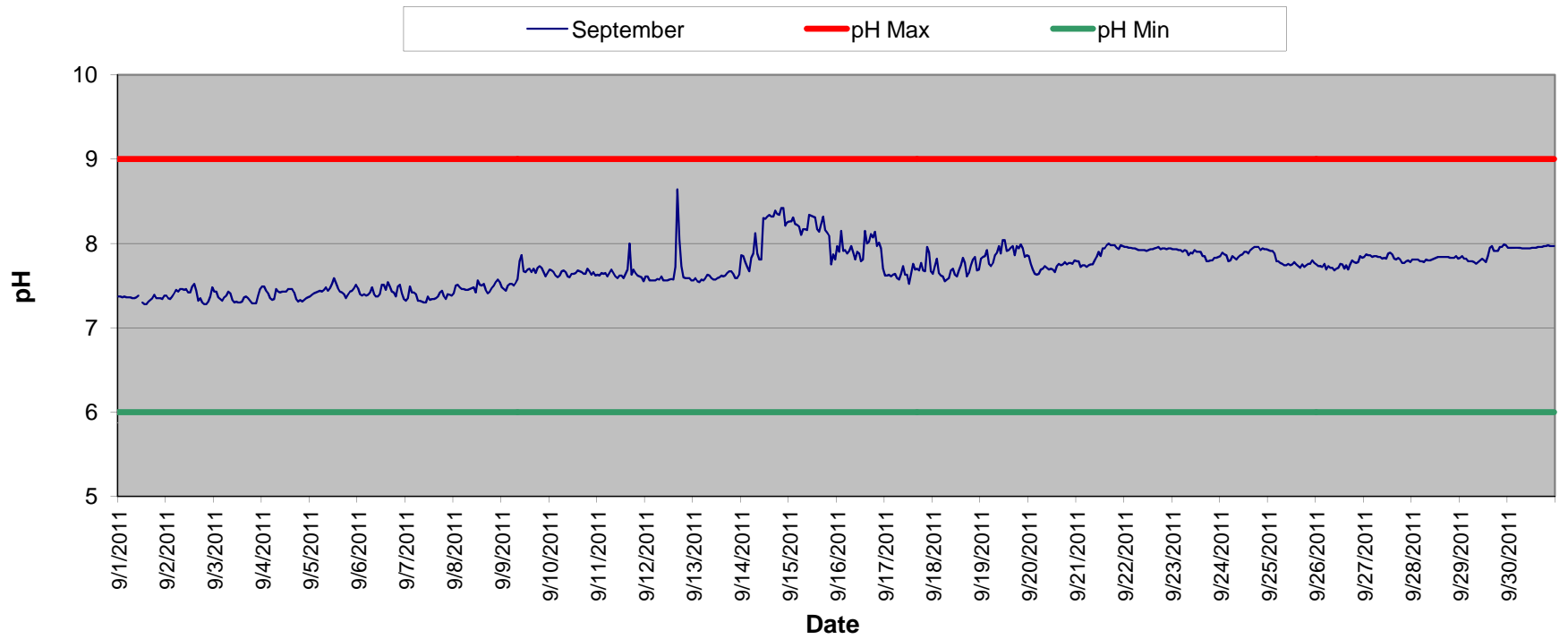
### Caldron Falls Headwater pH Summary - July 2011



### Caldron Falls Headwater pH Summary - August 2011



### Caldron Falls Headwater pH Summary - September 2011





Caldron Falls Headwater pH Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	7.9	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.4	7.3	7.4	7.4	7.3	7.3	7.3
10000	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.3	7.5	7.4	7.3	7.3	7.3
20000	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.3	7.5	7.4	7.3	7.3	7.3
30000	7.9	7.9	7.8	7.8	7.8	7.8	7.7	7.7	7.7	7.4	7.4	7.6	7.4	7.3	7.3	7.3
40000	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.4	7.6	7.4	7.3	7.3	7.3
50000	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.4	7.5	7.4	7.3	7.3	7.3
60000	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.3	7.5	7.4	7.3	7.3	7.3
70000	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.3	7.6	7.4	7.3	7.3	7.3
80000	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.4	7.4	7.3	7.3	7.3	7.3
90000	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.4	7.4	7.3	7.3	7.2	7.3
100000	7.9	7.9	7.8	7.9	7.8	7.7	7.7	7.7	7.7	7.3	7.4	7.4	7.3	7.3	7.3	7.3
110000	8.0	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.3	7.4	7.3	7.3	7.3	7.3
120000	8.0	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.3	7.3	7.3	7.3	7.3	7.3
130000	8.0	7.9	7.8	7.9	7.8	7.7	7.7	7.7		7.4	7.4	7.3	7.3	7.3	7.3	7.4
140000	8.0	7.8	7.8	7.9	7.8	7.7	7.7	7.8	7.4	7.3	7.4	7.3	7.3	7.3	7.5	7.4
150000	8.0	7.9	7.8	7.9	7.8	7.7	7.7	7.7	7.4	7.3	7.4	7.3	7.3	7.2	7.3	7.4
160000	8.0	7.8	7.8	8.0	7.8	7.7	7.7	8.1	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.4
170000	8.0	7.9	7.8	8.0	7.8	7.7	7.7	8.2	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.3
180000	8.0	7.9	7.8	8.0	7.7	7.7	7.7	8.2	7.4	7.3	7.4	7.4	7.3	7.3	7.3	7.3
190000	8.0	7.9	7.8	8.0	7.7	7.7	7.7	7.9	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.4
200000	8.0	7.8	7.8	8.1	7.7	7.7	7.7	7.7	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.4
210000	8.0	7.8	7.8	7.9	7.8	7.7	7.7	7.6	7.4	7.3	7.4	7.4	7.3	7.3	7.3	7.4
220000	8.0	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.4	7.3	7.4	7.4	7.3	7.2	7.3	7.4
230000	7.9	7.8	7.8	7.7	7.8	7.7	7.7	7.7	7.4	7.3	7.4	7.3	7.3	7.3	7.5	7.3
Daily Max	8.0	7.9	7.8	8.1	7.8	7.8	7.7	8.2	7.7	7.4	7.4	7.6	7.4	7.3	7.5	7.4
Daily Min	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.6	7.4	7.3	7.3	7.3	7.3	7.2	7.2	7.3
Average	7.9	7.9	7.8	7.9	7.8	7.7	7.7	7.8	7.6	7.4	7.4	7.4	7.3	7.3	7.3	7.3
License maximum pH: 9																
License minimum pH: 6																

missing data due to equipment maintenance

Caldron Falls Headwater pH Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.6	7.5	7.4	7.4	7.5	7.6	7.5
10000	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.6	7.5	7.5	7.4	7.5	7.5	7.5
20000	7.3	7.3	7.4	7.4	7.4	7.4	7.5	7.6	7.5	7.4	7.4	7.6	7.5	7.5
30000	7.3	7.3	7.4	7.4	7.4	7.5	7.5	7.6	7.5	7.5	7.4	7.5	7.5	7.5
40000	7.3	7.4	7.4	7.4	7.4	7.5	7.6	7.6	7.5	7.4	7.4	7.5	7.5	7.5
50000	7.4	7.4	7.4	7.4	7.4	7.5	7.6	7.6	7.5	7.5	7.4	7.5	7.5	7.5
60000	7.3	7.4	7.4	7.4	7.3	7.5	7.5	7.6	7.4	7.4	7.4	7.6	7.5	7.5
70000	7.3	7.4	7.4	7.4	7.4	7.5	7.5	7.6	7.4	7.4	7.4	7.6	7.5	7.5
80000	7.3	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.4	7.5	7.5	7.5
90000	7.3	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.4	7.4	7.6	7.5	7.5
100000	7.3	7.4	7.4	7.6	7.4	7.4	7.5	7.5	7.5	7.4	7.4	7.5	7.5	7.5
110000	7.3	7.4	7.4	7.6	7.4	7.4	7.5	7.7	7.5	7.4	7.3	7.6	7.5	7.5
120000	7.3	7.4	7.3	7.5	7.4	7.4	7.5	7.8	7.5	7.4	7.3	7.6	7.5	7.5
130000	7.3	7.4	7.4	7.5	7.4	7.4	7.5	7.8	7.5	7.4	7.4	7.7	7.5	7.5
140000	7.3	7.4	7.4	7.5	7.4	7.5	7.5	7.8	7.5	7.4	7.3	7.8	7.5	7.5
150000	7.3	7.4	7.4	7.4	7.4	7.6	7.6	7.6	7.5	7.4	7.4	7.7	7.5	7.5
160000	7.4	7.4	7.4	7.4	7.4	7.6	7.6	7.7	7.5	7.4	7.4	7.6	7.5	7.5
170000	7.4	7.4	7.4	7.4	7.4	7.5	7.6	7.6	7.5	7.4	7.4	7.5	7.5	7.5
180000	7.4	7.4	7.3	7.4	7.4	7.4	7.6	7.5	7.5	7.4	7.4	7.5	7.5	7.5
190000	7.3	7.4	7.4	7.4	7.4	7.3	7.6	7.5	7.5	7.4	7.4	7.5	7.5	7.5
200000	7.3	7.4	7.4	7.4	7.4	7.4	7.6	7.5	7.5	7.4	7.4	7.5	7.5	7.5
210000	7.3	7.4	7.4	7.4	7.4	7.4	7.6	7.5	7.4	7.4	7.4	7.5	7.5	7.4
220000	7.4	7.4	7.4	7.4	7.4	7.4	7.6	7.5	7.4	7.4	7.5	7.5	7.5	7.4
230000	7.3	7.4	7.4	7.4	7.4	7.4	7.6	7.5	7.4	7.4	7.5	7.5	7.5	7.4
Daily Max	7.4	7.4	7.5	7.6	7.5	7.6	7.6	7.8	7.5	7.5	7.5	7.8	7.6	7.5
Daily Min	7.3	7.3	7.3	7.4	7.3	7.3	7.4	7.5	7.4	7.4	7.3	7.5	7.5	7.4
Average	7.3	7.4	7.4	7.4	7.4	7.5	7.5	7.6	7.5	7.4	7.4	7.6	7.5	7.5

Caldron Falls Headwater pH Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11
0	7.4	7.4	7.3	7.2	7.1	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
10000	7.4	7.4	7.3	7.2	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
20000	7.5	7.5	7.3	7.2	7.1	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
30000	7.5	7.5	7.3	7.2	7.1	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.1	7.2	7.2
40000	7.4	7.4	7.3	7.2	7.1	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
50000	7.5	7.3	7.3	7.2	7.1	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
60000	7.4	7.3	7.3	7.2	7.1	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
70000	7.4	7.3	7.3	7.2	7.1	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
80000	7.5	7.4	7.3	7.2	7.1	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
90000	7.4	7.4	7.3	7.2	7.1	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.8
100000	7.5	7.4	7.3	7.2	7.1	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9
110000	7.4	7.3	7.3	7.2	7.1	7.0		7.2	7.2	7.2	7.3	7.2	7.2	7.2	6.9
120000	7.4	7.3	7.3	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.3	7.2	7.2	7.2	6.9
130000	7.4	7.4	7.3	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9
140000	7.4	7.3	7.3	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.3	6.9
150000	7.4	7.3	7.3	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.3	7.2	6.9
160000	7.4	7.3	7.3	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9
170000	7.4	7.3	7.3	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.3	7.2	7.2	7.2	6.9
180000	7.4	7.3	7.2	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9
190000	7.4	7.3	7.2	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9
200000	7.4	7.3	7.2	7.2	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9
210000	7.4	7.3	7.2	7.1	7.1	7.0	7.2	7.3	7.2	7.2	7.2	7.2	7.2	7.2	6.9
220000	7.4	7.3	7.2	7.1	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9
230000	7.4	7.3	7.2	7.1	7.1	7.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.9
Daily Max	7.5	7.5	7.3	7.2	7.2	7.1	7.2	7.3	7.2	7.2	7.3	7.2	7.3	7.3	7.2
Daily Min	7.4	7.3	7.2	7.1	7.1	7.0	7.0	7.2	7.2	7.2	7.2	7.2	7.1	7.2	6.8
Average	7.4	7.4	7.3	7.2	7.1	7.0	7.1	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.0

Missing data due to equipment maintenance

License maximum pH: 9  
License minimum pH: 6

Caldron Falls Headwater pH Summary - July 2011

07/16/11	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
6.9	6.9	6.9	6.9	7.0	7.0	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.1
6.9	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.1
6.9	6.9	7.0	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.0	7.1	7.1
6.9	6.9	7.1	6.9	6.9	7.0	6.9	7.0	7.0	7.0	7.1	7.1	7.1	7.0	7.1	7.1
6.9	6.9	7.0	7.0	7.0	7.0	6.9	6.9	7.0	7.0	7.1	7.1	7.1	7.1	7.1	7.1
6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.1	7.0	7.0	7.1	7.1	7.0
6.9	6.9	6.9	7.0	6.9	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.1	7.1	7.0
6.9	6.9	6.9	7.0	6.9	6.9	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.0	7.0	7.1
6.9	6.9	6.9	6.9	7.0	7.0	6.9	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.0	7.0
6.9	6.9	6.9	6.9	7.0	7.0	6.9	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.0	7.1
6.9	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.1
6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.1	7.0	7.1	7.1	7.1
6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.0	7.1	7.1	7.1
6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.1	7.1	7.1	7.1
6.9	6.9	7.0	7.1	7.0	7.0	7.0	7.1	7.1	7.1	7.0	7.1	7.0	7.1	7.0	7.1
6.9	6.9	7.0	7.0	7.0	7.0	7.1	7.1	7.0	7.0	7.1	7.1	7.1	7.1	7.0	7.1
7.0	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.0	7.1	7.1	7.2	7.2
6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.2	7.0	7.1	7.1	7.1	7.1	7.1
6.9	6.9	7.0	7.1	7.0	7.0	7.0	7.1	7.1	7.1	7.0	7.1	7.0	7.1	7.0	7.1
6.9	6.9	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.2	7.1
7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.1	7.2	7.1
6.9	6.9	7.0	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.1
7.0	7.0	7.1	7.1	7.0	7.0	7.1	7.1	7.1	7.2	7.1	7.1	7.1	7.1	7.1	7.2
6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.0	7.0	7.1

Caldron Falls Headwater pH Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	7.1	7.1	7.1	7.1	7.0	7.1	7.0	7.1	7.1	7.2	7.1	7.1	7.3	7.3	7.4	7.4
10000	7.1	7.1	7.1	7.1	7.0	7.1	7.0	7.1	7.1	7.1	7.1	7.2	7.3	7.3	7.4	7.5
20000	7.1	7.1	7.1	7.1	7.0	7.1	7.0	7.1	7.1	7.1	7.1	7.2	7.3	7.3	7.4	7.4
30000	7.1	7.1	7.1	7.1	7.0	7.1	7.0	7.0	7.1	7.1	7.1	7.1	7.4	7.3	7.3	7.4
40000	7.1	7.1	7.1	7.1	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.3	7.3	7.3	7.4
50000	7.1	7.1	7.1	7.1	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.4	7.3	7.3	7.3
60000	7.1	7.1	7.1	7.1	7.1	7.0	7.0	7.1	7.1	7.1	7.1	7.1	7.4	7.3	7.3	7.3
70000	7.1	7.1	7.1	7.1	7.1	7.0	7.0	7.1	7.1	7.1	7.1	7.1	7.4	7.3	7.3	7.3
80000	7.0	7.1	7.1	7.1	7.1	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.4	7.3	7.3	7.3
90000	7.0	7.1	7.1	7.1	7.1	7.0	7.1	7.1	7.1	7.1	7.0	7.1	7.4	7.3	7.3	7.3
100000	7.1	7.1	7.1	7.1	7.0	7.1	7.1	7.1	7.1	7.2	7.0	7.1	7.3	7.3	7.3	7.3
110000	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.4	7.1	7.1	7.3	7.3	7.3	7.3
120000	7.1	7.2	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.5	7.1	7.1	7.3	7.3	7.3	7.3
130000	7.1	7.2	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.1	7.3	7.3	7.3	7.3	7.3
140000	7.1	7.2	7.1	7.0	7.1	7.1	7.1	7.2	7.3	7.2	7.1	7.3	7.3	7.3	7.3	7.4
150000	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.4	7.2	7.1	7.3	7.3	7.3	7.4	7.4
160000	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.5	7.2	7.1	7.3	7.4	7.4	7.4	7.5
170000	7.1	7.1	7.2	7.1	7.1	7.1	7.1	7.1	7.3	7.2	7.1	7.3	7.4	7.4	7.5	7.4
180000	7.1	7.1	7.2	7.1	7.0	7.1	7.1	7.1	7.2	7.3	7.1	7.3	7.3	7.5	7.4	7.4
190000	7.1	7.1	7.1	7.1	7.0	7.1	7.1	7.1	7.1	7.2	7.1	7.3	7.4	7.5	7.4	7.5
200000	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.3	7.5	7.4	7.5	7.3
210000	7.1	7.1	7.2	7.1	7.1	7.1	7.0	7.0	7.1	7.1	7.1	7.3	7.5	7.4	7.5	7.3
220000	7.1	7.2	7.1	7.0	7.1	7.1	7.0	7.1	7.2	7.1	7.1	7.3	7.4	7.4	7.4	7.3
230000	7.1	7.2	7.1	7.0	7.0	7.1	7.0	7.1	7.1	7.1	7.1	7.3	7.3	7.4	7.4	7.3
Daily Max	7.1	7.2	7.2	7.1	7.1	7.1	7.1	7.2	7.5	7.5	7.1	7.3	7.5	7.5	7.5	7.5
Daily Min	7.0	7.1	7.1	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.0	7.1	7.3	7.3	7.3	7.3
Average	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.1	7.2	7.4	7.3	7.4	7.4

License maximum pH: 9

License minimum pH: 6

Caldron Falls Headwater pH Summary - August 2011

Time	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
HHMMSS															
0	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3	8.3	7.4	7.3	7.4	7.4	7.4	7.4
10000	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	8.2	7.3	7.4	7.4	7.4	7.4	7.4
20000	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.8	7.3	7.4	7.4	7.5	7.4	7.4
30000	7.3	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.5	7.3	7.4	7.4	7.5	7.4	7.4
40000	7.4	7.3	7.3	7.4	7.4	7.3	7.3	7.3	7.5	7.3	7.4	7.4	7.5	7.4	7.4
50000	7.4	7.3	7.3	7.4	7.3	7.3	7.3	7.3	7.5	7.3	7.4	7.4	7.4	7.4	7.4
60000	7.4	7.3	7.3	7.4	7.3	7.3	7.3	7.3	7.4	7.3	7.4	7.4	7.4	7.4	7.4
70000	7.4	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.4	7.3	7.4	7.4	7.4	7.4	7.4
80000	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.3	7.4	7.4	7.4	7.4	7.4
90000	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.3	7.5	7.4	7.4	7.4	7.4
100000	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.5	7.4	7.4	7.4	7.4
110000	7.4	7.3	7.4	7.3	7.4	7.3	7.3	7.4	7.5	7.4	7.5	7.4	7.4	7.4	7.4
120000	7.4	7.3	7.3	7.4	7.4	7.3	7.3	8.0	7.6	7.4	7.5	7.4	7.4	7.4	7.4
130000	7.4	7.4	7.3	7.4	7.4	7.3	7.3	8.3	7.5	7.4	7.4	7.4	7.4	7.4	7.4
140000	7.4	7.4	7.3	7.4	7.4	7.3	7.3	8.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4
150000	7.4	7.4	7.3	7.4	7.4	7.3	7.3	8.3	7.4	7.4	7.4	7.4	7.5	7.4	7.4
160000	7.4	7.4	7.4	7.4	7.4	7.3	7.3	8.3	7.4	7.3	7.4	7.4	7.5	7.4	7.4
170000	7.5	7.3	7.4	7.4	7.4	7.3	7.3	8.3	7.4	7.4	7.4	7.4	7.5	7.4	7.4
180000	7.4	7.4	7.4	7.4	7.4	7.3	7.3	8.4	7.5	7.4	7.4	7.4	7.5	7.4	7.4
190000	7.4	7.4	7.3	7.4	7.3	7.3	7.3	8.4	7.5	7.4	7.4	7.4	7.4	7.4	7.4
200000	7.4	7.4	7.3	7.3	7.4	7.3	7.3	8.3	7.6	7.4	7.4	7.4	7.4	7.4	7.4
210000	7.4	7.4	7.3	7.3	7.4	7.3	7.3	8.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4
220000	7.4	7.4	7.3	7.3	7.4	7.3	7.3	8.3	7.4	7.3	7.4	7.4	7.4	7.4	7.4
230000	7.4	7.3	7.4	7.4	7.4	7.3	7.3	8.3	7.4	7.3	7.4	7.4	7.4	7.4	7.4
Daily Max	7.5	7.4	7.4	7.4	7.4	7.4	7.3	8.4	8.3	7.4	7.5	7.4	7.5	7.4	7.4
Daily Min	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.3	7.3	7.4	7.4	7.4	7.4
Average	7.4	7.4	7.3	7.4	7.4	7.3	7.3	7.8	7.5	7.4	7.4	7.4	7.4	7.4	7.4

Caldron Falls Headwater pH Summary - September 2011

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

License Maximum pH: 9  
License Minimum pH: 6

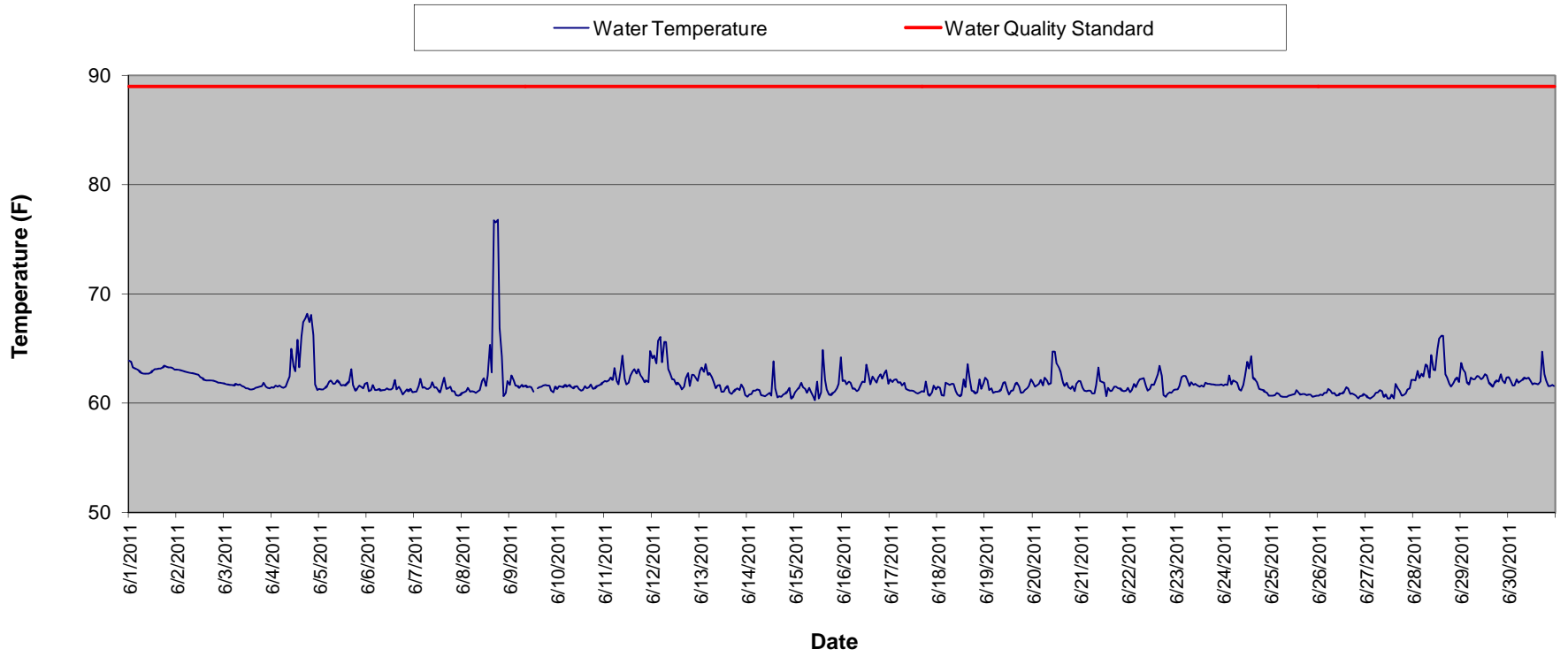
Missing data due to equipment maintenance

Caldron Falls Headwater pH Summary - September 2011

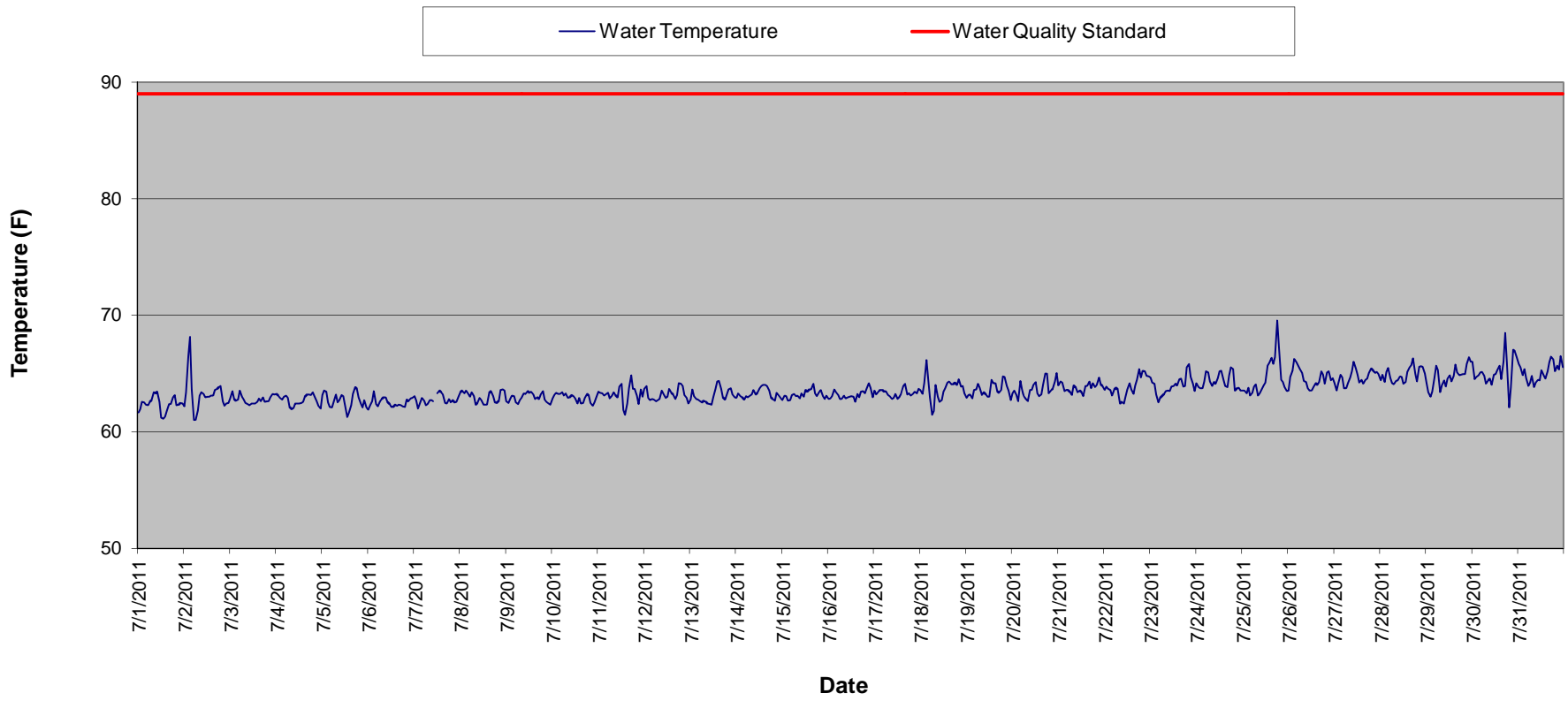
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	7.6	7.6	7.8	7.9	7.8	8.0	7.9	7.9	7.9	7.8	7.8	7.8	7.8	8.0
10000	7.6	7.7	7.8	7.8	7.8	8.0	7.9	7.9	7.9	7.7	7.9	7.8	7.9	8.0
20000	7.6	7.8	7.9	7.7	7.7	8.0	7.9	7.9	7.9	7.7	7.9	7.8	7.8	8.0
30000	7.6	7.7	7.9	7.6	7.7	8.0	7.9	7.9	7.9	7.7	7.9	7.8	7.8	8.0
40000	7.6	7.6	7.8	7.6	7.7	7.9	7.9	7.8	7.8	7.8	7.8	7.8	7.8	8.0
50000	7.6	7.6	7.7	7.6	7.7	7.9	7.9	7.8	7.8	7.7	7.9	7.8	7.8	8.0
60000	7.6	7.6	7.8	7.7	7.7	7.9	7.9	7.9	7.8	7.7	7.9	7.8	7.8	8.0
70000	7.6	7.6	7.9	7.7	7.8	7.9	7.9	7.8	7.8	7.7	7.8	7.8	7.8	7.9
80000	7.6	7.6	7.9	7.7	7.8	7.9	7.9	7.8	7.7	7.7	7.8	7.8	7.8	7.9
90000	7.7	7.7	8.0	7.7	7.8	7.9	7.9	7.8	7.7	7.7	7.8	7.8	7.8	7.9
100000	7.6	7.7	7.9	7.7	7.8	7.9	7.9	7.9	7.8	7.7	7.8	7.8	7.8	7.9
110000	7.6	7.6	8.0	7.7	7.9	7.9	7.9	7.9	7.7	7.7	7.8	7.8	7.8	7.9
120000	7.5	7.6	8.0	7.7	7.9	7.9	7.9	7.9	7.8	7.8	7.9	7.8	7.8	8.0
130000	7.6	7.7	7.9	7.7	7.9	7.9	7.9	7.9	7.8	7.8	7.9	7.8	7.8	8.0
140000	7.8	7.7	7.9	7.7	7.9	7.9	7.9	7.9	7.8	7.7	7.9	7.8	7.9	8.0
150000	7.7	7.8	8.0	7.8	8.0	7.9	7.9	7.9	7.7	7.7	7.8	7.8	8.0	8.0
160000	7.7	7.8	8.0	7.7	8.0	8.0	7.9	7.9	7.7	7.7	7.8	7.8	8.0	8.0
170000	7.7	7.6	7.9	7.8	8.0	8.0	7.8	8.0	7.8	7.8	7.8	7.8	7.9	8.0
180000	7.8	7.7	8.0	7.8	8.0	7.9	7.8	8.0	7.7	7.8	7.8	7.8	7.9	8.0
190000	7.7	7.7	7.9	7.8	8.0	7.9	7.8	8.0	7.7	7.8	7.8	7.8	7.9	8.0
200000	7.7	7.8	8.0	7.8	8.0	7.9	7.8	7.9	7.8	7.8	7.8	7.8	8.0	8.0
210000	8.0	7.8	7.9	7.8	7.9	7.9	7.8	7.9	7.8	7.8	7.8	7.8	8.0	8.0
220000	7.9	7.7	7.8	7.8	8.0	7.9	7.8	7.9	7.8	7.9	7.8	7.9	8.0	8.0
230000	7.7	7.7	7.9	7.8	8.0	7.9	7.8	7.9	7.8	7.8	7.8	7.8	8.0	8.0
Daily Max	8.0	7.8	8.0	7.9	8.0	8.0	7.9	8.0	7.9	7.9	7.9	7.9	8.0	8.0
Daily Min	7.5	7.6	7.7	7.6	7.7	7.9	7.8	7.8	7.7	7.7	7.8	7.8	7.8	7.9
Average	7.7	7.7	7.9	7.7	7.9	7.9	7.9	7.9	7.8	7.7	7.8	7.8	7.9	8.0



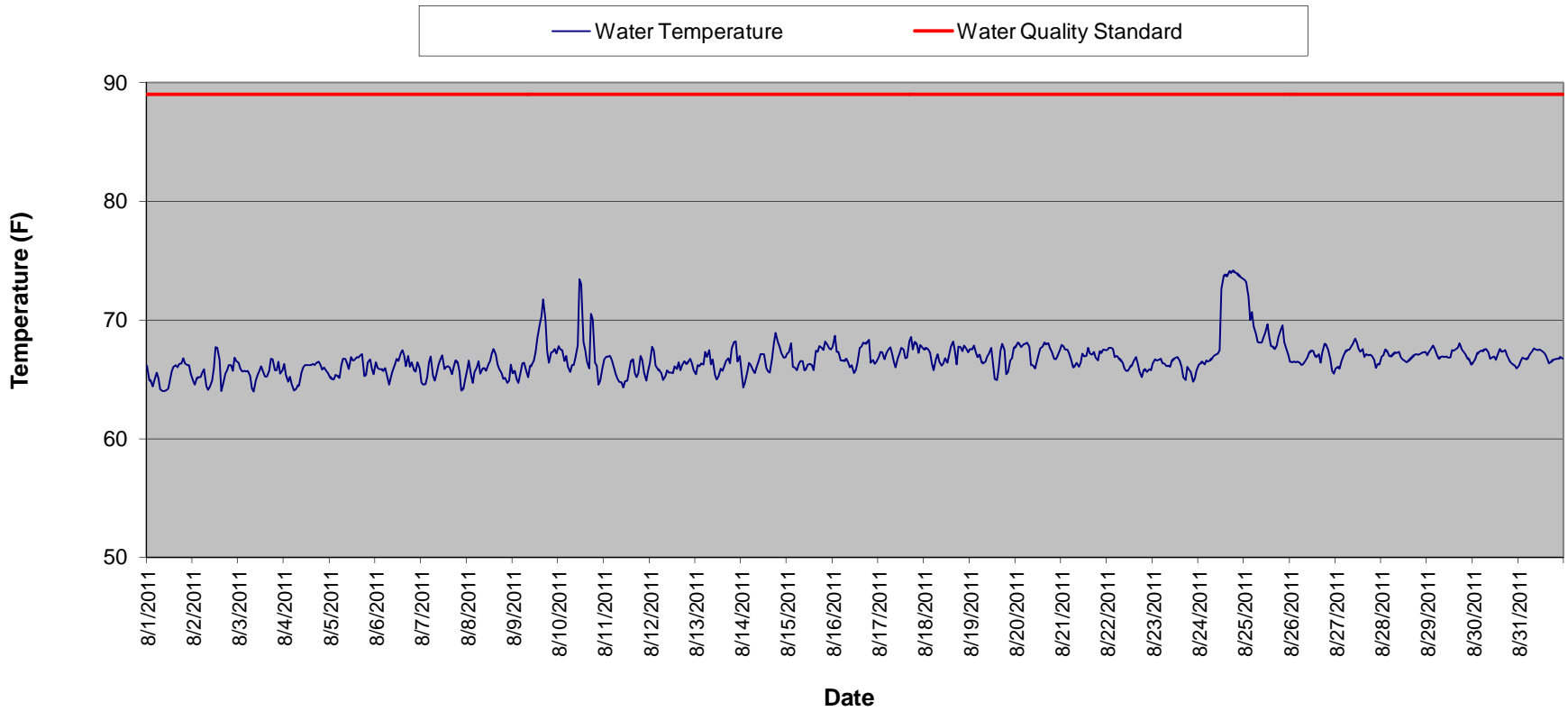
### Caldron Falls Headwater Water Temperature - June 2011



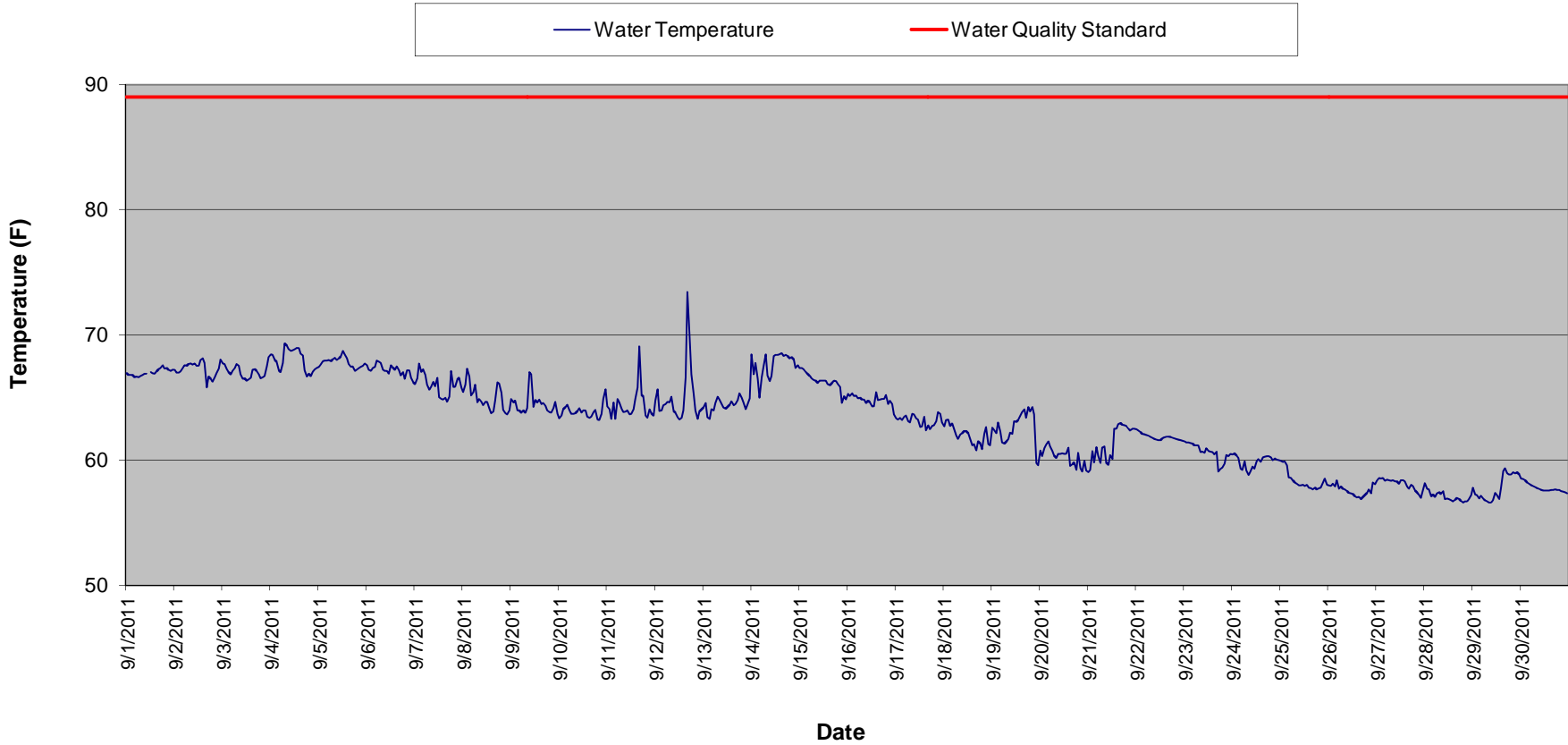
### Caldron Falls Headwater Water Temperature - July 2011



### Caldron Falls Headwater Water Temperature - August 2011



### Caldron Falls Headwater Water Temperature - September 2011



Caldron Falls Headwater Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	63.9	63.1	61.8	61.5	61.3	61.8	61.0	60.9	61.7	61.3	62.0	64.1	63.0	60.6	61.0	62.0
10000	63.8	63.0	61.7	61.4	61.2	61.1	61.1	61.0	62.5	61.6	62.0	64.3	63.3	60.8	61.3	62.1
20000	63.2	63.0	61.7	61.6	61.2	61.2	61.5	61.1	62.1	61.5	62.1	63.6	62.9	60.8	61.4	61.7
30000	63.2	62.9	61.7	61.5	61.4	61.7	62.2	61.4	61.6	61.4	62.3	65.7	63.6	61.2	61.9	62.0
40000	63.1	62.9	61.7	61.6	61.6	61.2	61.4	61.0	61.6	61.6	62.2	66.0	62.6	61.2	61.5	61.9
50000	62.9	62.8	61.6	61.4	62.0	61.2	61.4	61.1	61.4	61.5	63.2	63.7	62.7	61.3	61.3	61.3
60000	62.8	62.8	61.8	61.4	62.1	61.3	61.3	61.1	61.6	61.7	62.0	65.6	62.4	61.2	60.9	61.4
70000	62.7	62.8	61.6	61.5	61.8	61.2	61.3	60.9	61.5	61.5	61.7	65.6	62.0	60.7	61.4	61.1
80000	62.7	62.7	61.7	61.9	61.8	61.2	61.5	61.1	61.6	61.3	63.1	63.1	61.4	60.7	61.0	61.2
90000	62.7	62.7	61.6	62.4	62.1	61.2	61.9	61.2	61.5	61.5	64.3	62.7	61.6	60.6	60.6	61.6
100000	62.7	62.7	61.5	65.0	61.9	61.4	61.4	62.0	61.5	61.6	62.2	62.2	61.6	60.8	60.2	62.0
110000	62.8	62.6	61.4	63.4	61.6	61.3	61.4	62.3	61.4	61.3	61.7	62.2	61.0	60.9	62.0	61.9
120000	62.9	62.4	61.3	62.9	61.7	61.2	61.2	61.6	61.1	61.2	61.9	61.7	61.0	60.7	60.4	63.5
130000	63.1	62.3	61.3	65.8	61.6	61.3	61.0	62.5		61.2	62.5	61.9	61.3	63.8	61.0	62.6
140000	63.1	62.1	61.3	63.2	61.8	62.1	61.8	65.3	61.4	61.6	62.9	61.6	61.5	61.3	64.9	61.7
150000	63.2	62.1	61.3	66.1	62.0	61.3	62.3	62.8	61.4	61.3	63.1	61.3	61.0	60.5	62.1	62.5
160000	63.2	62.1	61.4	67.4	63.1	61.5	61.3	76.7	61.5	61.4	62.7	61.5	60.8	60.6	61.2	62.2
170000	63.2	62.1	61.4	67.8	61.7	61.2	61.3	76.6	61.6	61.7	63.1	62.3	61.0	60.6	60.8	61.9
180000	63.4	62.1	61.5	68.2	61.2	60.8	61.5	76.8	61.7	61.3	62.5	62.7	61.2	60.8	60.7	62.3
190000	63.3	62.0	61.6	67.4	61.3	61.0	61.1	66.9	61.6	61.3	62.3	61.6	61.4	60.9	60.9	62.6
200000	63.3	62.0	61.8	68.1	61.6	61.2	61.1	64.3	61.6	61.6	61.9	62.6	61.2	61.1	61.0	62.2
210000	63.3	61.9	61.5	66.2	61.5	61.1	60.7	60.6	61.1	61.6	62.1	62.6	61.7	61.4	61.3	62.7
220000	63.2	61.9	61.4	61.7	61.4	61.3	60.7	60.9	61.0	61.7	61.9	62.3	61.3	60.4	61.8	63.0
230000	63.1	61.8	61.3	61.2	61.8	61.0	60.7	62.0	61.5	61.8	64.8	62.0	60.7	60.6	64.2	61.8
Daily Max	63.9	63.1	61.8	68.2	63.1	62.1	62.3	76.8	62.5	61.8	64.8	66.0	63.6	63.8	64.9	63.5
Daily Min	62.7	61.8	61.3	61.2	61.2	60.8	60.7	60.6	61.0	61.2	61.7	61.3	60.7	60.4	60.2	61.1
Average	63.1	62.4	61.5	63.8	61.7	61.3	61.3	63.8	61.5	61.5	62.5	63.0	61.8	61.0	61.5	62.0

Monthly average: 61.9  
 License Maximum Temperature: 89 F

Missing data due to equipment maintenance.

Caldron Falls Headwater Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	62.2	61.5	62.3	61.9	62.0	61.4	61.3	61.6	60.7	60.7	60.7	62.2	63.7	62.4
10000	61.9	61.4	62.1	61.5	61.4	61.0	61.2	61.7	60.7	60.8	60.5	62.1	63.1	62.1
20000	62.1	60.7	61.2	61.6	61.1	61.2	61.6	61.7	60.7	60.7	60.4	63.0	62.8	61.6
30000	62.2	60.7	61.3	61.8	61.1	61.8	62.4	62.5	60.9	60.9	60.5	62.3	61.9	61.6
40000	61.9	61.9	60.9	62.1	61.2	61.5	62.5	61.7	60.8	60.9	60.7	62.7	61.7	62.2
50000	61.9	61.8	61.0	61.6	61.1	61.9	62.5	62.1	60.6	61.3	60.9	62.4	62.3	61.8
60000	61.6	61.6	61.1	62.3	60.9	62.2	62.1	62.0	60.6	61.1	61.0	63.5	62.2	62.0
70000	61.8	61.8	61.1	62.1	60.9	62.2	61.6	61.9	60.5	60.9	61.2	63.4	62.2	62.2
80000	61.3	61.8	61.2	61.7	61.6	62.3	61.9	61.3	60.6	60.9	61.1	62.3	62.5	62.3
90000	61.2	61.1	61.8	61.8	63.2	61.6	61.6	61.1	60.7	60.7	60.6	64.4	62.5	62.2
100000	61.1	60.8	61.9	64.7	62.0	61.1	61.8	61.6	60.7	60.7	60.8	63.1	62.2	62.3
110000	61.1	60.6	61.2	64.7	61.9	61.3	61.6	62.5	60.8	60.9	60.4	63.0	62.3	62.1
120000	61.1	60.8	60.8	63.6	61.9	61.7	61.5	63.8	60.9	60.9	60.4	64.9	62.6	61.7
130000	60.9	62.2	61.1	63.3	60.6	61.7	61.6	63.2	61.2	61.0	60.8	65.9	62.6	61.8
140000	60.9	61.4	61.2	62.9	61.4	62.1	61.5	64.3	60.9	61.5	60.4	66.2	61.9	61.8
150000	61.0	63.6	61.7	62.0	61.1	62.6	61.9	62.3	60.8	61.3	61.8	66.2	61.7	61.7
160000	61.1	62.4	61.9	61.6	61.2	63.4	61.8	62.1	60.8	60.8	61.3	62.7	61.5	62.0
170000	61.0	61.1	61.5	61.9	61.5	62.5	61.8	61.9	60.9	60.9	61.1	62.3	61.9	64.7
180000	62.0	61.1	60.9	61.5	61.5	60.7	61.7	61.3	60.7	60.8	60.7	61.8	62.1	62.6
190000	60.9	60.9	61.0	61.3	61.4	60.6	61.7	61.3	60.8	60.7	60.7	61.5	62.0	62.1
200000	60.7	61.0	61.2	61.6	61.3	60.8	61.7	61.2	60.8	60.4	60.9	61.8	62.7	61.6
210000	61.0	62.2	61.4	61.1	61.2	61.0	61.6	61.1	60.5	60.6	61.2	62.1	62.1	61.5
220000	61.6	61.3	61.6	61.8	61.1	60.9	61.6	60.9	60.6	60.7	61.4	62.3	61.8	61.7
230000	61.2	61.8	62.2	62.0	61.1	61.2	61.7	60.7	60.7	60.8	62.2	61.9	62.3	61.6
Daily Max	62.2	63.6	62.3	64.7	63.2	63.4	62.5	64.3	61.2	61.5	62.2	66.2	63.7	64.7
Daily Min	60.7	60.6	60.8	61.1	60.6	60.6	61.2	60.7	60.5	60.4	60.4	61.5	61.5	61.5
Average	61.4	61.5	61.4	62.2	61.4	61.6	61.8	61.9	60.7	60.9	60.9	63.1	62.3	62.1

Caldron Falls Headwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	61.7	62.2	62.9	63.3	63.1	61.9	63.1	63.4	62.6	62.9	63.4	63.7	62.7	62.9	62.7	62.8
10000	61.9	63.4	63.5	63.1	63.5	62.3	62.7	63.5	62.5	63.1	63.4	64.0	63.6	63.3	63.1	62.9
20000	62.5	66.5	62.8	62.9	63.4	62.6	62.0	63.3	62.8	63.3	63.3	62.9	63.1	63.0	63.0	63.1
30000	62.5	68.2	62.7	62.7	62.5	63.5	62.5	63.6	63.1	63.2	63.1	62.7	62.8	62.9	62.7	63.6
40000	62.3	63.7	62.8	63.0	62.1	62.4	62.9	63.2	63.1	63.3	63.2	62.8	62.7	62.7	62.7	63.4
50000	62.3	61.0	63.6	63.1	62.1	62.2	62.7	63.0	62.5	63.4	63.4	62.8	62.6	63.1	63.2	63.2
60000	62.6	61.0	63.0	62.9	62.5	62.6	62.3	63.4	62.4	63.1	62.9	62.6	62.5	63.0	63.2	62.8
70000	62.7	61.9	62.7	62.1	63.2	62.8	62.4	63.0	62.7	63.3	63.1	62.7	62.7	63.1	63.1	62.8
80000	63.4	63.1	62.5	61.9	62.5	62.9	62.7	62.3	62.9	62.9	63.4	62.8	62.6	63.2	63.1	63.1
90000	63.3	63.4	62.4	62.0	62.7	62.9	62.7	62.5	63.3	63.0	63.2	63.5	62.4	63.6	62.9	62.9
100000	63.5	63.2	62.3	62.4	63.1	62.6	62.6	62.9	63.3	63.1	62.9	63.2	62.4	63.2	63.3	63.0
110000	62.6	63.0	62.4	62.4	63.0	62.4	62.7	62.7	63.5	63.1	63.9	62.9	62.3	63.3	63.0	63.0
120000	61.2	63.0	62.4	62.4	62.0	62.1	63.3	62.3	63.3	62.9	64.1	63.0	63.0	63.7	63.6	63.0
130000	61.1	63.0	62.4	62.5	61.3	62.2	63.6	62.3	63.5	62.4	61.9	63.7	63.7	63.9	63.4	63.0
140000	61.3	63.1	62.6	62.6	61.6	62.3	63.4	62.3	63.2	62.9	61.4	63.4	64.3	64.0	63.6	62.6
150000	61.8	63.1	62.9	63.0	62.3	62.2	63.2	63.3	62.8	62.4	62.4	63.2	64.4	64.0	63.6	63.2
160000	62.4	63.6	62.6	63.2	63.2	62.3	62.5	63.5	63.0	62.5	63.7	62.8	63.7	63.9	64.1	62.9
170000	62.4	63.7	62.9	63.2	63.8	62.3	62.4	63.1	62.8	62.9	64.8	63.1	63.0	63.5	63.3	63.4
180000	62.9	63.8	62.6	63.1	63.7	62.2	62.8	62.5	63.2	63.3	63.7	64.1	62.8	63.0	63.1	63.5
190000	63.1	64.0	62.6	63.4	63.0	62.2	62.5	62.5	63.5	63.1	63.7	64.1	63.2	62.8	63.4	63.3
200000	62.3	62.6	62.6	63.1	62.4	62.8	62.7	62.7	62.7	62.5	63.1	63.9	63.6	62.7	63.6	63.7
210000	62.3	62.2	62.9	62.6	62.1	62.6	62.5	63.6	62.6	62.2	62.4	63.1	63.8	63.4	63.1	64.2
220000	62.5	62.4	63.3	62.2	62.7	62.9	62.6	63.6	62.4	62.5	63.6	62.9	63.2	63.1	62.8	63.8
230000	62.4	62.5	63.2	62.0	62.1	62.9	63.1	63.5	62.3	63.1	63.0	62.4	62.9	62.9	63.1	62.9
Daily Max	63.5	68.2	63.6	63.4	63.8	63.5	63.6	63.6	63.5	63.4	64.8	64.1	64.4	64.0	64.1	64.2
Daily Min	61.1	61.0	62.3	61.9	61.3	61.9	62.0	62.3	62.3	62.2	61.4	62.4	62.3	62.7	62.7	62.6
Average	62.4	63.2	62.8	62.7	62.7	62.5	62.7	63.0	62.9	62.9	63.2	63.2	63.1	63.3	63.2	63.2

Missing data due to equipment maintenance

Monthly average: 63.6  
 License Maximum Monthly Average: 89 F

Caldron Falls Headwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	63.5	63.6	62.9	63.3	64.0	63.6	64.7	64.2	63.6	63.6	64.2	64.4	64.1	66.0	65.8
10000	63.2	63.2	63.1	63.5	64.3	63.9	64.2	63.8	63.6	64.7	63.5	64.9	63.4	64.5	65.5
20000	63.5	64.2	63.2	63.2	64.2	63.7	64.1	63.7	63.3	65.2	64.2	64.3	63.0	64.7	64.9
30000	63.6	66.2	62.9	62.6	63.5	63.6	63.2	63.7	63.8	66.3	64.9	65.1	63.5	64.9	65.4
40000	63.6	64.5	63.6	64.4	63.6	63.1	62.5	64.3	63.1	66.0	64.7	65.5	64.6	65.1	64.6
50000	63.5	63.0	63.6	63.6	63.6	63.6	62.9	65.2	63.4	65.7	63.7	64.6	65.7	65.1	63.9
60000	63.5	61.5	64.1	63.1	63.4	63.8	63.0	65.1	63.9	65.4	63.7	64.2	65.3	64.8	64.2
70000	63.1	61.8	63.8	62.8	63.1	63.6	63.2	64.3	64.1	65.0	64.2	64.1	63.4	64.1	64.8
80000	63.1	64.0	63.2	62.6	64.0	62.4	63.5	64.0	63.1	64.4	64.6	64.3	64.0	64.4	63.8
90000	62.8	63.0	63.4	63.6	63.8	62.5	63.6	64.3	63.3	64.3	65.2	64.4	64.4	64.6	64.2
100000	62.9	62.6	63.2	63.6	63.4	62.4	63.5	64.1	63.7	63.7	66.0	64.7	63.9	64.0	64.5
110000	63.2	62.7	63.0	64.0	63.5	63.1	63.9	64.6	64.0	63.6	65.4	64.7	64.6	64.9	64.4
120000	62.8	63.4	63.0	64.3	63.4	63.6	63.9	65.2	64.2	63.5	64.9	64.1	64.8	65.0	65.3
130000	63.0	63.7	64.5	63.3	63.1	64.1	64.1	65.2	65.7	63.8	64.2	64.3	64.3	65.3	64.9
140000	63.2	64.2	64.2	63.0	63.9	63.6	64.0	64.5	65.9	64.1	64.5	65.2	64.8	65.7	64.6
150000	63.9	64.3	64.2	63.2	63.9	63.3	64.5	63.9	66.4	64.0	64.1	65.6	65.8	64.5	65.2
160000	64.1	64.1	63.5	64.0	64.3	64.0	64.6	63.8	65.8	64.3	64.5	65.7	65.1	66.0	66.0
170000	63.2	64.1	63.4	65.0	63.7	64.5	63.9	64.9	66.4	65.2	64.6	66.3	64.9	68.5	66.5
180000	63.3	64.2	63.6	65.0	64.2	65.4	64.0	65.6	69.5	64.9	65.1	65.0	64.9	65.9	66.2
190000	63.1	64.0	64.7	63.3	63.8	64.7	65.5	65.4	67.3	64.1	65.4	64.3	64.9	62.1	65.2
200000	63.2	64.5	64.7	63.5	64.0	65.2	65.8	63.5	64.5	65.1	65.3	65.6	64.9	63.8	65.7
210000	63.4	63.9	63.9	63.7	64.7	65.2	64.7	63.7	64.3	65.2	65.0	65.6	65.8	67.0	65.3
220000	63.3	63.9	63.6	64.3	64.1	64.8	64.1	63.8	63.8	64.4	65.1	65.6	66.4	66.9	66.5
230000	63.7	63.3	62.7	65.0	64.0	64.7	63.5	63.5	63.5	64.6	65.0	65.0	66.0	66.5	65.5
Daily Max	64.1	66.2	64.7	65.0	64.7	65.4	65.8	65.6	69.5	66.3	66.0	66.3	66.4	68.5	66.5
Daily Min	62.8	61.5	62.7	62.6	63.1	62.4	62.5	63.5	63.1	63.5	63.5	64.1	63.0	62.1	63.8
Average	63.3	63.7	63.6	63.7	63.8	63.9	64.0	64.3	64.6	64.6	64.7	64.9	64.7	65.2	65.1



Caldron Falls Headwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	66.2	64.9	66.4	66.3	65.2	66.4	64.7	65.7	65.5	67.8	66.7	66.3	65.4	65.6	67.2	67.7
10000	65.0	64.5	65.9	65.4	65.0	65.9	64.5	66.6	65.7	67.5	66.9	67.8	66.2	64.3	67.3	68.7
20000	64.8	65.0	65.7	64.8	65.0	65.9	64.6	65.4	65.0	67.5	66.9	67.4	66.1	64.7	68.0	67.3
30000	64.4	65.2	65.7	65.2	65.4	65.9	65.2	64.7	64.7	66.5	67.0	66.2	66.4	65.6	66.1	67.3
40000	64.9	65.2	65.7	64.6	65.3	65.7	66.4	65.6	65.6	67.0	66.6	65.8	66.3	66.4	66.0	66.6
50000	65.6	65.6	65.7	64.1	65.1	66.0	66.9	66.0	66.4	66.0	65.9	65.7	67.3	66.2	65.8	66.6
60000	65.1	65.8	65.3	64.1	66.1	65.4	65.3	66.5	66.4	65.6	65.4	65.5	66.9	65.8	66.3	66.5
70000	64.1	64.5	64.2	64.4	66.7	64.5	64.9	65.5	65.6	66.2	65.0	65.0	67.5	65.5	66.5	66.7
80000	64.0	64.1	64.0	64.5	66.7	65.2	65.4	65.9	65.2	66.2	64.8	65.3	66.3	66.0	66.5	66.4
90000	64.0	64.4	65.0	65.6	66.3	65.7	66.3	66.0	66.1	66.8	64.7	65.8	66.7	66.6	65.8	66.0
100000	64.0	64.9	65.4	66.0	65.8	66.2	66.7	65.7	66.2	67.9	64.3	65.6	65.4	67.1	65.9	66.2
110000	64.2	65.9	65.7	66.2	66.9	66.7	67.0	66.3	66.6	73.4	64.9	65.6	65.0	67.1	66.2	65.5
120000	65.0	67.7	66.1	66.2	66.6	66.5	65.8	66.5	67.3	73.0	64.9	65.5	65.2	67.1	66.3	65.8
130000	65.7	67.6	65.6	66.2	66.6	67.2	66.0	67.2	68.5	68.1	65.7	66.1	65.9	66.0	66.2	66.4
140000	66.0	66.6	65.2	66.2	66.9	67.5	66.1	67.6	69.6	67.5	66.5	65.9	65.7	65.6	65.8	67.7
150000	66.2	64.0	65.2	66.3	66.8	67.0	66.0	67.1	70.3	66.5	66.7	66.5	66.1	65.6	67.4	67.7
160000	66.0	64.6	65.7	66.2	67.0	66.1	65.4	66.3	71.7	65.9	65.5	65.8	66.5	66.8	67.3	68.1
170000	66.3	65.5	66.8	66.4	67.1	67.0	66.1	65.9	70.0	70.5	65.2	66.2	66.8	68.0	67.8	68.0
180000	66.3	65.8	66.7	66.5	65.3	66.1	66.6	65.5	67.4	70.0	65.5	66.5	66.4	68.9	67.6	68.2
190000	66.8	66.2	65.8	66.2	65.4	66.4	66.4	65.0	66.4	66.4	67.0	66.3	67.6	68.2	67.5	68.3
200000	66.3	66.2	65.8	65.8	66.5	65.8	65.7	65.1	67.3	66.1	66.6	66.4	68.1	67.7	68.2	66.4
210000	66.2	65.7	66.5	66.0	66.7	65.7	64.0	64.7	67.3	64.6	65.6	66.7	68.2	67.2	67.9	66.7
220000	66.2	66.8	65.5	65.7	65.9	66.4	64.2	64.9	67.6	64.9	64.9	66.3	66.5	66.8	67.6	66.3
230000	65.5	66.5	65.8	65.5	65.4	65.9	65.0	66.3	67.2	66.0	65.7	65.8	67.0	66.8	67.5	66.5
Daily Max	66.8	67.7	66.8	66.5	67.1	67.5	67.0	67.6	71.7	73.4	67.0	67.8	68.2	68.9	68.2	68.7
Daily Min	64.0	64.0	64.0	64.1	65.0	64.5	64.0	64.7	64.7	64.6	64.3	65.0	65.0	64.3	65.8	65.5
Average	65.4	65.6	65.6	65.6	66.1	66.1	65.6	65.9	67.1	67.4	65.8	66.1	66.5	66.5	66.9	67.0

Monthly average: 66.7  
 License Maximum Temperature: 89 F

Caldron Falls Headwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	66.9	67.5	67.6	67.8	67.9	67.4	66.3	66.3	73.4	66.5	65.9	66.9	67.0	66.4	66.1
10000	67.3	67.6	67.5	68.1	67.8	67.6	66.7	66.3	73.2	66.4	66.0	67.0	67.3	66.7	66.5
20000	67.3	67.5	67.8	68.0	67.5	67.7	66.6	66.5	72.0	66.5	65.9	67.5	67.6	67.1	66.8
30000	66.7	67.2	67.3	67.7	67.5	67.6	66.7	66.2	70.0	66.4	66.5	67.3	67.9	67.3	66.8
40000	67.2	66.3	66.9	68.0	67.2	66.9	66.7	66.6	70.7	66.5	67.0	67.0	67.6	67.4	66.7
50000	67.4	65.8	67.1	68.0	66.7	67.0	66.3	66.5	69.5	66.4	67.3	66.9	67.0	67.4	66.8
60000	67.7	66.7	66.5	68.1	66.0	66.8	66.3	66.6	68.8	66.2	67.4	67.1	66.7	67.5	67.1
70000	67.2	67.1	66.4	67.8	66.1	66.6	66.1	66.8	68.2	66.3	67.5	67.3	66.9	67.6	67.4
80000	66.5	66.5	66.5	66.2	66.4	66.4	66.1	67.0	68.1	66.6	67.8	67.2	66.9	67.3	67.6
90000	66.0	66.1	66.9	66.2	66.1	65.9	66.0	67.1	68.1	66.8	68.0	67.3	66.9	66.7	67.5
100000	66.8	66.4	67.2	65.9	66.4	65.7	66.5	67.2	68.5	67.2	68.4	66.9	66.9	66.8	67.4
110000	67.2	66.8	67.7	66.5	67.2	65.7	66.8	67.5	68.9	67.4	68.1	66.7	66.8	66.9	67.5
120000	67.7	66.4	66.4	67.1	66.9	66.0	66.8	72.6	69.7	67.4	67.6	66.6	66.8	66.6	67.4
130000	67.5	67.1	65.0	67.6	67.0	66.2	66.9	73.7	68.6	67.0	67.3	66.5	67.5	67.1	67.3
140000	66.8	67.8	65.0	67.7	67.6	66.5	66.6	73.8	67.8	66.9	67.6	66.5	67.4	67.6	67.1
150000	66.8	68.2	66.0	68.1	67.2	66.9	66.1	73.7	67.8	67.1	66.9	66.7	67.6	67.3	66.7
160000	68.2	67.4	67.4	67.9	67.1	66.3	65.2	74.1	67.6	66.4	67.1	66.9	67.6	67.4	66.4
170000	68.6	66.3	68.0	68.1	67.3	65.7	65.0	74.0	67.9	67.3	67.0	67.0	68.1	67.4	66.5
180000	67.5	67.7	67.5	67.6	66.8	65.2	66.1	74.2	68.6	68.0	67.1	67.1	67.5	66.9	66.6
190000	68.2	67.7	65.4	67.3	66.6	65.7	65.8	74.0	69.2	67.9	67.0	67.1	67.3	66.6	66.7
200000	67.9	67.4	65.6	66.7	67.4	65.8	65.6	73.9	69.5	67.5	66.7	67.1	67.1	66.4	66.8
210000	67.2	67.9	66.6	66.7	67.2	65.6	64.8	73.8	68.1	66.7	65.9	67.2	66.8	66.3	66.7
220000	67.9	67.6	66.8	67.0	67.5	65.8	65.1	73.6	67.5	65.7	66.3	67.3	66.6	66.1	66.9
230000	67.7	67.3	67.6	67.4	67.5	65.8	65.8	73.5	67.1	65.5	66.3	67.3	66.3	65.9	66.7
Daily Max	68.6	68.2	68.0	68.1	67.9	67.7	66.9	74.2	73.4	68.0	68.4	67.5	68.1	67.6	67.6
Daily Min	66.0	65.8	65.0	65.9	66.0	65.2	64.8	66.2	67.1	65.5	65.9	66.5	66.3	65.9	66.1
Average	67.3	67.1	66.8	67.4	67.0	66.4	66.1	70.2	69.1	66.8	67.0	67.0	67.2	66.9	66.9

Caldron Falls Headwater Temperature Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	67.0	67.2	67.7	68.4	67.4	67.6	66.1	65.4	64.9	63.3	64.3	64.8	64.2	68.5	67.4	65.3
10000	66.8	67.0	67.7	68.4	67.6	67.2	66.5	66.0	64.6	63.6	64.0	65.7	64.6	66.8	67.4	65.1
20000	66.8	67.0	67.3	68.0	67.9	67.1	67.7	67.3	64.7	64.1	63.3	63.9	63.4	67.8	67.3	65.3
30000	66.8	67.1	67.0	67.9	67.9	67.4	67.0	66.7	64.0	64.3	64.6	64.0	63.3	66.5	67.0	65.1
40000	66.6	67.3	66.9	67.2	67.9	67.4	67.2	65.2	64.0	64.4	63.3	64.4	64.1	65.0	66.9	65.1
50000	66.7	67.6	67.1	67.0	68.0	68.0	66.8	65.4	63.8	64.0	64.9	64.5	64.0	66.6	66.7	64.9
60000	66.6	67.5	67.4	67.7	67.9	67.9	66.0	66.0	64.0	63.7	64.6	64.7	64.6	67.5	66.5	65.0
70000	66.7	67.7	67.7	69.3	68.0	67.8	65.6	64.6	63.8	63.7	64.1	64.6	65.1	68.5	66.4	64.9
80000	66.8	67.7	67.5	69.1	68.2	67.2	65.8	64.9	64.2	63.7	63.8	65.1	64.8	66.8	66.4	64.8
90000	66.9	67.6	66.8	68.9	68.0	67.1	66.3	64.6	67.0	63.9	63.9	63.9	64.5	66.3	66.2	64.6
100000	66.9	67.7	66.5	68.7	68.1	67.1	65.9	64.4	66.8	64.1	64.0	63.8	64.2	66.7	66.4	64.7
110000	67.6	67.6	66.5	68.8	68.3	66.9	66.6	64.6	64.3	63.8	63.7	63.4	64.1	68.3	66.4	64.6
120000	67.0	67.5	66.3	68.9	68.7	67.6	65.0	64.7	64.8	64.0	63.7	63.2	64.3	68.4	66.3	64.3
130000	66.9	68.0	66.4	69.0	68.4	67.4	64.9	64.1	64.6	64.0	64.1	63.4	64.4	68.4	66.3	64.3
140000	66.9	68.1	66.6	69.0	68.1	67.2	64.8	63.8	64.8	63.5	64.9	64.0	64.7	68.5	66.1	65.4
150000	67.1	67.8	67.2	68.5	67.7	67.5	65.0	63.9	64.5	63.4	65.8	66.6	64.4	68.6	66.0	64.8
160000	67.3	65.8	67.3	68.4	67.5	67.2	64.7	64.7	64.6	63.4	69.1	73.5	64.5	68.3	66.1	64.8
170000	67.4	66.7	67.1	67.2	67.5	66.7	65.1	66.2	64.3	63.8	65.2	69.8	64.8	68.4	66.3	64.9
180000	67.6	66.5	66.8	66.7	67.1	67.0	67.1	66.1	64.0	64.0	65.1	66.9	65.4	68.3	66.3	64.9
190000	67.3	66.3	66.5	66.9	67.2	66.5	65.8	65.4	63.8	63.2	63.5	65.3	65.0	68.1	66.1	65.2
200000	67.3	66.6	66.6	66.7	67.3	67.2	65.8	64.0	63.8	63.2	63.4	64.0	64.6	68.2	65.8	64.5
210000	67.2	66.9	66.7	67.0	67.5	67.2	66.4	63.7	64.1	63.7	64.0	63.3	64.0	68.0	64.5	64.7
220000	67.1	67.3	67.5	67.2	67.5	66.6	66.6	63.7	64.7	64.9	63.8	63.9	64.4	67.3	65.1	64.5
230000	67.2	68.0	68.2	67.3	67.7	66.2	65.8	64.0	63.7	65.6	63.5	64.0	64.9	67.6	64.8	63.6
Daily Max	67.6	68.1	68.2	69.3	68.7	68.0	67.7	67.3	67.0	65.6	69.1	73.5	65.4	68.6	67.4	65.4
Daily Min	66.6	65.8	66.3	66.7	67.1	66.2	64.7	63.7	63.7	63.2	63.3	63.2	63.3	65.0	64.5	63.6
Average	67.0	67.3	67.1	68.0	67.8	67.2	66.0	65.0	64.5	63.9	64.4	65.0	64.4	67.6	66.3	64.8

Monthly average: 63.1  
 License Maximum Temperature: 89 F

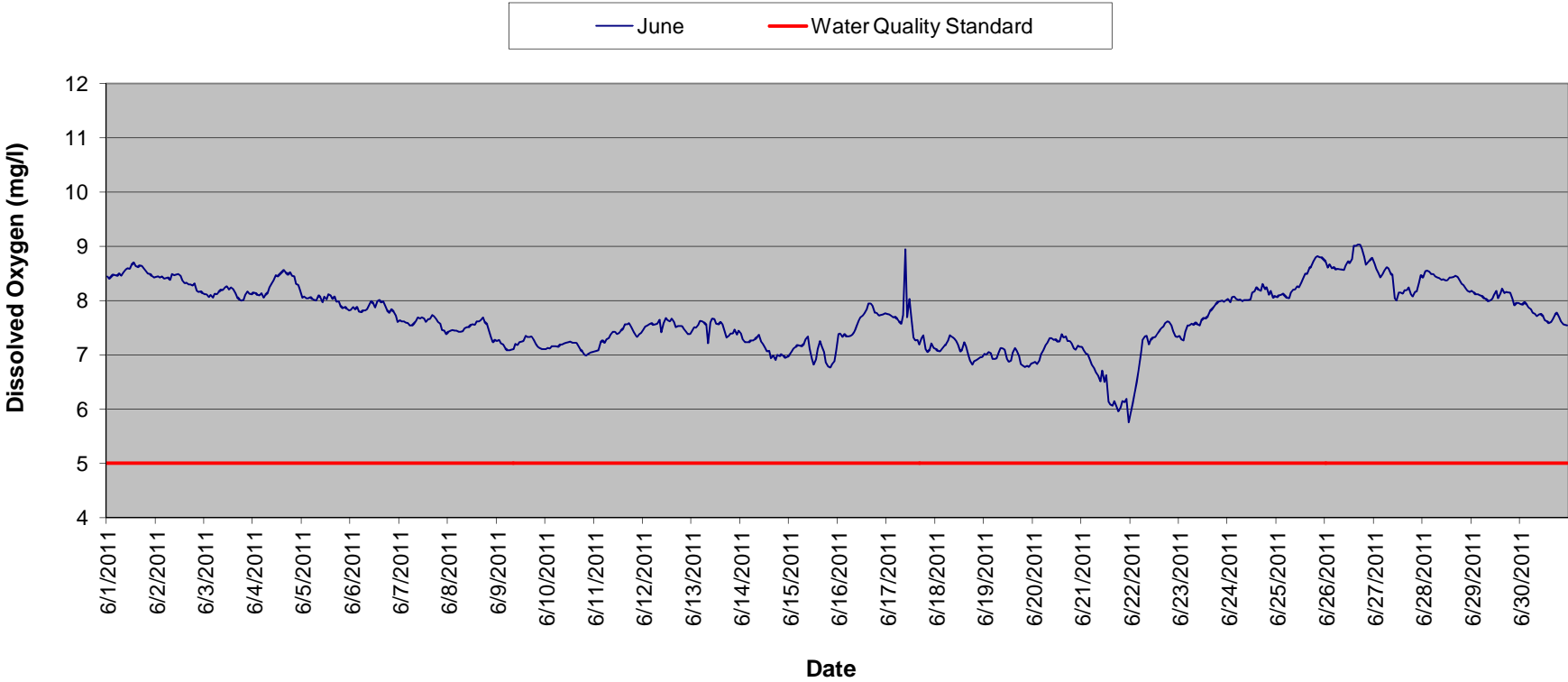
Missing data due to equipment maintenance

Caldron Falls Headwater Temperature Summary - September 2011

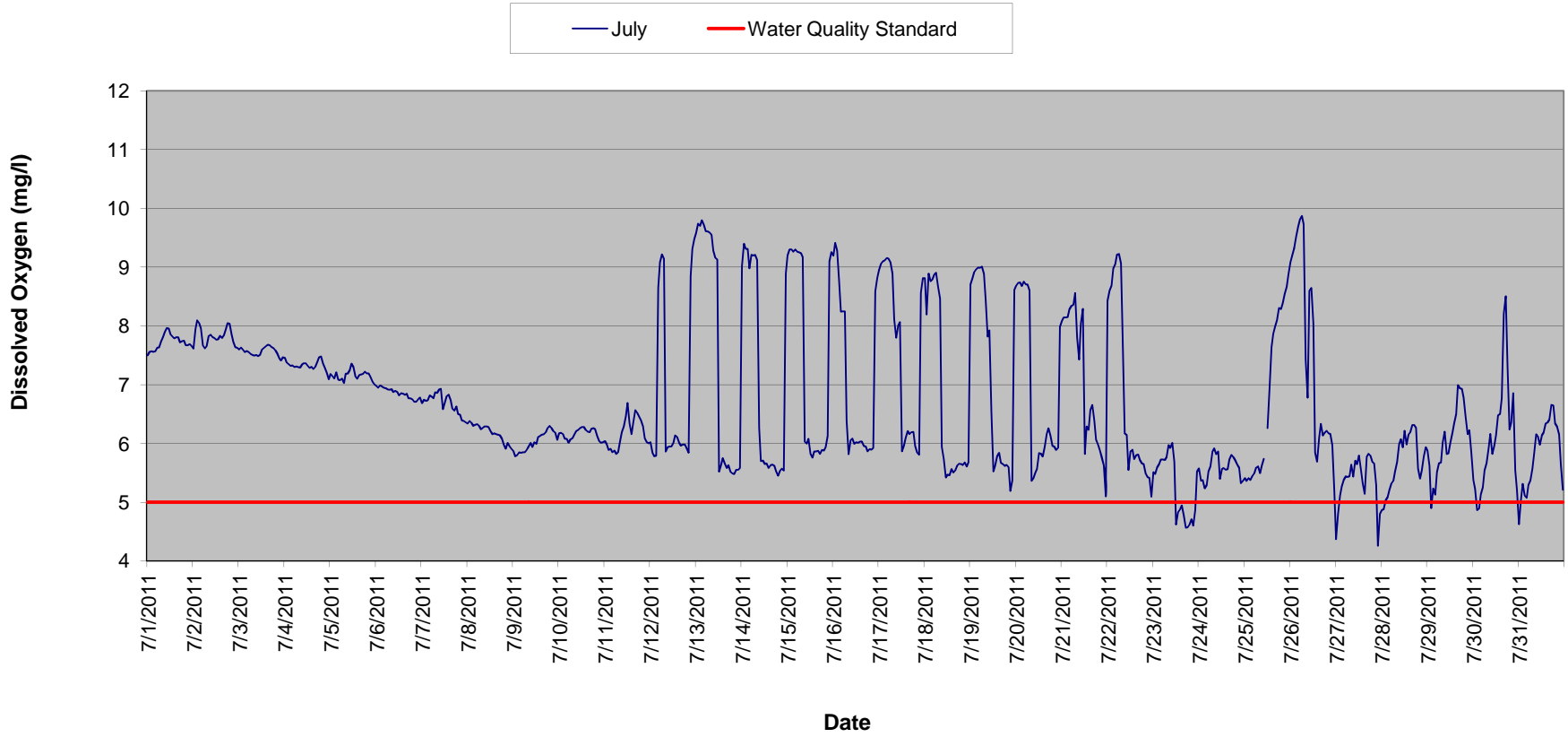
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	63.3	62.7	62.6	60.7	59.0	62.5	61.5	60.4	60.0	58.0	58.4	58.2	57.8	58.6
10000	63.2	63.2	62.4	60.3	59.2	62.4	61.4	60.5	59.9	57.9	58.6	57.7	57.2	58.5
20000	63.4	63.2	62.2	61.0	60.7	62.2	61.4	60.4	59.9	58.1	58.6	57.7	57.2	58.4
30000	63.2	62.7	63.0	61.2	59.8	62.1	61.4	60.2	59.6	57.9	58.6	57.1	56.9	58.2
40000	63.5	62.9	62.3	61.5	61.1	62.1	61.3	59.3	58.6	58.4	58.4	57.2	57.1	58.1
50000	63.5	62.5	61.4	61.1	60.4	62.0	61.2	59.2	58.6	57.7	58.4	57.1	56.9	58.0
60000	63.1	61.9	61.3	60.7	59.8	62.0	61.2	59.9	58.4	57.9	58.4	57.3	56.8	57.9
70000	63.0	61.7	61.5	60.4	61.0	61.9	61.2	59.2	58.2	57.7	58.4	57.4	56.7	57.8
80000	63.7	62.0	61.7	60.2	61.1	61.8	60.6	58.8	58.1	57.7	58.4	57.3	56.6	57.8
90000	63.6	62.2	62.2	60.5	59.8	61.7	60.7	59.1	58.0	57.5	58.3	57.5	56.6	57.7
100000	63.3	62.3	62.1	60.5	59.6	61.6	60.6	59.5	58.0	57.4	58.3	56.9	56.8	57.6
110000	63.2	62.3	63.1	60.5	60.4	61.6	61.0	59.3	58.0	57.3	58.1	56.9	57.4	57.6
120000	62.7	62.2	63.1	60.5	60.1	61.6	60.7	59.9	58.0	57.3	58.4	56.9	57.2	57.6
130000	62.7	61.7	63.2	60.5	62.5	61.7	60.7	60.1	58.0	57.1	58.4	56.8	56.9	57.6
140000	63.4	61.2	63.6	61.0	62.5	61.8	60.6	59.9	57.8	57.0	58.3	56.7	57.7	57.6
150000	62.4	61.3	63.8	59.5	62.9	61.8	60.4	60.2	57.7	57.1	57.9	56.9	59.1	57.6
160000	62.8	60.8	64.1	59.7	63.0	61.9	60.7	60.3	57.7	56.9	57.7	57.0	59.4	57.6
170000	62.5	61.5	63.4	59.8	62.8	61.9	59.1	60.3	57.8	57.1	58.0	56.9	58.9	57.7
180000	62.7	61.3	64.2	59.2	62.8	61.8	59.3	60.3	57.7	57.2	57.9	56.8	58.8	57.6
190000	62.8	60.9	63.9	60.6	62.7	61.7	59.4	60.2	57.8	57.4	57.6	56.6	58.9	57.6
200000	63.1	62.1	64.2	59.4	62.5	61.7	59.7	60.0	57.8	57.7	57.4	56.7	59.0	57.5
210000	63.8	62.7	63.6	59.1	62.4	61.6	60.4	60.1	58.2	57.3	57.2	56.7	58.9	57.5
220000	63.7	61.3	59.8	59.9	62.5	61.6	60.3	60.0	58.6	58.2	57.0	56.9	59.0	57.4
230000	63.0	61.2	59.6	59.2	62.5	61.5	60.5	60.0	58.0	58.1	57.7	57.2	58.9	57.3
Daily Max	63.8	63.2	64.2	61.5	63.0	62.5	61.5	60.5	60.0	58.4	58.6	58.2	59.4	58.6
Daily Min	62.4	60.8	59.6	59.1	59.0	61.5	59.1	58.8	57.7	56.9	57.0	56.6	56.6	57.3
Average	63.2	62.0	62.6	60.3	61.3	61.9	60.6	59.9	58.3	57.6	58.1	57.1	57.8	57.8

## **Caldron Falls Tail Water Monitoring Location**

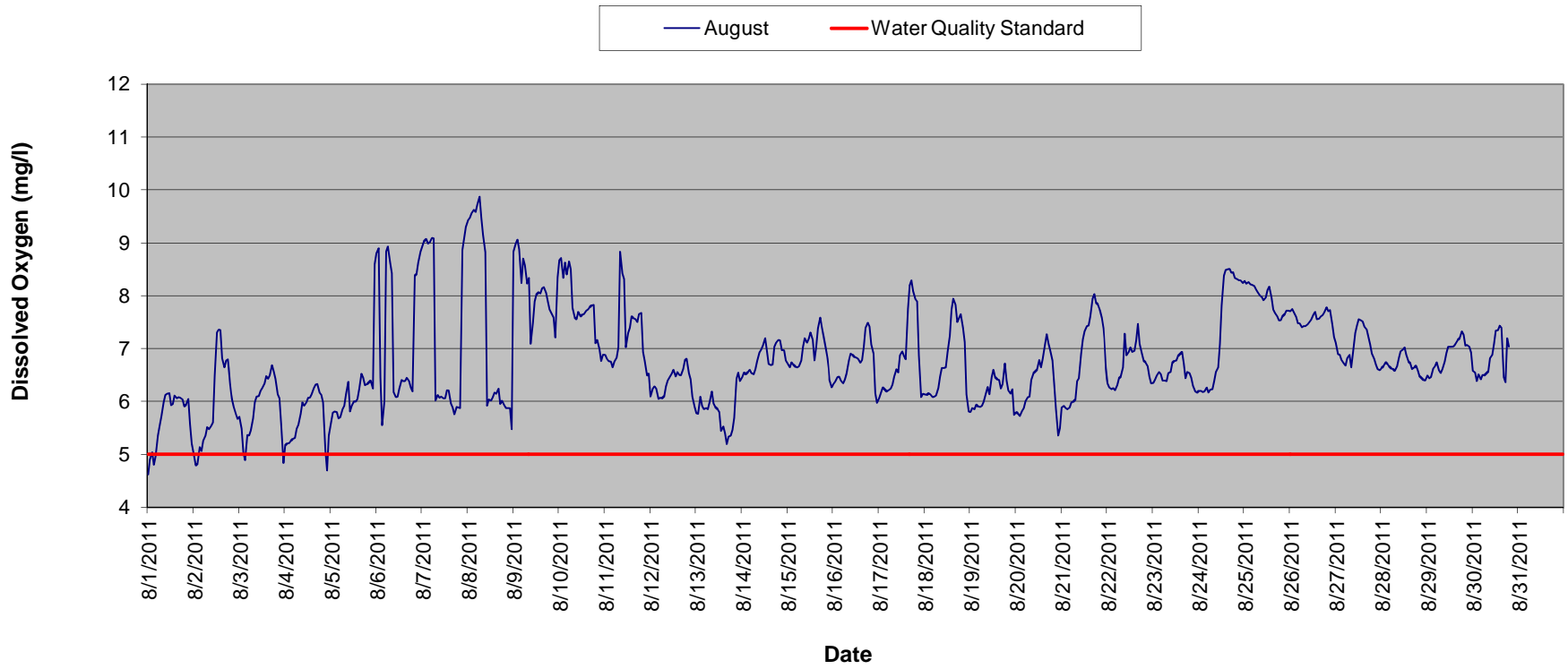
Caldron Falls Tailwater Dissolved Oxygen - June 2011



### Caldron Falls Tailwater Dissolved Oxygen - July 2011

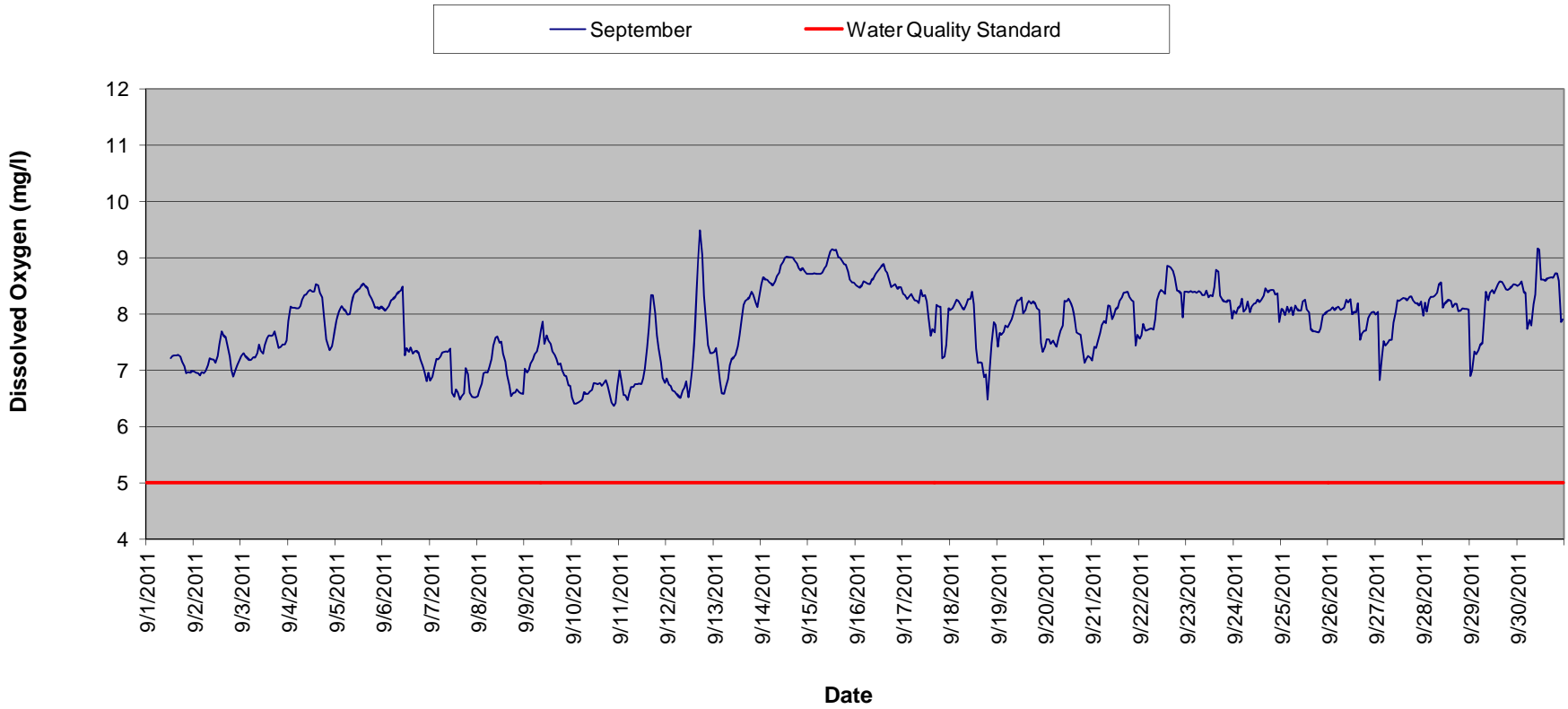


### Caldron Falls Tailwater Dissolved Oxygen - August 2011





### Caldron Falls Tailwater Dissolved Oxygen - September 2011



Caldron Falls Tailwater Dissolved Oxygen Summary - June 2011

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

License Minimum DO: 5.0 mg/l

Caldron Falls Tailwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.8	7.1	7.0	6.8	7.1	5.9	7.4	8.0	8.1	8.7	8.7	8.4	8.2	7.9
10000	7.7	7.1	7.0	6.9	7.1	6.1	7.3	8.0	8.1	8.6	8.6	8.5	8.1	7.9
20000	7.7	7.1	7.1	6.8	7.0	6.3	7.3	8.1	8.1	8.7	8.5	8.6	8.1	8.0
30000	7.7	7.1	7.0	6.9	7.0	6.5	7.4	8.1	8.1	8.6	8.4	8.5	8.1	7.9
40000	7.7	7.2	6.9	7.0	6.9	6.7	7.5	8.0	8.1	8.6	8.5	8.5	8.1	7.9
50000	7.7	7.2	6.9	7.1	6.8	7.0	7.5	8.0	8.0	8.6	8.6	8.5	8.1	7.8
60000	7.6	7.3	6.9	7.2	6.8	7.3	7.6	8.0	8.0	8.6	8.6	8.4	8.0	7.8
70000	7.6	7.4	7.1	7.2	6.7	7.3	7.6	8.0	8.2	8.6	8.6	8.4	8.0	7.8
80000	7.7	7.3	7.1	7.3	6.6	7.4	7.6	8.0	8.2	8.6	8.5	8.4	8.0	7.7
90000	8.9	7.3	7.1	7.3	6.5	7.2	7.6	8.0	8.2	8.6	8.5	8.4	8.0	7.7
100000	7.7	7.3	7.1	7.3	6.7	7.3	7.5	8.0	8.3	8.6	8.0	8.4	8.0	7.7
110000	8.0	7.2	6.9	7.3	6.5	7.3	7.6	8.0	8.2	8.7	8.0	8.4	8.1	7.7
120000	7.7	7.1	6.9	7.2	6.6	7.3	7.7	8.1	8.3	8.7	8.1	8.4	8.2	7.6
130000	7.3	7.1	6.9	7.2	6.1	7.4	7.7	8.2	8.4	8.8	8.1	8.4	8.0	7.6
140000	7.3	7.2	7.0	7.4	6.1	7.4	7.7	8.2	8.5	9.0	8.1	8.4	8.1	7.6
150000	7.3	7.2	7.1	7.3	6.1	7.5	7.8	8.2	8.5	9.0	8.2	8.4	8.2	7.6
160000	7.2	7.0	7.1	7.3	6.1	7.5	7.8	8.2	8.6	9.0	8.2	8.5	8.1	7.7
170000	7.3	6.9	7.0	7.3	6.0	7.6	7.9	8.3	8.6	9.0	8.2	8.4	8.2	7.7
180000	7.4	6.8	6.8	7.3	6.0	7.6	7.9	8.2	8.7	9.0	8.1	8.4	8.1	7.8
190000	7.1	6.9	6.8	7.2	6.0	7.6	8.0	8.2	8.8	8.8	8.1	8.3	8.1	7.7
200000	7.1	6.9	6.8	7.1	6.1	7.5	8.0	8.1	8.8	8.7	8.2	8.3	8.0	7.6
210000	7.1	6.9	6.8	7.1	6.1	7.4	8.0	8.2	8.8	8.7	8.2	8.2	7.9	7.6
220000	7.2	7.0	6.8	7.2	6.2	7.3	8.0	8.1	8.8	8.8	8.3	8.2	8.0	7.6
230000	7.1	7.0	6.8	7.1	5.8	7.3	8.0	8.1	8.8	8.8	8.5	8.2	8.0	7.5
Daily Max	8.9	7.4	7.1	7.4	7.1	7.6	8.0	8.3	8.8	9.0	8.7	8.6	8.2	8.0
Daily Min	7.1	6.8	6.8	6.8	5.8	5.9	7.3	8.0	8.0	8.6	8.0	8.2	7.9	7.5
Average	7.5	7.1	7.0	7.2	6.5	7.2	7.7	8.1	8.4	8.7	8.3	8.4	8.1	7.7

Caldron Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.5	7.6	7.6	7.5	7.2	7.0	6.7	6.3	5.9	6.2	6.0	6.0	9.6	9.0	9.2	9.2
10000	7.6	7.9	7.6	7.4	7.1	6.9	6.7	6.4	5.8	6.2	6.0	5.8	9.7	9.4	9.3	9.4
20000	7.6	8.1	7.6	7.3	7.1	7.0	6.7	6.4	5.8	6.2	5.9	5.8	9.7	9.3	9.3	9.3
30000	7.6	8.0	7.6	7.3	7.2	7.0	6.7	6.3	5.9	6.1	5.9	5.8	9.8	9.3	9.3	8.8
40000	7.6	8.0	7.6	7.3	7.1	7.0	6.8	6.3	5.8	6.1	5.9	8.7	9.7	9.0	9.3	8.2
50000	7.6	7.7	7.6	7.3	7.1	6.9	6.8	6.3	5.9	6.0	5.9	9.1	9.6	9.2	9.3	8.2
60000	7.6	7.6	7.5	7.3	7.1	6.9	6.8	6.3	5.9	6.1	5.8	9.2	9.6	9.2	9.3	8.2
70000	7.7	7.7	7.5	7.3	7.0	6.9	6.9	6.2	5.9	6.1	5.9	9.1	9.6	9.2	9.2	6.4
80000	7.8	7.8	7.5	7.3	7.2	6.9	6.9	6.3	6.0	6.2	6.0	5.9	9.6	9.1	9.2	5.8
90000	7.9	7.8	7.5	7.3	7.2	6.9	6.9	6.3	6.0	6.2	6.2	5.9	9.3	6.3	6.0	6.1
100000	8.0	7.8	7.5	7.4	7.2	6.9	6.9	6.3	5.9	6.2	6.3	6.0	9.2	5.7	6.0	6.1
110000	8.0	7.8	7.5	7.4	7.4	6.9	6.6	6.3	6.0	6.3	6.5	6.0	9.1	5.7	6.1	6.0
120000	7.9	7.8	7.6	7.3	7.3	6.8	6.7	6.2	6.0	6.3	6.7	6.0	5.5	5.7	5.8	6.0
130000	7.8	7.8	7.6	7.3	7.1	6.9	6.8	6.2	6.1	6.3	6.3	6.1	5.6	5.7	5.8	6.0
140000	7.8	7.8	7.6	7.3	7.1	6.8	6.8	6.2	6.1	6.2	6.2	6.1	5.8	5.6	5.9	6.0
150000	7.8	7.8	7.7	7.3	7.2	6.8	6.7	6.2	6.2	6.2	6.4	6.0	5.7	5.6	5.9	6.0
160000	7.8	7.8	7.7	7.3	7.2	6.8	6.6	6.2	6.2	6.2	6.6	6.0	5.6	5.6	5.9	6.0
170000	7.7	7.9	7.6	7.4	7.2	6.8	6.6	6.1	6.2	6.3	6.5	6.0	5.6	5.6	5.8	5.9
180000	7.7	8.0	7.6	7.5	7.2	6.8	6.6	6.1	6.3	6.3	6.5	6.0	5.5	5.5	5.9	5.9
190000	7.8	8.0	7.6	7.5	7.2	6.8	6.5	6.0	6.3	6.2	6.4	5.9	5.5	5.5	5.9	5.9
200000	7.7	7.9	7.5	7.4	7.2	6.7	6.5	5.9	6.3	6.1	6.3	5.8	5.5	5.5	5.9	5.9
210000	7.7	7.7	7.5	7.3	7.1	6.7	6.4	6.0	6.2	6.0	6.1	8.8	5.6	5.6	6.1	5.9
220000	7.7	7.6	7.4	7.2	7.1	6.8	6.4	6.0	6.2	6.0	6.0	9.3	5.6	5.5	9.1	8.6
230000	7.7	7.6	7.5	7.1	7.0	6.8	6.4	5.9	6.1	6.0	6.0	9.5	5.6	8.9	9.3	8.8
Daily Max	8.0	8.1	7.7	7.5	7.4	7.0	6.9	6.4	6.3	6.3	6.7	9.5	9.8	9.4	9.3	9.4
Daily Min	7.5	7.6	7.4	7.1	7.0	6.7	6.4	5.9	5.8	6.0	5.8	5.8	5.5	5.5	5.8	5.8
Average	7.7	7.8	7.6	7.3	7.2	6.9	6.7	6.2	6.0	6.2	6.2	6.9	7.6	7.1	7.4	7.0

Peaking operation began on 7/12/11. Monitor out of water during refill period.

License Minimum Dissolved Oxygen: 5.0 mg/l

Caldron Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	8.9	8.8	8.7	8.7	8.1	8.4	5.5	5.6	5.4	9.1	4.4	4.9	5.9	5.4	4.6
10000	9.1	8.2	8.8	8.7	8.1	8.6	5.5	5.4	5.4	9.2	4.8	4.9	5.6	5.2	5.0
20000	9.1	8.9	8.9	8.7	8.1	8.7	5.6	5.4	5.4	9.3	5.1	5.0	4.9	4.9	5.3
30000	9.1	8.8	9.0	8.7	8.2	9.0	5.6	5.2	5.4	9.5	5.3	5.1	5.2	4.9	5.1
40000	9.2	8.8	9.0	8.8	8.3	9.1	5.7	5.3	5.4	9.7	5.4	5.2	5.1	5.1	5.1
50000	9.1	8.9	9.0	8.7	8.3	9.2	5.7	5.5	5.5	9.8	5.4	5.3	5.5	5.3	5.3
60000	9.1	8.9	9.0	8.7	8.4	9.2	5.7	5.6	5.6	9.9	5.4	5.4	5.7	5.5	5.4
70000	8.9	8.7	8.9	8.6	8.6	9.1	5.8	5.9	5.6	9.7	5.4	5.5	5.7	5.7	5.6
80000	8.1	8.5	8.4	5.4	7.8	7.7	6.0	5.9	5.5	7.4	5.6	5.7	6.0	5.9	5.8
90000	7.8	5.9	7.8	5.4	7.4	6.2	5.9	5.8	5.6	6.8	5.4	6.0	6.2	6.2	6.2
100000	8.0	5.7	7.9	5.5	8.0	6.1	6.0	5.9	5.7	8.6	5.7	6.1	5.8	5.8	6.1
110000	8.1	5.4	6.5	5.6	8.3	5.5	5.7	5.4	6.3	8.6	5.6	5.9	5.8	6.0	6.0
120000	5.9	5.5	5.5	5.8	5.8	5.9	4.6	5.6	6.3	8.0	5.8	6.2	6.0	6.1	6.1
130000	6.0	5.5	5.6	5.8	6.3	5.9	4.8	5.6	6.9	5.8	5.5	6.0	6.2	6.5	6.2
140000	6.1	5.6	5.8	5.8	6.2	5.7	4.9	5.6	7.6	5.7	5.3	6.2	6.3	6.5	6.3
150000	6.2	5.5	5.8	5.9	6.6	5.8	4.9	5.6	7.9	6.1	5.1	6.2	6.5	6.8	6.4
160000	6.2	5.5	5.7	6.2	6.7	5.8	4.8	5.7	8.0	6.3	5.8	6.3	7.0	8.2	6.4
170000	6.2	5.6	5.6	6.3	6.4	5.7	4.6	5.8	8.1	6.1	5.8	6.3	6.9	8.5	6.7
180000	6.2	5.7	5.6	6.1	6.1	5.7	4.6	5.8	8.3	6.2	5.8	6.3	6.9	7.3	6.6
190000	6.0	5.7	5.6	6.0	6.0	5.6	4.6	5.7	8.3	6.2	5.7	5.6	6.8	6.2	6.3
200000	5.8	5.6	5.6	5.9	5.9	5.5	4.7	5.6	8.4	6.2	5.7	5.4	6.4	6.4	6.3
210000	5.8	5.7	5.2	5.9	5.8	5.4	4.6	5.6	8.5	6.2	5.3	5.5	6.2	6.9	6.2
220000	8.6	5.6	5.4	5.9	5.6	5.4	4.9	5.3	8.7	6.0	4.3	5.8	6.2	5.5	5.6
230000	8.8	5.7	8.6	8.0	5.1	5.1	5.5	5.4	8.9	5.2	4.8	5.9	5.8	5.2	5.2
Daily Max	9.2	8.9	9.0	8.8	8.6	9.2	6.0	5.9	8.9	9.9	5.8	6.3	7.0	8.5	6.7
Daily Min	5.8	5.4	5.2	5.4	5.1	5.1	4.6	5.2	5.4	5.2	4.3	4.9	4.9	4.9	4.6
Average	7.6	6.8	7.2	6.9	7.1	6.9	5.3	5.6	6.8	7.6	5.4	5.7	6.0	6.1	5.8

  Below water quality standard    
   Missing data due to equipment maintenance  
 Low readings on 7/23 occurred while peaking. Flows were over 400 CFS at the time of the low readings.

Caldron Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	4.6	5.0	5.7	5.2	5.6	8.8	8.9	9.4	8.8	8.7	6.9	6.1	5.8	6.5	6.7	6.3
10000	4.9	4.8	5.5	5.2	5.8	8.9	9.0	9.5	9.0	8.7	6.8	6.2	5.8	6.6	6.7	6.4
20000	5.0	4.8	5.0	5.2	5.8	6.5	9.1	9.6	9.1	8.3	6.8	6.3	6.1	6.5	6.7	6.5
30000	4.8	5.1	4.9	5.3	5.8	5.6	9.0	9.6	8.9	8.6	6.8	6.2	5.9	6.6	6.7	6.5
40000	5.0	5.1	5.4	5.3	5.7	6.0	9.0	9.6	8.2	8.4	6.7	6.1	5.9	6.6	6.7	6.4
50000	5.4	5.3	5.4	5.3	5.7	8.8	9.1	9.7	8.7	8.7	6.8	6.1	5.9	6.5	6.6	6.3
60000	5.5	5.4	5.5	5.5	5.9	8.9	9.1	9.9	8.6	8.5	6.8	6.1	5.9	6.5	6.7	6.4
70000	5.7	5.5	5.7	5.6	5.9	8.6	6.0	9.5	8.2	7.8	7.0	6.1	6.0	6.6	6.8	6.5
80000	6.0	5.5	6.0	5.8	6.1	8.4	6.1	9.2	8.3	7.6	8.8	6.3	6.2	6.8	7.0	6.8
90000	6.1	5.5	6.1	6.0	6.4	6.2	6.1	8.8	7.1	7.6	8.4	6.4	6.0	6.9	7.2	6.9
100000	6.1	5.6	6.1	5.9	5.8	6.1	6.1	5.9	7.5	7.7	8.3	6.5	5.9	7.0	7.1	6.9
110000	6.2	6.5	6.2	6.0	5.9	6.1	6.1	6.0	7.9	7.6	7.0	6.5	5.9	7.1	7.2	6.8
120000	5.9	7.3	6.3	6.1	6.0	6.2	6.1	6.0	8.0	7.6	7.3	6.6	5.8	7.2	7.3	6.8
130000	6.0	7.4	6.3	6.1	6.0	6.4	6.2	6.1	8.1	7.7	7.4	6.5	5.4	7.0	7.2	6.8
140000	6.1	7.3	6.5	6.1	6.1	6.4	6.2	6.2	8.0	7.7	7.6	6.6	5.5	6.7	6.8	6.7
150000	6.1	6.8	6.4	6.3	6.2	6.4	6.0	6.2	8.1	7.7	7.6	6.5	5.4	6.7	7.0	6.8
160000	6.1	6.6	6.5	6.3	6.5	6.5	5.9	6.2	8.2	7.8	7.6	6.5	5.2	6.7	7.4	7.0
170000	6.1	6.8	6.7	6.3	6.5	6.4	5.8	6.0	8.1	7.8	7.5	6.6	5.3	7.0	7.6	7.4
180000	6.0	6.8	6.6	6.2	6.3	6.3	5.9	6.0	7.9	7.8	7.7	6.8	5.4	7.1	7.4	7.5
190000	5.9	6.3	6.4	6.1	6.3	6.2	5.9	5.9	7.7	7.1	7.7	6.8	5.5	7.2	7.2	7.4
200000	5.9	6.1	6.1	6.0	6.4	8.4	5.9	5.9	7.7	7.2	6.9	6.5	5.7	7.2	7.0	7.1
210000	6.1	5.9	6.1	5.1	6.4	8.4	8.9	5.9	7.6	7.0	6.8	6.4	6.4	7.0	6.8	6.9
220000	5.6	5.8	5.6	4.7	6.2	8.6	9.1	5.9	7.2	6.8	6.5	6.1	6.6	7.0	6.4	6.2
230000	5.2	5.7	4.8	5.4	8.6	8.8	9.3	5.5	8.4	6.9	6.5	5.9	6.4	6.8	6.3	6.0
Daily Max	6.2	7.4	6.7	6.3	8.6	8.9	9.3	9.9	9.1	8.7	8.8	6.8	6.6	7.2	7.6	7.5
Daily Min	4.6	4.8	4.8	4.7	5.6	5.6	5.8	5.5	7.1	6.8	6.5	5.9	5.2	6.5	6.3	6.0
Average	5.7	5.9	5.9	5.7	6.2	7.2	7.3	7.4	8.1	7.8	7.2	6.4	5.8	6.8	6.9	6.7
	Below water quality standard					Peaking operation. Monitor out of water during refill period.										

License Minimum Dissolved Oxygen: 5.0 mg/l

Caldron Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	6.1	6.1	5.8	5.8	5.9	6.3	6.4	6.2	8.3	7.7	7.1	6.6	6.5	6.6	
10000	6.2	6.1	5.9	5.8	5.9	6.3	6.4	6.2	8.2	7.8	6.9	6.7	6.4	6.6	
20000	6.3	6.2	5.9	5.7	5.9	6.2	6.5	6.2	8.3	7.7	6.9	6.7	6.5	6.4	
30000	6.2	6.1	5.9	5.8	5.9	6.3	6.6	6.2	8.2	7.6	6.8	6.7	6.6	6.5	
40000	6.2	6.1	5.9	5.9	5.9	6.2	6.5	6.3	8.2	7.5	6.7	6.7	6.7	6.4	
50000	6.2	6.1	5.9	6.0	6.0	6.3	6.4	6.2	8.2	7.5	6.7	6.6	6.7	6.5	
60000	6.2	6.1	5.9	6.1	6.0	6.4	6.4	6.2	8.1	7.4	6.8	6.6	6.6	6.5	
70000	6.3	6.3	6.0	6.1	6.0	6.5	6.4	6.2	8.1	7.4	6.9	6.6	6.5	6.5	
80000	6.5	6.5	6.2	6.4	6.4	6.6	6.5	6.4	8.0	7.4	6.7	6.7	6.6	6.6	
90000	6.6	6.6	6.3	6.5	6.4	7.3	6.6	6.6	8.0	7.5	6.9	6.8	6.8	6.8	
100000	6.6	6.6	6.1	6.6	6.9	6.9	6.7	6.7	7.9	7.5	7.3	7.0	6.9	6.9	
110000	6.9	6.7	6.5	6.6	7.2	6.9	6.8	7.1	8.0	7.5	7.4	7.0	7.0	7.1	
120000	7.0	6.9	6.6	6.8	7.3	7.0	6.8	7.8	8.1	7.6	7.6	7.0	7.0	7.3	
130000	6.9	7.2	6.5	6.7	7.4	6.9	6.9	8.4	8.2	7.7	7.5	6.9	7.0	7.4	
140000	6.8	7.7	6.4	6.8	7.4	7.0	6.9	8.5	8.0	7.6	7.5	6.8	7.1	7.4	
150000	7.8	8.0	6.4	7.1	7.6	7.2	6.9	8.5	7.7	7.6	7.4	6.7	7.1	7.4	
160000	8.2	7.8	6.2	7.3	8.0	7.5	6.7	8.5	7.7	7.6	7.4	6.6	7.2	6.5	
170000	8.3	7.5	6.3	7.1	8.0	7.1	6.4	8.4	7.6	7.6	7.2	6.7	7.2	6.4	
180000	8.1	7.6	6.7	7.0	7.9	6.9	6.6	8.4	7.5	7.7	7.1	6.7	7.3	7.2	
190000	7.9	7.7	6.4	6.8	7.8	6.8	6.5	8.3	7.5	7.8	6.9	6.6	7.3	7.0	
200000	7.9	7.4	6.2	6.3	7.7	6.7	6.5	8.3	7.6	7.7	6.8	6.5	7.1		
210000	6.9	7.1	6.2	5.9	7.6	6.7	6.3	8.3	7.7	7.7	6.7	6.4	7.1		
220000	6.1	6.1	6.2	5.4	7.4	6.5	6.2	8.3	7.7	7.5	6.6	6.4	7.0		
230000	6.2	5.8	5.7	5.5	6.7	6.3	6.2	8.2	7.7	7.2	6.6	6.4	6.9		
Daily Max	8.3	8.0	6.7	7.3	8.0	7.5	6.9	8.5	8.3	7.8	7.6	7.0	7.3	7.4	0.0
Daily Min	6.1	5.8	5.7	5.4	5.9	6.2	6.2	6.2	7.5	7.2	6.6	6.4	6.4	6.4	0.0
Average	6.8	6.8	6.2	6.3	6.9	6.7	6.5	7.3	7.9	7.6	7.0	6.7	6.9	6.8	#DIV/0!

Powerhouse off-line for scheduled maintenance. All water, except for leakage through units, being released through gates.  
 Missing data due to power failure

Caldron Falls Tailwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0		7.0	7.3	7.9	7.8	8.1	6.8	6.5	7.0	6.5	7.0	6.9	7.3	8.5	8.7	8.5
10000		7.0	7.3	8.1	8.0	8.1	6.9	6.7	7.0	6.4	6.8	6.7	7.4	8.7	8.7	8.5
20000		6.9	7.3	8.1	8.1	8.1	7.0	6.8	7.0	6.4	6.6	6.7	7.2	8.6	8.7	8.5
30000		6.9	7.2	8.1	8.1	8.1	7.2	7.0	7.1	6.4	6.6	6.6	6.8	8.6	8.7	8.5
40000		7.0	7.2	8.1	8.1	8.2	7.2	7.0	7.2	6.4	6.5	6.6	6.6	8.6	8.7	8.6
50000		6.9	7.2	8.1	8.1	8.3	7.2	7.0	7.3	6.5	6.6	6.6	6.6	8.5	8.7	8.6
60000		7.0	7.2	8.1	8.0	8.3	7.3	7.0	7.3	6.6	6.7	6.5	6.7	8.5	8.7	8.5
70000		7.1	7.2	8.3	8.0	8.4	7.3	7.2	7.5	6.6	6.7	6.5	6.8	8.6	8.7	8.5
80000		7.2	7.3	8.3	8.2	8.4	7.3	7.4	7.7	6.6	6.8	6.6	7.1	8.7	8.8	8.6
90000		7.2	7.5	8.4	8.3	8.4	7.3	7.6	7.9	6.6	6.7	6.7	7.2	8.7	8.9	8.6
100000		7.2	7.3	8.4	8.4	8.5	7.4	7.6	7.5	6.7	6.8	6.8	7.2	8.9	9.0	8.7
110000		7.1	7.3	8.4	8.4	7.3	6.6	7.5	7.6	6.8	6.8	6.5	7.3	8.9	9.1	8.8
120000	7.2	7.3	7.5	8.4	8.5	7.4	6.5	7.5	7.5	6.8	6.9	6.7	7.4	9.0	9.2	8.8
130000	7.3	7.5	7.6	8.4	8.5	7.3	6.7	7.3	7.5	6.8	7.0	7.1	7.6	9.0	9.1	8.8
140000	7.3	7.7	7.6	8.5	8.5	7.4	6.6	7.1	7.3	6.8	7.4	7.5	7.9	9.0	9.1	8.9
150000	7.3	7.6	7.6	8.5	8.5	7.3	6.5	6.9	7.3	6.7	7.8	8.4	8.2	9.0	9.0	8.8
160000	7.3	7.6	7.6	8.4	8.5	7.3	6.5	6.7	7.2	6.8	8.3	9.0	8.2	9.0	9.0	8.7
170000	7.2	7.4	7.7	8.3	8.3	7.4	6.6	6.5	7.1	6.8	8.3	9.5	8.3	8.9	8.9	8.6
180000	7.2	7.2	7.5	8.0	8.3	7.3	7.0	6.6	7.1	6.7	8.0	9.0	8.3	8.9	8.9	8.5
190000	7.1	7.0	7.4	7.5	8.2	7.2	6.9	6.6	7.0	6.6	7.6	8.3	8.4	8.8	8.9	8.5
200000	6.9	6.9	7.4	7.4	8.1	7.1	6.6	6.7	6.9	6.4	7.4	7.8	8.3	8.8	8.8	8.5
210000	7.0	7.0	7.5	7.4	8.1	7.0	6.5	6.6	6.9	6.4	7.1	7.5	8.2	8.8	8.6	8.4
220000	7.0	7.1	7.5	7.4	8.1	6.8	6.5	6.6	6.7	6.4	6.9	7.3	8.1	8.8	8.6	8.5
230000	7.0	7.2	7.5	7.6	8.1	7.0	6.5	6.6	6.7	6.7	6.8	7.3	8.3	8.7	8.6	8.5
Daily Max	7.3	7.7	7.7	8.5	8.5	8.5	7.4	7.6	7.9	6.8	8.3	9.5	8.4	9.0	9.2	8.9
Daily Min	6.9	6.9	7.2	7.4	7.8	6.8	6.5	6.5	6.7	6.4	6.5	6.5	6.6	8.5	8.6	8.4
Average	7.1	7.2	7.4	8.1	8.2	7.7	6.9	7.0	7.2	6.6	7.1	7.3	7.6	8.8	8.8	8.6

Missing data due to power failure

Powerhouse off-line for scheduled maintenance. All water, except for leakage through units, being released through gates.

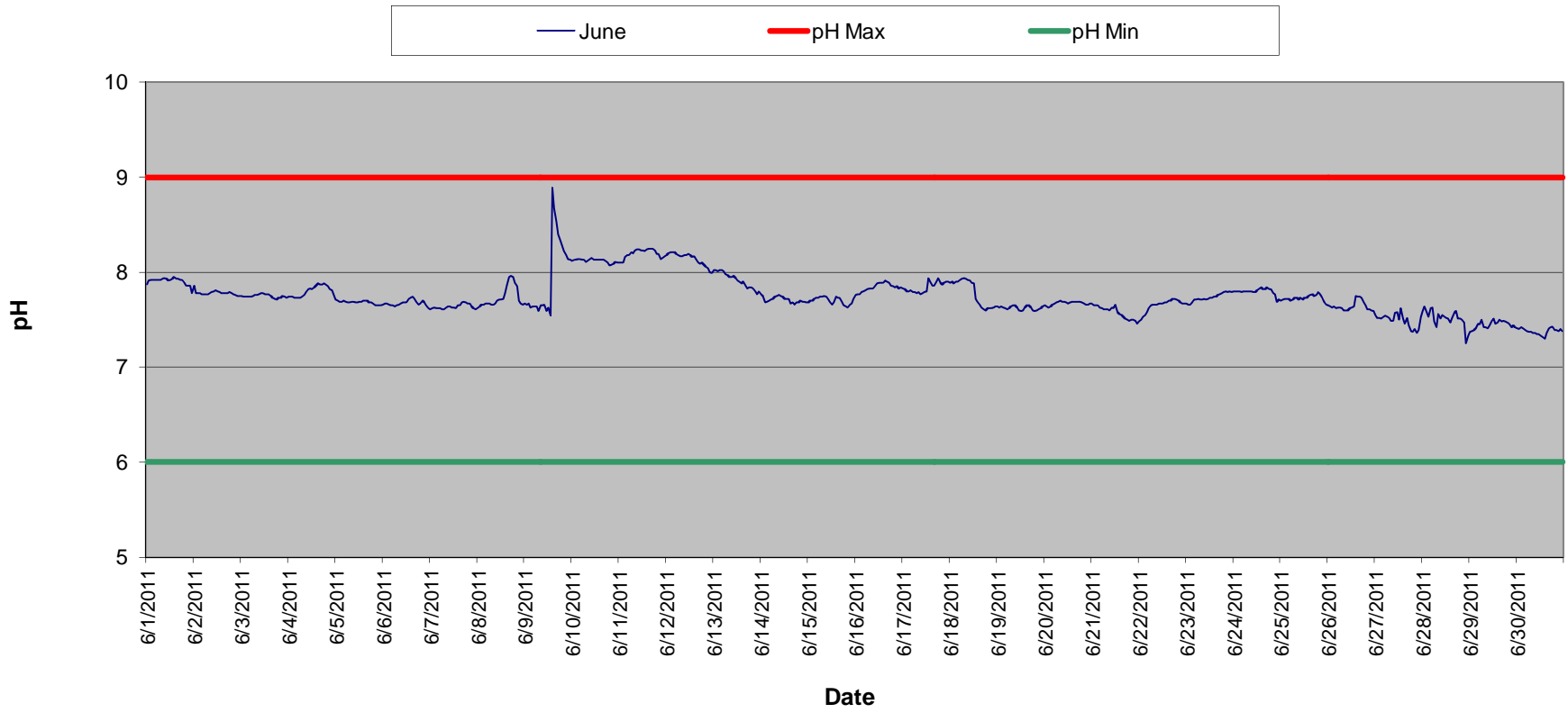
License Minimum Dissolved Oxygen: 5.0 mg/l



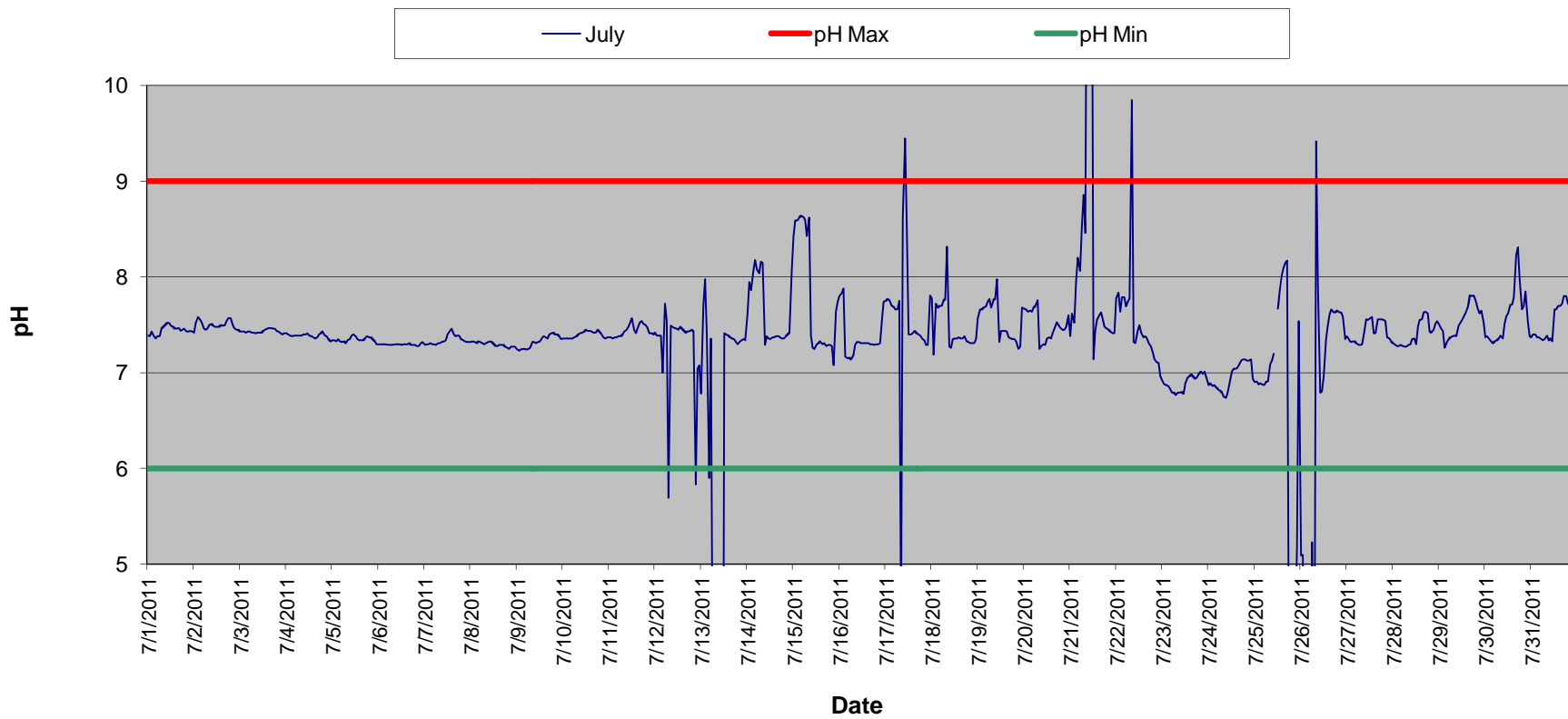
Caldron Falls Tailwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	8.4	8.1	7.4	7.4	7.2	7.6	8.4	8.1	8.1	8.1	8.0	8.0	6.9	8.5
10000	8.3	8.1	7.7	7.6	7.4	7.6	8.4	8.0	8.1	8.1	8.0	8.2	7.0	8.5
20000	8.3	8.2	7.6	7.6	7.4	7.8	8.4	8.1	8.0	8.1	6.8	8.0	7.3	8.6
30000	8.3	8.3	7.7	7.5	7.6	7.7	8.4	8.1	8.1	8.1	7.2	8.3	7.3	8.4
40000	8.4	8.2	7.8	7.5	7.7	7.7	8.4	8.3	8.0	8.1	7.5	8.3	7.4	8.4
50000	8.3	8.2	7.8	7.5	7.8	7.7	8.4	8.0	8.1	8.1	7.4	8.3	7.5	7.7
60000	8.2	8.1	7.8	7.4	7.9	7.7	8.4	8.1	8.0	8.1	7.5	8.3	7.5	7.9
70000	8.2	8.1	7.9	7.6	7.8	7.7	8.4	8.2	8.1	8.1	7.5	8.4	7.9	7.8
80000	8.2	8.2	8.0	7.7	8.2	7.9	8.3	8.0	8.1	8.1	7.5	8.5	8.4	8.2
90000	8.4	8.3	8.1	7.8	8.1	8.2	8.3	8.1	8.1	8.3	7.8	8.6	8.2	8.3
100000	8.3	8.3	8.2	8.2	7.9	8.4	8.4	8.2	8.1	8.2	8.0	8.1	8.4	9.2
110000	8.3	8.4	8.2	8.2	8.0	8.4	8.3	8.2	8.2	8.3	8.2	8.2	8.4	9.1
120000	8.2	8.2	8.3	8.3	8.1	8.4	8.3	8.3	8.3	8.0	8.2	8.2	8.4	8.6
130000	8.0	7.4	8.0	8.2	8.1	8.4	8.3	8.2	8.1	8.0	8.3	8.3	8.5	8.6
140000	7.6	7.1	8.1	8.1	8.2	8.9	8.5	8.3	8.0	8.0	8.3	8.2	8.5	8.6
150000	7.7	7.1	8.2	8.0	8.3	8.9	8.8	8.3	7.7	8.2	8.3	8.1	8.6	8.6
160000	7.7	7.1	8.2	7.7	8.4	8.8	8.8	8.5	7.7	7.5	8.2	8.2	8.6	8.6
170000	8.2	6.9	8.2	7.7	8.4	8.8	8.3	8.4	7.7	7.7	8.3	8.2	8.5	8.7
180000	8.1	6.9	8.2	7.6	8.4	8.7	8.3	8.4	7.7	7.7	8.3	8.0	8.4	8.6
190000	8.1	6.5	8.2	7.4	8.3	8.4	8.2	8.4	7.7	7.7	8.2	8.1	8.4	8.7
200000	7.2	7.1	8.1	7.1	8.2	8.4	8.2	8.4	7.7	7.9	8.2	8.1	8.5	8.7
210000	7.2	7.5	8.1	7.2	8.2	8.4	8.2	8.3	8.0	8.0	8.2	8.1	8.5	8.6
220000	7.5	7.9	7.5	7.3	7.4	7.9	8.2	8.4	8.0	8.0	8.2	8.1	8.5	7.9
230000	8.1	7.8	7.3	7.2	7.6	8.4	7.9	7.9	8.0	8.0	8.2	8.1	8.5	7.9
Daily Max	8.4	8.4	8.3	8.3	8.4	8.9	8.8	8.5	8.3	8.3	8.3	8.6	8.6	9.2
Daily Min	7.2	6.5	7.3	7.1	7.2	7.6	7.9	7.9	7.7	7.5	6.8	8.0	6.9	7.7
Average	8.1	7.7	7.9	7.7	7.9	8.2	8.4	8.2	8.0	8.0	7.9	8.2	8.1	8.5

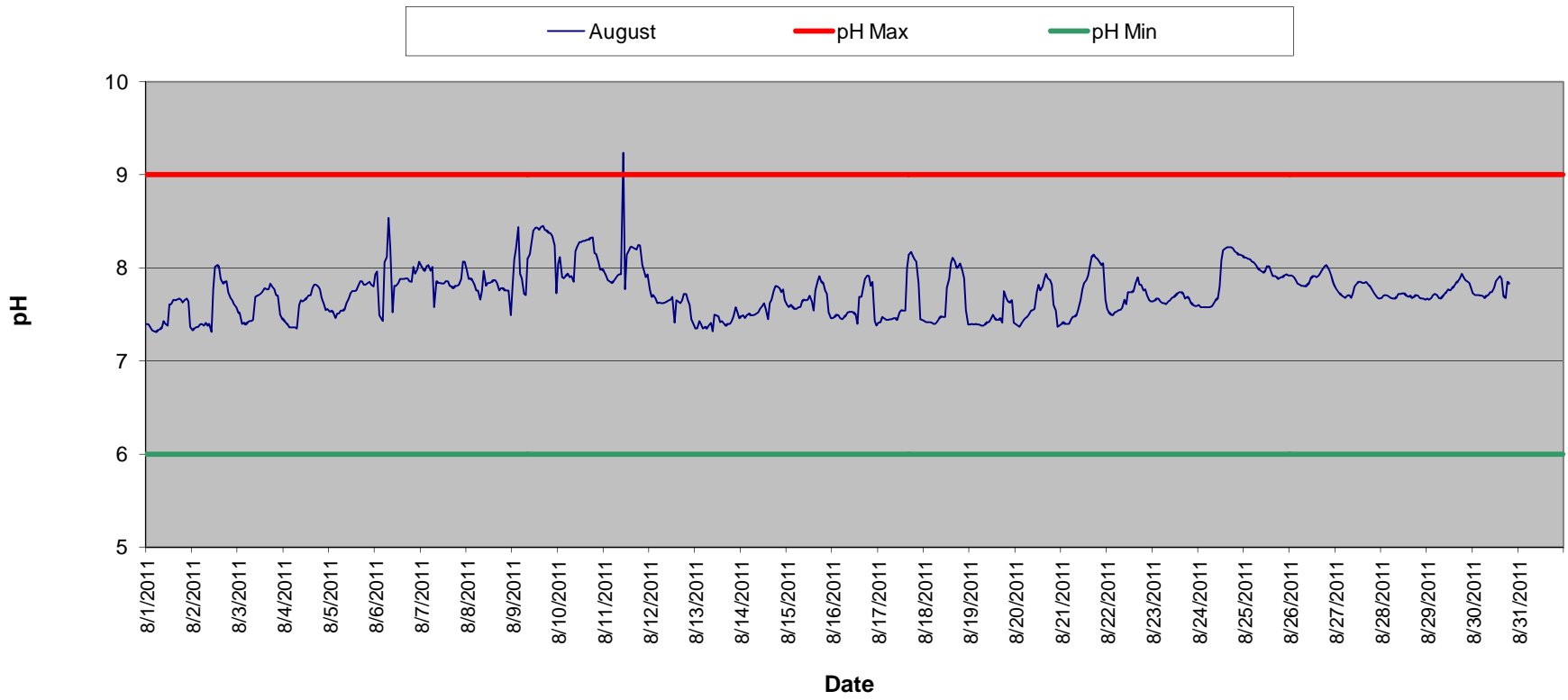
### Caldron Falls Tailwater pH Summary - June 2011



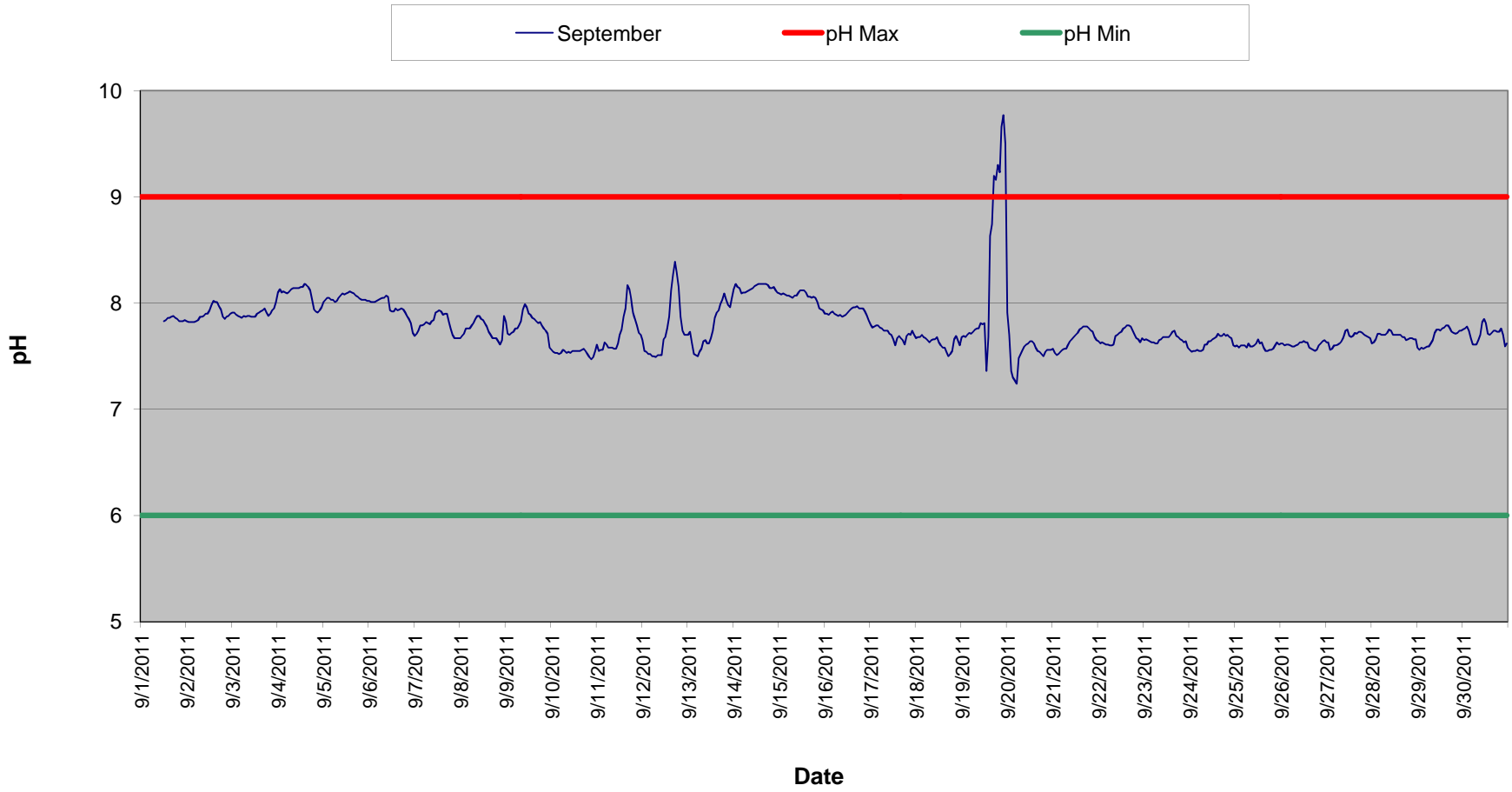
### Caldron Falls Tailwater pH Summary - July 2011



### Caldron Falls Tailwater pH Summary - August 2011



### Caldron Falls Tailwater pH Summary September 2011



Caldron Falls Tailwater pH Summary - June 2011

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

License maximum pH: 9

License minimum pH: 6

Caldron Falls Tailwater pH Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.8	7.9	7.6	7.7	7.7	7.5	7.7	7.8	7.7	7.7	7.6	7.6	7.4	7.4
10000	7.8	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.7	7.6	7.5	7.6	7.4	7.4
20000	7.8	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.7	7.6	7.5	7.6	7.4	7.4
30000	7.8	7.9	7.6	7.6	7.7	7.6	7.7	7.8	7.7	7.6	7.5	7.5	7.4	7.4
40000	7.8	7.9	7.6	7.7	7.6	7.6	7.7	7.8	7.7	7.6	7.5	7.6	7.5	7.4
50000	7.8	7.9	7.6	7.7	7.6	7.6	7.7	7.8	7.7	7.6	7.5	7.6	7.5	7.4
60000	7.8	7.9	7.6	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.5	7.5	7.5	7.4
70000	7.8	7.9	7.6	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.5	7.4	7.4	7.4
80000	7.8	7.9	7.7	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.5	7.6	7.4	7.4
90000	7.8	7.9	7.7	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.5	7.5	7.4	7.4
100000	7.8	7.9	7.6	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.6	7.6	7.4	7.4
110000	7.8	7.9	7.6	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.6	7.5	7.5	7.4
120000	7.8	7.9	7.6	7.7	7.7	7.7	7.7	7.8	7.7	7.6	7.5	7.5	7.5	7.3
130000	7.9	7.7	7.6	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.6	7.5	7.5	7.3
140000	7.9	7.7	7.6	7.7	7.6	7.7	7.7	7.8	7.8	7.8	7.5	7.5	7.5	7.3
150000	7.9	7.7	7.7	7.7	7.6	7.7	7.7	7.8	7.8	7.7	7.5	7.5	7.5	7.4
160000	7.9	7.6	7.7	7.7	7.5	7.7	7.8	7.8	7.8	7.7	7.5	7.6	7.5	7.4
170000	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.8	7.8	7.7	7.4	7.6	7.5	7.4
180000	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.8	7.8	7.7	7.4	7.5	7.5	7.4
190000	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.8	7.8	7.7	7.4	7.5	7.5	7.4
200000	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.8	7.8	7.6	7.4	7.5	7.5	7.4
210000	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.8	7.7	7.6	7.4	7.5	7.4	7.4
220000	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.7	7.7	7.6	7.4	7.3	7.4	7.4
230000	7.9	7.6	7.6	7.7	7.5	7.7	7.8	7.7	7.7	7.6	7.5	7.3	7.4	7.4
Daily Max	7.9	7.9	7.7	7.7	7.7	7.7	7.8	7.8	7.8	7.8	7.6	7.6	7.5	7.4
Daily Min	7.8	7.6	7.6	7.6	7.5	7.5	7.7	7.7	7.7	7.6	7.4	7.3	7.4	7.3
Average	7.8	7.8	7.6	7.7	7.6	7.6	7.7	7.8	7.7	7.6	7.5	7.5	7.4	7.4

Caldron Falls Tailwater pH Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.4	6.8	7.6	8.4	7.8
10000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.4	7.4	7.4	7.7	8.0	8.6	7.8
20000	7.4	7.6	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.4	7.4	7.4	8.0	7.9	8.6	7.9
30000	7.4	7.6	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.4	8.1	8.6	7.2
40000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.0	5.9	8.2	8.6	7.2
50000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.4	7.4	7.7	7.4	8.1	8.6	7.2
60000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.5	3.7	8.0	8.6	7.1
70000	7.5	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	5.7	2.0	8.2	8.4	7.2
80000	7.5	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.5	0.0	8.2	8.6	7.3
90000	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.5	7.5	0.0	7.3	7.4	7.3
100000	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.5	7.5	0.0	7.4	7.3	7.3
110000	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.5	7.5	0.0	7.4	7.3	7.3
120000	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.5	7.6	7.5	7.4	7.4	7.3	7.3
130000	7.5	7.5	7.5	7.4	7.4	7.3	7.4	7.3	7.4	7.4	7.5	7.5	7.4	7.4	7.3	7.3
140000	7.5	7.5	7.5	7.4	7.3	7.3	7.5	7.3	7.4	7.4	7.4	7.5	7.4	7.4	7.3	7.3
150000	7.5	7.5	7.5	7.4	7.3	7.3	7.4	7.3	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.3
160000	7.5	7.5	7.5	7.4	7.3	7.3	7.4	7.3	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.3
170000	7.4	7.5	7.5	7.4	7.4	7.3	7.4	7.3	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.3
180000	7.5	7.6	7.5	7.4	7.4	7.3	7.4	7.3	7.4	7.5	7.5	7.4	7.3	7.4	7.3	7.3
190000	7.5	7.6	7.4	7.4	7.4	7.3	7.4	7.3	7.4	7.4	7.5	7.5	7.3	7.4	7.3	7.3
200000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.4	7.4	7.5	7.4	7.3	7.4	7.3	7.3
210000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.4	7.4	7.4	5.8	7.3	7.4	7.1	7.3
220000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.0	7.4	7.4	7.6	7.5
230000	7.4	7.5	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.1	7.3	8.1	7.7	7.7
Daily Max	7.5	7.6	7.5	7.4	7.4	7.3	7.5	7.3	7.4	7.5	7.6	7.7	8.0	8.2	8.6	7.9
Daily Min	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.2	7.4	7.4	5.7	0.0	7.3	7.1	7.1
Average	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	5.7	7.6	7.8	7.4

Peaking operation began on 7/12/11. Monitor out of water.

License maximum pH: 9

License minimum pH: 6



Caldron Falls Tailwater pH Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.8	7.8	7.6	7.7	7.4	7.8	6.9	6.9	6.9	5.1	7.4	7.3	7.5	7.4	7.4
10000	7.8	7.2	7.7	7.7	7.6	7.8	6.9	6.9	6.9	5.1	7.4	7.3	7.5	7.4	7.4
20000	7.8	7.7	7.7	7.6	7.5	7.6	6.9	6.9	6.9	3.7	7.3	7.3	7.4	7.4	7.4
30000	7.7	7.7	7.7	7.7	8.0	7.8	6.9	6.9	6.9	3.8	7.3	7.3	7.3	7.3	7.4
40000	7.7	7.7	7.7	7.6	8.2	7.8	6.8	6.9	6.9	3.6	7.3	7.3	7.3	7.3	7.4
50000	7.7	7.7	7.7	7.7	8.1	7.7	6.8	6.8	6.9	3.8	7.3	7.3	7.4	7.3	7.4
60000	7.7	7.8	7.8	7.7	8.5	7.7	6.8	6.8	6.9	5.2	7.3	7.3	7.4	7.3	7.3
70000	7.8	7.8	7.7	7.8	8.9	7.8	6.8	6.8	6.9	3.2	7.3	7.3	7.4	7.4	7.4
80000	4.3	8.3	7.8	7.3	8.5	9.9	6.8	6.8	7.1	9.4	7.3	7.3	7.4	7.4	7.4
90000	8.6	7.3	7.8	7.3	14.0	7.3	6.8	6.7	7.1	7.9	7.4	7.3	7.4	7.4	7.3
100000	9.5	7.3	8.0	7.3	13.1	7.3	6.8	6.8	7.2	6.8	7.6	7.4	7.5	7.5	7.4
110000	8.5	7.4	7.3	7.3	14.0	7.4	6.8	6.9	7.7	6.8	7.6	7.4	7.5	7.6	7.3
120000	7.4	7.4	7.4	7.4	7.1	7.5	6.9	7.0	7.7	7.0	7.6	7.3	7.6	7.6	7.7
130000	7.4	7.4	7.4	7.4	7.4	7.4	7.0	7.0	7.8	7.4	7.6	7.5	7.6	7.7	7.7
140000	7.4	7.4	7.4	7.4	7.6	7.4	7.0	7.0	8.0	7.5	7.4	7.6	7.6	7.7	7.7
150000	7.4	7.4	7.4	7.4	7.6	7.4	7.0	7.1	8.1	7.6	7.4	7.6	7.7	7.8	7.7
160000	7.4	7.4	7.4	7.5	7.6	7.4	7.0	7.1	8.2	7.7	7.6	7.6	7.8	8.2	7.7
170000	7.4	7.4	7.4	7.5	7.6	7.3	6.9	7.1	8.2	7.6	7.6	7.6	7.8	8.3	7.8
180000	7.4	7.3	7.4	7.5	7.5	7.3	7.0	7.1	2.7	7.6	7.6	7.6	7.8	8.0	7.8
190000	7.4	7.3	7.4	7.5	7.5	7.2	7.0	7.1	4.8	7.7	7.6	7.4	7.8	7.7	7.7
200000	7.3	7.3	7.3	7.5	7.5	7.1	7.0	7.1	3.4	7.6	7.5	7.4	7.7	7.7	7.7
210000	7.3	7.3	7.3	7.5	7.4	7.1	7.0	7.1	4.3	7.6	7.4	7.5	7.6	7.9	7.7
220000	7.3	7.3	7.3	7.5	7.4	7.1	7.0	7.1	5.2	7.6	7.4	7.5	7.7	7.5	7.6
230000	7.8	7.4	7.7	7.6	7.4	7.0	6.9	6.9	7.5	7.4	7.3	7.5	7.5	7.4	7.4
Daily Max	9.5	8.3	8.0	7.8	14.0	9.9	7.0	7.1	8.2	9.4	7.6	7.6	7.8	7.8	8.3
Daily Min	4.3	7.2	7.3	7.3	7.1	7.0	6.8	6.7	2.7	3.2	7.3	7.3	7.3	7.3	7.3
Average	7.6	7.5	7.5	7.5	8.5	7.5	6.9	7.0	6.6	6.4	7.4	7.4	7.5	7.5	7.6

Missing data due to equipment maintenance

Caldron Falls Tailwater pH Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	7.4	7.3	7.5	7.4	7.5	7.9	8.0	8.0	7.8	8.0	8.0	7.8	7.4	7.5	7.6	7.5
10000	7.4	7.4	7.5	7.4	7.5	8.0	8.0	7.9	8.1	8.1	7.9	7.7	7.4	7.5	7.6	7.5
20000	7.4	7.4	7.4	7.4	7.5	7.5	8.0	7.9	8.2	7.9	7.9	7.7	7.4	7.5	7.6	7.5
30000	7.3	7.4	7.4	7.4	7.5	7.5	8.0	7.9	8.4	7.9	7.9	7.7	7.4	7.5	7.6	7.5
40000	7.3	7.4	7.4	7.4	7.5	7.4	8.0	7.8	7.9	7.9	7.8	7.6	7.4	7.5	7.6	7.5
50000	7.3	7.4	7.4	7.4	7.5	8.1	8.0	7.8	7.9	7.9	7.9	7.6	7.4	7.5	7.6	7.5
60000	7.3	7.4	7.4	7.4	7.5	8.1	8.0	7.8	7.7	7.9	7.9	7.6	7.4	7.5	7.6	7.5
70000	7.3	7.4	7.4	7.4	7.5	8.5	7.6	7.7	7.7	7.9	7.9	7.6	7.4	7.5	7.6	7.5
80000	7.4	7.4	7.4	7.6	7.6	8.2	7.9	7.8	8.1	7.9	7.9	7.6	7.4	7.5	7.6	7.5
90000	7.4	7.4	7.7	7.7	7.6	7.5	7.8	8.0	8.2	8.2	7.9	7.6	7.3	7.5	7.7	7.5
100000	7.4	7.3	7.7	7.6	7.7	7.8	7.8	7.8	8.3	8.2	9.2	7.7	7.5	7.6	7.7	7.5
110000	7.4	7.8	7.7	7.7	7.7	7.8	7.8	7.8	8.4	8.3	7.8	7.7	7.5	7.6	7.7	7.5
120000	7.6	8.0	7.7	7.7	7.8	7.8	7.8	7.8	8.4	8.3	8.1	7.7	7.5	7.6	7.7	7.5
130000	7.6	8.0	7.8	7.7	7.8	7.9	7.9	7.9	8.4	8.3	8.2	7.4	7.4	7.6	7.6	7.4
140000	7.7	8.0	7.8	7.7	7.8	7.9	7.9	7.9	8.4	8.3	8.2	7.7	7.4	7.5	7.5	7.7
150000	7.7	7.9	7.8	7.8	7.8	7.9	7.9	7.9	8.4	8.3	8.2	7.6	7.4	7.6	7.8	7.7
160000	7.7	7.8	7.8	7.8	7.9	7.9	7.8	7.8	8.5	8.3	8.2	7.6	7.4	7.7	7.9	7.8
170000	7.7	7.9	7.8	7.8	7.9	7.9	7.8	7.8	8.4	8.3	8.2	7.7	7.4	7.8	7.9	7.9
180000	7.7	7.9	7.8	7.8	7.8	7.9	7.8	7.8	8.4	8.3	8.3	7.7	7.4	7.8	7.9	7.9
190000	7.6	7.7	7.8	7.8	7.8	7.9	7.8	7.8	8.4	8.2	8.2	7.7	7.4	7.8	7.8	7.9
200000	7.7	7.7	7.7	7.7	7.8	8.0	7.8	7.8	8.4	8.2	8.0	7.7	7.5	7.8	7.8	7.8
210000	7.7	7.7	7.7	7.6	7.9	7.9	7.9	7.8	8.3	8.1	8.0	7.6	7.6	7.7	7.7	7.9
220000	7.6	7.6	7.5	7.6	7.8	8.0	8.1	7.8	8.2	8.0	7.9	7.5	7.5	7.8	7.5	7.4
230000	7.4	7.6	7.5	7.6	7.8	8.1	8.1	7.5	7.7	8.0	7.9	7.4	7.5	7.7	7.5	7.4
Daily Max	7.7	8.0	7.8	7.8	7.9	8.5	8.1	8.0	8.5	8.3	9.2	7.8	7.6	7.8	7.9	7.9
Daily Min	7.3	7.3	7.4	7.4	7.5	7.4	7.6	7.5	7.7	7.9	7.8	7.4	7.3	7.5	7.5	7.4
Average	7.5	7.6	7.6	7.6	7.7	7.9	7.9	7.8	8.2	8.1	8.1	7.6	7.4	7.6	7.7	7.6

Peaking operation. Monitor out of water during refill period.

License maximum pH: 9

License minimum pH: 6

Caldron Falls Tailwater pH Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.4	7.4	7.4	7.4	7.4	7.6	7.6	7.6	8.1	7.9	7.8	7.7	7.7	7.7	
10000	7.4	7.4	7.4	7.4	7.4	7.5	7.7	7.6	8.1	7.9	7.8	7.7	7.7	7.7	
20000	7.5	7.4	7.4	7.4	7.4	7.5	7.7	7.6	8.1	7.9	7.7	7.7	7.7	7.7	
30000	7.5	7.4	7.4	7.4	7.4	7.5	7.7	7.6	8.1	7.9	7.7	7.7	7.7	7.7	
40000	7.4	7.4	7.4	7.4	7.4	7.5	7.6	7.6	8.1	7.8	7.7	7.7	7.7	7.7	
50000	7.4	7.4	7.4	7.4	7.5	7.4	7.5	7.6	8.1	7.8	7.7	7.7	7.7	7.7	
60000	7.5	7.4	7.4	7.5	7.5	7.6	7.6	7.6	8.0	7.8	7.7	7.7	7.7	7.7	
70000	7.5	7.4	7.4	7.5	7.5	7.6	7.6	7.6	8.0	7.8	7.7	7.7	7.7	7.7	
80000	7.5	7.5	7.4	7.5	7.5	7.6	7.6	7.6	8.0	7.8	7.7	7.7	7.7	7.7	
90000	7.5	7.5	7.4	7.6	7.6	7.7	7.7	7.7	8.0	7.8	7.7	7.7	7.7	7.7	
100000	7.4	7.5	7.4	7.6	7.7	7.6	7.7	7.7	8.0	7.8	7.8	7.7	7.7	7.7	
110000	7.5	7.5	7.5	7.7	7.8	7.7	7.7	7.8	8.0	7.9	7.8	7.7	7.8	7.8	
120000	7.6	7.8	7.5	7.8	7.8	7.7	7.7	8.1	8.0	7.9	7.9	7.7	7.8	7.9	
130000	7.5	7.9	7.5	7.8	7.9	7.7	7.7	8.2	8.0	7.9	7.9	7.7	7.8	7.9	
140000	7.5	8.1	7.4	7.8	7.9	7.8	7.7	8.2	8.0	7.9	7.8	7.7	7.8	7.9	
150000	8.0	8.1	7.4	7.9	8.0	7.8	7.7	8.2	7.9	7.9	7.8	7.7	7.8	7.9	
160000	8.1	8.1	7.5	7.9	8.1	7.9	7.7	8.2	7.9	8.0	7.9	7.7	7.9	7.7	
170000	8.2	8.0	7.4	7.9	8.1	7.8	7.7	8.2	7.9	8.0	7.8	7.7	7.9	7.7	
180000	8.1	8.0	7.8	7.9	8.1	7.8	7.7	8.2	7.9	8.0	7.8	7.7	7.9	7.9	
190000	8.1	8.1	7.7	7.8	8.1	7.8	7.7	8.2	7.9	8.0	7.8	7.7	7.9	7.8	
200000	8.1	8.0	7.6	7.6	8.1	7.8	7.6	8.2	7.9	8.0	7.7	7.7	7.9		
210000	7.8	7.9	7.6	7.5	8.0	7.7	7.6	8.1	7.9	8.0	7.7	7.7	7.9		
220000	7.5	7.6	7.7	7.4	8.1	7.7	7.6	8.1	7.9	7.9	7.7	7.7	7.8		
230000	7.4	7.4	7.4	7.4	7.7	7.6	7.6	8.1	7.9	7.8	7.7	7.7	7.8		
Daily Max	8.2	8.1	7.8	7.9	8.1	7.9	7.7	8.2	8.1	8.0	7.9	7.7	7.9	7.9	0.0
Daily Min	7.4	7.4	7.4	7.4	7.4	7.5	7.6	7.6	7.9	7.8	7.7	7.7	7.7	7.7	0.0
Average	7.6	7.7	7.5	7.6	7.7	7.7	7.7	7.9	8.0	7.9	7.8	7.7	7.8	7.8	#DIV/0!

From 8/22 at 0800 thru 9/2, powerhouse off-line for scheduled maintenance.

Missing data due to power failure

Caldron Falls Tailwater pH Summary - September 2011

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

License maximum pH: 9

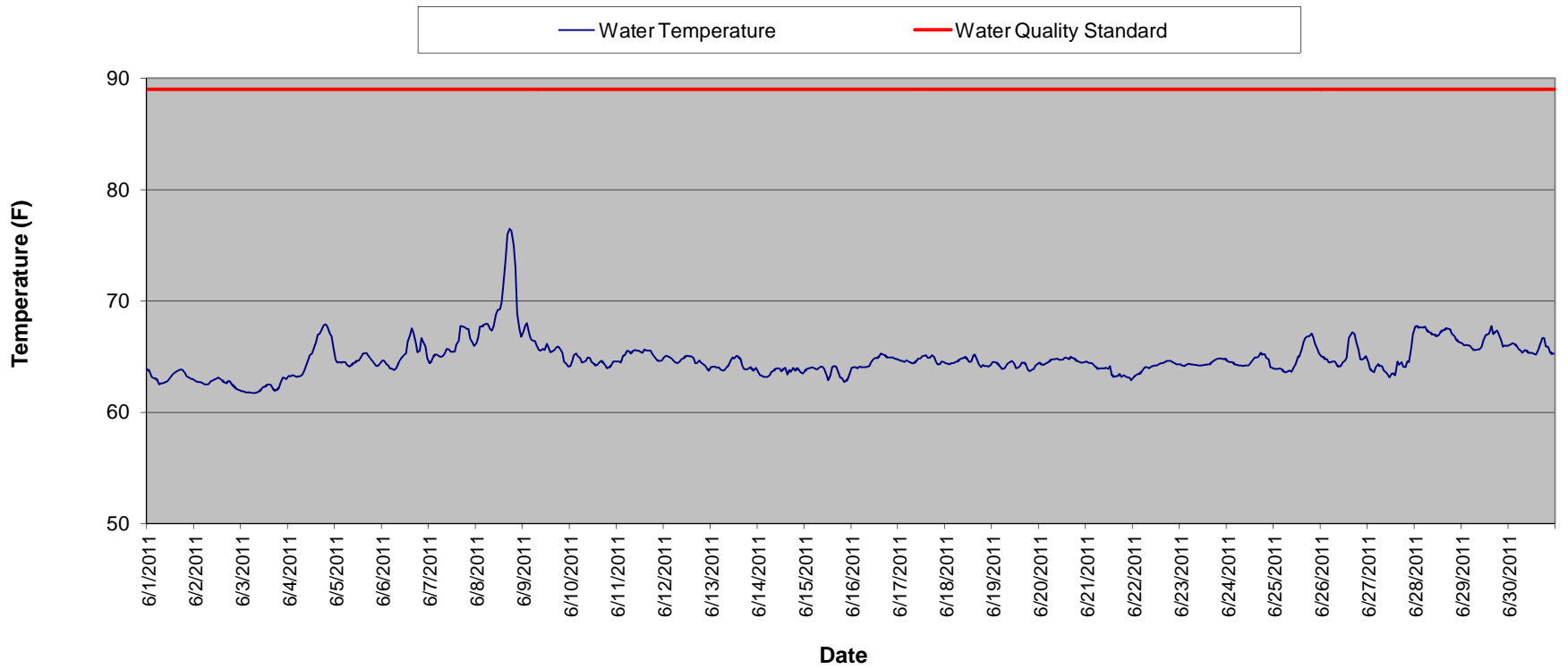
License minimum pH: 6

Caldron Falls Tailwater pH Summary - September 2011

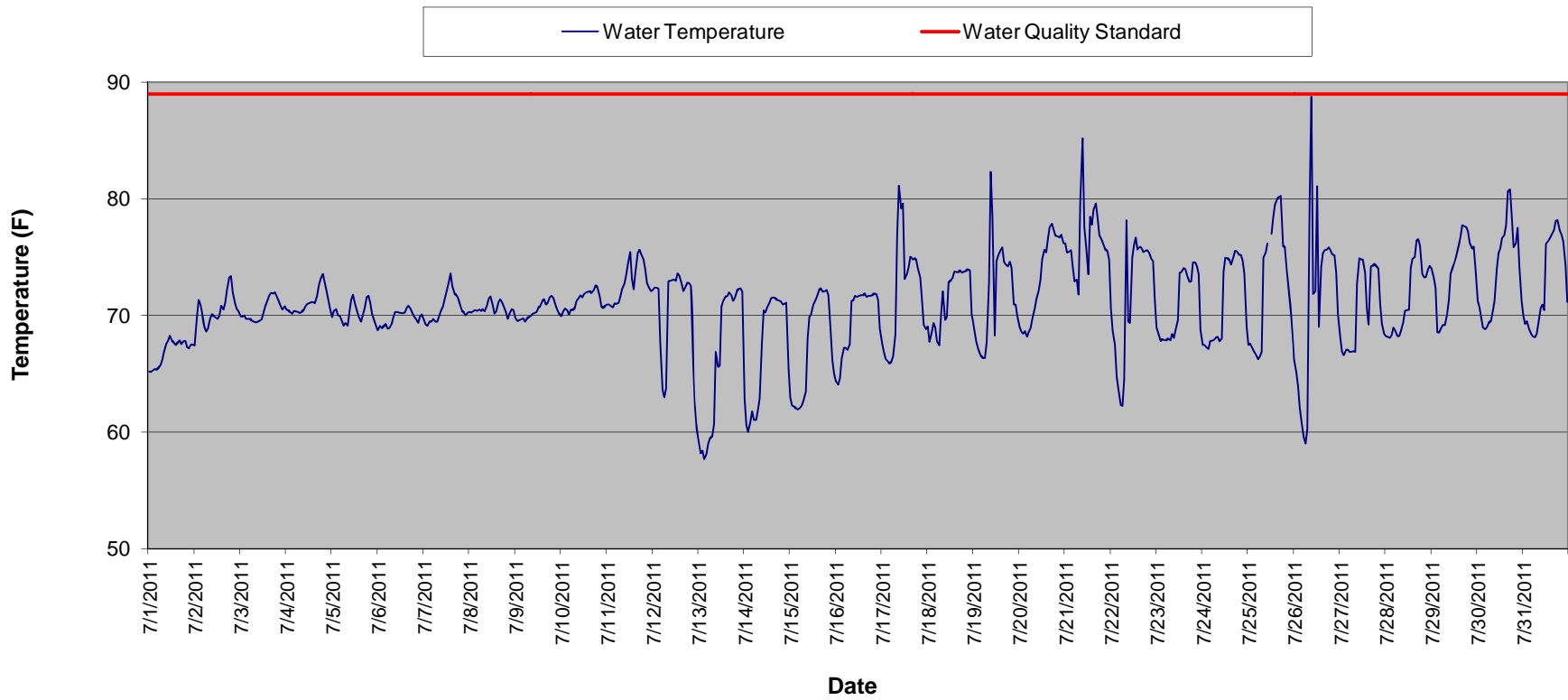
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	7.8	7.7	7.7	7.9	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.6	7.6	7.8
10000	7.8	7.7	7.7	7.7	7.5	7.6	7.7	7.5	7.6	7.6	7.6	7.6	7.6	7.8
20000	7.8	7.7	7.7	7.4	7.5	7.6	7.7	7.6	7.6	7.6	7.6	7.7	7.6	7.8
30000	7.8	7.7	7.7	7.3	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.7
40000	7.8	7.7	7.7	7.3	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.7
50000	7.8	7.7	7.7	7.2	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.6
60000	7.8	7.7	7.7	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.6
70000	7.7	7.6	7.8	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.6
80000	7.7	7.7	7.8	7.6	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.7	7.7	7.7
90000	7.7	7.7	7.8	7.6	7.6	7.7	7.7	7.6	7.6	7.6	7.7	7.8	7.7	7.7
100000	7.7	7.7	7.8	7.6	7.7	7.7	7.7	7.6	7.6	7.6	7.7	7.7	7.8	7.8
110000	7.7	7.7	7.8	7.6	7.7	7.7	7.7	7.6	7.6	7.6	7.8	7.7	7.8	7.9
120000	7.7	7.6	7.8	7.6	7.7	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.7	7.8
130000	7.6	7.6	7.4	7.6	7.7	7.8	7.7	7.7	7.6	7.6	7.7	7.7	7.8	7.7
140000	7.7	7.6	7.7	7.6	7.8	7.8	7.7	7.7	7.6	7.6	7.7	7.7	7.8	7.7
150000	7.7	7.6	8.6	7.6	7.8	7.8	7.7	7.7	7.6	7.6	7.7	7.7	7.8	7.7
160000	7.7	7.5	8.7	7.6	7.8	7.8	7.7	7.7	7.6	7.6	7.7	7.7	7.8	7.7
170000	7.7	7.5	9.2	7.5	7.8	7.8	7.7	7.7	7.6	7.6	7.7	7.7	7.8	7.7
180000	7.6	7.5	9.2	7.5	7.8	7.7	7.7	7.7	7.6	7.6	7.7	7.7	7.7	7.7
190000	7.7	7.6	9.3	7.5	7.8	7.7	7.7	7.7	7.6	7.6	7.7	7.7	7.7	7.7
200000	7.7	7.7	9.2	7.5	7.7	7.7	7.7	7.7	7.6	7.6	7.7	7.7	7.7	7.8
210000	7.7	7.7	9.7	7.6	7.7	7.7	7.6	7.7	7.6	7.6	7.7	7.7	7.7	7.7
220000	7.7	7.7	9.8	7.6	7.7	7.6	7.6	7.7	7.6	7.6	7.7	7.7	7.7	7.6
230000	7.7	7.6	9.5	7.6	7.7	7.7	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.6
Daily Max	7.8	7.7	9.8	7.9	7.8	7.8	7.7	7.7	7.7	7.7	7.8	7.8	7.8	7.9
Daily Min	7.6	7.5	7.4	7.2	7.5	7.6	7.6	7.5	7.6	7.6	7.6	7.6	7.6	7.6
Average	7.7	7.6	8.3	7.5	7.7	7.7	7.7	7.6	7.6	7.6	7.7	7.7	7.7	7.7

Anomalie - equipment malfunction

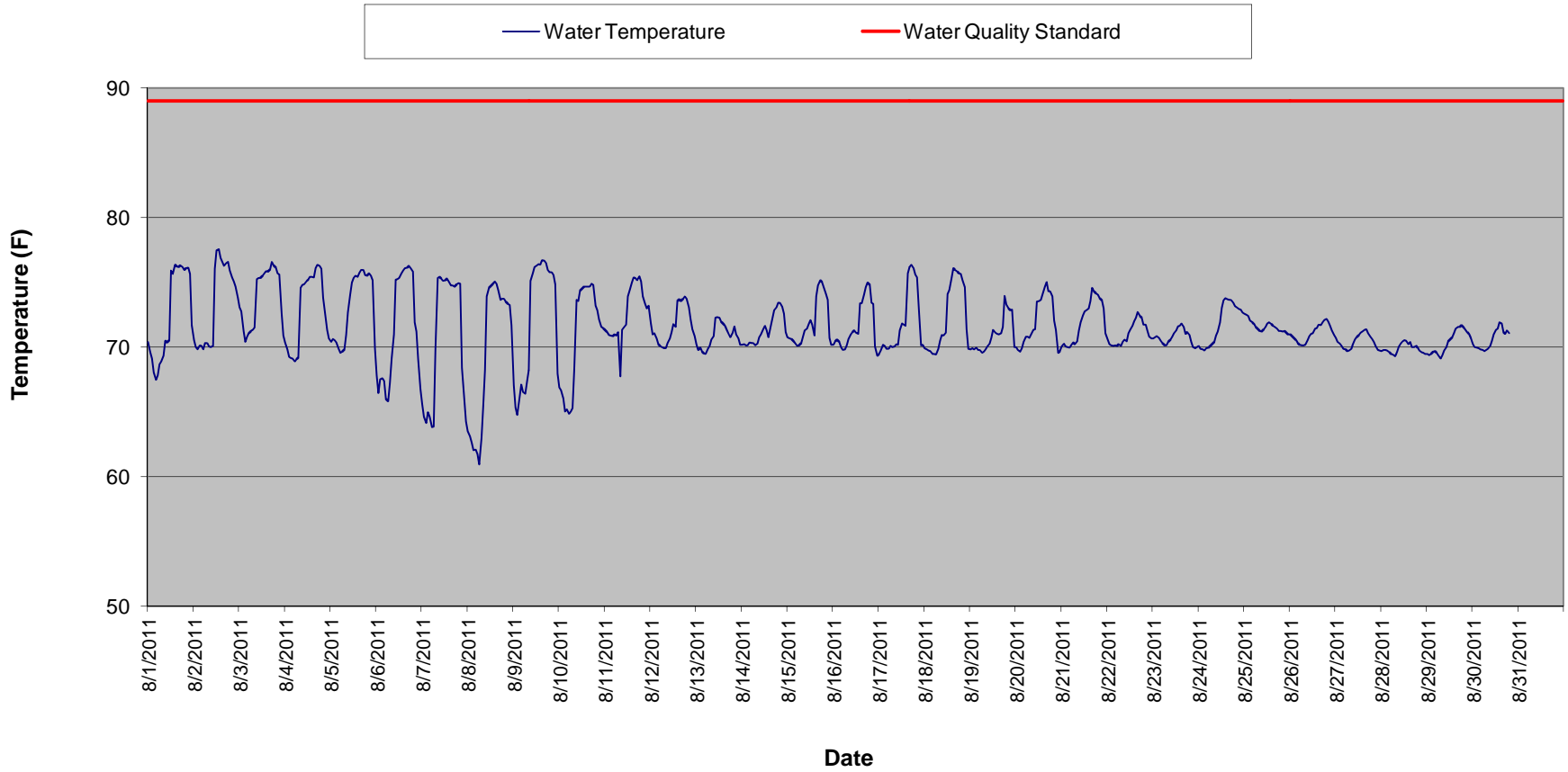
### Caldron Falls Tailwater Water Temperature - June 2011



### Caldron Falls Tailwater Water Temperature - July 2011

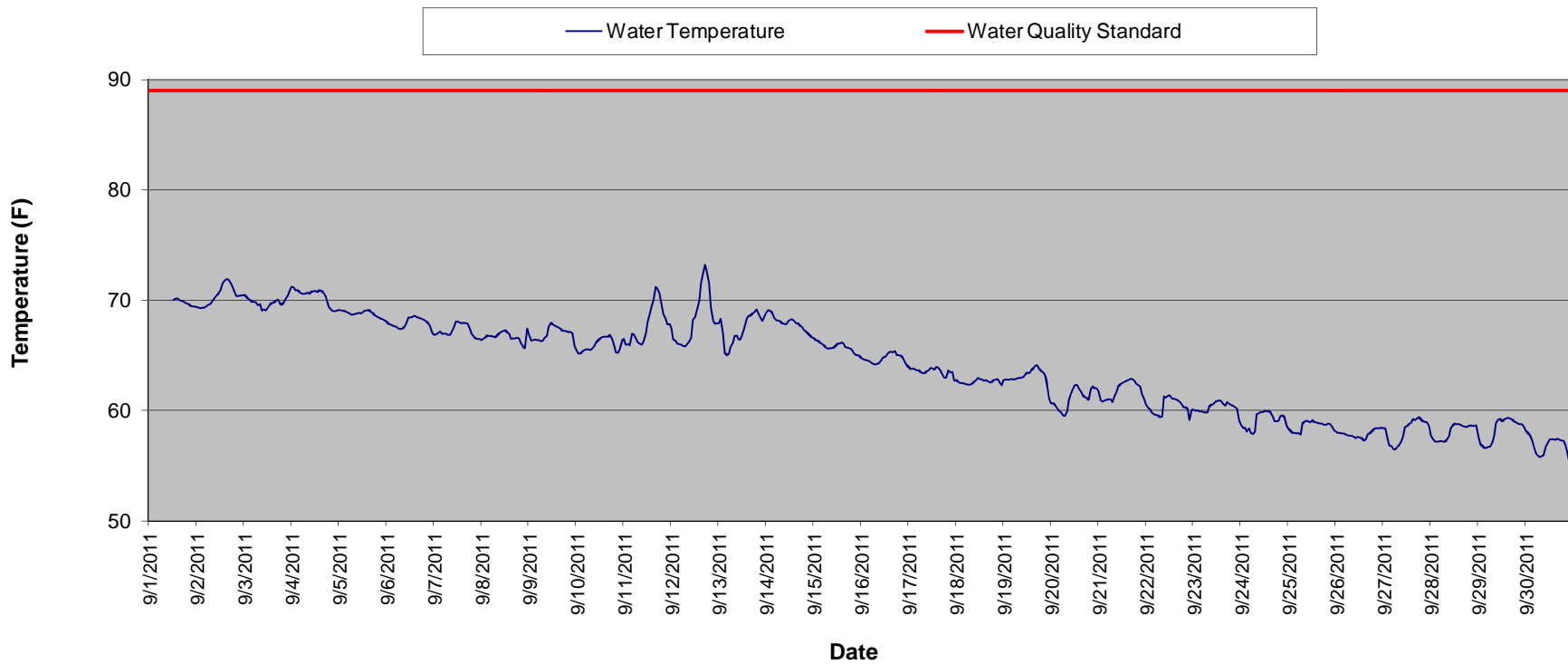


### Caldron Falls Tailwater Water Temperature - August 2011





### Caldron Falls Tailwater Water Temperature - September 2011



Caldron Falls Tailwater Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	63.8	62.9	61.9	63.3	64.7	64.7	64.4	66.2	67.2	64.2	64.6	64.9	64.0	63.7	63.7	64.0
10000	63.7	62.8	61.9	63.2	64.5	64.6	64.6	66.7	67.7	64.6	64.6	65.1	64.1	63.3	63.9	64.0
20000	63.2	62.7	61.8	63.3	64.5	64.3	65.0	67.7	68.0	65.1	64.4	65.0	64.1	63.3	63.9	64.0
30000	63.1	62.7	61.8	63.3	64.5	64.2	65.2	67.7	67.1	65.3	65.1	64.9	64.0	63.2	64.0	64.0
40000	63.0	62.6	61.8	63.2	64.5	63.9	65.2	67.8	66.5	65.0	65.1	64.8	64.0	63.2	64.1	64.1
50000	62.9	62.5	61.8	63.2	64.5	63.9	65.0	67.9	66.4	64.9	65.5	64.6	63.9	63.2	64.0	64.0
60000	62.5	62.5	61.7	63.2	64.3	63.8	65.0	67.9	66.4	64.5	65.5	64.4	63.7	63.3	63.8	64.0
70000	62.6	62.5	61.8	63.4	64.1	64.0	65.1	67.4	66.0	64.5	65.3	64.4	63.8	63.6	64.0	64.0
80000	62.6	62.7	61.8	63.7	64.2	64.3	65.4	67.3	65.6	64.6	65.5	64.6	64.1	63.8	64.1	64.1
90000	62.7	62.9	61.9	64.3	64.4	64.7	65.7	67.8	65.5	64.9	65.6	64.8	64.2	63.9	64.1	64.1
100000	62.8	62.9	62.0	64.7	64.5	64.9	65.6	68.8	65.7	64.9	65.6	64.9	64.7	64.0	63.9	64.5
110000	63.0	63.0	62.2	65.1	64.6	65.1	65.4	69.2	65.6	64.5	65.5	65.0	64.9	64.0	63.4	64.8
120000	63.2	63.1	62.3	65.3	64.7	65.3	65.4	69.2	66.2	64.3	65.4	65.1	64.8	63.7	62.9	64.9
130000	63.4	63.0	62.5	65.8	64.9	66.4	65.4	69.9	65.8	64.2	65.3	65.0	65.1	63.9	63.3	64.9
140000	63.6	62.9	62.5	66.3	65.3	66.9	66.1	71.5	65.4	64.3	65.6	65.0	65.0	64.0	64.1	65.0
150000	63.7	62.7	62.5	67.0	65.3	67.6	66.4	73.8	65.5	64.5	65.5	64.9	64.7	63.4	64.1	65.3
160000	63.8	62.6	62.1	67.0	65.3	67.1	67.8	76.0	65.6	64.6	65.5	64.4	64.2	63.8	64.1	65.2
170000	63.8	62.8	61.9	67.4	65.0	66.3	67.7	76.5	65.8	64.4	65.5	64.4	63.9	63.6	63.7	65.1
180000	63.8	62.8	62.0	67.8	64.8	65.4	67.7	76.3	65.9	64.2	65.2	64.7	63.8	64.0	63.1	64.9
190000	63.5	62.5	62.2	67.9	64.6	65.5	67.5	75.0	65.7	64.0	65.0	64.5	63.9	63.7	63.1	64.9
200000	63.2	62.4	62.6	67.7	64.3	66.7	67.5	73.0	65.3	64.0	64.7	64.3	64.0	64.0	62.7	64.9
210000	63.1	62.2	63.1	67.1	64.2	66.3	66.6	68.9	64.5	64.2	64.6	64.2	63.9	63.8	62.8	64.9
220000	63.0	62.0	63.1	66.8	64.2	65.9	66.2	67.5	64.4	64.6	64.6	63.9	63.8	63.6	63.0	64.8
230000	63.0	62.0	63.0	65.9	64.4	64.9	66.0	66.8	64.1	64.6	64.7	63.7	64.0	63.5	63.6	64.7
Daily Max	63.8	63.1	63.1	67.9	65.3	67.6	67.8	76.5	68.0	65.3	65.6	65.1	65.1	64.0	64.1	65.3
Daily Min	62.5	62.0	61.7	63.2	64.1	63.8	64.4	66.2	64.1	64.0	64.4	63.7	63.7	63.2	62.7	64.0
Average	63.2	62.7	62.2	65.2	64.6	65.3	65.9	69.9	65.9	64.5	65.2	64.6	64.2	63.6	63.6	64.6

Monthly average: 64.9  
 License Maximum: 89 F

Caldron Falls Tailwater Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	64.7	64.4	64.5	64.5	64.6	63.1	64.3	64.6	63.9	65.0	64.5	67.7	66.2	66.0
10000	64.6	64.4	64.5	64.3	64.5	63.3	64.2	64.5	63.9	65.0	63.9	67.8	66.0	66.1
20000	64.6	64.3	64.5	64.2	64.4	63.4	64.2	64.5	63.9	64.8	63.7	67.6	66.0	66.2
30000	64.5	64.4	64.3	64.3	64.4	63.4	64.3	64.5	64.0	64.8	63.6	67.7	66.0	66.1
40000	64.7	64.4	64.0	64.5	64.1	63.6	64.3	64.3	63.8	64.5	64.1	67.6	66.0	65.9
50000	64.6	64.5	63.9	64.6	64.0	63.9	64.3	64.2	63.6	64.5	64.3	67.7	65.8	65.7
60000	64.5	64.6	63.9	64.7	63.9	64.0	64.3	64.2	63.6	64.6	64.1	67.4	65.6	65.6
70000	64.4	64.7	64.2	64.8	64.0	64.1	64.3	64.2	63.7	64.5	64.2	67.2	65.6	65.3
80000	64.4	64.8	64.4	64.8	63.9	64.0	64.2	64.1	63.7	64.3	63.8	67.2	65.6	65.6
90000	64.6	64.9	64.5	64.8	64.0	64.1	64.2	64.2	63.6	64.1	63.6	67.0	65.6	65.6
100000	64.8	65.0	64.6	64.7	64.0	64.2	64.2	64.2	64.0	64.2	63.4	67.0	65.9	65.4
110000	64.8	64.7	64.3	64.7	63.9	64.2	64.2	64.2	64.3	64.5	63.1	66.8	66.5	65.3
120000	65.0	64.5	63.9	64.7	64.2	64.2	64.2	64.4	64.9	64.6	63.5	66.9	66.9	65.3
130000	65.1	64.6	64.0	64.9	63.4	64.3	64.3	64.7	65.1	64.9	63.5	67.2	67.0	65.2
140000	65.1	65.0	64.1	64.9	63.2	64.4	64.3	64.9	65.7	66.7	63.3	67.3	67.1	65.2
150000	64.9	65.2	64.4	64.8	63.2	64.4	64.3	64.9	66.3	66.9	64.6	67.4	67.7	65.7
160000	64.9	64.7	64.5	65.0	63.3	64.5	64.5	65.0	66.7	67.2	64.2	67.5	67.0	66.1
170000	65.1	64.3	64.3	64.9	63.4	64.6	64.6	65.3	66.8	67.0	64.5	67.5	67.2	66.7
180000	65.0	64.0	63.8	64.8	63.2	64.6	64.7	65.2	66.8	66.3	64.1	67.5	67.3	66.7
190000	64.6	64.2	63.7	64.6	63.3	64.6	64.8	65.2	67.1	65.6	64.0	67.0	67.0	65.9
200000	64.3	64.2	63.8	64.6	63.2	64.5	64.8	64.9	66.7	64.7	64.6	66.9	66.5	65.9
210000	64.3	64.1	63.9	64.5	63.1	64.4	64.8	64.8	66.2	64.7	64.5	66.6	65.9	65.4
220000	64.6	64.1	64.2	64.5	63.1	64.3	64.8	64.1	65.7	64.9	65.8	66.4	66.0	65.2
230000	64.5	64.2	64.4	64.5	62.9	64.3	64.8	64.0	65.3	65.0	67.0	66.3	66.0	65.3
Daily Max	65.1	65.2	64.6	65.0	64.6	64.6	64.8	65.3	67.1	67.2	67.0	67.8	67.7	66.7
Daily Min	64.3	64.0	63.7	64.2	62.9	63.1	64.2	64.0	63.6	64.1	63.1	66.3	65.6	65.2
Average	64.7	64.5	64.2	64.6	63.7	64.1	64.4	64.5	65.0	65.1	64.2	67.2	66.4	65.7

Caldron Falls Tailwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	65.2	67.4	69.9	70.5	69.8	68.7	69.6	70.3	69.8	70.0	70.9	72.2	59.3	62.8	63.0	64.4
10000	65.1	69.9	69.9	70.5	70.4	69.1	69.2	70.2	69.5	70.3	70.9	72.4	58.2	60.6	62.3	64.0
20000	65.3	71.3	70.0	70.3	70.5	68.9	69.1	70.4	69.6	70.6	70.8	72.4	58.4	60.0	62.2	64.6
30000	65.4	70.9	69.7	70.1	70.0	69.1	69.5	70.4	69.7	70.4	70.7	72.3	57.7	60.9	62.0	66.3
40000	65.3	70.2	69.7	70.4	70.0	69.2	69.4	70.4	69.7	70.1	71.0	67.6	58.1	61.8	61.9	67.2
50000	65.5	69.0	69.7	70.3	69.5	68.9	69.7	70.5	69.5	70.5	71.0	63.6	59.0	61.0	62.1	67.2
60000	65.8	68.6	69.5	70.3	69.1	68.9	69.4	70.4	69.7	70.4	71.1	63.0	59.4	61.0	62.3	67.0
70000	66.2	68.8	69.4	70.2	69.4	69.3	69.5	70.6	69.9	70.6	71.6	63.7	59.6	61.9	62.7	67.5
80000	66.9	69.7	69.4	70.3	69.1	69.9	69.9	70.3	69.9	71.2	72.3	72.9	60.6	62.9	63.5	71.3
90000	67.6	70.1	69.5	70.5	70.3	70.3	70.3	70.9	70.1	71.4	72.7	73.0	66.9	67.7	68.0	71.3
100000	67.8	69.9	69.6	70.8	71.3	70.3	70.8	71.4	70.2	71.7	73.5	73.0	65.6	70.4	69.9	71.7
110000	68.3	69.8	69.7	71.0	71.8	70.3	71.5	71.6	70.3	71.5	74.4	73.1	65.7	70.3	70.1	71.6
120000	67.8	69.7	70.2	71.0	71.0	70.2	72.1	70.9	70.7	71.8	75.5	73.0	70.8	70.7	71.0	71.7
130000	67.7	70.0	70.7	71.1	70.4	70.2	72.9	70.2	70.8	72.0	73.1	73.6	71.3	71.1	71.2	71.7
140000	67.5	70.8	71.3	71.1	69.9	70.3	73.6	70.4	71.2	72.0	72.2	73.4	71.6	71.5	71.6	71.7
150000	67.6	70.5	71.7	71.0	69.5	70.6	72.5	71.1	71.4	72.1	73.7	72.7	71.7	71.5	72.2	71.9
160000	67.9	71.1	71.9	71.7	70.0	70.8	71.9	71.4	70.9	71.9	75.3	72.1	72.0	71.5	72.3	71.6
170000	67.5	72.2	71.9	72.6	70.6	70.5	71.7	71.1	71.1	72.2	75.6	72.4	71.7	71.3	72.1	71.7
180000	67.8	73.3	72.0	73.1	71.6	70.2	71.5	70.8	71.6	72.6	75.3	72.8	71.2	71.3	72.1	71.7
190000	67.8	73.4	71.6	73.6	71.7	69.9	71.0	70.3	71.7	72.4	74.8	72.8	71.5	71.2	72.2	71.7
200000	67.3	72.0	71.2	72.9	71.1	69.7	70.4	69.7	71.5	71.7	73.9	72.5	72.1	70.9	71.7	71.9
210000	67.2	71.0	70.8	72.2	70.2	69.4	70.2	70.1	70.9	70.8	72.8	65.9	72.3	71.0	69.4	71.8
220000	67.5	70.5	70.5	71.2	69.5	69.9	70.0	70.5	70.4	70.7	72.3	62.2	72.3	71.1	66.1	71.3
230000	67.5	70.3	70.8	70.4	69.1	70.1	70.3	70.4	70.1	70.8	72.1	60.3	72.0	65.5	64.9	68.9
Daily Max	68.3	73.4	72.0	73.6	71.8	70.8	73.6	71.6	71.7	72.6	75.6	73.6	72.3	71.5	72.3	71.9
Daily Min	65.1	67.4	69.4	70.1	69.1	68.7	69.1	69.7	69.5	70.0	70.7	60.3	57.7	60.0	61.9	64.0
Average	66.9	70.4	70.4	71.1	70.2	69.8	70.7	70.6	70.4	71.2	72.8	70.1	66.2	67.1	67.4	69.7

Peaking operation began on 7/12/11. Monitor out of water.

Monthly average: 71.0  
 License Maximum Monthly Average: 89 F

Caldron Falls Tailwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	67.6	69.0	69.3	69.0	76.2	70.6	68.9	67.5	69.0	68.5	70.1	68.4	74.3	74.1	71.2
10000	66.9	67.7	68.1	68.6	75.4	68.7	68.3	67.5	67.5	66.3	68.1	68.2	74.0	71.3	69.9
20000	66.3	68.6	67.3	68.4	75.5	67.5	67.8	67.3	67.6	65.1	66.9	68.1	73.2	70.7	69.3
30000	66.1	69.4	66.9	68.7	75.6	64.8	68.0	67.1	67.2	63.9	66.6	68.1	72.3	69.8	69.5
40000	65.9	68.9	66.5	68.1	74.2	63.7	67.9	67.8	66.9	62.0	67.0	68.3	68.5	69.0	68.8
50000	66.0	67.7	66.3	68.6	72.9	62.3	67.9	67.8	66.6	60.5	67.1	68.9	68.5	68.8	68.5
60000	66.5	67.4	66.3	68.9	73.1	62.2	68.0	67.9	66.3	59.5	66.9	68.7	69.0	69.0	68.2
70000	68.4	70.1	67.7	70.0	71.8	64.5	67.9	68.1	66.5	59.0	66.9	68.2	69.2	69.4	68.1
80000	76.9	72.1	72.8	70.6	79.9	78.2	68.4	68.2	66.9	60.3	66.9	68.2	69.2	69.5	68.4
90000	81.1	69.6	82.3	71.4	85.2	69.5	68.1	67.8	74.9	79.9	66.9	68.6	70.1	70.3	69.3
100000	79.2	69.9	78.4	72.1	77.6	69.3	68.8	68.0	75.4	88.8	72.7	69.4	71.3	71.3	70.6
110000	79.6	72.8	68.3	73.0	76.0	75.0	69.6	73.8	76.2	71.9	74.9	70.4	73.6	74.0	71.0
120000	73.1	73.0	74.6	74.8	73.5	76.0	73.7	74.9		72.1	74.8	70.4	74.2	75.4	70.4
130000	73.6	73.2	75.1	75.6	78.5	76.7	73.7	74.9	77.0	81.1	74.8	70.5	74.6	75.8	76.1
140000	74.2	73.7	75.6	75.4	77.8	75.7	74.1	74.7	78.4	69.0	73.7	74.1	75.1	76.6	76.4
150000	75.1	73.7	75.8	76.6	79.1	75.9	73.9	74.7	79.5	74.1	70.6	74.9	75.8	76.9	76.6
160000	74.8	73.7	74.6	77.6	79.6	75.8	73.4	74.4	80.0	75.4	69.2	75.0	76.7	77.7	76.9
170000	74.9	73.9	74.4	77.9	78.4	75.5	72.9	75.0	80.2	75.6	74.2	76.4	77.7	80.6	77.3
180000	74.8	73.7	74.2	77.3	76.9	75.6	72.9	75.5	80.3	75.7	74.3	76.5	77.7	80.8	78.1
190000	74.0	73.8	74.6	76.8	76.5	75.6	74.6	75.5	76.0	75.8	74.4	76.0	77.6	78.4	78.2
200000	73.3	73.8	74.1	76.8	76.1	75.4	74.6	75.2	75.8	75.6	74.3	73.6	77.2	75.8	77.3
210000	71.3	74.0	70.9	76.7	75.7	74.9	74.2	75.2	74.0	75.3	74.0	73.3	76.2	76.2	76.9
220000	69.2	73.9	71.0	76.9	75.5	74.7	73.5	74.7	72.6	75.1	71.0	73.3	75.8	77.5	76.3
230000	68.8	70.1	69.9	76.2	74.8	71.3	68.8	73.6	70.7	73.7	69.3	74.0	75.9	74.2	74.3
Daily Max	81.1	74.0	82.3	77.9	85.2	78.2	74.6	75.5	80.3	88.8	74.9	76.5	77.7	80.8	78.2
Daily Min	65.9	67.4	66.3	68.1	71.8	62.2	67.8	67.1	66.3	59.0	66.6	68.1	68.5	68.8	68.1
Average	72.0	71.4	71.9	73.2	76.5	71.6	70.8	71.5	72.8	71.0	70.6	71.3	73.7	73.9	72.8

Missing data due to equipment maintenance

Caldron Falls Tailwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	70.4	70.5	73.1	70.4	70.4	67.8	65.6	63.5	67.1	66.9	71.3	71.8	70.3	70.2	70.8	70.2
10000	69.6	70.0	72.8	69.8	70.6	66.5	64.6	63.1	65.3	66.7	71.2	71.0	69.8	70.2	70.7	70.4
20000	69.1	69.9	71.2	69.3	70.6	67.5	64.1	62.7	64.8	66.1	70.9	71.1	70.0	70.2	70.6	70.6
30000	68.1	70.2	70.4	69.2	70.4	67.6	65.0	62.1	66.1	65.0	70.9	70.7	69.7	70.2	70.5	70.4
40000	67.5	70.1	70.8	69.1	69.9	67.4	64.6	62.1	67.1	65.2	70.8	70.2	69.5	70.4	70.3	70.0
50000	67.8	69.8	71.1	68.9	69.6	66.0	63.8	61.7	66.6	64.9	71.0	70.1	69.5	70.3	70.1	69.8
60000	68.7	70.3	71.3	69.1	69.6	65.8	63.9	60.9	66.4	65.0	70.9	70.0	69.9	70.3	70.1	69.8
70000	68.9	70.3	71.4	69.2	69.9	67.2	69.8	63.0	67.3	65.3	71.2	69.9	70.1	70.1	70.3	70.1
80000	69.3	70.1	71.5	74.6	71.0	69.1	75.3	65.5	68.3	68.3	67.8	69.9	70.6	70.3	70.8	70.6
90000	70.5	70.0	75.2	74.8	72.7	71.0	75.4	68.2	75.1	73.7	71.3	70.3	70.9	70.8	71.3	71.0
100000	70.4	70.1	75.3	74.9	74.0	75.2	75.3	73.9	75.7	73.6	71.5	70.7	72.3	71.0	71.4	71.2
110000	70.5	76.1	75.4	75.1	75.0	75.3	75.1	74.6	76.2	74.4	71.8	71.2	72.3	71.4	71.8	71.3
120000	75.9	77.5	75.5	75.2	75.3	75.4	75.1	74.7	76.3	74.5	73.9	71.8	72.3	71.7	72.1	71.1
130000	75.7	77.6	75.7	75.4	75.5	75.7	75.3	74.9	76.4	74.7	74.4	71.6	72.0	71.3	71.8	71.0
140000	76.4	76.9	75.9	75.4	75.4	75.9	75.1	75.1	76.4	74.7	75.0	73.6	71.8	70.8	70.9	73.4
150000	76.2	76.6	75.8	75.4	75.7	76.1	74.8	74.9	76.7	74.7	75.4	73.7	71.7	71.6	73.9	73.4
160000	76.2	76.3	76.0	76.1	76.0	76.2	74.8	74.4	76.7	74.7	75.3	73.6	71.3	72.2	74.8	74.1
170000	76.3	76.5	76.6	76.4	76.0	76.3	74.7	73.7	76.5	74.9	75.2	73.7	71.0	72.8	75.2	74.6
180000	76.2	76.6	76.3	76.3	75.6	76.1	74.8	73.8	76.0	74.8	75.5	73.9	70.8	73.1	75.0	75.0
190000	76.0	75.9	76.1	76.0	75.5	75.8	75.0	73.7	75.8	73.2	75.1	73.7	71.1	73.4	74.6	74.8
200000	76.1	75.4	75.7	73.8	75.7	71.9	74.9	73.5	75.8	72.9	73.9	73.1	71.6	73.4	74.1	73.4
210000	76.1	75.1	75.6	72.4	75.5	71.2	68.4	73.3	75.6	72.2	73.4	72.2	71.0	73.1	73.7	73.3
220000	75.7	74.7	72.6	71.3	75.2	69.1	66.1	73.3	74.8	71.6	73.0	71.4	70.7	72.6	70.7	70.1
230000	71.7	73.8	70.9	70.7	69.9	66.8	64.3	71.7	68.0	71.5	73.2	70.8	70.2	71.2	70.2	69.3
Daily Max	76.4	77.6	76.6	76.4	76.0	76.3	75.4	75.1	76.7	74.9	75.5	73.9	72.3	73.4	75.2	75.0
Daily Min	67.5	69.8	70.4	68.9	69.6	65.8	63.8	60.9	64.8	64.9	67.8	69.9	69.5	70.1	70.1	69.3
Average	72.5	73.3	73.8	72.9	73.1	71.4	70.7	69.5	72.1	70.8	72.7	71.7	70.8	71.4	71.9	71.6

Peaking operation. Monitor out of water during refill period.

Monthly average: 71.6  
 License Maximum Monthly Average: 89 F

Caldron Falls Tailwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	69.5	69.9	69.9	70.0	70.1	70.6	70.7	70.1	72.6	71.0	70.7	69.7	69.5	70.2	
10000	69.8	69.8	69.9	69.8	70.3	70.2	70.8	69.9	72.5	70.9	70.4	69.8	69.4	70.0	
20000	70.2	69.8	69.8	69.7	70.1	70.1	70.8	69.9	72.4	70.7	70.3	69.8	69.5	70.0	
30000	70.1	69.7	70.0	69.9	70.0	70.1	70.7	69.8	72.1	70.5	70.1	69.7	69.7	69.9	
40000	69.9	69.5	69.8	70.4	70.0	70.2	70.5	69.9	71.9	70.3	69.9	69.6	69.7	69.9	
50000	69.9	69.5	69.8	70.8	70.2	70.1	70.3	70.0	71.8	70.2	69.8	69.5	69.6	69.8	
60000	70.1	69.4	69.6	70.8	70.4	70.3	70.2	70.1	71.6	70.1	69.7	69.4	69.3	69.7	
70000	70.0	69.9	69.7	70.7	70.2	70.1	70.1	70.3	71.4	70.1	69.8	69.3	69.1	69.8	
80000	70.1	70.5	69.8	71.0	70.4	70.4	70.4	70.4	71.3	70.2	69.9	69.6	69.4	69.9	
90000	70.3	71.0	70.1	71.3	71.3	70.6	70.6	70.9	71.2	70.6	70.3	70.0	69.8	70.1	
100000	70.2	70.9	70.3	71.4	71.9	70.4	70.8	71.2	71.4	70.8	70.6	70.2	70.0	70.5	
110000	71.3	71.1	70.7	73.5	72.5	71.1	71.1	71.9	71.6	71.0	70.8	70.5	70.4	71.0	
120000	71.9	74.1	71.4	73.6	72.8	71.4	71.3	73.0	71.8	71.1	71.0	70.6	70.6	71.3	
130000	71.7	74.4	71.1	73.7	72.9	71.6	71.6	73.6	71.9	71.4	71.1	70.5	70.8	71.4	
140000	71.6	75.3	71.0	74.1	73.0	72.0	71.7	73.8	71.8	71.5	71.2	70.2	71.1	71.9	
150000	75.7	76.1	71.0	74.7	73.6	72.3	71.8	73.7	71.6	71.7	71.4	70.4	71.4	71.9	
160000	76.2	76.0	71.1	75.0	74.6	72.7	71.5	73.7	71.6	71.7	71.4	70.0	71.6	71.2	
170000	76.4	75.8	71.5	74.3	74.3	72.4	71.0	73.6	71.5	71.9	71.1	70.0	71.6	71.0	
180000	76.1	75.7	74.0	74.3	74.2	72.3	71.2	73.4	71.3	72.1	70.8	70.1	71.7	71.3	
190000	75.6	75.7	73.3	73.9	74.0	71.8	71.0	73.2	71.3	72.2	70.6	70.0	71.5	71.1	
200000	75.4	75.2	73.0	72.1	73.8	71.7	70.4	73.1	71.2	72.0	70.4	69.8	71.3		
210000	73.1	74.6	72.9	71.3	73.6	71.2	70.0	72.9	71.2	71.7	70.1	69.6	71.2		
220000	70.1	71.4	72.9	69.5	73.0	70.8	69.9	72.9	71.1	71.3	69.8	69.6	71.0		
230000	70.2	69.9	70.0	69.7	71.1	70.7	70.0	72.7	71.0	71.0	69.7	69.5	70.6		
Daily Max	76.4	76.1	74.0	75.0	74.6	72.7	71.8	73.8	72.6	72.2	71.4	70.6	71.7	71.9	0.0
Daily Min	69.5	69.4	69.6	69.5	70.0	70.1	69.9	69.8	71.0	70.1	69.7	69.3	69.1	69.7	0.0
Average	71.9	72.3	70.9	71.9	72.0	71.0	70.8	71.8	71.6	71.1	70.5	69.9	70.4	70.6	#DIV/0!

From 8/22 at 0800 thru 8/30, powerhouse off-line for scheduled maintenance.  
 Missing data due to power failure

Caldron Falls Tailwater Temperature Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0		69.4	70.5	71.2	69.1	68.0	66.9	66.4	66.9	65.5	66.5	67.4	67.9	68.9	66.6	64.7
10000		69.3	70.3	71.2	69.1	67.9	66.9	66.5	66.3	65.2	66.0	66.4	68.3	69.1	66.4	64.6
20000		69.3	70.1	70.9	69.1	67.8	67.0	66.6	66.4	65.2	66.0	66.3	67.0	69.0	66.3	64.6
30000		69.3	70.0	70.9	69.0	67.7	67.2	66.8	66.4	65.3	65.9	66.1	65.2	68.8	66.2	64.5
40000		69.3	69.8	70.7	68.9	67.7	67.0	66.7	66.4	65.5	67.0	66.0	65.0	68.5	66.0	64.5
50000		69.5	69.8	70.6	68.8	67.6	66.9	66.7	66.4	65.6	66.9	65.9	65.1	68.2	65.9	64.3
60000		69.6	69.8	70.6	68.7	67.4	67.0	66.7	66.3	65.6	66.6	65.9	65.7	68.2	65.7	64.2
70000		69.7	69.5	70.6	68.7	67.4	66.8	66.6	66.3	65.5	66.1	65.8	66.1	68.1	65.6	64.2
80000		70.0	69.6	70.7	68.8	67.4	66.9	66.8	66.6	65.6	66.0	66.0	66.8	67.9	65.6	64.2
90000		70.1	69.1	70.6	68.8	67.6	67.2	67.0	66.7	65.8	66.0	66.3	66.8	67.8	65.6	64.3
100000		70.4	69.2	70.8	68.9	67.8	67.5	67.1	67.6	66.2	66.3	66.6	66.5	67.8	65.7	64.5
110000		70.6	69.1	70.8	68.8	68.4	68.1	67.2	68.0	66.4	67.0	68.2	66.5	68.0	65.9	64.8
120000	70.0	71.0	69.4	70.9	68.9	68.5	68.0	67.3	67.8	66.5	68.1	68.5	67.0	68.2	66.0	64.9
130000	70.1	71.5	69.6	70.8	69.1	68.5	68.0	67.1	67.7	66.6	68.6	69.1	67.5	68.3	66.0	65.0
140000	70.2	71.7	69.7	70.9	69.1	68.6	67.9	67.0	67.6	66.7	69.5	69.9	68.3	68.1	66.2	65.3
150000	70.1	71.9	69.8	70.8	69.1	68.5	67.9	66.5	67.6	66.7	70.0	71.5	68.6	67.9	66.1	65.3
160000	70.0	71.9	70.0	70.7	69.0	68.5	67.9	66.5	67.4	66.7	71.2	72.6	68.6	67.9	65.8	65.3
170000	69.9	71.6	70.1	70.4	68.8	68.4	67.9	66.5	67.2	66.8	71.0	73.2	68.8	67.7	65.7	65.4
180000	69.8	71.3	69.7	69.9	68.6	68.3	67.4	66.6	67.2	66.5	70.7	72.6	68.9	67.6	65.6	65.0
190000	69.7	70.7	69.6	69.4	68.5	68.2	67.0	66.5	67.2	65.9	69.6	71.5	69.2	67.3	65.5	65.0
200000	69.6	70.4	69.8	69.1	68.4	68.1	66.7	66.1	67.1	65.3	68.7	69.4	68.8	67.2	65.3	65.0
210000	69.5	70.4	70.1	69.0	68.3	67.9	66.6	65.8	67.1	65.2	68.3	68.2	68.4	67.0	65.1	64.8
220000	69.4	70.4	70.4	69.0	68.3	67.7	66.5	65.7	67.0	65.6	67.8	67.9	68.1	66.8	65.0	64.4
230000	69.4	70.4	70.8	69.1	68.1	67.0	66.5	67.4	65.8	66.3	67.8	67.9	68.5	66.7	64.9	64.1
Daily Max	70.2	71.9	70.8	71.2	69.1	68.6	68.1	67.4	68.0	66.8	71.2	73.2	69.2	69.1	66.6	65.4
Daily Min	69.4	69.3	69.1	69.0	68.1	67.0	66.5	65.7	65.8	65.2	65.9	65.8	65.0	66.7	64.9	64.1
Average	69.8	70.4	69.8	70.4	68.8	67.9	67.2	66.7	67.0	65.9	67.8	68.3	67.4	68.0	65.8	64.7

Monthly average: 64.1

License Maximum Monthly Average: 89 F

Missing data due to power failure



Caldron Falls Tailwater Temperature Summary - September 2011

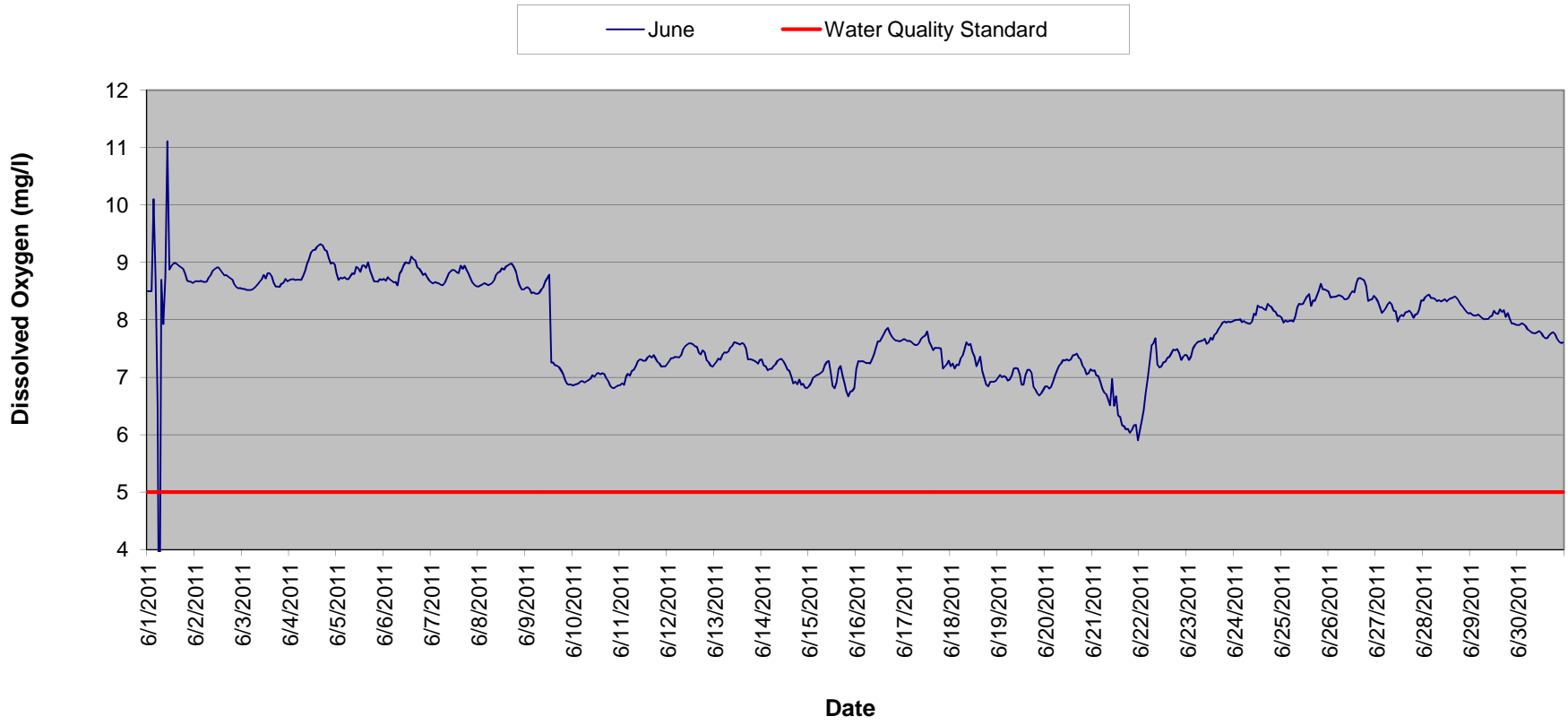
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	63.9	62.7	62.7	60.7	61.7	60.5	60.1	58.7	58.4	58.1	58.4	57.7	57.6	58.1
10000	63.7	62.6	62.8	60.7	60.9	60.2	60.0	58.4	58.2	58.0	58.4	57.4	56.9	58.0
20000	63.8	62.5	62.8	60.5	60.8	60.1	60.0	58.5	58.0	58.0	57.4	57.2	56.8	57.8
30000	63.7	62.5	62.8	60.2	60.9	59.8	59.9	58.1	58.0	57.9	56.8	57.2	56.6	57.4
40000	63.7	62.4	62.9	60.0	61.0	59.6	59.9	58.4	57.9	57.9	56.8	57.2	56.6	56.9
50000	63.6	62.4	62.8	59.9	61.0	59.6	59.9	58.0	58.0	57.8	56.5	57.3	56.7	56.1
60000	63.5	62.3	62.9	59.5	61.0	59.5	59.8	57.9	57.8	57.8	56.5	57.2	56.7	55.9
70000	63.4	62.3	62.9	59.5	60.8	59.4	59.8	58.1	58.8	57.7	56.7	57.2	57.1	55.7
80000	63.4	62.4	62.9	59.9	61.3	59.5	60.3	59.6	59.0	57.7	56.9	57.3	57.7	55.9
90000	63.6	62.6	63.0	61.0	61.6	61.3	60.5	59.8	59.1	57.6	57.3	57.7	58.8	55.9
100000	63.6	62.7	63.1	61.6	62.2	61.2	60.5	59.8	59.0	57.5	57.7	58.4	59.2	56.7
110000	63.8	63.0	63.3	62.0	62.4	61.3	60.8	59.9	58.9	57.6	58.5	58.6	59.2	57.0
120000	63.8	62.9	63.4	62.3	62.5	61.4	60.9	60.0	59.1	57.5	58.6	58.8	59.0	57.4
130000	63.7	62.8	63.4	62.3	62.6	61.1	60.9	59.9	58.9	57.5	58.7	58.7	59.2	57.4
140000	64.0	62.7	63.6	62.0	62.7	61.1	60.9	60.0	58.9	57.3	58.9	58.7	59.3	57.4
150000	63.9	62.7	63.9	61.7	62.7	61.0	60.6	59.8	58.8	57.4	59.3	58.7	59.3	57.4
160000	63.6	62.6	64.1	61.4	62.8	60.9	60.4	59.4	58.8	57.8	59.1	58.6	59.3	57.4
170000	63.2	62.6	64.1	61.2	62.8	60.8	60.7	59.0	58.8	57.9	59.3	58.6	59.2	57.4
180000	63.0	62.6	63.8	61.1	62.7	60.6	60.6	59.0	58.7	58.0	59.4	58.5	59.0	57.3
190000	62.9	62.8	63.6	61.0	62.4	60.3	60.5	59.1	58.7	58.3	59.2	58.6	58.9	57.2
200000	63.6	62.8	63.4	62.0	62.3	60.3	60.4	59.5	58.8	58.4	59.0	58.7	58.8	56.8
210000	63.4	62.8	63.2	62.2	62.2	60.1	60.3	59.5	58.7	58.4	59.0	58.6	58.7	56.2
220000	63.5	62.5	62.1	62.0	61.5	59.1	60.2	59.4	58.5	58.4	58.9	58.6	58.7	55.2
230000	62.7	62.3	61.1	62.0	61.0	60.1	59.1	58.6	58.2	58.4	58.7	58.6	58.6	55.0
Daily Max	64.0	63.0	64.1	62.3	62.8	61.4	60.9	60.0	59.1	58.4	59.4	58.8	59.3	58.1
Daily Min	62.7	62.3	61.1	59.5	60.8	59.1	59.1	57.9	57.8	57.3	56.5	57.2	56.6	55.0
Average	63.5	62.6	63.1	61.1	61.8	60.4	60.3	59.1	58.6	57.9	58.2	58.1	58.3	56.8

## **High Falls Hydroelectric Project**

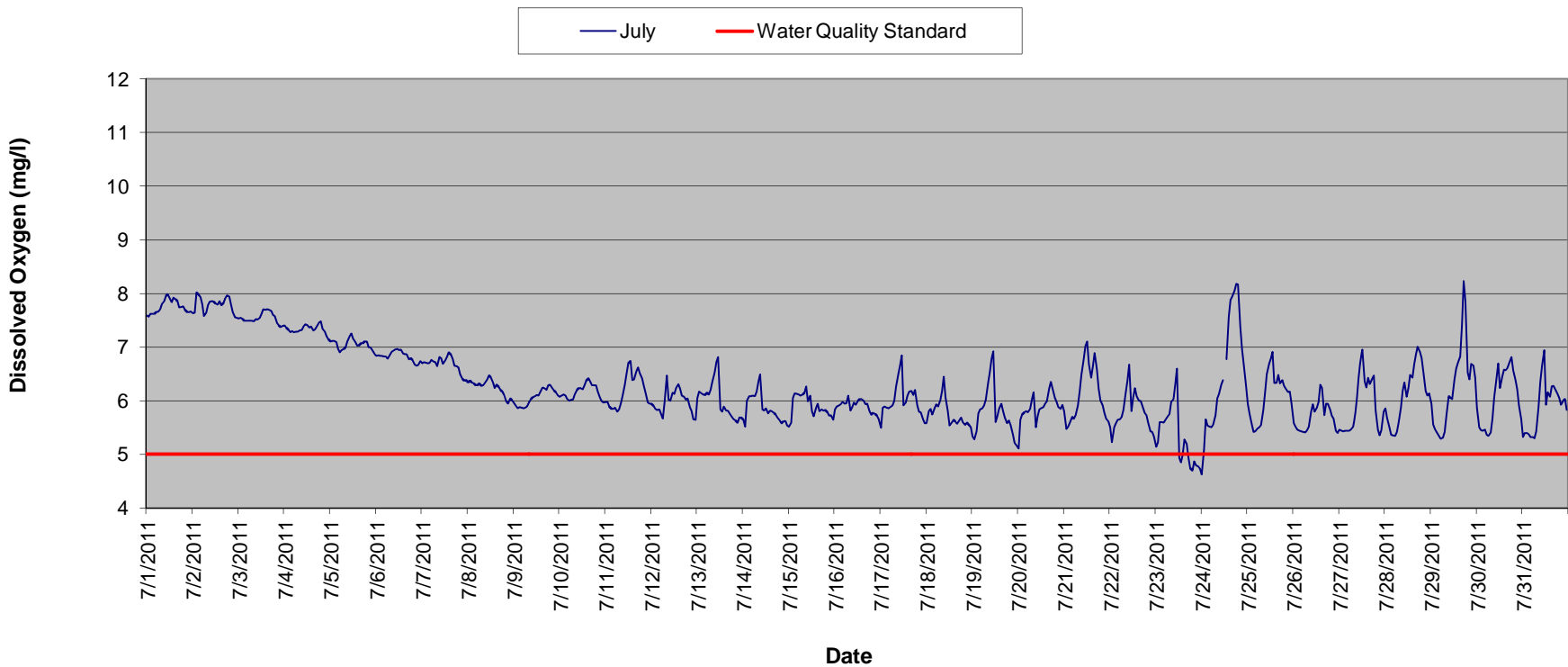
**FERC Project No. 2595**

## **High Falls Headwater Monitoring Location**

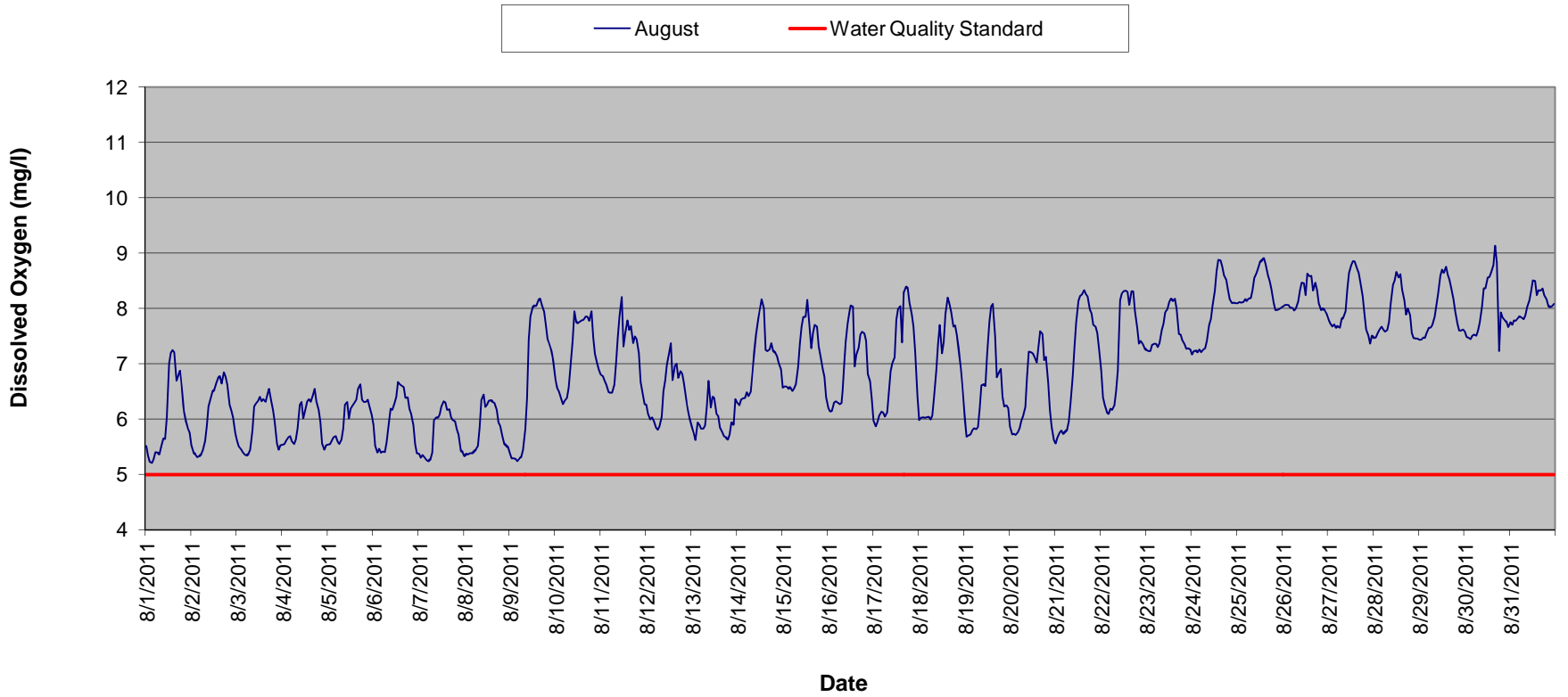
### Parkway Bridge Dissolved Oxygen - June 2011



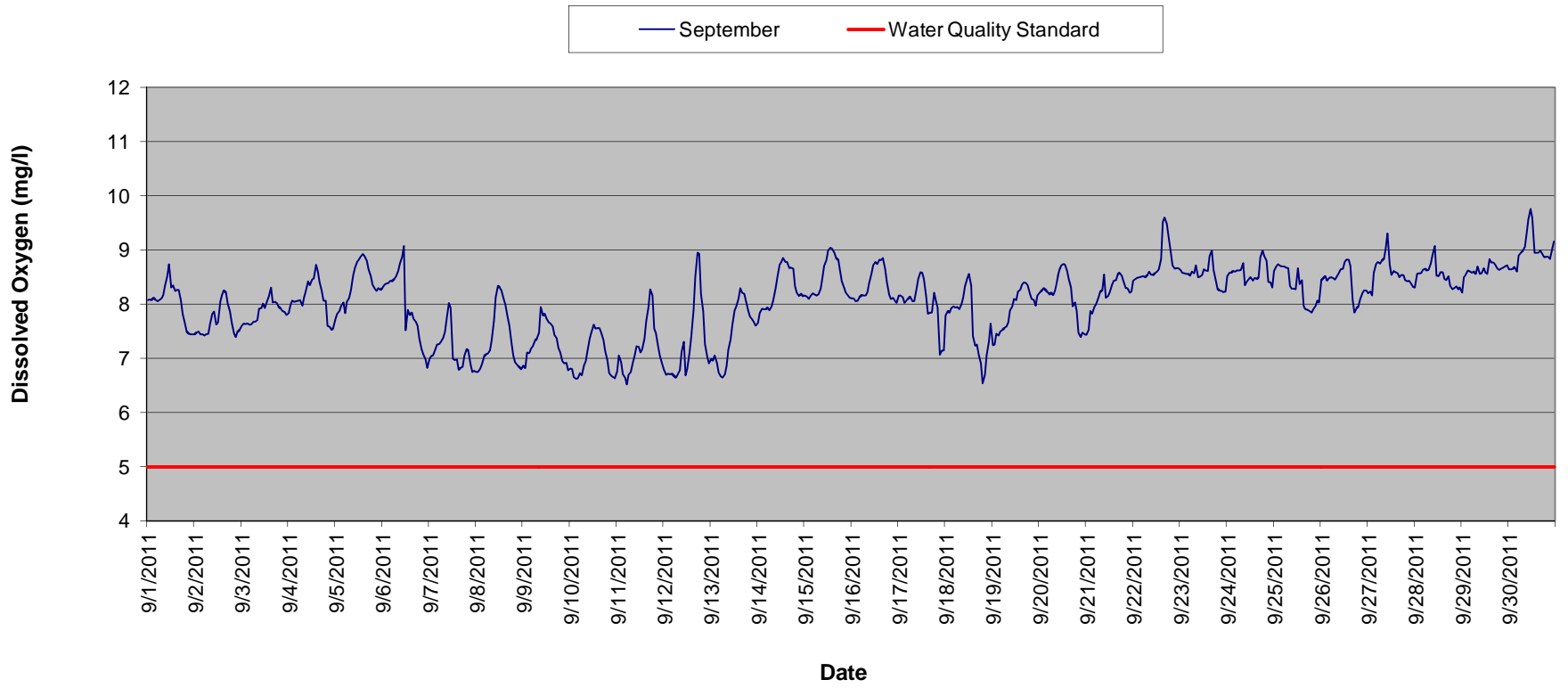
Parkway Bridge Dissolved Oxygen - July 2011



### Parkway Bridge Dissolved Oxygen - August 2011



### Parkway Bridge Dissolved Oxygen - September 2011



Parkway Bridge Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	8.5	8.7	8.5	8.7	8.8	8.7	8.7	8.6	8.6	6.9	6.9	7.2	7.2	7.3	6.8	7.1
10000	8.5	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.6	6.9	6.9	7.3	7.3	7.2	6.9	7.3
20000	8.5	8.7	8.5	8.7	8.7	8.7	8.7	8.6	8.5	6.9	6.9	7.3	7.3	7.2	7.0	7.3
30000	10.1	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.5	6.9	7.0	7.3	7.3	7.1	7.0	7.3
40000	8.7	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.5	6.9	7.1	7.4	7.4	7.1	7.0	7.3
50000	6.5	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.5	6.9	7.0	7.3	7.4	7.1	7.1	7.2
60000	1.1	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.5	6.9	7.1	7.3	7.4	7.2	7.1	7.2
70000	8.7	8.7	8.6	8.8	8.8	8.6	8.7	8.6	8.5	6.9	7.1	7.4	7.4	7.2	7.1	7.2
80000	7.9	8.8	8.6	8.9	8.8	8.8	8.7	8.7	8.5	7.0	7.2	7.5	7.5	7.3	7.2	7.3
90000	8.7	8.9	8.7	9.0	8.8	8.9	8.8	8.8	8.6	7.0	7.3	7.5	7.5	7.3	7.3	7.4
100000	11.1	8.9	8.7	9.1	8.9	8.9	8.8	8.8	8.7	7.0	7.3	7.6	7.6	7.3	7.3	7.5
110000	8.9	8.9	8.8	9.2	8.9	9.0	8.9	8.8	8.7	7.0	7.3	7.6	7.6	7.3	7.1	7.6
120000	8.9	8.9	8.7	9.2	8.8	9.0	8.9	8.9	8.8	7.1	7.3	7.6	7.6	7.2	6.9	7.6
130000	9.0	8.9	8.8	9.2	8.9	9.0	8.8	8.9	7.3	7.1	7.3	7.6	7.6	7.1	6.8	7.7
140000	9.0	8.8	8.8	9.3	8.9	9.1	8.8	8.9	7.3	7.0	7.3	7.5	7.6	7.1	6.9	7.8
150000	9.0	8.8	8.8	9.3	8.9	9.1	8.9	8.9	7.2	7.1	7.4	7.5	7.6	7.0	7.1	7.8
160000	8.9	8.8	8.6	9.3	9.0	9.0	8.9	9.0	7.2	7.1	7.3	7.4	7.5	6.9	7.2	7.9
170000	8.9	8.7	8.6	9.3	8.9	8.9	8.9	9.0	7.2	7.0	7.4	7.4	7.3	6.9	7.0	7.8
180000	8.9	8.7	8.6	9.2	8.8	8.9	8.9	8.9	7.1	6.9	7.3	7.5	7.3	6.9	6.9	7.7
190000	8.8	8.7	8.6	9.2	8.7	8.8	8.8	8.9	7.1	6.8	7.3	7.4	7.3	7.0	6.8	7.7
200000	8.7	8.6	8.6	9.1	8.7	8.8	8.7	8.7	7.0	6.8	7.2	7.3	7.3	6.9	6.7	7.6
210000	8.7	8.6	8.6	9.0	8.7	8.8	8.7	8.6	6.9	6.8	7.2	7.3	7.3	6.9	6.8	7.6
220000	8.7	8.5	8.7	9.0	8.7	8.7	8.6	8.5	6.9	6.8	7.2	7.2	7.2	6.8	6.8	7.6
230000	8.6	8.6	8.7	9.0	8.7	8.7	8.6	8.5	6.9	6.9	7.2	7.2	7.3	6.8	6.8	7.6
Daily Max	11.1	8.9	8.8	9.3	9.0	9.1	8.9	9.0	8.8	7.1	7.4	7.6	7.6	7.3	7.3	7.9
Daily Min	1.1	8.5	8.5	8.7	8.7	8.6	8.6	8.5	6.9	6.8	6.9	7.2	7.2	6.8	6.7	7.1
Average	8.5	8.7	8.6	9.0	8.8	8.8	8.7	8.7	7.9	6.9	7.2	7.4	7.4	7.1	7.0	7.5

Monthly Average D.O. 7.9  
 License Minimum DO: 5.0 mg/l

Anomalies - equipment malfunction



Parkway Bridge Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.7	7.2	7.0	6.8	7.1	6.1	7.4	8.0	8.0	8.5	8.4	8.3	8.1	7.9
10000	7.7	7.2	7.0	6.8	7.1	6.2	7.3	8.0	8.0	8.4	8.3	8.4	8.1	7.9
20000	7.6	7.2	7.0	6.8	7.0	6.4	7.4	8.0	8.0	8.4	8.2	8.4	8.1	7.9
30000	7.6	7.2	7.0	6.8	7.0	6.7	7.5	8.0	8.0	8.4	8.1	8.4	8.1	7.9
40000	7.6	7.2	7.0	6.9	6.9	7.0	7.6	8.0	8.0	8.4	8.2	8.4	8.1	7.9
50000	7.6	7.3	6.9	7.0	6.8	7.3	7.6	8.0	8.0	8.4	8.2	8.4	8.1	7.8
60000	7.6	7.4	7.0	7.1	6.7	7.6	7.6	8.0	8.0	8.4	8.3	8.4	8.0	7.8
70000	7.6	7.5	7.0	7.2	6.7	7.6	7.6	7.9	8.1	8.4	8.3	8.3	8.0	7.8
80000	7.6	7.6	7.2	7.2	6.6	7.7	7.6	7.9	8.2	8.4	8.3	8.3	8.0	7.8
90000	7.7	7.6	7.2	7.3	6.5	7.2	7.7	8.0	8.3	8.4	8.2	8.3	8.0	7.8
100000	7.7	7.6	7.2	7.3	7.0	7.2	7.6	8.1	8.3	8.4	8.2	8.3	8.1	7.8
110000	7.7	7.4	7.1	7.3	6.5	7.2	7.6	8.1	8.3	8.5	8.0	8.4	8.1	7.8
120000	7.8	7.4	6.9	7.3	6.7	7.3	7.7	8.3	8.4	8.5	8.1	8.3	8.2	7.8
130000	7.6	7.2	6.9	7.3	6.3	7.3	7.7	8.2	8.4	8.5	8.1	8.4	8.1	7.7
140000	7.6	7.3	7.0	7.4	6.3	7.3	7.7	8.2	8.5	8.6	8.1	8.4	8.1	7.7
150000	7.5	7.4	7.1	7.4	6.2	7.4	7.8	8.2	8.2	8.7	8.1	8.4	8.2	7.7
160000	7.5	7.1	7.1	7.4	6.2	7.4	7.8	8.2	8.3	8.7	8.1	8.4	8.1	7.7
170000	7.5	7.0	7.1	7.3	6.1	7.5	7.9	8.3	8.3	8.7	8.2	8.4	8.2	7.8
180000	7.5	6.9	6.8	7.3	6.1	7.5	8.0	8.2	8.4	8.7	8.1	8.3	8.0	7.8
190000	7.5	6.8	6.8	7.2	6.0	7.5	8.0	8.2	8.5	8.6	8.0	8.3	8.1	7.7
200000	7.2	6.9	6.7	7.2	6.1	7.4	8.0	8.2	8.6	8.3	8.1	8.2	8.0	7.7
210000	7.2	6.9	6.7	7.1	6.2	7.3	8.0	8.1	8.5	8.4	8.1	8.2	7.9	7.6
220000	7.2	6.9	6.7	7.1	6.2	7.4	8.0	8.1	8.5	8.4	8.2	8.1	7.9	7.6
230000	7.3	6.9	6.8	7.1	5.9	7.4	8.0	8.1	8.5	8.4	8.3	8.1	7.9	7.6
Daily Max	7.8	7.6	7.2	7.4	7.1	7.7	8.0	8.3	8.6	8.7	8.4	8.4	8.2	7.9
Daily Min	7.2	6.8	6.7	6.8	5.9	6.1	7.3	7.9	8.0	8.3	8.0	8.1	7.9	7.6
Average	7.5	7.2	7.0	7.2	6.5	7.2	7.7	8.1	8.3	8.5	8.2	8.3	8.1	7.8

Parkway Bridge Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.6	7.6	7.5	7.4	7.1	6.8	6.7	6.3	6.0	6.1	6.0	5.9	6.1	5.6	5.5	5.8
10000	7.6	7.6	7.5	7.4	7.1	6.8	6.7	6.4	5.9	6.1	6.0	5.9	6.2	5.5	5.6	5.9
20000	7.6	8.0	7.5	7.3	7.1	6.8	6.7	6.3	5.9	6.1	5.9	5.9	6.1	6.0	6.1	5.9
30000	7.6	8.0	7.5	7.3	7.1	6.8	6.7	6.3	5.9	6.1	5.9	5.8	6.1	6.1	6.1	5.9
40000	7.6	7.9	7.5	7.3	7.0	6.8	6.7	6.3	5.9	6.0	5.9	5.8	6.1	6.1	6.1	6.0
50000	7.7	7.8	7.5	7.3	6.9	6.8	6.8	6.3	5.9	6.0	5.9	5.8	6.2	6.1	6.1	5.9
60000	7.7	7.6	7.5	7.3	6.9	6.8	6.7	6.3	5.9	6.0	5.8	5.7	6.1	6.1	6.1	6.0
70000	7.7	7.6	7.5	7.3	7.0	6.8	6.7	6.3	5.9	6.0	5.8	6.0	6.2	6.2	6.1	6.1
80000	7.8	7.8	7.5	7.3	7.0	6.9	6.6	6.3	6.0	6.1	5.9	6.5	6.4	6.4	6.2	5.8
90000	7.9	7.8	7.5	7.3	7.1	6.9	6.8	6.3	6.0	6.2	6.1	6.0	6.5	6.5	6.3	5.9
100000	8.0	7.9	7.5	7.4	7.2	7.0	6.8	6.4	6.1	6.2	6.3	6.0	6.7	5.8	6.0	6.0
110000	8.0	7.8	7.5	7.4	7.3	7.0	6.7	6.5	6.1	6.2	6.5	6.2	6.8	5.8	6.1	5.9
120000	7.9	7.8	7.6	7.4	7.2	6.9	6.8	6.4	6.1	6.2	6.7	6.1	5.8	5.9	5.8	6.0
130000	7.8	7.8	7.7	7.4	7.1	7.0	6.8	6.3	6.1	6.3	6.7	6.2	5.8	5.8	5.7	6.0
140000	7.9	7.9	7.7	7.4	7.0	6.9	6.9	6.2	6.2	6.4	6.4	6.3	5.9	5.8	5.9	6.0
150000	7.9	7.8	7.7	7.3	7.0	6.9	6.9	6.3	6.3	6.4	6.4	6.2	5.8	5.8	6.0	6.0
160000	7.9	7.8	7.7	7.3	7.1	6.9	6.8	6.3	6.2	6.4	6.6	6.1	5.8	5.8	5.8	5.9
170000	7.7	7.9	7.7	7.4	7.1	6.8	6.7	6.2	6.2	6.3	6.6	6.1	5.8	5.7	5.8	6.0
180000	7.7	8.0	7.6	7.5	7.1	6.8	6.6	6.2	6.3	6.3	6.5	6.0	5.7	5.7	5.8	5.8
190000	7.8	7.9	7.6	7.5	7.1	6.8	6.6	6.1	6.3	6.3	6.4	6.0	5.7	5.6	5.8	5.7
200000	7.7	7.8	7.5	7.3	7.0	6.7	6.5	6.0	6.2	6.2	6.3	5.9	5.6	5.6	5.8	5.8
210000	7.6	7.7	7.4	7.3	7.0	6.6	6.4	5.9	6.2	6.1	6.2	5.8	5.6	5.6	5.7	5.8
220000	7.7	7.6	7.4	7.2	6.9	6.7	6.4	6.0	6.2	6.0	6.0	5.7	5.7	5.6	5.7	5.7
230000	7.7	7.6	7.4	7.1	6.9	6.7	6.4	6.0	6.1	6.0	5.9	5.6	5.7	5.5	5.6	5.7
Daily Max	8.0	8.0	7.7	7.5	7.3	7.0	6.9	6.5	6.3	6.4	6.7	6.5	6.8	6.5	6.3	6.1
Daily Min	7.6	7.6	7.4	7.1	6.9	6.6	6.4	5.9	5.9	6.0	5.8	5.6	5.6	5.5	5.5	5.7
Average	7.7	7.8	7.5	7.3	7.1	6.8	6.7	6.3	6.1	6.2	6.2	6.0	6.0	5.9	5.9	5.9

Average Monthly D.O. 6.3  
 License Minimum Dissolved Oxygen: 5.0 mg/l

Parkway Bridge Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	5.5	5.6	5.3	5.1	5.8	5.5	5.1	4.6		5.6	5.5	5.9	6.0	5.9	5.3
10000	5.9	5.8	5.3	5.6	5.5	5.2	5.2	5.1		5.5	5.4	5.7	5.6	5.5	5.4
20000	5.9	5.9	5.4	5.7	5.5	5.5	5.6	5.7		5.5	5.4	5.5	5.5	5.5	5.4
30000	5.9	5.7	5.8	5.8	5.6	5.6	5.6	5.5		5.4	5.4	5.4	5.4	5.4	5.4
40000	5.9	5.9	5.8	5.8	5.7	5.6	5.6	5.5		5.4	5.4	5.4	5.3	5.5	5.3
50000	5.9	5.9	5.9	5.8	5.7	5.7	5.6	5.5		5.4	5.4	5.3	5.3	5.4	5.3
60000	5.9	5.9	5.9	5.9	5.7	5.7	5.7	5.6		5.4	5.5	5.4	5.3	5.3	5.3
70000	6.0	6.0	6.0	6.0	5.9	5.8	5.8	5.7		5.5	5.5	5.6	5.4	5.4	5.4
80000	6.3	6.2	6.3	6.2	6.2	6.2	6.0	6.0		5.5	5.7	5.9	5.7	5.7	5.9
90000	6.5	6.5	6.5	5.5	6.5	6.4	6.0	6.1		5.8	6.0	6.2	6.1	6.1	6.3
100000	6.7	6.1	6.8	5.7	6.8	6.7	6.3	6.3		5.9	6.5	6.3	6.1	6.4	6.6
110000	6.9	5.8	6.9	5.8	7.0	5.8	6.6	6.4		5.8	6.8	6.1	6.0	6.7	6.9
120000	5.9	5.5	5.6	5.9	7.1	6.1	4.9		6.8	5.9	7.0	6.2	6.4	6.2	5.9
130000	6.0	5.6	5.7	5.9	6.7	6.2	4.9		6.9	6.0	6.4	6.5	6.6	6.5	6.2
140000	6.1	5.6	5.9	5.9	6.4	6.1	5.0		6.3	6.3	6.3	6.4	6.7	6.6	6.1
150000	6.2	5.6	6.0	6.0	6.6	6.0	5.3		6.3	6.2	6.4	6.7	6.8	6.6	6.3
160000	6.2	5.6	5.8	6.2	6.9	6.0	5.2		6.5	5.7	6.3	6.9	7.4	6.6	6.3
170000	6.1	5.6	5.7	6.4	6.6	5.9	4.9		6.3	5.9	6.4	7.0	8.2	6.7	6.2
180000	6.2	5.7	5.6	6.2	6.2	5.8	4.7		6.4	6.0	6.5	6.9	7.9	6.8	6.1
190000	5.9	5.6	5.6	6.1	6.0	5.7	4.7		6.3	5.8	5.8	6.8	6.5	6.6	6.1
200000	5.8	5.6	5.6	6.0	5.9	5.6	4.9		6.2	5.7	5.5	6.5	6.4	6.4	5.9
210000	5.8	5.6	5.4	5.9	5.8	5.4	4.8		6.2	5.7	5.4	6.2	6.7	6.2	6.0
220000	5.7	5.6	5.2	5.9	5.7	5.4	4.8		6.2	5.4	5.5	6.1	6.7	5.9	6.0
230000	5.6	5.5	5.2	5.9	5.6	5.3	4.7		6.0	5.4	5.8	6.1	6.4	5.7	5.8
Daily Max	6.9	6.5	6.9	6.4	7.1	6.7	6.6	6.4	6.9	6.3	7.0	7.0	8.2	6.8	6.9
Daily Min	5.5	5.5	5.2	5.1	5.5	5.2	4.7	4.6	6.0	5.4	5.4	5.3	5.3	5.3	5.3
Average	6.0	5.8	5.8	5.9	6.1	5.8	5.3	5.7	6.4	5.7	5.9	6.1	6.3	6.1	5.9

Missing data due to equipment malfunction - loss of power  
 Below water quality standard

Parkway Bridge Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	5.5	5.5	5.6	5.5	5.5	5.9	5.4	5.3	5.4	6.7	6.8	5.9	6.3	6.6	6.2	6.0
10000	5.3	5.4	5.5	5.6	5.6	5.5	5.3	5.4	5.3	6.6	6.8	5.8	6.3	6.6	6.1	5.9
20000	5.2	5.4	5.5	5.6	5.6	5.4	5.4	5.4	5.3	6.5	6.7	5.6	6.4	6.6	6.2	6.0
30000	5.2	5.3	5.4	5.7	5.7	5.5	5.3	5.4	5.3	6.4	6.6	5.9	6.4	6.6	6.3	6.1
40000	5.3	5.3	5.4	5.7	5.7	5.4	5.3	5.4	5.2	6.3	6.5	5.9	6.4	6.6	6.3	6.1
50000	5.4	5.4	5.3	5.6	5.6	5.4	5.2	5.4	5.3	6.3	6.5	5.8	6.5	6.5	6.3	6.1
60000	5.4	5.4	5.4	5.6	5.6	5.4	5.3	5.5	5.3	6.4	6.5	5.8	6.4	6.6	6.3	6.1
70000	5.4	5.6	5.5	5.6	5.6	5.6	5.4	5.5	5.5	6.6	6.6	5.9	6.5	6.6	6.3	6.1
80000	5.5	5.9	5.8	5.8	5.8	5.9	6.0	5.9	5.8	6.9	7.0	6.2	6.8	7.0	6.7	6.5
90000	5.7	6.2	6.2	6.3	6.3	6.2	6.0	6.3	6.4	7.4	7.5	6.7	7.2	7.4	7.2	6.9
100000	5.6	6.4	6.3	6.3	6.3	6.2	6.0	6.5	7.4	8.0	7.9	6.2	7.5	7.7	7.7	7.0
110000	6.0	6.5	6.3	6.0	6.0	6.3	6.1	6.2	7.9	7.8	8.2	6.4	7.8	7.9	7.9	7.1
120000	7.0	6.5	6.4	6.2	6.2	6.4	6.2	6.3	8.0	7.7	7.3	6.4	8.0	7.9	8.1	7.8
130000	7.2	6.7	6.3	6.3	6.2	6.7	6.3	6.3	8.1	7.8	7.4	6.1	8.2	8.2	8.0	8.0
140000	7.3	6.8	6.4	6.4	6.3	6.6	6.3	6.3	8.1	7.8	6.7	6.1	8.0	7.8	7.0	8.0
150000	7.2	6.8	6.3	6.3	6.4	6.6	6.2	6.3	8.2	7.8	7.0	5.9	7.3	7.3	7.2	7.4
160000	6.7	6.6	6.4	6.4	6.6	6.6	6.2	6.3	8.2	7.9	7.0	5.8	7.2	7.6	7.3	8.3
170000	6.8	6.9	6.6	6.6	6.6	6.4	6.0	6.2	8.1	7.9	6.8	5.7	7.3	7.7	7.5	8.4
180000	6.9	6.8	6.3	6.3	6.4	6.4	6.0	5.9	7.9	7.8	6.9	5.7	7.4	7.7	7.6	8.4
190000	6.5	6.6	6.2	6.2	6.3	6.2	6.0	5.9	7.7	8.0	6.8	5.6	7.2	7.3	7.6	8.1
200000	6.1	6.3	6.0	6.0	6.3	6.1	5.8	5.7	7.5	7.5	6.6	5.7	7.2	7.2	7.4	7.9
210000	6.0	6.2	5.6	5.6	6.4	5.9	5.7	5.6	7.3	7.2	6.4	5.9	7.1	6.9	6.8	7.7
220000	5.8	6.0	5.5	5.5	6.2	5.6	5.4	5.5	7.2	7.0	6.2	5.9	7.0	6.8	6.7	7.2
230000	5.8	5.8	5.5	5.5	6.1	5.4	5.4	5.5	7.1	6.9	6.0	6.4	6.9	6.4	6.4	6.4
Daily Max	7.3	6.9	6.6	6.6	6.6	6.7	6.3	6.5	8.2	8.0	8.2	6.7	8.2	8.2	8.1	8.4
Daily Min	5.2	5.3	5.3	5.5	5.5	5.4	5.2	5.3	5.2	6.3	6.0	5.6	6.3	6.4	6.1	5.9
Average	6.0	6.1	5.9	5.9	6.0	6.0	5.8	5.8	6.8	7.2	6.9	6.0	7.1	7.1	7.0	7.1

Monthly Average D.O. 7.0  
 License Minimum Dissolved Oxygen: 5.0 mg/l

Parkway Bridge Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	6.0	6.0	5.9	5.6	6.9	6.9	7.3	7.2	8.1	8.0	7.8	7.5	7.4	7.6	7.8
10000	6.0	5.7	5.7	5.7	6.4	6.4	7.2	7.2	8.1	8.1	7.7	7.5	7.4	7.5	7.7
20000	6.0	5.7	5.7	5.8	6.3	6.3	7.2	7.2	8.1	8.1	7.7	7.5	7.5	7.5	7.8
30000	6.0	5.7	5.7	5.8	6.1	6.1	7.3	7.2	8.1	8.1	7.7	7.6	7.5	7.5	7.8
40000	6.0	5.8	5.8	5.7	6.1	6.1	7.4	7.3	8.2	8.0	7.7	7.7	7.6	7.5	7.8
50000	6.1	5.8	5.8	5.8	6.2	6.2	7.4	7.2	8.1	8.0	7.7	7.6	7.7	7.5	7.9
60000	6.0	5.8	6.0	5.8	6.2	6.2	7.3	7.3	8.2	8.0	7.7	7.6	7.7	7.5	7.8
70000	6.1	5.9	6.1	6.0	6.3	6.3	7.4	7.3	8.2	8.0	7.8	7.6	7.7	7.6	7.8
80000	6.4	6.2	6.2	6.3	6.5	6.5	7.6	7.4	8.3	8.1	7.8	7.8	7.8	7.8	7.9
90000	6.9	6.6	6.8	6.8	6.9	6.9	7.7	7.7	8.6	8.3	8.0	8.1	8.1	8.0	8.0
100000	7.4	6.6	7.2	7.3	8.2	8.2	7.9	7.8	8.6	8.5	8.3	8.4	8.3	8.4	8.1
110000	7.7	6.6	7.2	7.8	8.3	8.3	8.0	8.1	8.7	8.5	8.6	8.5	8.6	8.4	8.3
120000	7.2	7.2	7.2	8.1	8.3	8.3	8.1	8.3	8.8	8.2	8.8	8.7	8.7	8.6	8.5
130000	7.4	7.8	7.1	8.2	8.3	8.3	8.2	8.7	8.9	8.6	8.9	8.6	8.6	8.6	8.5
140000	7.9	8.0	7.0	8.3	8.3	8.3	8.1	8.9	8.9	8.6	8.8	8.6	8.8	8.7	8.2
150000	8.2	8.1	7.3	8.3	8.1	8.1	8.2	8.9	8.8	8.6	8.7	8.3	8.6	8.8	8.3
160000	8.1	7.5	7.6	8.3	8.3	8.3	8.0	8.8	8.6	8.3	8.6	8.2	8.5	9.1	8.3
170000	7.9	6.8	7.5	8.2	8.3	8.3	7.5	8.6	8.5	8.5	8.5	7.9	8.3	8.8	8.4
180000	7.7	6.8	7.1	8.0	8.0	8.0	7.5	8.5	8.4	8.3	8.2	8.0	8.2	7.2	8.2
190000	7.7	6.9	7.1	7.9	7.7	7.7	7.4	8.3	8.1	8.1	7.9	7.9	7.9	7.9	8.2
200000	7.5	6.4	6.7	7.7	7.4	7.4	7.4	8.2	8.0	8.0	7.6	7.6	7.7	7.8	8.1
210000	7.2	6.2	6.2	7.7	7.4	7.4	7.3	8.1	8.0	8.0	7.5	7.5	7.6	7.8	8.0
220000	6.9	6.3	5.9	7.6	7.4	7.4	7.3	8.1	8.0	8.0	7.4	7.5	7.6	7.8	8.0
230000	6.6	6.2	5.6	7.3	7.3	7.3	7.3	8.1	8.0	7.9	7.5	7.5	7.6	7.7	8.1
Daily Max	8.2	8.1	7.6	8.3	8.3	8.3	8.2	8.9	8.9	8.6	8.9	8.7	8.8	9.1	8.5
Daily Min	6.0	5.7	5.6	5.6	6.1	6.1	7.2	7.2	8.0	7.9	7.4	7.5	7.4	7.2	7.7
Average	7.0	6.5	6.5	7.1	7.3	7.3	7.6	7.9	8.3	8.2	8.0	7.9	8.0	8.0	8.1

Parkway Bridge Dissolved Oxygen Summary - September 2011

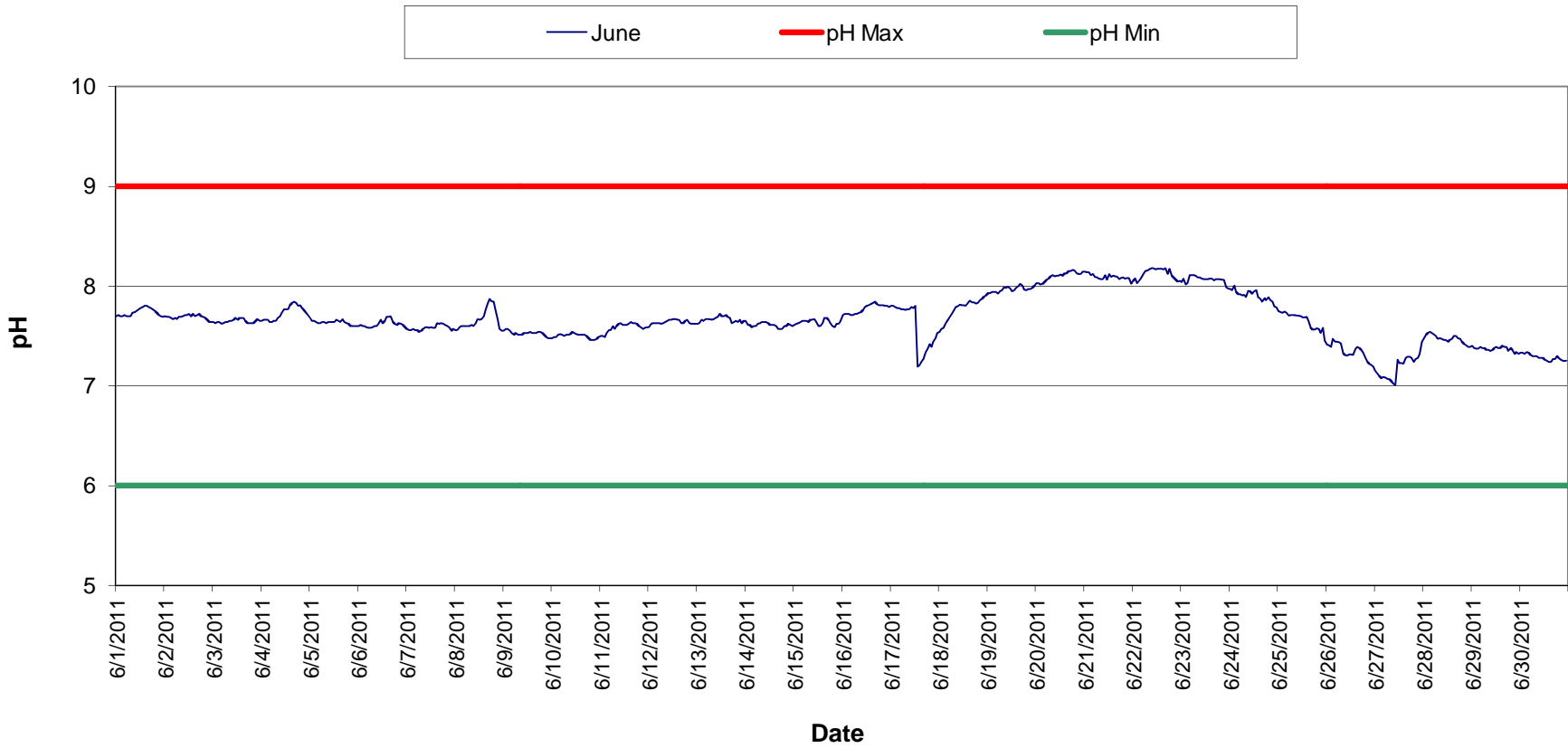
Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0:00:00	8.1	7.5	7.6	7.8	7.7	8.3	7.0	6.8	6.9	6.8	6.8	6.8	7.0	7.7	8.2	8.1
1:00:00	8.1	7.5	7.7	8.0	7.8	8.4	7.1	6.8	6.8	6.8	7.1	6.7	7.0	7.8	8.1	8.1
2:00:00	8.1	7.5	7.6	8.1	7.9	8.4	7.1	6.8	7.1	6.7	6.9	6.7	7.1	7.9	8.1	8.1
3:00:00	8.1	7.5	7.6	8.0	8.0	8.4	7.2	6.9	7.1	6.6	6.7	6.7	6.9	7.9	8.1	8.1
4:00:00	8.1	7.4	7.6	8.1	8.0	8.4	7.3	7.1	7.2	6.6	6.6	6.7	6.7	7.9	8.2	8.1
5:00:00	8.1	7.4	7.6	8.1	7.8	8.4	7.3	7.1	7.2	6.7	6.5	6.7	6.7	7.9	8.2	8.2
6:00:00	8.1	7.5	7.7	8.1	8.1	8.5	7.3	7.1	7.3	6.7	6.7	6.6	6.6	7.9	8.2	8.2
7:00:00	8.1	7.5	7.7	8.0	8.1	8.5	7.4	7.2	7.4	6.9	6.7	6.7	6.7	8.0	8.2	8.2
8:00:00	8.2	7.6	7.7	8.1	8.3	8.6	7.5	7.3	7.5	7.0	6.9	6.8	6.9	8.1	8.3	8.2
9:00:00	8.3	7.8	7.9	8.3	8.5	8.8	7.7	7.7	8.0	7.1	7.1	7.1	7.2	8.3	8.5	8.4
10:00:00	8.5	7.9	7.9	8.4	8.7	8.9	8.0	8.1	7.8	7.4	7.2	7.3	7.3	8.5	8.7	8.6
11:00:00	8.7	7.6	8.0	8.4	8.8	9.1	7.9	8.3	7.8	7.5	7.2	6.7	7.6	8.7	8.8	8.7
12:00:00	8.3	7.7	7.9	8.5	8.8	7.5	7.0	8.3	7.7	7.6	7.1	6.8	7.9	8.8	9.0	8.8
13:00:00	8.4	8.1	8.1	8.5	8.9	7.9	7.0	8.3	7.7	7.5	7.2	7.1	8.0	8.9	9.0	8.7
14:00:00	8.2	8.2	8.1	8.7	8.9	7.8	7.0	8.1	7.6	7.6	7.4	7.4	8.1	8.8	9.0	8.8
15:00:00	8.3	8.3	8.3	8.6	8.9	7.8	6.8	8.0	7.6	7.6	7.7	7.9	8.3	8.8	8.9	8.8
16:00:00	8.3	8.2	8.0	8.4	8.8	7.7	6.8	7.8	7.4	7.5	8.0	8.5	8.2	8.7	8.9	8.9
17:00:00	8.1	8.0	8.0	8.2	8.6	7.7	6.9	7.6	7.4	7.3	8.3	8.9	8.2	8.7	8.8	8.7
18:00:00	7.8	7.9	8.0	8.1	8.5	7.6	7.1	7.3	7.2	7.1	8.2	8.9	8.1	8.7	8.6	8.4
19:00:00	7.7	7.7	8.0	8.1	8.4	7.4	7.2	7.0	7.1	7.0	7.6	8.2	7.9	8.3	8.4	8.2
20:00:00	7.5	7.5	7.9	7.6	8.3	7.2	7.1	6.9	7.0	6.7	7.5	7.9	7.8	8.2	8.3	8.1
21:00:00	7.5	7.4	7.9	7.6	8.3	7.1	6.9	6.9	6.9	6.7	7.2	7.3	7.7	8.2	8.2	8.1
22:00:00	7.5	7.5	7.9	7.5	8.3	7.0	6.8	6.9	6.9	6.7	7.0	7.0	7.7	8.2	8.2	8.1
23:00:00	7.4	7.5	7.8	7.6	8.3	6.8	6.8	6.8	6.8	6.6	6.9	6.9	7.6	8.1	8.1	8.0
Daily Max	8.7	8.3	8.3	8.7	8.9	9.1	8.0	8.3	8.0	7.6	8.3	8.9	8.3	8.9	9.0	8.9
Daily Min	7.4	7.4	7.6	7.5	7.7	6.8	6.8	6.8	6.8	6.6	6.5	6.6	6.6	7.7	8.1	8.0
Average	8.1	7.7	7.9	8.1	8.4	8.0	7.2	7.4	7.3	7.0	7.2	7.3	7.5	8.3	8.5	8.4

Average Monthly D.O. 8.0  
 License Minimum Dissolved Oxygen: 5.0 mg/l

Parkway Bridge Dissolved Oxygen Summary - September 2011

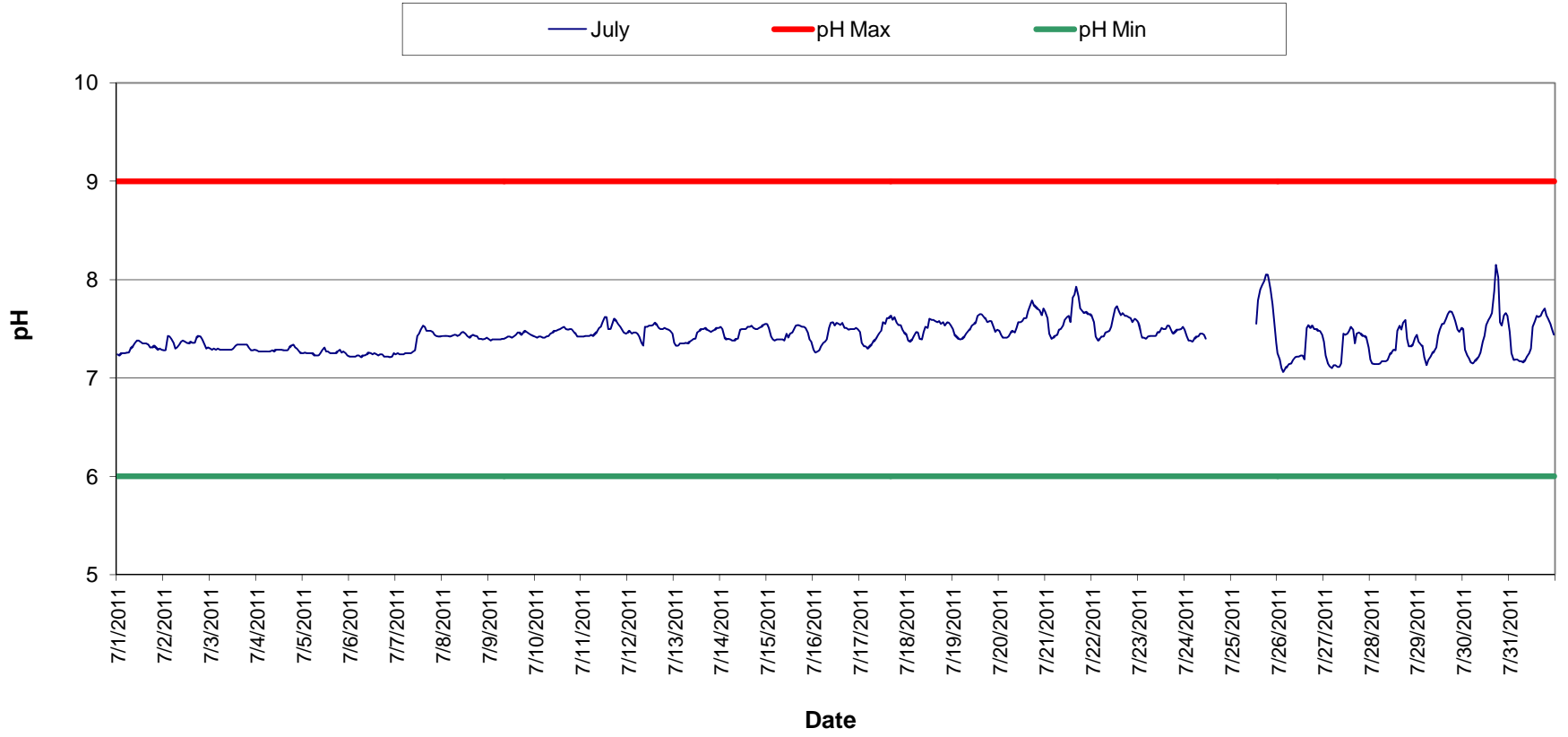
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0:00:00	8.2	7.8	7.2	8.2	7.4	8.4	8.6	8.5	8.6	8.4	8.2	8.3	8.2	8.6
1:00:00	8.2	7.9	7.3	8.2	7.5	8.5	8.6	8.6	8.7	8.5	8.2	8.6	8.5	8.6
2:00:00	8.1	7.9	7.5	8.3	7.9	8.5	8.6	8.6	8.7	8.5	8.2	8.6	8.6	8.7
3:00:00	8.0	7.9	7.4	8.3	7.8	8.5	8.6	8.6	8.7	8.4	8.6	8.6	8.6	8.7
4:00:00	8.1	8.0	7.5	8.2	8.0	8.5	8.6	8.6	8.7	8.5	8.7	8.6	8.6	8.6
5:00:00	8.1	7.9	7.5	8.2	8.0	8.5	8.5	8.6	8.7	8.5	8.8	8.7	8.6	8.9
6:00:00	8.1	8.0	7.6	8.2	8.1	8.5	8.6	8.6	8.7	8.5	8.8	8.6	8.6	8.9
7:00:00	8.1	7.9	7.6	8.2	8.2	8.5	8.6	8.6	8.7	8.5	8.8	8.6	8.6	9.0
8:00:00	8.1	8.0	7.7	8.3	8.3	8.6	8.7	8.8	8.3	8.5	8.9	8.7	8.7	9.1
9:00:00	8.3	8.1	7.9	8.5	8.5	8.5	8.5	8.4	8.3	8.6	9.0	8.9	8.6	9.3
10:00:00	8.5	8.3	8.0	8.6	8.1	8.5	8.5	8.4	8.3	8.6	9.3	9.1	8.6	9.6
11:00:00	8.6	8.5	8.1	8.7	8.1	8.6	8.5	8.5	8.3	8.7	8.7	8.5	8.7	9.8
12:00:00	8.6	8.6	8.1	8.7	8.2	8.6	8.6	8.5	8.7	8.8	8.5	8.5	8.6	9.6
13:00:00	8.5	8.3	8.2	8.7	8.4	8.6	8.6	8.4	8.4	8.8	8.6	8.6	8.6	9.0
14:00:00	8.1	7.4	8.3	8.6	8.4	8.8	8.6	8.5	8.4	8.8	8.6	8.6	8.8	9.0
15:00:00	7.8	7.2	8.4	8.5	8.4	9.5	8.9	8.5	8.0	8.7	8.6	8.5	8.8	9.0
16:00:00	7.8	7.3	8.4	8.3	8.5	9.6	9.0	8.5	7.9	8.1	8.5	8.4	8.8	9.0
17:00:00	7.8	7.1	8.4	8.0	8.6	9.5	8.6	8.9	7.9	7.8	8.5	8.5	8.7	8.9
18:00:00	8.2	6.9	8.3	8.0	8.5	9.3	8.4	9.0	7.9	7.9	8.5	8.3	8.7	8.9
19:00:00	8.1	6.5	8.2	7.9	8.4	9.0	8.3	8.9	7.8	8.0	8.4	8.3	8.6	8.9
20:00:00	7.9	6.7	8.1	7.5	8.3	8.7	8.3	8.8	7.9	8.1	8.4	8.3	8.7	8.9
21:00:00	7.1	7.1	8.1	7.4	8.3	8.7	8.2	8.4	8.0	8.2	8.4	8.3	8.7	8.8
22:00:00	7.1	7.3	8.0	7.5	8.2	8.7	8.2	8.4	8.1	8.3	8.4	8.3	8.7	9.0
23:00:00	7.1	7.6	8.2	7.4	8.2	8.7	8.2	8.3	8.0	8.3	8.3	8.3	8.7	9.2
Daily Max	8.6	8.6	8.4	8.7	8.6	9.6	9.0	9.0	8.7	8.8	9.3	9.1	8.8	9.8
Daily Min	7.1	6.5	7.2	7.4	7.4	8.4	8.2	8.3	7.8	7.8	8.2	8.3	8.2	8.6
Average	8.0	7.7	7.9	8.2	8.2	8.7	8.5	8.6	8.3	8.4	8.6	8.5	8.6	9.0

### Parkway Bridge pH Summary - June 2011

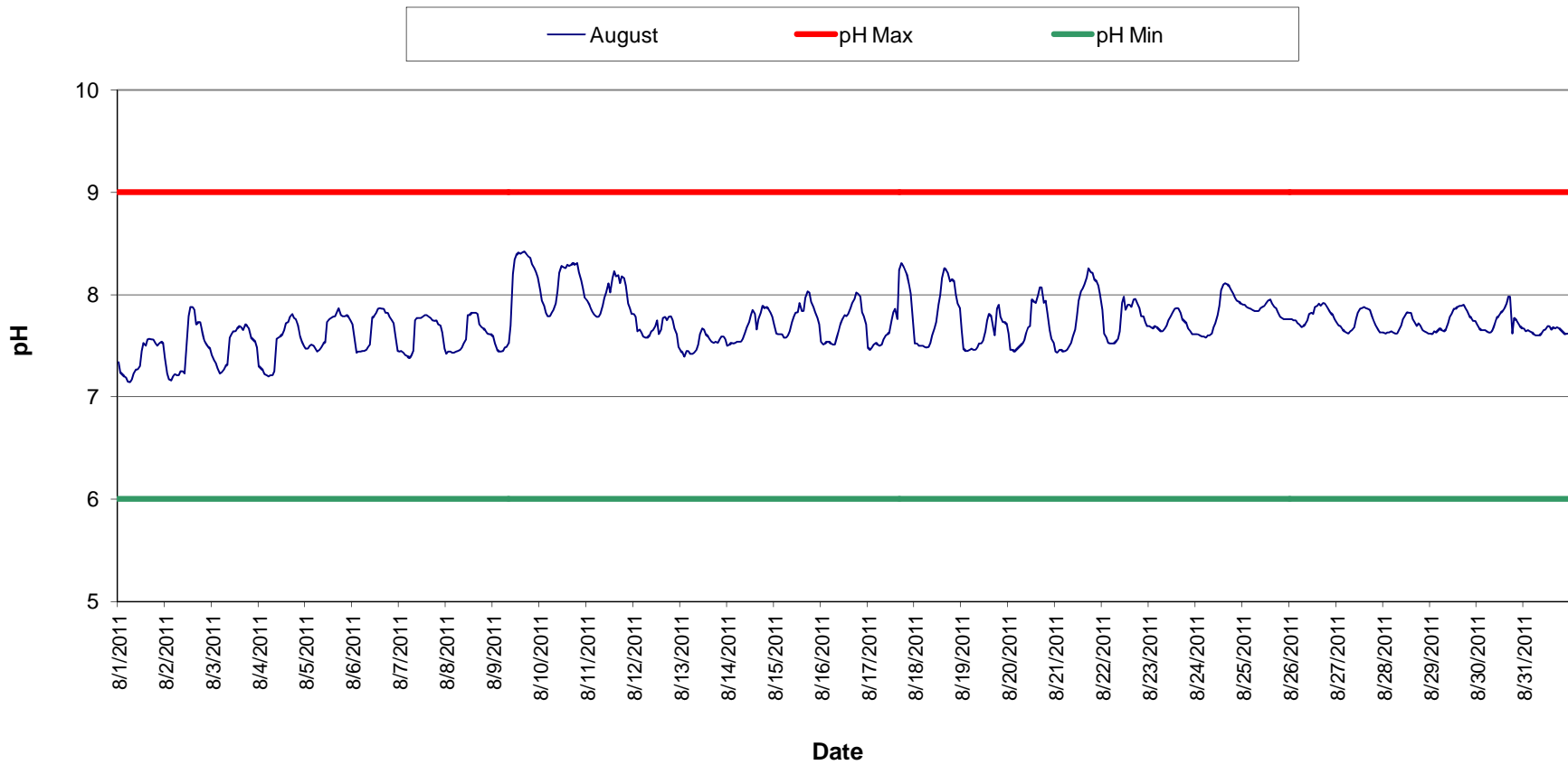




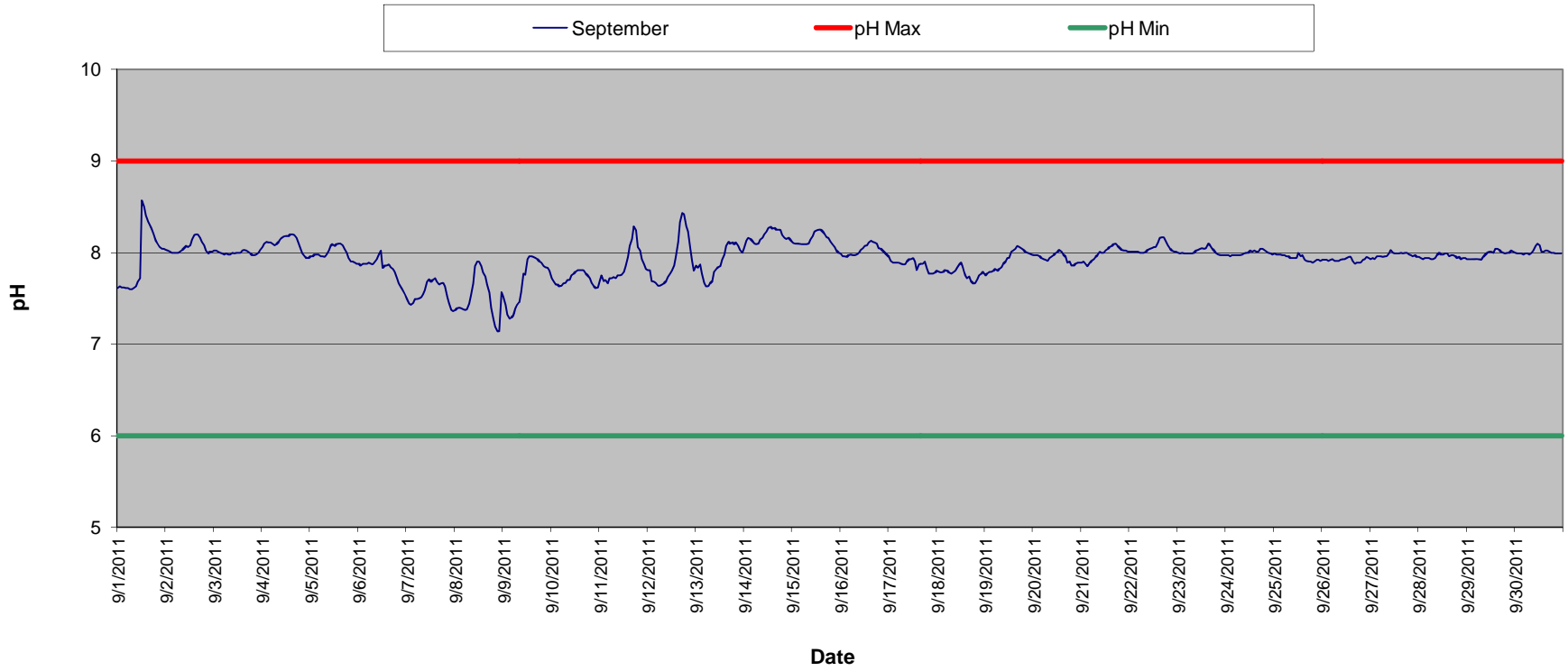
### Parkway Bridge pH Summary - July 2011



### Parkway Bridge pH Summary - August 2011



### Parkway Bridge pH Summary - September 2011



Parkway Bridge pH Summary - June 2011

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

License max pH: 9

License min pH: 6

Parkway Bridge pH Summary - June 2011

Time	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.8	7.5	7.9	8.0	8.1	8.1	8.0	8.0	7.7	7.4	7.2	7.5	7.4	7.3
10000	7.8	7.6	7.9	8.0	8.1	8.1	8.1	8.0	7.7	7.4	7.1	7.5	7.4	7.3
20000	7.8	7.6	7.9	8.0	8.1	8.0	8.0	8.0	7.7	7.4	7.1	7.5	7.4	7.3
30000	7.8	7.6	7.9	8.0	8.1	8.1	8.0	7.9	7.7	7.5	7.1	7.5	7.4	7.3
40000	7.8	7.7	7.9	8.0	8.1	8.1	8.1	7.9	7.7	7.4	7.1	7.5	7.4	7.3
50000	7.8	7.7	7.9	8.1	8.1	8.1	8.1	7.9	7.7	7.4	7.1	7.5	7.4	7.3
60000	7.8	7.7	7.9	8.1	8.1	8.2	8.1	7.9	7.7	7.4	7.1	7.5	7.4	7.3
70000	7.8	7.8	8.0	8.1	8.1	8.2	8.1	7.9	7.7	7.4	7.1	7.5	7.4	7.3
80000	7.8	7.8	8.0	8.1	8.1	8.2	8.1	7.9	7.7	7.3	7.0	7.5	7.4	7.3
90000	7.8	7.8	8.0	8.1	8.1	8.2	8.1	8.0	7.7	7.3	7.0	7.5	7.4	7.3
100000	7.8	7.8	8.0	8.1	8.1	8.2	8.1	7.9	7.7	7.3	7.0	7.5	7.4	7.3
110000	7.8	7.8	8.0	8.1	8.1	8.2	8.1	7.9	7.7	7.3	7.3	7.5	7.4	7.3
120000	7.8	7.8	7.9	8.1	8.1	8.2	8.1	7.9	7.7	7.3	7.2	7.4	7.4	7.3
130000	7.2	7.8	8.0	8.1	8.1	8.2	8.1	8.0	7.7	7.3	7.2	7.5	7.4	7.3
140000	7.2	7.8	8.0	8.1	8.1	8.2	8.1	7.9	7.7	7.4	7.2	7.5	7.4	7.2
150000	7.2	7.9	8.0	8.1	8.1	8.2	8.1	7.9	7.7	7.4	7.3	7.5	7.4	7.2
160000	7.3	7.8	8.0	8.2	8.1	8.2	8.1	7.8	7.6	7.4	7.3	7.5	7.4	7.3
170000	7.3	7.8	8.0	8.2	8.1	8.1	8.1	7.9	7.6	7.4	7.3	7.5	7.4	7.3
180000	7.4	7.8	8.0	8.2	8.1	8.2	8.1	7.9	7.6	7.3	7.3	7.5	7.4	7.3
190000	7.4	7.8	8.0	8.2	8.1	8.1	8.1	7.9	7.6	7.3	7.2	7.4	7.4	7.3
200000	7.4	7.9	8.0	8.1	8.1	8.1	8.1	7.9	7.6	7.2	7.3	7.4	7.4	7.3
210000	7.4	7.9	8.0	8.1	8.1	8.1	8.1	7.8	7.5	7.2	7.3	7.4	7.3	7.3
220000	7.5	7.9	8.0	8.1	8.1	8.0	8.0	7.8	7.6	7.2	7.3	7.4	7.3	7.3
230000	7.5	7.9	8.0	8.1	8.0	8.0	8.0	7.8	7.5	7.2	7.4	7.4	7.3	7.3
Daily Max	7.8	7.9	8.0	8.2	8.1	8.2	8.1	8.0	7.7	7.5	7.4	7.5	7.4	7.3
Daily Min	7.2	7.5	7.9	8.0	8.0	8.0	8.0	7.8	7.5	7.2	7.0	7.4	7.3	7.2
Average	7.6	7.8	8.0	8.1	8.1	8.1	8.1	7.9	7.7	7.3	7.2	7.5	7.4	7.3

Parkway Bridge pH Summary - July 2011

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

License max pH: 9  
License min pH: 6

Parkway Bridge pH Summary - July 2011

Time	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.5	7.4	7.5	7.5	7.7	7.6	7.6	7.5		7.3	7.4	7.2	7.4	7.5	7.5
10000	7.4	7.4	7.4	7.4	7.6	7.6	7.5	7.4		7.2	7.2	7.2	7.4	7.3	7.3
20000	7.3	7.4	7.4	7.4	7.5	7.4	7.4	7.4		7.1	7.2	7.1	7.3	7.2	7.2
30000	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4		7.1	7.1	7.1	7.3	7.2	7.2
40000	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4		7.1	7.1	7.1	7.2	7.2	7.2
50000	7.3	7.5	7.4	7.4	7.4	7.4	7.4	7.4		7.1	7.1	7.2	7.1	7.2	7.2
60000	7.3	7.5	7.4	7.5	7.4	7.4	7.4	7.4		7.1	7.1	7.2	7.2	7.2	7.2
70000	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.4		7.2	7.1	7.2	7.2	7.2	7.2
80000	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.5		7.2	7.1	7.2	7.3	7.2	7.2
90000	7.4	7.5	7.5	7.5	7.5	7.5	7.4	7.5		7.2	7.2	7.2	7.3	7.3	7.2
100000	7.5	7.5	7.5	7.6	7.6	7.5	7.5	7.4		7.2	7.5	7.2	7.3	7.4	7.3
110000	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.4		7.2	7.4	7.3	7.4	7.4	7.3
120000	7.6	7.6	7.6	7.6	7.6	7.7	7.5			7.2	7.5	7.3	7.5	7.5	7.5
130000	7.6	7.6	7.6	7.6	7.6	7.7	7.5		7.6	7.2	7.5	7.3	7.6	7.6	7.6
140000	7.6	7.6	7.7	7.6	7.8	7.7	7.5		7.8	7.2	7.5	7.5	7.6	7.6	7.6
150000	7.6	7.6	7.7	7.7	7.9	7.6	7.5		7.9	7.5	7.5	7.5	7.6	7.7	7.6
160000	7.6	7.6	7.6	7.7	7.9	7.7	7.5		7.9	7.5	7.4	7.5	7.7	7.9	7.6
170000	7.6	7.6	7.6	7.8	7.8	7.6	7.5		8.0	7.5	7.5	7.6	7.7	8.2	7.7
180000	7.6	7.6	7.6	7.7	7.7	7.6	7.5		8.1	7.5	7.5	7.6	7.7	8.0	7.7
190000	7.6	7.6	7.6	7.7	7.7	7.6	7.5		8.1	7.5	7.5	7.4	7.6	7.6	7.6
200000	7.5	7.5	7.6	7.7	7.7	7.6	7.5		7.9	7.5	7.4	7.3	7.6	7.5	7.6
210000	7.5	7.6	7.5	7.7	7.7	7.6	7.5		7.8	7.5	7.4	7.3	7.5	7.6	7.6
220000	7.5	7.6	7.5	7.6	7.7	7.6	7.5		7.7	7.5	7.4	7.3	7.5	7.7	7.5
230000	7.5	7.5	7.5	7.7	7.7	7.6	7.5		7.4	7.4	7.3	7.4	7.5	7.6	7.4
Daily Max	7.6	7.6	7.7	7.8	7.9	7.7	7.6	7.5	8.1	7.5	7.5	7.6	7.7	8.2	7.7
Daily Min	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.1	7.1	7.1	7.1	7.2	7.2
Average	7.5	7.5	7.5	7.6	7.6	7.6	7.5	7.4	7.8	7.3	7.3	7.3	7.4	7.5	7.4

Missing data due to equipment malfunction.

Parkway Bridge pH Summary - August 2011

Time	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
HHMMSS																
0	7.3	7.4	7.4	7.3	7.5	7.7	7.4	7.4	7.6	8.1	7.9	7.8	7.5	7.5	7.7	7.5
10000	7.2	7.2	7.4	7.3	7.5	7.6	7.5	7.4	7.5	7.9	7.9	7.8	7.4	7.5	7.6	7.5
20000	7.2	7.2	7.3	7.3	7.5	7.4	7.4	7.4	7.5	7.9	7.9	7.6	7.4	7.5	7.6	7.5
30000	7.2	7.2	7.3	7.2	7.5	7.4	7.4	7.4	7.4	7.8	7.8	7.7	7.5	7.5	7.6	7.5
40000	7.2	7.2	7.2	7.2	7.5	7.4	7.4	7.4	7.4	7.8	7.8	7.6	7.5	7.5	7.6	7.5
50000	7.2	7.2	7.2	7.2	7.5	7.5	7.4	7.4	7.5	7.8	7.8	7.6	7.4	7.5	7.6	7.5
60000	7.1	7.2	7.3	7.2	7.4	7.5	7.4	7.5	7.5	7.8	7.8	7.6	7.4	7.5	7.6	7.5
70000	7.2	7.2	7.3	7.2	7.5	7.5	7.5	7.5	7.5	7.9	7.8	7.6	7.4	7.5	7.6	7.5
80000	7.2	7.3	7.3	7.3	7.5	7.5	7.8	7.5	7.5	7.9	7.9	7.6	7.5	7.6	7.6	7.6
90000	7.3	7.3	7.6	7.6	7.5	7.5	7.8	7.5	7.7	8.0	8.0	7.6	7.5	7.6	7.7	7.7
100000	7.3	7.2	7.6	7.6	7.5	7.8	7.8	7.6	8.2	8.2	8.0	7.7	7.6	7.7	7.8	7.7
110000	7.3	7.6	7.6	7.6	7.7	7.8	7.8	7.8	8.3	8.3	8.1	7.7	7.7	7.7	7.8	7.8
120000	7.5	7.8	7.6	7.6	7.8	7.8	7.8	7.8	8.4	8.3	8.0	7.8	7.7	7.8	7.8	7.8
130000	7.5	7.9	7.7	7.7	7.8	7.9	7.8	7.8	8.4	8.3	8.2	7.6	7.6	7.9	7.9	7.8
140000	7.5	7.9	7.7	7.7	7.8	7.9	7.8	7.8	8.4	8.3	8.2	7.7	7.6	7.8	7.8	7.8
150000	7.6	7.9	7.7	7.7	7.8	7.9	7.8	7.8	8.4	8.3	8.2	7.8	7.6	7.7	7.8	7.9
160000	7.6	7.7	7.7	7.8	7.8	7.9	7.8	7.8	8.4	8.3	8.2	7.8	7.5	7.8	8.0	7.9
170000	7.6	7.7	7.7	7.8	7.9	7.8	7.8	7.7	8.4	8.3	8.1	7.8	7.5	7.8	8.0	8.0
180000	7.6	7.7	7.7	7.8	7.8	7.8	7.7	7.7	8.4	8.3	8.2	7.8	7.5	7.9	8.0	8.0
190000	7.5	7.7	7.7	7.8	7.8	7.8	7.8	7.7	8.4	8.3	8.2	7.8	7.5	7.9	7.9	8.0
200000	7.5	7.6	7.6	7.7	7.8	7.8	7.7	7.7	8.3	8.2	8.1	7.8	7.6	7.9	7.9	8.0
210000	7.5	7.5	7.6	7.6	7.8	7.7	7.7	7.6	8.3	8.1	7.9	7.7	7.6	7.9	7.8	7.8
220000	7.5	7.5	7.5	7.6	7.8	7.6	7.6	7.6	8.2	8.1	7.9	7.6	7.6	7.8	7.8	7.8
230000	7.5	7.5	7.5	7.5	7.7	7.5	7.5	7.6	8.2	8.0	7.8	7.5	7.6	7.8	7.7	7.7
Daily Max	7.6	7.9	7.7	7.8	7.9	7.9	7.8	7.8	8.4	8.3	8.2	7.8	7.7	7.9	8.0	8.0
Daily Min	7.1	7.2	7.2	7.2	7.4	7.4	7.4	7.4	7.4	7.8	7.8	7.5	7.4	7.5	7.6	7.5
Average	7.4	7.5	7.5	7.5	7.6	7.7	7.6	7.6	8.0	8.1	8.0	7.7	7.5	7.7	7.8	7.7
License max pH:	9															
License min pH:	6															



Parkway Bridge pH Summary - August 2011

Time	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.5	7.5	7.7	7.6	7.4	7.9	7.7	7.6	7.9	7.8	7.7	7.6	7.6	7.7	7.7
10000	7.5	7.5	7.5	7.5	7.4	7.6	7.7	7.6	7.9	7.8	7.7	7.6	7.6	7.7	7.6
20000	7.5	7.5	7.5	7.5	7.5	7.6	7.7	7.6	7.9	7.8	7.7	7.6	7.6	7.7	7.7
30000	7.5	7.5	7.5	7.4	7.5	7.5	7.7	7.6	7.9	7.8	7.7	7.6	7.6	7.7	7.6
40000	7.5	7.5	7.5	7.5	7.4	7.5	7.7	7.6	7.9	7.7	7.6	7.6	7.7	7.7	7.6
50000	7.5	7.5	7.5	7.5	7.5	7.5	7.7	7.6	7.9	7.7	7.6	7.6	7.7	7.6	7.6
60000	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.8	7.7	7.6	7.6	7.7	7.6	7.6
70000	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.8	7.7	7.6	7.6	7.6	7.6	7.6
80000	7.6	7.5	7.5	7.6	7.5	7.6	7.7	7.6	7.8	7.7	7.7	7.7	7.7	7.7	7.6
90000	7.6	7.6	7.5	7.6	7.6	7.6	7.7	7.7	7.9	7.8	7.7	7.7	7.7	7.7	7.6
100000	7.6	7.7	7.5	7.7	7.7	7.9	7.8	7.7	7.9	7.8	7.8	7.8	7.8	7.8	7.7
110000	7.6	7.7	7.6	7.7	7.8	8.0	7.8	7.8	7.9	7.8	7.8	7.8	7.8	7.8	7.7
120000	7.8	7.9	7.6	8.0	7.9	7.9	7.8	7.9	7.9	7.8	7.9	7.8	7.9	7.8	7.7
130000	7.8	8.0	7.8	7.9	8.0	7.9	7.9	8.0	7.9	7.9	7.9	7.8	7.9	7.8	7.7
140000	7.9	8.2	7.8	7.9	8.1	7.9	7.9	8.1	8.0	7.9	7.9	7.8	7.9	7.9	7.7
150000	7.8	8.3	7.8	8.0	8.1	7.9	7.9	8.1	7.9	7.9	7.9	7.8	7.9	7.9	7.7
160000	8.2	8.2	7.7	8.1	8.2	8.0	7.8	8.1	7.9	7.9	7.9	7.7	7.9	8.0	7.7
170000	8.3	8.2	7.6	8.1	8.3	8.0	7.8	8.1	7.9	7.9	7.9	7.7	7.9	8.0	7.7
180000	8.3	8.1	7.9	7.9	8.2	7.9	7.7	8.1	7.8	7.9	7.8	7.7	7.9	7.6	7.7
190000	8.2	8.2	7.9	7.9	8.2	7.9	7.7	8.0	7.8	7.9	7.8	7.7	7.8	7.8	7.7
200000	8.2	8.1	7.8	7.8	8.2	7.8	7.7	8.0	7.8	7.9	7.7	7.7	7.8	7.8	7.6
210000	8.1	8.0	7.7	7.7	8.1	7.8	7.6	7.9	7.8	7.8	7.7	7.6	7.8	7.7	7.6
220000	8.0	7.9	7.7	7.6	8.1	7.7	7.6	7.9	7.8	7.8	7.6	7.6	7.7	7.7	7.6
230000	7.7	7.9	7.7	7.5	8.0	7.7	7.6	7.9	7.8	7.8	7.6	7.6	7.7	7.7	7.6
Daily Max	8.3	8.3	7.9	8.1	8.3	8.0	7.9	8.1	8.0	7.9	7.9	7.8	7.9	8.0	7.7
Daily Min	7.5	7.5	7.5	7.4	7.4	7.5	7.6	7.6	7.8	7.7	7.6	7.6	7.6	7.6	7.6
Average	7.8	7.8	7.6	7.7	7.8	7.8	7.7	7.8	7.9	7.8	7.7	7.7	7.8	7.7	7.6

Parkway Bridge pH Summary - September 2011

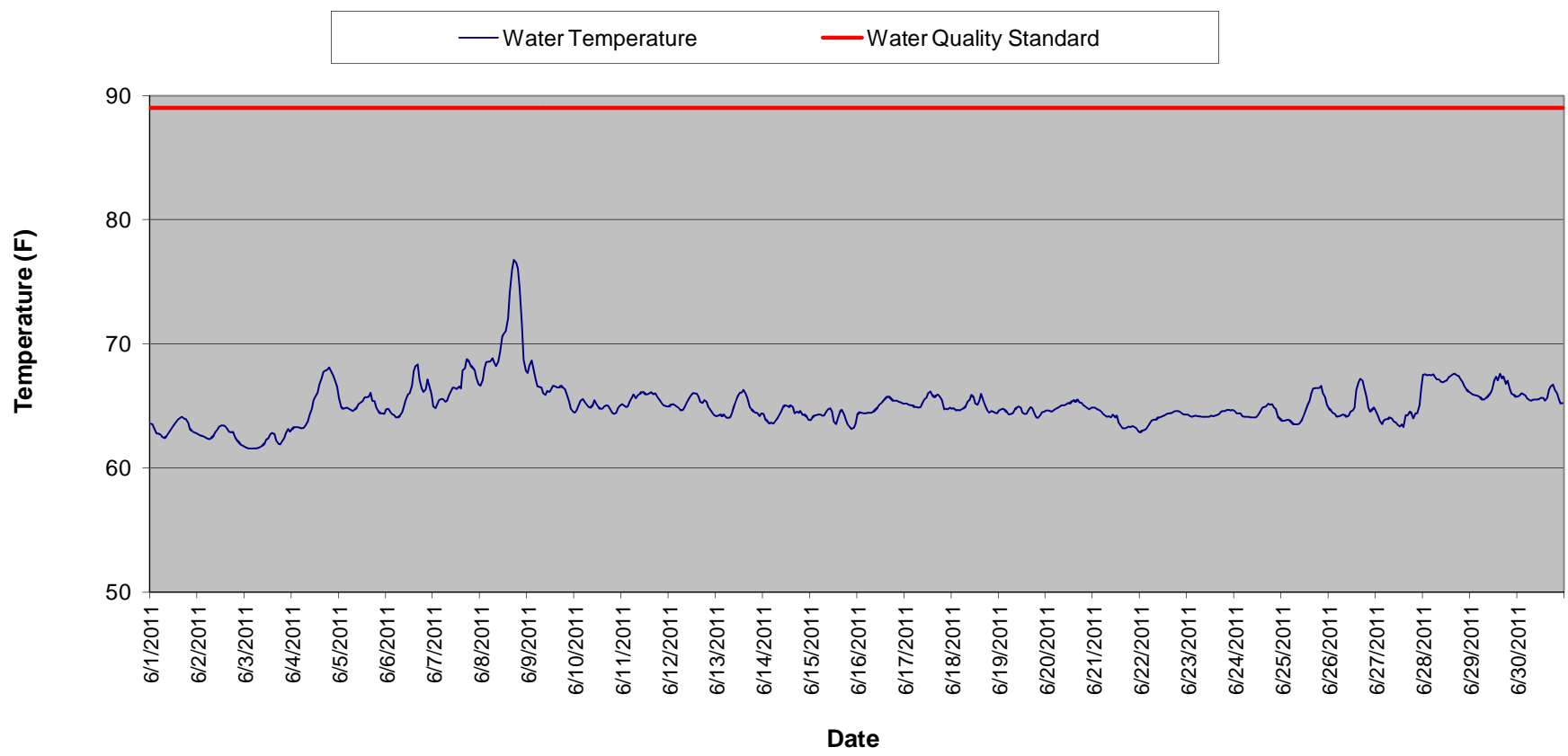
Time	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	7.6	8.0	8.0	8.1	8.0	7.9	7.5	7.4	7.5	7.7	7.7	7.8	7.9	8.1	8.1	8.0
10000	7.6	8.0	8.0	8.1	8.0	7.9	7.4	7.4	7.4	7.7	7.8	7.8	7.8	8.1	8.1	8.0
20000	7.6	8.0	8.0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

License max pH: 9  
License min pH: 6

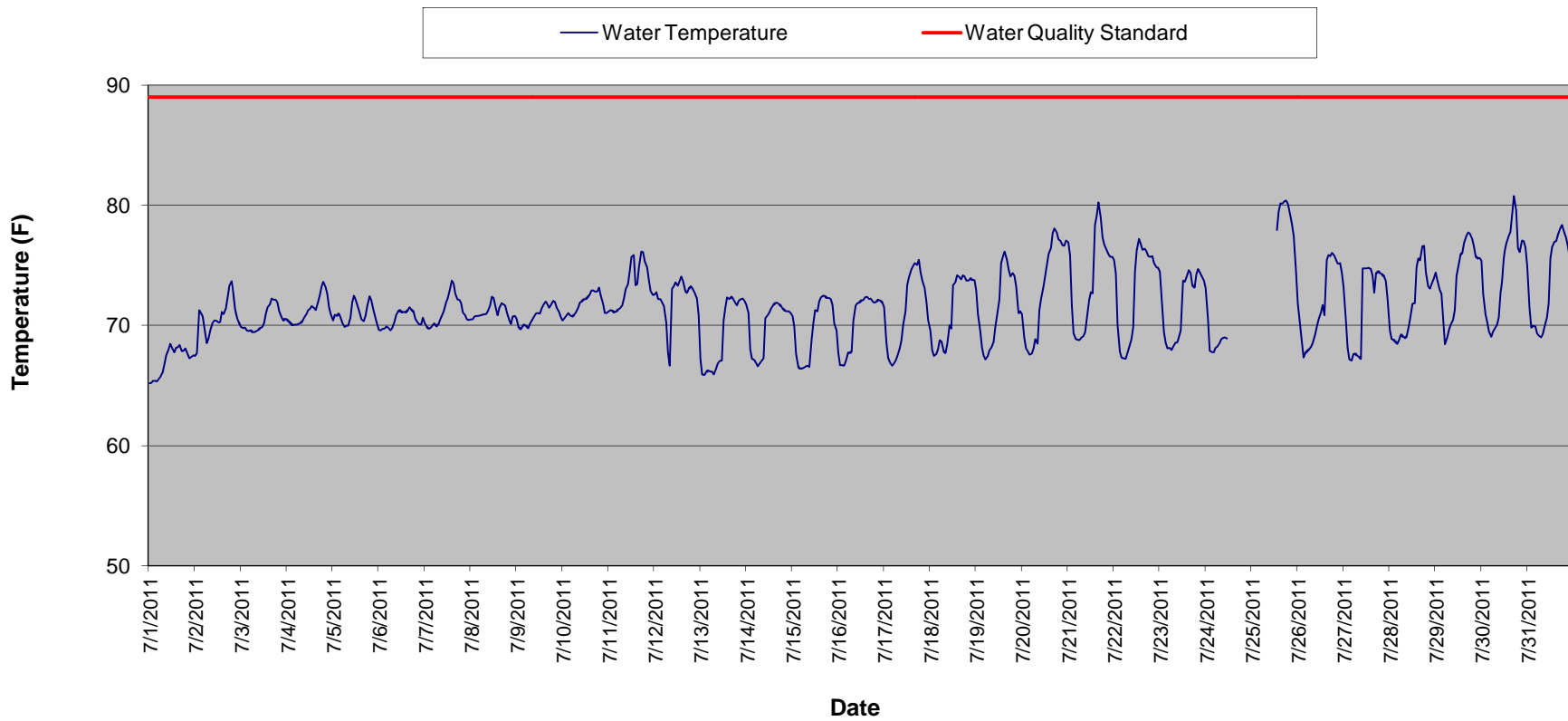
Parkway Bridge pH Summary - September 2011

Time	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	8.0	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.9	7.9	8.0	7.9	8.0
10000	7.9	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.9	8.0
20000	7.9	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.9	8.0
30000	7.9	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.9	8.0
40000	7.9	7.8	7.8	7.9	7.9	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.9	8.0
50000	7.9	7.8	7.8	7.9	7.9	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.9	8.0
60000	7.9	7.8	7.8	7.9	7.9	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.9	8.0
70000	7.9	7.8	7.8	7.9	8.0	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.9	8.0
80000	7.9	7.8	7.8	7.9	8.0	8.0	8.0	8.0	7.9	7.9	8.0	7.9	8.0	8.0
90000	7.9	7.8	7.9	8.0	8.0	8.0	8.0	8.0	7.9	7.9	8.0	8.0	8.0	8.0
100000	7.9	7.8	7.9	8.0	8.0	8.0	8.0	8.0	7.9	7.9	8.0	8.0	8.0	8.1
110000	7.9	7.9	7.9	8.0	8.0	8.1	8.0	8.0	7.9	7.9	8.0	8.0	8.0	8.1
120000	7.9	7.9	7.9	8.0	8.0	8.1	8.1	8.0	8.0	7.9	8.0	8.0	8.0	8.1
130000	7.9	7.8	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
140000	7.8	7.8	8.0	8.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0
150000	7.9	7.7	8.0	8.0	8.1	8.2	8.1	8.0	7.9	7.9	8.0	8.0	8.0	8.0
160000	7.9	7.7	8.1	8.0	8.1	8.2	8.1	8.0	7.9	7.9	8.0	8.0	8.0	8.0
170000	7.9	7.7	8.1	7.9	8.1	8.2	8.0	8.0	7.9	7.9	8.0	8.0	8.0	8.0
180000	7.9	7.7	8.1	7.9	8.1	8.1	8.0	8.0	7.9	7.9	8.0	8.0	8.0	8.0
190000	7.8	7.7	8.0	7.9	8.1	8.1	8.0	8.0	7.9	7.9	8.0	7.9	8.0	8.0
200000	7.8	7.7	8.0	7.9	8.0	8.0	8.0	8.0	7.9	7.9	8.0	8.0	8.0	8.0
210000	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.9	7.9	8.0	7.9	8.0	8.0
220000	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.9	8.0	8.0	7.9	8.0	8.0
230000	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.9	7.9	8.0	7.9	8.0	8.0
Daily Max	8.0	7.9	8.1	8.0	8.1	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.1
Daily Min	7.8	7.7	7.8	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.9	8.0
Average	7.9	7.8	7.9	7.9	8.0	8.0	8.0	8.0	7.9	7.9	8.0	8.0	8.0	8.0

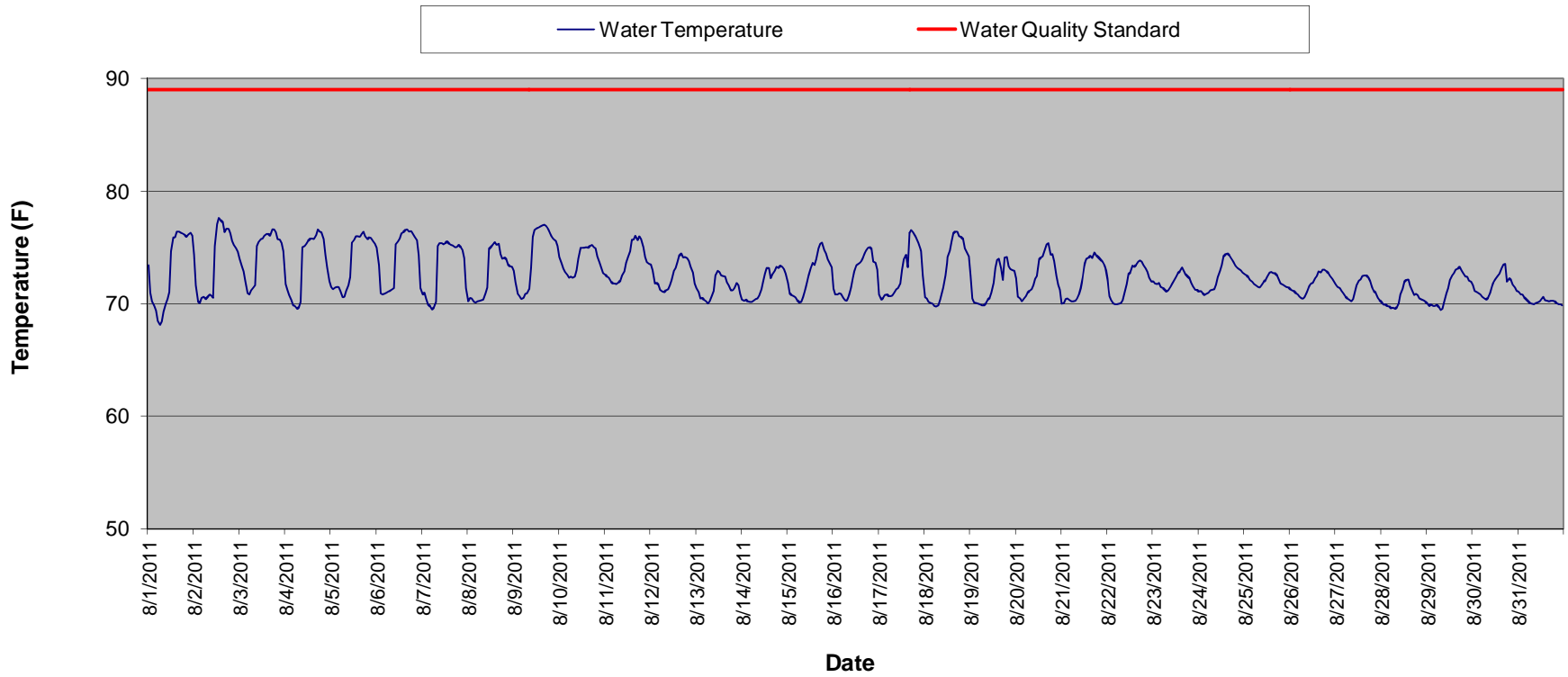
### Parkway Bridge Water Temperature - June 2011



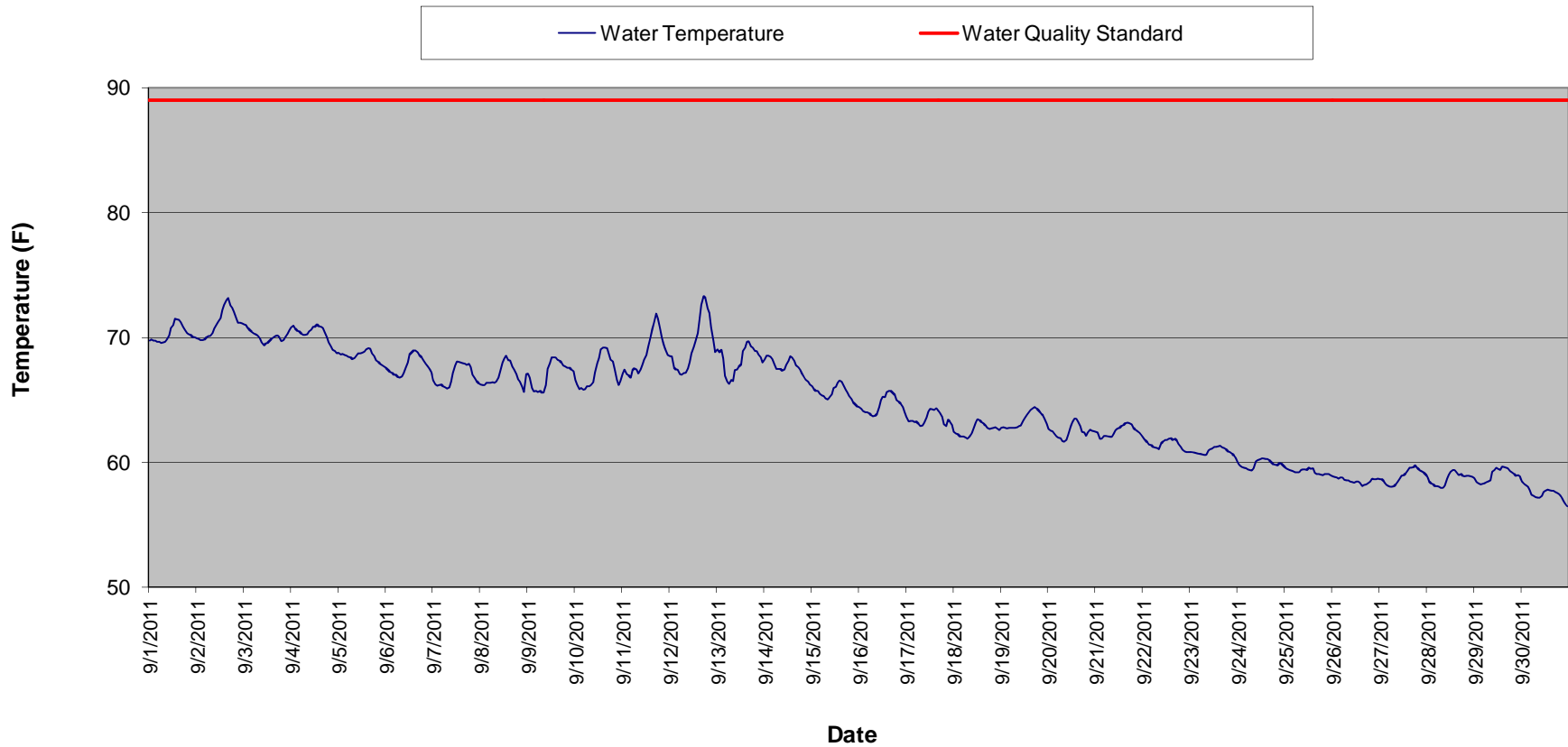
### Parkway Bridge Water Temperature - July 2011



### Parkway Bridge Water Temperature - August 2011



### Parkway Bridge Water Temperature - September 2011



Parkway Bridge Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	63.6	62.7	61.7	63.1	65.7	64.7	65.0	66.6	67.6	64.5	65.2	64.9	64.2	64.3	63.9	64.3
10000	63.5	62.6	61.6	63.3	64.9	64.8	64.8	67.1	68.3	64.6	65.0	65.1	64.2	64.0	64.1	64.5
20000	63.2	62.6	61.6	63.3	64.8	64.5	65.1	68.0	68.6	65.1	64.9	65.2	64.3	63.8	64.2	64.5
30000	62.8	62.6	61.6	63.3	64.8	64.3	65.5	68.5	68.0	65.4	65.0	65.0	64.2	63.6	64.3	64.4
40000	62.8	62.5	61.6	63.2	64.9	64.3	65.6	68.6	67.1	65.6	65.4	65.0	64.3	63.6	64.3	64.4
50000	62.7	62.3	61.6	63.2	64.8	64.1	65.6	68.6	66.6	65.3	65.7	64.8	64.1	63.6	64.3	64.5
60000	62.5	62.3	61.6	63.3	64.7	64.1	65.3	68.9	66.5	65.1	65.9	64.6	64.0	63.8	64.2	64.5
70000	62.4	62.4	61.6	63.4	64.6	64.2	65.4	68.5	66.5	64.9	65.6	64.7	64.1	64.0	64.2	64.5
80000	62.5	62.6	61.7	63.7	64.7	64.5	65.8	68.2	66.0	64.9	65.8	64.9	64.4	64.3	64.5	64.5
90000	62.8	62.9	61.8	64.3	64.9	65.0	66.2	68.6	65.9	65.0	66.0	65.2	64.9	64.5	64.7	64.7
100000	63.0	63.1	62.0	64.8	65.2	65.5	66.5	69.3	66.2	65.5	66.1	65.6	65.4	64.9	64.8	64.9
110000	63.2	63.4	62.3	65.5	65.3	65.9	66.4	70.6	66.1	65.2	66.1	65.8	65.8	65.0	64.5	65.1
120000	63.5	63.4	62.4	65.8	65.4	66.0	66.4	70.9	66.4	64.9	65.9	66.0	66.1	65.0	63.7	65.2
130000	63.7	63.4	62.7	66.1	65.7	66.6	66.6	71.0	66.7	64.8	65.9	66.0	66.1	64.9	63.5	65.4
140000	63.9	63.4	62.8	66.7	65.7	67.8	66.4	72.1	66.6	64.8	66.0	66.0	66.3	65.0	64.0	65.6
150000	64.0	63.2	62.7	67.2	65.8	68.2	67.9	74.2	66.5	64.9	66.1	65.7	66.0	64.9	64.6	65.8
160000	64.1	62.9	62.2	67.7	66.1	68.4	68.0	76.0	66.5	65.0	65.9	65.3	65.6	64.4	64.7	65.8
170000	64.0	62.9	62.0	67.8	65.4	67.1	68.8	76.8	66.6	65.0	66.0	65.2	64.9	64.6	64.3	65.6
180000	63.9	62.9	61.9	67.9	65.4	66.4	68.6	76.5	66.5	64.8	65.8	65.5	64.7	64.5	63.9	65.4
190000	63.7	62.5	62.1	68.1	64.9	66.1	68.3	76.1	66.4	64.5	65.5	65.3	64.6	64.6	63.5	65.4
200000	63.1	62.2	62.4	67.7	64.6	66.3	68.1	74.6	65.9	64.4	65.3	64.9	64.4	64.3	63.3	65.4
210000	63.0	62.1	62.8	67.4	64.4	67.1	67.9	71.6	65.4	64.5	65.0	64.7	64.5	64.3	63.1	65.3
220000	62.9	61.9	63.1	67.0	64.4	66.6	67.2	68.7	64.8	64.8	65.0	64.4	64.2	64.1	63.2	65.3
230000	62.8	61.8	62.9	66.5	64.4	65.9	66.7	67.8	64.5	65.0	64.9	64.3	64.4	63.9	63.6	65.2
Daily Max	64.1	63.4	63.1	68.1	66.1	68.4	68.8	76.8	68.6	65.6	66.1	66.0	66.3	65.0	64.8	65.8
Daily Min	62.4	61.8	61.6	63.1	64.4	64.1	64.8	66.6	64.5	64.4	64.9	64.3	64.0	63.6	63.1	64.3
Average	63.2	62.7	62.1	65.4	65.0	65.8	66.6	70.7	66.5	64.9	65.6	65.2	64.8	64.3	64.1	65.0
Monthly average:					65.1											
License max. temp.					89.0											



Parkway Bridge Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	65.2	64.8	64.6	64.7	64.9	62.9	64.3	64.6	63.8	64.8	64.5	67.5	66.1	65.8
10000	65.2	64.8	64.7	64.6	64.9	63.0	64.2	64.4	63.8	64.6	64.2	67.6	65.9	65.9
20000	65.1	64.7	64.8	64.6	64.7	63.1	64.1	64.4	63.8	64.5	63.8	67.4	65.9	66.0
30000	65.1	64.7	64.7	64.5	64.7	63.1	64.2	64.4	63.9	64.3	63.5	67.5	65.8	65.9
40000	65.1	64.6	64.5	64.7	64.6	63.4	64.2	64.2	63.8	64.1	63.9	67.4	65.8	65.8
50000	64.9	64.7	64.3	64.8	64.3	63.7	64.2	64.1	63.7	64.2	63.9	67.6	65.7	65.6
60000	64.9	64.8	64.4	64.9	64.2	63.9	64.2	64.1	63.5	64.2	64.0	67.3	65.5	65.5
70000	64.9	65.0	64.4	64.9	64.1	63.9	64.1	64.1	63.5	64.3	64.1	67.1	65.5	65.4
80000	64.9	65.4	64.7	65.0	64.2	63.9	64.1	64.1	63.5	64.3	64.0	67.1	65.6	65.5
90000	65.2	65.5	64.9	65.1	64.1	64.1	64.1	64.1	63.6	64.1	63.8	66.9	65.8	65.5
100000	65.6	65.9	65.0	65.1	64.3	64.1	64.1	64.1	63.8	64.2	63.7	66.9	66.0	65.5
110000	65.7	65.7	64.9	65.2	64.1	64.2	64.1	64.1	64.2	64.5	63.5	67.0	66.3	65.6
120000	66.0	65.2	64.5	65.2	64.2	64.2	64.2	64.3	64.7	64.6	63.4	67.0	66.9	65.7
130000	66.1	65.1	64.3	65.4	63.7	64.3	64.2	64.6	65.0	64.9	63.5	67.3	67.4	65.6
140000	65.9	65.4	64.3	65.5	63.4	64.4	64.2	64.9	65.4	66.2	63.3	67.4	67.0	65.4
150000	65.7	66.0	64.7	65.3	63.2	64.4	64.3	64.9	66.0	66.9	64.3	67.5	67.6	65.7
160000	65.9	65.4	64.9	65.5	63.2	64.4	64.4	64.9	66.4	67.2	64.2	67.6	67.2	66.3
170000	65.9	65.0	64.8	65.3	63.2	64.6	64.6	65.2	66.5	67.0	64.5	67.5	67.4	66.6
180000	65.7	64.6	64.3	65.2	63.4	64.6	64.6	65.1	66.4	66.5	64.4	67.4	66.8	66.7
190000	65.5	64.4	64.1	65.1	63.3	64.6	64.6	65.1	66.5	65.7	64.0	67.2	67.0	66.3
200000	64.7	64.6	64.0	64.9	63.4	64.5	64.7	64.9	66.6	64.9	64.4	66.9	66.3	66.0
210000	64.8	64.5	64.3	64.8	63.3	64.4	64.7	64.8	66.0	64.6	64.4	66.6	66.0	65.6
220000	64.7	64.5	64.5	64.7	63.2	64.3	64.7	64.1	65.7	64.7	65.0	66.3	65.9	65.2
230000	64.9	64.4	64.5	64.9	62.9	64.3	64.7	64.0	65.1	64.9	66.4	66.1	65.8	65.2
Daily Max	66.1	66.0	65.0	65.5	64.9	64.6	64.7	65.2	66.6	67.2	66.4	67.6	67.6	66.7
Daily Min	64.7	64.4	64.0	64.5	62.9	62.9	64.1	64.0	63.5	64.1	63.3	66.1	65.5	65.2
Average	65.3	65.0	64.5	65.0	63.9	64.0	64.3	64.5	64.8	65.0	64.1	67.2	66.3	65.8

Parkway Bridge Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	65.2	67.5	69.9	70.5	70.4	69.6	70.2	70.5	70.5	70.4	71.2	72.6	67.2	71.7	70.8	67.7
10000	65.2	67.7	69.8	70.3	70.9	69.6	69.9	70.5	69.9	70.6	71.3	72.8	65.9	71.0	69.9	66.7
20000	65.4	71.3	69.8	70.2	70.8	69.7	69.7	70.7	69.7	70.9	71.2	72.2	65.9	68.0	67.6	66.7
30000	65.4	71.0	69.6	70.0	71.0	69.7	69.8	70.8	69.9	71.0	71.1	72.2	66.1	67.2	66.5	66.6
40000	65.3	70.7	69.5	70.1	70.7	69.9	70.0	70.8	70.1	70.8	71.2	71.9	66.2	67.1	66.4	67.0
50000	65.5	69.8	69.6	70.1	70.2	69.8	70.2	70.8	70.0	70.8	71.3	71.6	66.1	66.9	66.4	67.7
60000	65.7	68.5	69.4	70.1	69.9	69.6	69.9	70.9	69.8	70.9	71.4	70.3	66.2	66.6	66.5	67.7
70000	66.1	68.9	69.4	70.2	70.0	69.8	70.1	70.9	70.2	71.1	71.7	67.7	65.9	66.9	66.6	67.9
80000	66.8	69.6	69.5	70.4	70.0	70.3	70.5	70.9	70.4	71.5	72.2	66.7	66.4	67.1	66.6	70.4
90000	67.5	70.2	69.6	70.6	70.7	70.9	70.9	71.2	70.8	71.9	73.0	73.0	66.8	67.3	66.5	71.7
100000	68.0	70.4	69.8	70.9	71.9	71.1	71.2	71.7	71.0	72.0	73.5	73.3	67.0	70.6	68.9	71.9
110000	68.5	70.4	69.9	71.3	72.5	71.3	71.9	72.4	71.0	72.2	74.5	73.6	67.1	70.8	70.2	71.9
120000	68.1	70.3	70.2	71.4	72.2	71.1	72.3	72.3	71.0	72.2	75.7	73.3	70.4	71.1	71.3	72.1
130000	67.8	70.3	71.0	71.6	71.5	71.1	72.9	71.4	71.4	72.4	75.9	73.7	71.5	71.4	71.2	72.1
140000	68.1	71.1	71.5	71.5	71.0	71.1	73.7	70.8	71.7	72.6	73.4	74.1	72.3	71.7	72.0	72.3
150000	68.2	71.0	71.8	71.3	70.5	71.3	73.5	71.5	72.0	72.9	73.5	73.7	72.2	71.9	72.4	72.4
160000	68.4	71.4	72.2	71.7	70.4	71.5	72.6	71.9	71.8	72.9	74.9	72.9	72.4	71.9	72.5	72.2
170000	67.9	72.3	72.1	72.5	70.8	71.3	72.1	71.8	71.5	72.8	76.2	72.7	72.2	71.8	72.4	72.3
180000	67.9	73.3	72.1	73.2	71.6	71.1	72.1	71.7	71.7	72.8	76.1	73.1	71.9	71.6	72.3	71.9
190000	68.1	73.7	71.9	73.6	72.4	70.6	71.9	71.1	72.1	73.1	75.3	73.2	71.7	71.4	72.3	71.9
200000	67.6	72.6	71.2	73.2	72.1	70.3	71.1	70.4	72.0	72.5	74.8	73.0	72.1	71.2	72.2	72.0
210000	67.3	71.3	70.7	72.6	71.4	70.1	70.9	70.1	71.5	71.8	73.8	72.7	72.2	71.2	71.7	72.1
220000	67.4	70.5	70.4	71.5	70.9	70.1	70.5	70.8	71.2	71.0	72.9	72.2	72.2	71.2	70.2	72.0
230000	67.5	70.2	70.5	70.9	70.1	70.6	70.4	70.8	70.7	71.0	72.5	70.8	72.1	71.1	69.6	71.9
Daily Max	68.5	73.7	72.2	73.6	72.5	71.5	73.7	72.4	72.1	73.1	76.2	74.1	72.4	71.9	72.5	72.4
Daily Min	65.2	67.5	69.4	70.0	69.9	69.6	69.7	70.1	69.7	70.4	71.1	66.7	65.9	66.6	66.4	66.6
Average	67.0	70.6	70.5	71.2	71.0	70.5	71.2	71.1	70.9	71.8	73.3	72.2	69.2	70.0	69.7	70.4

Monthly average: 71.6  
 License Maximum Monthly Average: 89

Parkway Bridge Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	71.5	69.5	72.9	71.0	76.9	75.4	74.5	73.1		71.9	73.2	69.6	74.4	75.4	74.9
10000	68.6	68.0	70.9	69.0	75.8	74.3	72.3	70.6		70.5	70.5	68.9	73.7	72.6	71.4
20000	67.3	67.5	69.5	68.1	71.7	70.0	69.4	67.9		68.6	68.1	68.8	73.0	70.9	69.8
30000	66.9	67.6	68.1	67.9	69.3	67.8	68.6	67.8		67.3	67.2	68.6	72.6	70.3	70.0
40000	66.7	68.0	67.5	67.6	68.8	67.3	68.1	67.7		67.7	67.1	68.5	70.5	69.5	69.9
50000	66.8	68.8	67.2	67.7	68.8	67.3	68.2	68.2		67.9	67.6	68.8	68.5	69.1	69.4
60000	67.1	68.6	67.5	68.1	68.8	67.2	67.9	68.3		68.1	67.7	69.2	69.0	69.5	69.2
70000	67.5	67.8	67.9	68.9	69.0	67.7	68.3	68.5		68.2	67.5	69.0	69.6	69.7	69.0
80000	68.1	67.7	68.2	68.5	69.1	68.2	68.6	68.9		68.6	67.4	69.0	70.1	70.1	69.3
90000	68.8	68.4	68.6	71.3	69.5	68.8	68.6	69.0		69.2	67.2	69.1	70.4	70.7	69.9
100000	70.1	70.0	69.9	72.3	71.0	69.9	69.0	69.0		69.9	74.8	70.0	71.3	72.8	70.6
110000	71.2	69.7	70.8	73.2	72.1	74.4	69.6	68.9		70.5	74.7	70.9	74.1	74.6	71.8
120000	73.4	73.3	72.1	74.1	72.8	76.2	73.7			71.1	74.8	71.8	75.1	76.2	75.6
130000	74.0	73.6	75.2	75.0	72.7	77.2	73.7		77.9	71.7	74.8	71.9	75.9	76.8	76.5
140000	74.7	74.2	75.7	76.0	78.4	76.8	74.0		79.5	70.9	74.7	74.8	76.1	77.3	77.0
150000	74.9	74.1	76.1	76.5	79.1	76.3	74.6		80.2	75.4	74.2	75.6	76.9	77.8	77.0
160000	75.2	73.8	75.5	77.7	80.2	76.4	74.4		80.2	75.8	72.7	75.4	77.5	79.3	77.6
170000	75.1	74.2	74.7	78.1	78.9	76.2	73.3		80.3	75.8	74.3	76.6	77.7	80.8	78.1
180000	75.5	74.1	74.1	77.8	77.4	75.8	73.1		80.4	76.0	74.5	76.6	77.6	79.6	78.4
190000	74.4	73.7	74.4	77.1	76.7	75.7	74.2		80.1	75.8	74.4	74.4	77.2	76.4	77.9
200000	73.7	73.7	74.1	77.1	76.3	75.8	74.7		79.2	75.5	74.3	73.3	76.6	76.1	77.3
210000	73.1	73.9	73.3	76.7	75.9	75.2	74.3		78.4	75.1	74.1	73.1	75.8	77.1	76.6
220000	72.0	73.8	71.0	76.7	75.7	74.8	74.0		77.4	75.2	73.7	73.5	75.6	77.0	75.8
230000	70.5	73.8	71.2	77.1	75.7	74.8	73.7		74.5	74.4	72.2	73.9	75.6	76.5	75.2
Daily Max	75.5	74.2	76.1	78.1	80.2	77.2	74.7	73.1	80.4	76.0	74.8	76.6	77.7	80.8	78.4
Daily Min	66.7	67.5	67.2	67.6	68.8	67.2	67.9	67.7	74.5	67.3	67.1	68.5	68.5	69.1	69.0
Average	71.1	71.2	71.5	73.0	73.8	72.9	71.7	69.0	78.9	71.7	71.7	71.7	74.0	74.4	73.7

Missing data due to equipment malfunction.

Parkway Bridge Temperature Summary - August 2011

Time	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
HHMMSS																
0	73.4	74.4	74.0	71.7	71.5	75.0	70.8	70.2	72.9	74.2	72.6	73.5	71.4	70.3	71.9	71.3
10000	71.0	71.7	73.3	71.2	71.3	73.5	71.0	70.5	71.9	73.6	72.4	73.0	71.0	70.3	70.9	70.8
20000	70.2	70.2	72.9	70.8	71.5	70.9	70.4	70.5	70.9	73.1	72.3	71.8	70.5	70.4	70.8	70.8
30000	69.8	70.0	72.0	70.3	71.5	70.8	69.9	70.2	70.7	72.8	71.9	71.8	70.5	70.2	70.7	70.9
40000	69.4	70.5	70.9	69.8	71.5	70.9	69.7	70.1	70.4	72.6	71.8	71.7	70.3	70.2	70.6	70.9
50000	68.5	70.6	70.8	69.8	71.1	71.0	69.5	70.2	70.5	72.3	71.8	71.2	70.2	70.2	70.3	70.5
60000	68.1	70.4	71.2	69.5	70.6	71.1	69.7	70.3	70.9	72.4	71.8	71.1	70.0	70.3	70.1	70.3
70000	68.4	70.6	71.5	69.7	70.6	71.1	70.2	70.3	70.9	72.3	71.9	71.0	70.2	70.4	70.2	70.3
80000	69.3	70.8	71.6	70.2	71.1	71.3	75.1	70.4	71.3	72.4	72.1	71.2	70.7	70.5	70.6	70.6
90000	70.0	70.7	75.1	75.0	71.7	71.4	75.4	70.9	73.2	73.0	72.5	71.3	71.2	70.7	71.1	71.3
100000	70.4	70.5	75.5	75.1	72.3	75.3	75.4	71.4	76.0	74.0	72.9	71.6	72.5	71.3	71.9	72.1
110000	71.0	75.1	75.7	75.3	75.4	75.5	75.3	74.9	76.5	75.0	73.6	72.1	72.9	72.0	72.6	72.9
120000	74.7	77.1	75.8	75.6	75.7	75.8	75.4	75.0	76.7	75.0	74.1	72.9	72.8	72.7	73.1	73.4
130000	75.9	77.6	76.1	75.8	76.0	76.2	75.5	75.3	76.7	75.0	74.6	73.2	72.5	73.2	73.6	73.5
140000	75.9	77.4	76.2	75.8	76.0	76.4	75.3	75.5	76.9	75.0	75.7	73.7	72.5	73.2	73.4	73.7
150000	76.4	77.2	76.2	75.7	76.0	76.6	75.2	75.2	77.0	75.0	75.7	74.2	72.4	72.2	74.0	74.0
160000	76.4	76.3	76.0	76.1	76.2	76.6	75.2	75.3	77.0	75.1	76.1	74.5	71.9	72.6	74.9	74.3
170000	76.3	76.6	76.6	76.6	76.4	76.4	75.0	74.4	76.9	75.2	75.7	74.1	71.6	72.9	75.3	74.6
180000	76.3	76.7	76.6	76.4	76.0	76.4	75.0	74.0	76.6	75.0	76.0	74.2	71.2	73.3	75.5	75.0
190000	76.1	76.2	76.3	76.4	75.8	76.2	75.2	74.1	76.3	74.9	75.7	74.1	71.2	73.2	74.8	75.0
200000	76.0	75.6	75.7	75.7	75.9	76.0	75.0	73.9	76.0	74.2	75.0	73.8	71.4	73.4	74.5	74.9
210000	76.2	75.2	75.7	74.4	75.8	75.6	74.8	73.5	75.7	73.6	74.1	73.3	71.9	73.3	73.9	73.8
220000	76.3	74.9	75.4	73.2	75.5	74.3	74.0	73.3	75.6	73.2	73.7	72.8	71.7	73.1	73.6	73.6
230000	76.1	74.6	74.7	72.0	75.3	71.4	71.4	73.3	75.1	72.7	73.5	71.8	70.9	72.7	73.2	73.0
Daily Max	76.4	77.6	76.6	76.6	76.4	76.6	75.5	75.5	77.0	75.2	76.1	74.5	72.9	73.4	75.5	75.0
Daily Min	68.1	70.0	70.8	69.5	70.6	70.8	69.5	70.1	70.4	72.3	71.8	71.0	70.0	70.2	70.1	70.3
Average	73.0	73.8	74.4	73.4	73.8	74.0	73.3	72.6	74.3	73.8	73.6	72.7	71.4	71.8	72.6	72.6

Monthly average: 72.5  
 License Maximum Monthly Average: 89

Parkway Bridge Temperature Summary - August 2011

Time	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
HHMMSS															
0	70.8	70.6	72.5	72.2	70.0	72.1	72.0	71.1	72.6	71.3	71.7	70.1	70.0	71.7	71.1
10000	70.4	70.5	70.5	70.6	70.1	70.7	71.8	71.2	72.5	71.2	71.5	69.9	69.8	71.2	70.8
20000	70.5	70.1	70.1	70.4	70.4	70.3	71.8	70.9	72.4	71.2	71.4	69.9	69.9	71.0	70.8
30000	70.8	70.1	70.0	70.2	70.5	70.0	71.9	70.8	72.1	70.9	71.1	69.8	69.8	70.9	70.6
40000	70.8	70.0	70.0	70.4	70.3	69.9	71.5	70.9	71.9	70.8	70.9	69.7	69.8	70.8	70.4
50000	70.7	69.8	70.0	70.7	70.2	70.0	71.4	71.0	71.8	70.6	70.6	69.6	69.9	70.6	70.2
60000	70.7	69.7	69.9	71.0	70.2	70.0	71.2	71.2	71.6	70.5	70.5	69.7	69.7	70.5	70.0
70000	70.7	69.8	69.9	71.1	70.3	70.1	71.1	71.2	71.5	70.5	70.4	69.5	69.4	70.3	70.0
80000	71.0	70.3	70.0	71.3	70.4	70.3	71.2	71.3	71.5	70.7	70.2	69.7	69.5	70.5	69.9
90000	71.3	71.0	70.3	71.6	70.8	70.9	71.5	71.7	71.6	71.2	70.4	70.0	70.1	71.0	70.1
100000	71.4	71.8	70.5	72.2	71.4	71.8	71.8	72.4	71.9	71.6	71.0	70.8	70.9	71.5	70.1
110000	71.8	72.7	71.0	72.4	72.4	72.6	72.1	72.9	72.1	71.8	71.6	71.3	71.4	72.0	70.2
120000	73.0	74.2	71.9	74.0	73.6	72.8	72.4	73.4	72.4	71.8	72.0	71.9	72.1	72.3	70.4
130000	74.0	74.7	73.2	74.1	74.0	73.4	72.7	74.2	72.8	72.2	72.2	72.1	72.5	72.5	70.6
140000	74.4	75.5	73.9	74.2	74.1	73.3	72.9	74.4	72.8	72.4	72.4	72.1	72.7	72.7	70.3
150000	73.2	76.2	74.0	74.8	74.2	73.4	73.2	74.5	72.7	72.9	72.5	71.6	73.0	73.2	70.3
160000	76.3	76.4	73.1	75.3	74.0	73.8	72.9	74.3	72.7	72.8	72.5	71.2	73.1	73.5	70.2
170000	76.5	76.4	72.1	75.4	74.5	73.9	72.6	74.0	72.5	73.0	72.3	70.8	73.3	73.5	70.3
180000	76.3	76.0	74.1	74.4	74.3	73.7	72.4	73.8	72.1	73.0	72.0	70.9	73.0	71.9	70.3
190000	76.0	76.0	74.2	74.4	74.2	73.5	72.2	73.4	71.8	72.9	71.5	70.8	72.7	72.3	70.2
200000	75.6	75.7	73.3	73.8	73.9	73.1	71.9	73.2	71.7	72.7	71.1	70.4	72.4	72.1	70.1
210000	75.2	74.9	73.1	72.5	73.8	72.8	71.5	73.1	71.6	72.4	71.0	70.3	72.4	71.7	69.9
220000	74.7	74.6	73.0	71.7	73.6	72.3	71.2	73.0	71.5	72.2	70.5	70.3	72.1	71.5	69.9
230000	72.5	74.2	72.9	71.2	73.2	71.9	71.2	72.8	71.4	72.0	70.3	70.2	71.9	71.1	69.9
Daily Max	76.5	76.4	74.2	75.4	74.5	73.9	73.2	74.5	72.8	73.0	72.5	72.1	73.3	73.5	71.1
Daily Min	70.4	69.7	69.9	70.2	70.0	69.9	71.1	70.8	71.4	70.5	70.2	69.5	69.4	70.3	69.9
Average	72.9	73.0	71.8	72.5	72.3	71.9	71.9	72.5	72.1	71.8	71.3	70.5	71.3	71.7	70.3

Parkway Bridge Temperature Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	69.8	70.0	71.1	70.8	68.8	67.6	66.6	66.3	67.1	66.6	67.1	68.5	69.1	68.3	66.1	64.5
10000	69.9	69.9	71.0	71.0	68.6	67.4	66.3	66.2	66.8	66.3	67.4	68.5	68.8	68.6	65.9	64.3
20000	69.7	69.8	70.8	70.7	68.7	67.2	66.1	66.2	66.0	65.9	67.1	67.6	69.0	68.6	65.8	64.1
30000	69.7	69.8	70.6	70.6	68.6	67.2	66.2	66.4	65.7	65.9	67.0	67.5	68.3	68.5	65.7	64.0
40000	69.7	69.9	70.4	70.5	68.5	67.0	66.3	66.4	65.7	65.8	66.8	67.4	66.9	68.3	65.5	64.0
50000	69.7	70.1	70.3	70.3	68.5	67.0	66.1	66.4	65.6	65.9	67.4	67.1	66.5	67.8	65.4	63.9
60000	69.6	70.1	70.3	70.2	68.4	66.9	66.0	66.4	65.7	66.1	67.6	67.0	66.3	67.5	65.3	63.8
70000	69.6	70.1	70.2	70.2	68.3	66.8	65.9	66.4	65.6	66.1	67.4	67.2	66.6	67.5	65.1	63.7
80000	69.7	70.4	69.9	70.3	68.4	66.9	66.0	66.5	65.6	66.2	67.1	67.2	66.5	67.5	65.0	63.8
90000	69.9	70.7	69.6	70.5	68.5	67.2	66.5	66.8	66.2	66.4	67.4	67.6	67.4	67.4	65.2	63.9
100000	70.2	71.1	69.4	70.6	68.7	67.6	67.2	67.3	67.5	67.2	67.8	68.0	67.5	67.4	65.5	64.4
110000	70.8	71.3	69.5	70.9	68.7	68.0	67.7	68.0	68.0	67.9	68.3	68.8	67.7	67.8	65.9	65.0
120000	71.0	71.6	69.6	70.9	68.8	68.6	68.1	68.3	68.4	68.4	68.6	69.2	67.9	68.1	66.1	65.3
130000	71.5	72.2	69.7	71.0	68.9	68.8	68.0	68.5	68.4	69.1	69.2	69.7	68.9	68.5	66.4	65.2
140000	71.5	72.6	69.9	70.9	69.1	69.0	68.0	68.2	68.4	69.2	70.0	70.3	69.2	68.4	66.6	65.6
150000	71.4	73.0	70.0	70.9	69.2	69.0	67.9	68.2	68.2	69.2	70.7	71.5	69.7	68.1	66.5	65.7
160000	71.2	73.2	70.1	70.8	69.1	68.8	67.9	67.7	68.1	69.1	71.1	72.6	69.7	67.8	66.2	65.7
170000	70.9	72.6	70.2	70.4	68.7	68.6	67.8	67.4	68.0	68.7	71.9	73.3	69.3	67.6	65.8	65.5
180000	70.6	72.4	70.0	70.1	68.5	68.4	67.9	67.1	67.8	68.2	71.5	73.2	69.2	67.5	65.6	65.4
190000	70.3	72.1	69.7	69.6	68.2	68.2	67.6	66.7	67.7	68.1	70.6	72.3	68.9	67.1	65.3	65.0
200000	70.3	71.6	69.8	69.3	68.0	67.9	67.0	66.5	67.6	67.5	69.9	72.0	68.9	66.8	65.1	64.9
210000	70.2	71.2	70.0	69.0	67.9	67.7	66.7	66.1	67.6	66.6	69.3	70.8	68.7	66.6	64.8	64.7
220000	70.0	71.2	70.3	68.9	67.8	67.6	66.5	65.6	67.4	66.2	68.9	69.7	68.4	66.5	64.6	64.4
230000	70.0	71.1	70.6	68.8	67.7	67.2	66.3	67.1	67.3	66.5	68.6	68.8	68.0	66.3	64.5	64.0
Daily Max	71.5	73.2	71.1	71.0	69.2	69.0	68.1	68.5	68.4	69.2	71.9	73.3	69.7	68.6	66.6	65.7
Daily Min	69.6	69.8	69.4	68.8	67.7	66.8	65.9	65.6	65.6	65.8	66.8	67.0	66.3	66.3	64.5	63.7
Average	70.3	71.2	70.1	70.3	68.5	67.8	66.9	66.9	67.1	67.2	68.7	69.4	68.2	67.7	65.6	64.6

Monthly average: 64.6  
 License Maximum Monthly Average:89

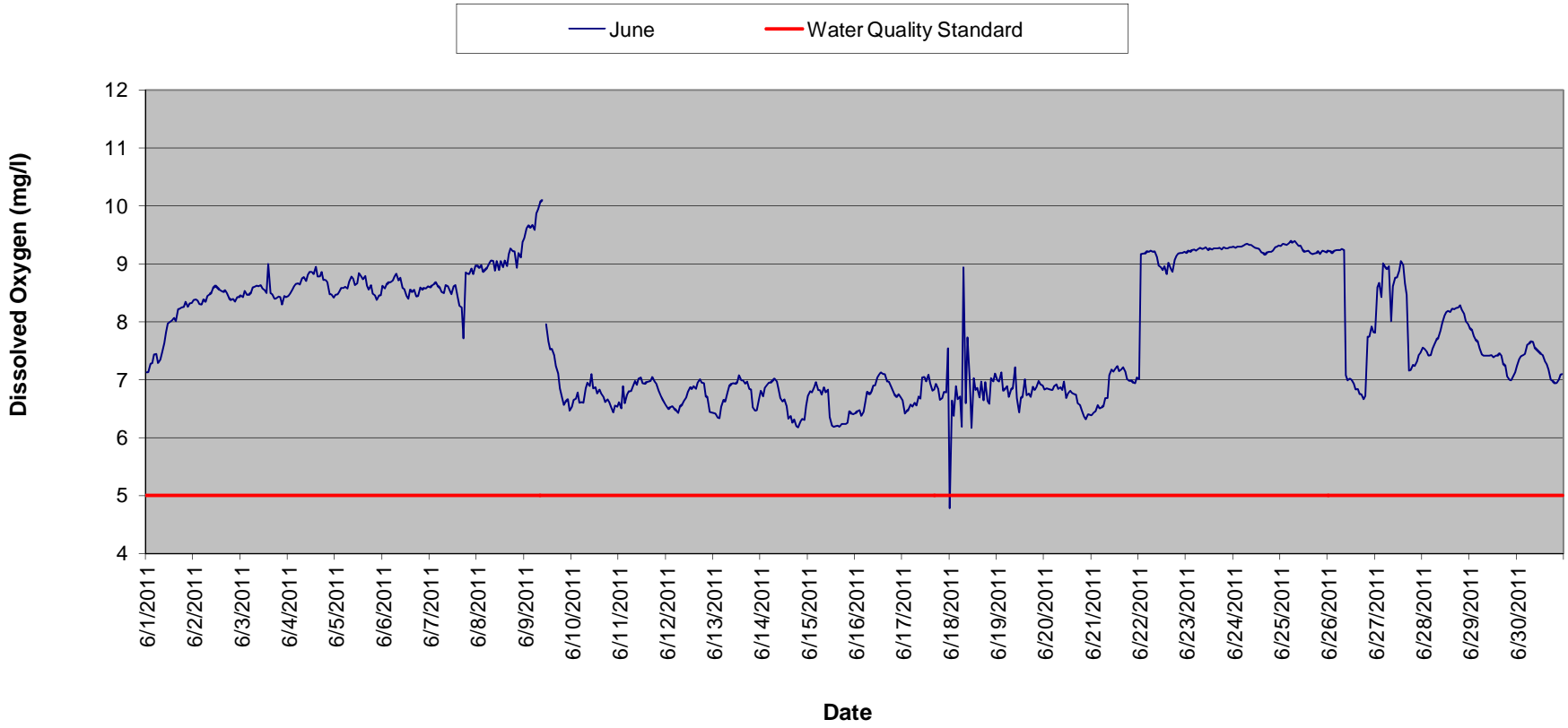
Parkway Bridge Temperature Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	63.6	62.4	62.8	62.7	62.5	62.0	60.8	60.0	59.6	58.9	58.7	58.9	58.8	58.5
10000	63.3	62.3	62.8	62.5	62.4	61.8	60.8	59.8	59.5	58.9	58.7	58.5	58.4	58.3
20000	63.3	62.3	62.8	62.5	61.9	61.6	60.8	59.6	59.4	58.8	58.5	58.3	58.4	58.2
30000	63.3	62.1	62.7	62.3	61.9	61.4	60.7	59.6	59.3	58.7	58.2	58.2	58.2	58.1
40000	63.2	62.1	62.8	62.1	62.1	61.4	60.7	59.5	59.3	58.8	58.2	58.1	58.3	57.8
50000	63.3	62.1	62.8	62.0	62.2	61.3	60.7	59.5	59.2	58.8	58.1	58.1	58.4	57.4
60000	63.1	62.0	62.8	61.9	62.1	61.2	60.6	59.4	59.2	58.6	58.0	58.0	58.4	57.3
70000	62.9	61.9	62.8	61.7	62.1	61.2	60.6	59.4	59.2	58.6	58.1	58.0	58.5	57.2
80000	63.0	62.1	62.8	61.6	62.0	61.1	60.6	59.6	59.4	58.6	58.2	58.0	58.6	57.2
90000	63.2	62.3	62.9	61.8	62.3	61.5	61.0	60.1	59.4	58.5	58.4	58.2	59.3	57.2
100000	63.6	62.7	63.0	62.2	62.6	61.7	61.1	60.2	59.5	58.4	58.7	58.7	59.4	57.3
110000	64.1	63.2	63.3	62.8	62.7	61.8	61.1	60.2	59.4	58.4	58.9	59.0	59.6	57.7
120000	64.3	63.5	63.6	63.2	62.8	61.8	61.3	60.3	59.6	58.5	59.0	59.3	59.5	57.8
130000	64.3	63.4	63.8	63.5	62.9	61.9	61.3	60.3	59.5	58.5	59.1	59.4	59.4	57.8
140000	64.2	63.2	64.0	63.5	63.0	61.9	61.3	60.3	59.5	58.4	59.3	59.4	59.7	57.8
150000	64.3	63.1	64.2	63.3	63.1	61.8	61.3	60.3	59.2	58.1	59.6	59.2	59.6	57.7
160000	64.1	63.0	64.3	62.9	63.2	61.9	61.2	60.2	59.1	58.2	59.6	59.0	59.6	57.8
170000	64.0	62.8	64.4	62.5	63.2	61.8	61.1	60.0	59.1	58.2	59.6	59.1	59.5	57.7
180000	63.6	62.7	64.3	62.4	63.0	61.5	61.1	59.9	59.0	58.3	59.8	58.9	59.3	57.6
190000	63.1	62.7	64.2	62.2	62.8	61.2	60.9	59.8	59.0	58.5	59.6	58.9	59.2	57.5
200000	62.9	62.8	64.0	62.4	62.6	61.0	60.8	59.8	59.1	58.7	59.4	58.9	59.1	57.2
210000	63.4	62.8	63.8	62.6	62.5	60.9	60.7	60.0	59.1	58.7	59.3	58.9	58.9	56.9
220000	63.3	62.7	63.5	62.5	62.4	60.8	60.5	59.9	59.1	58.7	59.2	58.9	59.0	56.7
230000	63.0	62.6	63.1	62.5	62.2	60.8	60.4	59.8	59.0	58.7	59.1	58.9	58.9	56.5
Daily Max	64.3	63.5	64.4	63.5	63.2	62.0	61.3	60.3	59.6	58.9	59.8	59.4	59.7	58.5
Daily Min	62.9	61.9	62.7	61.6	61.9	60.8	60.4	59.4	59.0	58.1	58.0	58.0	58.2	56.5
Average	63.5	62.6	63.4	62.5	62.5	61.5	60.9	59.9	59.3	58.6	58.9	58.7	59.0	57.5

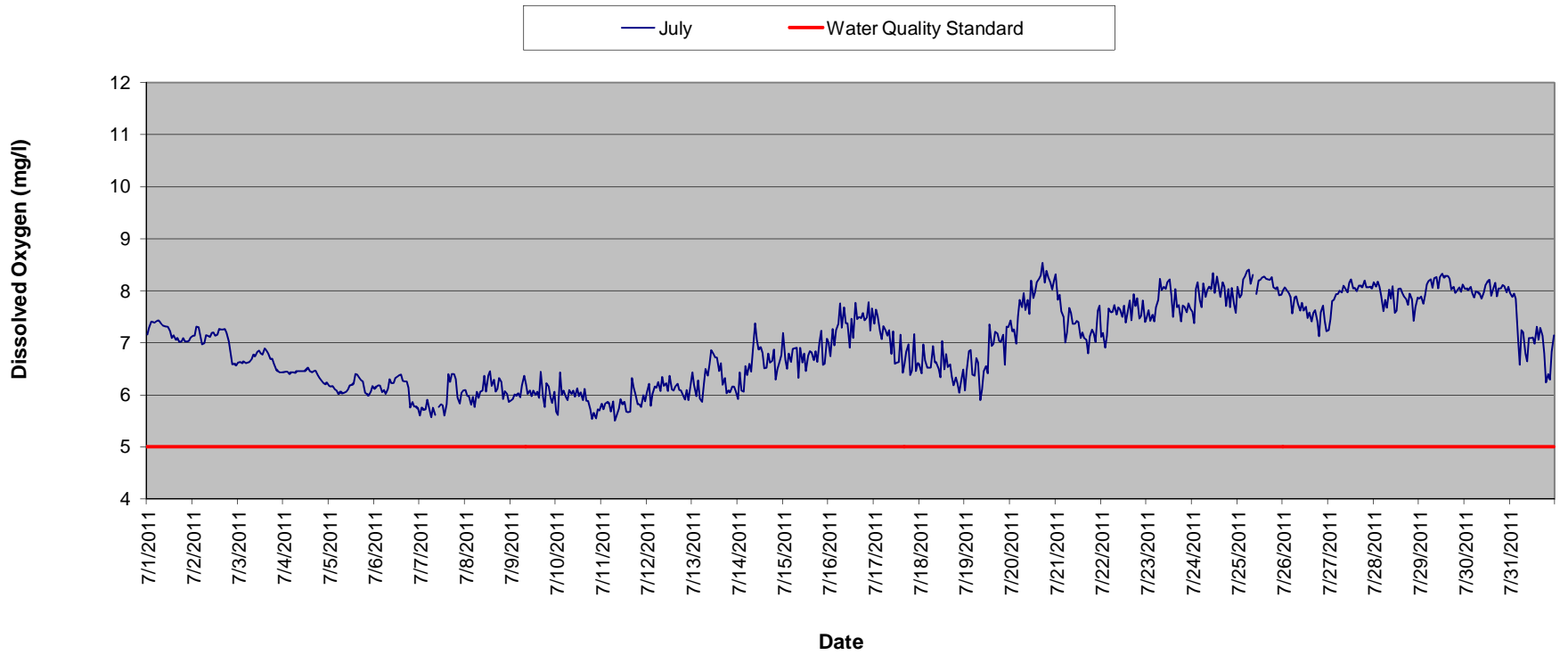
## **High Falls Tail Water Monitoring Location**



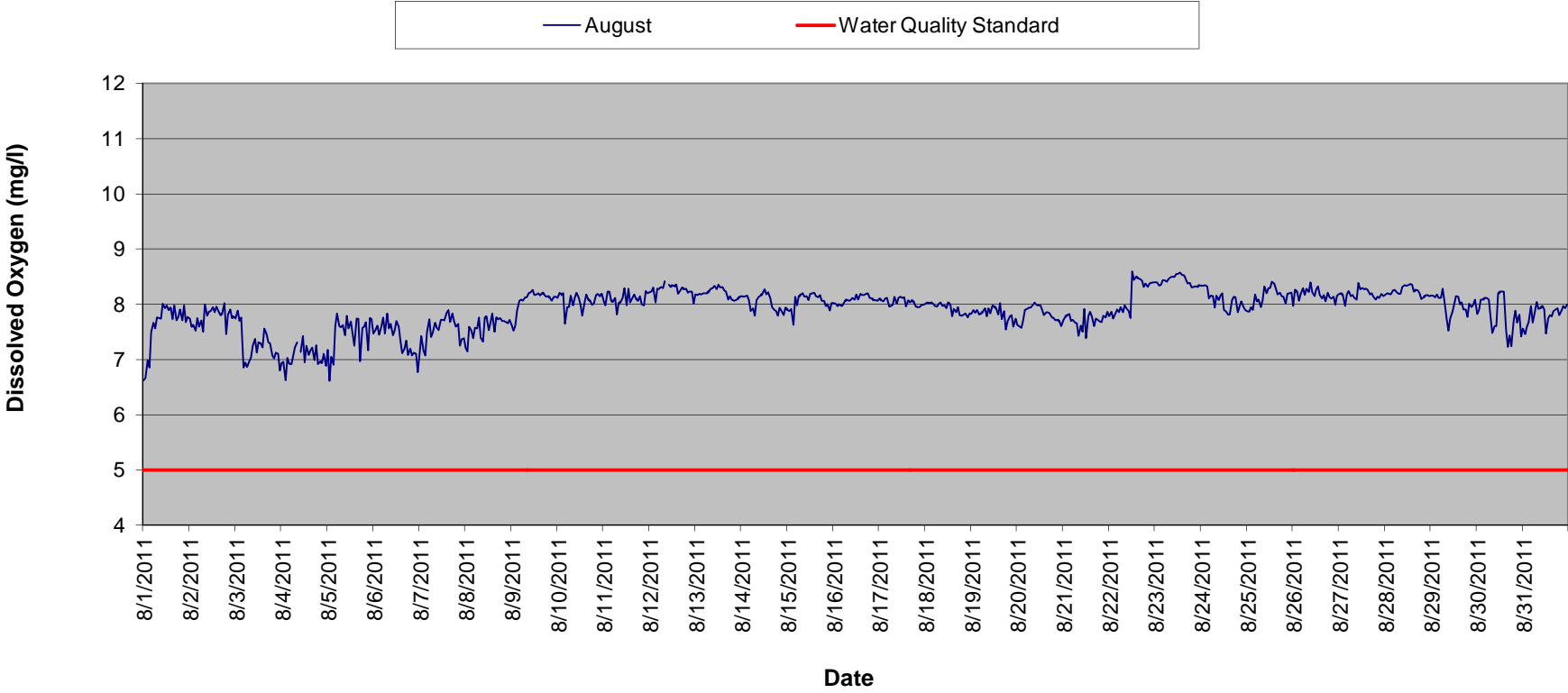
### High Falls Tailrace Dissolved Oxygen - June 2011



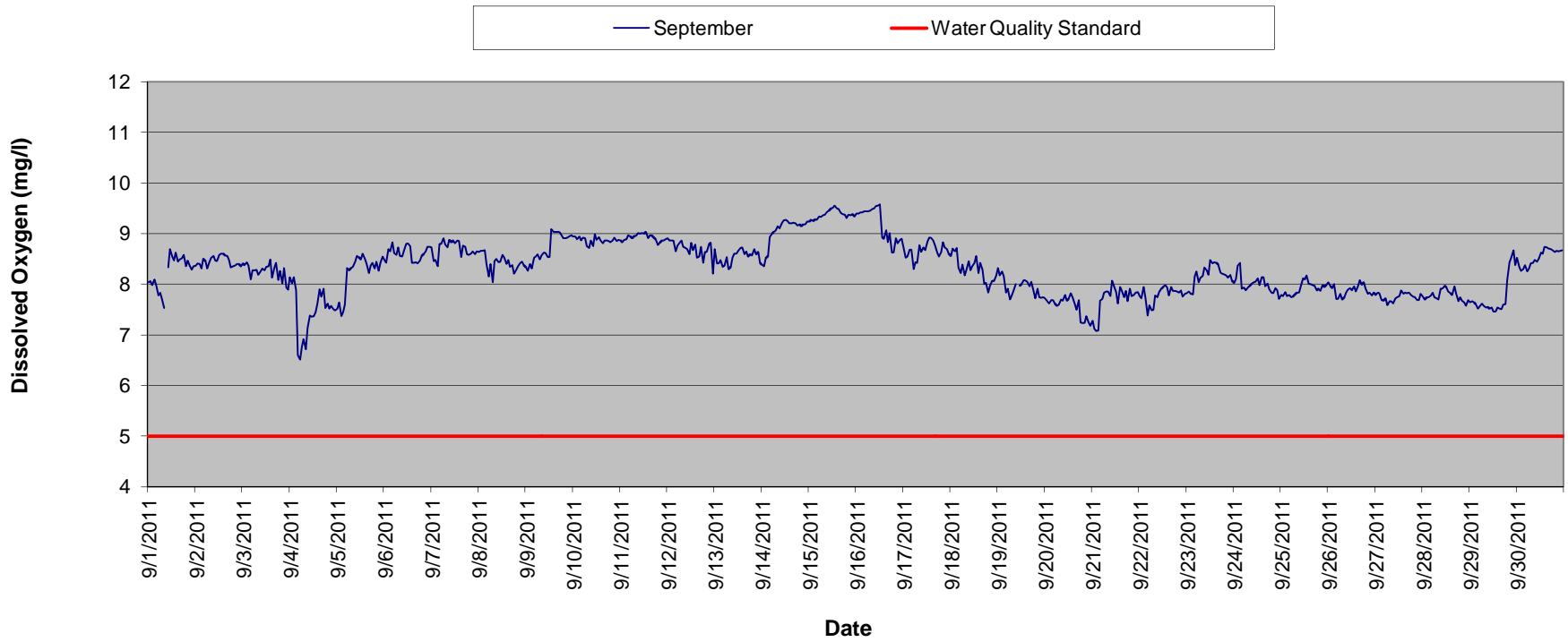
### High Falls Tailrace Dissolved Oxygen - July 2011



### High Falls Tailrace Dissolved Oxygen - August 2011



### High Falls Tailrace Dissolved Oxygen - September 2011



High Falls Tailrace Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	7.1	8.4	8.5	8.4	8.5	8.6	8.6	9.0	9.4	6.5	6.6	6.6	6.4	6.8	6.7	6.4
10000	7.1	8.4	8.4	8.5	8.5	8.6	8.6	8.9	9.6	6.7	6.5	6.5	6.4	6.7	6.8	6.5
20000	7.3	8.4	8.5	8.6	8.5	8.6	8.6	9.0	9.7	6.7	6.9	6.5	6.3	6.9	6.8	6.5
30000	7.3	8.3	8.5	8.6	8.6	8.7	8.7	8.9	9.6	6.8	6.6	6.5	6.3	6.9	6.9	6.4
40000	7.4	8.3	8.5	8.6	8.6	8.7	8.6	8.9	9.7	6.6	6.7	6.5	6.5	7.0	7.0	6.4
50000	7.4	8.4	8.5	8.7	8.6	8.7	8.6	8.9	9.6	6.6	6.8	6.5	6.7	7.0	6.8	6.6
60000	7.3	8.4	8.6	8.6	8.6	8.8	8.5	9.0	9.9	6.6	6.8	6.4	6.6	7.0	6.8	6.8
70000	7.3	8.4	8.6	8.8	8.7	8.8	8.5	9.1	9.9	6.9	6.9	6.5	6.8	7.0	6.7	6.8
80000	7.5	8.5	8.6	8.8	8.8	8.7	8.6	9.0	10.1	7.0	7.0	6.6	6.9	7.0	6.9	6.8
90000	7.6	8.5	8.6	8.7	8.7	8.8	8.6	8.9	10.1	6.9	6.9	6.6	6.9	6.8	6.8	6.9
100000	7.8	8.6	8.6	8.8	8.6	8.6	8.5	9.1		7.1	7.0	6.7	6.9	6.7	6.8	6.9
110000	8.0	8.6	8.6	8.9	8.7	8.6	8.5	8.9	8.0	6.9	7.0	6.8	6.9	6.6	6.4	7.0
120000	8.0	8.6	8.5	8.9	8.8	8.4	8.6	9.0	7.7	6.9	6.9	6.9	7.0	6.7	6.2	7.1
130000	8.0	8.6	8.5	8.8	8.8	8.4	8.6	8.9	7.5	6.8	6.9	6.8	7.1	6.5	6.2	7.1
140000	8.1	8.5	9.0	9.0	8.7	8.6	8.4	9.1	7.5	6.8	7.0	6.9	7.0	6.3	6.2	7.1
150000	8.0	8.5	8.5	8.8	8.8	8.5	8.3	9.0	7.4	6.8	7.0	6.8	7.0	6.4	6.2	7.1
160000	8.2	8.5	8.5	8.8	8.6	8.6	8.2	9.2	7.2	6.7	7.0	7.0	6.9	6.3	6.2	7.0
170000	8.2	8.5	8.4	8.9	8.6	8.4	7.7	9.3	7.1	6.6	7.1	7.0	7.0	6.3	6.2	7.0
180000	8.2	8.4	8.4	8.7	8.6	8.4	8.8	9.2	6.9	6.7	7.0	7.0	6.8	6.2	6.2	6.9
190000	8.3	8.4	8.4	8.7	8.5	8.6	8.8	9.2	6.7	6.6	6.9	6.9	6.8	6.2	6.2	6.8
200000	8.3	8.4	8.4	8.7	8.5	8.6	8.8	8.9	6.6	6.5	6.8	6.7	6.5	6.3	6.3	6.7
210000	8.3	8.3	8.3	8.5	8.4	8.6	8.9	9.2	6.6	6.4	6.7	6.7	6.5	6.3	6.5	6.7
220000	8.3	8.4	8.4	8.5	8.5	8.6	8.8	9.1	6.7	6.6	6.7	6.4	6.5	6.3	6.4	6.8
230000	8.3	8.4	8.4	8.4	8.5	8.6	9.0	9.4	6.5	6.5	6.6	6.4	6.7	6.6	6.4	6.7
Daily Max	8.3	8.6	9.0	9.0	8.8	8.8	9.0	9.4	10.1	7.1	7.1	7.0	7.1	7.0	7.0	7.1
Daily Min	7.1	8.3	8.3	8.4	8.4	8.4	7.7	8.9	6.5	6.4	6.5	6.4	6.3	6.2	6.2	6.4
Average	7.8	8.4	8.5	8.7	8.6	8.6	8.6	9.0	8.3	6.7	6.8	6.7	6.7	6.6	6.5	6.8

missing data due to equipment maintenance

License Minimum DO: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	6.6	4.8	7.0	6.8	6.4	7.0	9.2	9.3	9.3	9.2	7.8	7.6	7.9	7.2
10000	6.4	6.6	7.0	6.8	6.4	9.2	9.2	9.3	9.3	9.2	8.6	7.5	7.9	7.4
20000	6.5	6.4	7.1	6.8	6.5	9.2	9.2	9.3	9.3	9.2	8.7	7.5	7.8	7.4
30000	6.5	6.9	6.8	6.8	6.6	9.2	9.2	9.3	9.3	9.2	8.4	7.4	7.7	7.4
40000	6.6	6.7	6.8	6.8	6.5	9.2	9.3	9.3	9.4	9.2	9.0	7.4	7.7	7.4
50000	6.5	6.7	6.9	6.9	6.5	9.2	9.2	9.3	9.4	9.2	8.9	7.5	7.5	7.6
60000	6.6	6.2	6.7	6.9	6.6	9.2	9.3	9.3	9.4	9.2	8.9	7.6	7.4	7.6
70000	6.6	8.9	6.8	6.8	6.7	9.2	9.3	9.3	9.4	9.3	9.0	7.7	7.4	7.7
80000	6.7	6.6	6.9	6.9	6.7	9.2	9.3	9.3	9.4	9.2	8.0	7.7	7.4	7.7
90000	6.7	7.7	7.2	6.8	7.1	9.1	9.3	9.3	9.3	7.1	8.6	7.9	7.4	7.6
100000	7.0	7.0	6.7	7.0	7.2	9.0	9.3	9.3	9.3	7.0	8.8	8.0	7.4	7.5
110000	7.0	6.2	6.4	6.7	7.1	8.9	9.2	9.3	9.2	7.0	8.8	8.1	7.4	7.5
120000	7.0	7.0	6.7	6.8	7.2	8.9	9.3	9.3	9.2	7.0	8.9	8.2	7.4	7.4
130000	7.1	6.8	6.7	6.8	7.2	9.0	9.2	9.3	9.2	6.9	9.1	8.2	7.4	7.4
140000	6.9	6.9	7.0	6.8	7.2	8.8	9.3	9.2	9.2	6.8	9.0	8.2	7.4	7.3
150000	6.8	6.7	6.7	6.7	7.2	9.0	9.3	9.2	9.2	6.8	8.7	8.2	7.5	7.3
160000	6.8	7.0	6.8	6.7	7.2	8.9	9.3	9.2	9.2	6.8	8.5	8.2	7.4	7.2
170000	6.9	6.6	6.7	6.6	7.1	8.9	9.3	9.2	9.2	6.7	7.2	8.2	7.3	7.0
180000	6.8	7.0	6.9	6.6	7.0	9.1	9.3	9.2	9.2	6.7	7.2	8.3	7.2	7.0
190000	6.7	6.6	6.8	6.5	7.0	9.1	9.3	9.2	9.2	6.7	7.3	8.3	7.1	6.9
200000	6.7	6.6	6.9	6.4	7.0	9.2	9.3	9.2	9.2	7.7	7.2	8.2	7.0	6.9
210000	6.8	7.0	7.0	6.3	7.0	9.2	9.3	9.3	9.2	7.7	7.3	8.1	7.0	7.0
220000	6.8	7.0	6.9	6.4	6.9	9.2	9.3	9.3	9.2	7.9	7.4	8.0	7.1	7.1
230000	7.5	7.1	6.9	6.4	7.0	9.2	9.3	9.3	9.2	7.8	7.5	8.0	7.1	7.1
Daily Max	7.5	8.9	7.2	7.0	7.2	9.2	9.3	9.3	9.4	9.3	9.1	8.3	7.9	7.7
Daily Min	6.4	4.8	6.4	6.3	6.4	7.0	9.2	9.2	9.2	6.7	7.2	7.4	7.0	6.9
Average	6.8	6.8	6.8	6.7	6.9	9.0	9.3	9.3	9.3	7.9	8.3	7.9	7.4	7.3

Aeration flow released through gates

Low reading on 6/18 is an anomaly. Likely an equipment malfunction. Aeration flow being provided at time of low reading.

High Falls Tailrace Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.2	7.1	6.6	6.4	6.2	6.1	5.6	6.1	5.9	5.7	5.8	6.0	6.4	5.9	7.2	7.0
10000	7.3	7.1	6.6	6.4	6.2	6.2	5.8	6.0	5.9	5.6	5.7	6.2	6.2	6.4	6.7	6.7
20000	7.4	7.3	6.6	6.4	6.2	6.2	5.7	6.0	6.0	6.4	5.8	5.8	6.0	6.1	6.5	7.3
30000	7.4	7.3	6.6	6.4	6.1	6.2	5.7	5.8	6.0	6.0	5.9	6.0	6.3	6.1	6.8	6.9
40000	7.4	7.1	6.6	6.4	6.1	6.1	5.9	6.0	6.0	6.1	5.8	6.2	5.9	6.6	6.6	7.2
50000	7.4	7.0	6.6	6.4	6.0	6.1	5.7	5.8	6.0	6.0	5.7	6.1	5.9	6.4	6.9	7.4
60000	7.4	7.0	6.6	6.4	6.1	6.0	5.6	6.1	6.2	5.9	5.9	6.3	6.2	6.6	6.9	7.8
70000	7.4	7.2	6.7	6.5	6.0	6.1	5.8	5.9	6.4	6.1	5.5	6.1	6.5	6.4	6.9	7.3
80000	7.3	7.1	6.8	6.5	6.0	6.3	5.6	6.1	6.2	6.0	5.6	6.3	6.4	6.8	6.3	7.7
90000	7.3	7.1	6.7	6.5	6.1	6.2	5.8	6.1	6.0	6.1	5.7	6.2	6.6	7.4	6.9	7.4
100000	7.3	7.2	6.8	6.5	6.1	6.2	5.8	6.4	6.1	6.0	5.9	6.2	6.9	7.1	6.6	7.4
110000	7.3	7.2	6.9	6.5	6.2	6.3	5.8	6.1	6.0	6.1	5.8	6.1	6.8	6.9	6.8	6.9
120000	7.2	7.1	6.8	6.5	6.2	6.4	5.8	6.4	6.1	6.0	5.9	6.4	6.7	6.9	6.5	7.5
130000	7.1	7.2	6.8	6.5	6.2	6.4	5.6	6.5	6.0	6.1	5.7	6.1	6.7	6.8	6.8	7.1
140000	7.2	7.3	6.9	6.5	6.4	6.4	5.8	6.2	6.1	5.9	5.7	6.1	6.5	6.5	6.8	7.8
150000	7.1	7.3	6.9	6.4	6.4	6.3	6.4	6.3	5.9	6.1	5.7	6.2	6.6	6.5	6.8	7.4
160000	7.1	7.3	6.8	6.5	6.3	6.3	6.3	6.1	6.4	5.9	6.3	6.2	6.2	6.8	6.7	7.5
170000	7.0	7.3	6.7	6.5	6.3	6.3	6.4	6.1	6.0	5.9	6.1	6.1	6.3	6.6	6.8	7.5
180000	7.0	7.2	6.7	6.4	6.3	6.1	6.4	6.3	5.8	5.7	6.0	6.1	6.0	6.7	6.6	7.6
190000	7.1	7.0	6.6	6.3	6.0	5.8	6.3	6.2	6.2	5.5	5.8	6.0	6.1	6.9	7.0	7.4
200000	7.0	6.8	6.5	6.3	6.0	5.9	6.0	5.9	6.2	5.7	5.8	5.9	6.1	6.3	7.2	7.5
210000	7.0	6.6	6.5	6.2	6.0	5.8	5.8	6.1	6.0	5.5	5.8	6.1	6.2	6.5	6.6	7.8
220000	7.0	6.6	6.4	6.2	6.1	5.8	6.0	6.0	5.8	5.7	6.0	5.9	6.2	6.6	6.6	7.2
230000	7.1	6.6	6.4	6.2	6.2	5.7	6.1	5.9	6.1	5.7	5.9	6.2	6.1	6.8	7.1	7.7
Daily Max	7.4	7.3	6.9	6.5	6.4	6.4	6.4	6.5	6.4	6.4	6.3	6.4	6.9	7.4	7.2	7.8
Daily Min	7.0	6.6	6.4	6.2	6.0	5.7	5.6	5.8	5.8	5.5	5.5	5.8	5.9	5.9	6.3	6.7
Average	7.2	7.1	6.7	6.4	6.1	6.1	5.9	6.1	6.0	5.9	5.8	6.1	6.3	6.6	6.8	7.4

Missing data due to equipment maintenance.

Aeration flow released through gates

License Minimum Dissolved Oxygen: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.4	6.6	6.1	7.4	8.3	7.1	7.5	7.6	8.1	8.0	7.2	8.2	7.9	8.0	8.0
10000	7.6	6.4	6.5	7.2	7.8	7.2	7.6	7.4	7.9	8.1	7.4	8.1	7.9	8.0	7.9
20000	7.5	7.0	6.8	7.3	7.9	6.9	7.4	8.0	7.9	8.0	7.8	8.2	7.8	8.0	7.9
30000	7.2	6.7	6.9	7.0	7.6	7.1	7.5	8.2	8.2	8.0	7.8	8.1	7.9	8.1	7.8
40000	7.1	6.5	6.4	7.5	7.5	7.7	7.4	7.8	8.3	7.9	7.9	7.9	8.1	7.9	7.1
50000	7.3	6.5	6.4	7.8	7.0	7.6	7.7	7.7	8.4	7.6	7.9	7.6	8.2	7.9	6.6
60000	7.2	6.5	6.7	7.7	7.2	7.6	7.8	8.1	8.4	7.9	8.0	7.8	8.2	8.0	7.2
70000	7.1	6.9	6.6	8.0	7.7	7.7	8.2	7.9	8.1	7.9	8.0	7.7	8.1	8.0	7.2
80000	7.2	6.6	5.9	7.6	7.6	7.5	8.0	8.0	8.3	7.8	8.1	8.0	8.2	7.9	6.8
90000	6.8	6.6	6.1	7.8	7.4	7.7	8.1	8.1		7.6	8.0	7.8	8.3	7.8	6.6
100000	7.2	6.5	6.5	7.6	7.4	7.6	8.0	8.0	7.9	7.8	8.0	8.1	8.0	8.0	7.1
110000	6.6	6.3	6.6	8.2	7.4	7.5	8.2	8.3	8.2	7.6	8.2	7.6	8.3	8.1	7.1
120000	6.6	7.0	6.4	7.9	7.4	7.7	8.2	8.0	8.2	7.7	8.2	7.6	8.3	8.2	7.1
130000	6.6	6.5	7.4	8.0	7.1	7.4	7.9	8.3	8.3	7.5	8.0	8.0	8.3	8.2	7.0
140000	7.2	6.8	6.9	8.2	7.2	7.6	7.5	8.1	8.3	7.6	8.1	8.0	8.3	7.9	7.3
150000	6.4	6.5	7.0	8.2	7.1	7.8	8.0	7.9	8.2	7.4	8.0	8.0	8.3	8.0	7.1
160000	6.6	6.6	7.2	8.3	7.1	7.4	7.7	8.2	8.2	7.6	8.1	7.9	8.2	8.2	7.3
170000	6.8	6.3	7.2	8.5	6.8	7.9	7.7	8.1	8.2	7.6	8.1	7.8	8.0	7.9	7.1
180000	7.0	6.2	7.0	8.1	7.1	7.7	7.4	7.7	8.3	7.4	8.1	7.7	8.1	8.0	6.8
190000	6.4	6.3	7.0	8.4	7.3	7.9	7.7	8.0	8.1	7.1	8.2	7.9	8.0	8.0	6.2
200000	6.5	6.2	7.2	8.3	7.2	7.5	7.7	7.7	8.0	7.6	8.1	7.8	8.0	8.1	6.4
210000	7.2	6.0	6.6	8.2	7.0	7.5	7.6	8.1	8.1	7.7	8.1	7.4	8.1	8.1	6.3
220000	6.5	6.2	7.3	8.0	7.6	7.8	7.8	7.7	7.9	7.4	8.1	7.7	8.0	8.0	6.8
230000	6.6	6.5	7.3	8.2	7.7	7.4	7.7	7.6	7.9	7.2	8.0	7.9	8.1	8.1	7.1
Daily Max	7.6	7.0	7.4	8.5	8.3	7.9	8.2	8.3	8.4	8.1	8.2	8.2	8.3	8.2	8.0
Daily Min	6.4	6.0	5.9	7.0	6.8	6.9	7.4	7.4	7.9	7.1	7.2	7.4	7.8	7.8	6.2
Average	6.9	6.5	6.7	7.9	7.4	7.5	7.8	7.9	8.1	7.7	8.0	7.9	8.1	8.0	7.1

Missing data due to equipment maintenance



High Falls Tailrace Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	6.6	7.7	7.7	6.9	7.2	7.5	7.1	7.2	7.6	8.1	8.1	8.2	8.2	8.1	7.9	8.0
10000	6.7	7.6	7.9	7.0	6.6	7.5	7.4	7.1	7.5	8.2	8.0	8.2	8.2	8.1	7.9	8.0
20000	7.0	7.6	7.7	6.6	7.1	7.6	7.2	7.6	7.6	8.2	8.2	8.3	8.2	8.2	7.9	8.0
30000	6.9	7.5	7.8	7.0	6.9	7.5	7.1	7.5	7.9	8.2	8.2	8.0	8.2	8.2	7.6	8.0
40000	7.5	7.8	6.8	6.9	7.6	7.6	7.5	7.4	8.1	7.7	8.1	8.3	8.2	8.1	8.1	8.0
50000	7.7	7.6	6.9	6.9	7.8	7.8	7.7	7.6	8.1	8.0	8.0	8.3	8.2	7.9	8.0	8.0
60000	7.6	7.7	6.9	7.1	7.6	7.5	7.4	7.6	8.1	8.0	8.1	8.3	8.2	7.9	8.1	8.1
70000	7.8	7.5	7.0	7.2	7.6	7.8	7.5	7.8	8.1	8.2	7.8	8.3	8.2	7.8	8.2	8.1
80000	7.7	8.0	7.0	7.3	7.6	7.6	7.7	7.4	8.1	8.0	8.0	8.4	8.3	8.1	8.2	8.1
90000	7.7	7.8	7.2		7.4	7.7	7.6	7.3	8.2	8.1	8.1		8.3	8.1	8.1	8.1
100000	8.0	7.9	7.4	7.1	7.8	7.4	7.5	7.8	8.2	8.2	8.1	8.4	8.3	8.2	8.2	8.1
110000	7.9	7.9	7.1	7.4	7.6	7.5	7.7	7.8	8.3	8.1	8.3	8.3	8.3	8.2	8.1	8.1
120000	8.0	7.9	7.3	7.0	7.7	7.7	7.7	7.5	8.2	8.0	8.0	8.3	8.4	8.3	8.2	8.2
130000	7.9	7.9	7.3	7.3	7.5	7.6	7.7	7.7	8.2	7.8	8.3	8.3	8.3	8.2	8.2	8.1
140000	7.9	8.0	7.2	7.1	7.3	7.3	7.9	7.8	8.2	8.0	8.0	8.4	8.3	8.2	8.2	8.2
150000	7.7	7.9	7.6	7.2	7.7	7.1	7.9	7.5	8.2	8.2	8.1	8.2	8.3	8.1	8.1	8.2
160000	8.0	7.8	7.5	7.2	7.7	7.2	7.7	7.8	8.2	8.1	8.2	8.3	8.2	7.9	8.1	8.2
170000	7.7	7.8	7.3	7.0	7.0	7.3	7.8	7.7	8.2	8.1	8.1	8.3	8.1	7.9	8.2	8.2
180000	7.8	8.0	7.3	7.3	7.6	7.1	7.7	7.8	8.1	8.0	8.1	8.3	8.1	7.9	8.1	8.2
190000	7.9	7.5	7.1	6.9	7.6	7.2	7.6	7.7	8.2	8.0	8.2	8.3	8.1	7.8	8.1	8.1
200000	7.7	7.8	7.0	7.0	7.7	7.1	7.7	7.7	8.1	8.2	8.0	8.2	8.1	7.9	8.0	8.1
210000	8.0	7.9	7.1	6.9	7.2	7.1	7.3	7.7	8.1	8.2	8.0	8.2	8.1	7.9	8.0	8.1
220000	7.7	7.8	7.1	7.1	7.8	7.1	7.4	7.7	8.1	8.2	8.2	8.2	8.1	7.8	7.9	8.1
230000	7.8	7.8	6.8	6.9	7.7	6.8	7.4	7.7	8.1	8.2	8.2	8.0	8.1	7.9	8.0	8.1
Daily Max	8.0	8.0	7.9	7.4	7.8	7.8	7.9	7.8	8.3	8.2	8.3	8.4	8.4	8.3	8.2	8.2
Daily Min	6.6	7.5	6.8	6.6	6.6	6.8	7.1	7.1	7.5	7.7	7.8	8.0	8.1	7.8	7.6	8.0
Average	7.6	7.8	7.3	7.1	7.5	7.4	7.5	7.6	8.1	8.1	8.1	8.3	8.2	8.0	8.1	8.1

Missing data due to equipment maintenance.  
 Aeration flow released through gates

License Minimum Dissolved Oxygen: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	8.1	8.0	7.8	7.6	7.7	7.8	8.4	8.3	7.9	8.0	8.0	8.2	8.2	7.8	7.6
10000	8.1	8.0	7.9	7.6	7.8	7.9	8.4	8.3	7.9	8.3	8.2	8.2	8.2	7.9	7.5
20000	8.1	8.0	7.8	7.6	7.8	7.7	8.3	8.3	7.9	8.2	8.2	8.2	8.1	8.1	7.6
30000	8.1	8.0	7.9	7.7	7.8	7.8	8.4	8.3	7.9	8.1	8.2	8.2	8.2	8.1	7.7
40000	8.1	8.0	7.8	7.9	7.7	7.9	8.4	8.1	8.2	8.2	8.2	8.2	8.1	8.1	8.0
50000	8.0	8.0	7.8	7.9	7.7	7.9	8.4	8.2	8.1	8.3	8.0	8.3	8.1	8.1	7.7
60000	8.0	8.0	7.9	7.9	7.7	7.9	8.4	8.1	8.1	8.2	8.2	8.2	8.3	8.1	7.8
70000	8.0	8.0	7.9	7.9	7.7	7.9	8.5	7.9	7.9	8.3	8.2	8.2	8.1	7.8	8.0
80000	8.1	8.0	7.8	8.0	7.4	8.0	8.5	8.2	8.1	8.2	8.1	8.2	7.7	7.5	7.9
90000	8.0	8.0	7.9	8.0	7.6	7.9	8.5	8.1	8.3	8.4	8.2	8.3	7.5	7.6	7.9
100000	8.1	8.0	7.8	8.0	7.5	7.9	8.5	8.2	8.2	8.2	8.1	8.4	7.7	7.6	8.0
110000	8.1	7.9	8.0	8.0	7.9	7.8	8.5	8.2	8.3	8.1	8.1	8.3	7.9	8.2	7.9
120000	8.1	8.0	8.0	8.0	7.4	8.6	8.6	7.9	8.3	8.3	8.4	8.3	8.0	8.2	7.5
130000	8.1	8.0	7.9	7.9	7.8	8.4	8.6	7.9	8.4	8.3	8.3	8.4	8.1	8.2	7.8
140000	8.0	7.8	7.8	7.8	7.9	8.5	8.5	7.8	8.4	8.2	8.3	8.4	8.1	8.2	7.8
150000	8.1	7.9	8.0	7.9	7.8	8.5	8.5	7.8	8.3	8.1	8.3	8.2	8.0	7.5	7.8
160000	8.0	7.9	7.7	7.9	7.6	8.5	8.5	8.1	8.2	8.2	8.3	8.3	8.0	7.2	7.9
170000	8.1	7.9	7.9	7.8	7.7	8.4	8.4	8.1	8.2	8.0	8.3	8.3	7.9	7.4	7.9
180000	8.0	7.8	7.5	7.8	7.7	8.3	8.4	8.1	8.1	8.2	8.2	8.2	7.9	7.2	7.9
190000	8.0	7.8	7.7	7.7	7.7	8.4	8.3	7.9	8.1	8.1	8.2	8.1	7.8	7.7	7.8
200000	7.9	7.8	7.8	7.7	7.7	8.3	8.3	8.0	8.0	8.1	8.1	8.1	8.0	7.9	7.9
210000	7.9	7.8	7.8	7.7	7.8	8.4	8.3	8.1	8.2	8.1	8.1	8.2	7.9	7.7	8.0
220000	8.0	7.8	7.6	7.7	7.8	8.4	8.3	8.0	8.2	8.0	8.1	8.2	8.0	7.8	7.9
230000	8.0	7.8	7.7	7.6	7.9	8.4	8.3	7.9	8.2	8.2	8.1	8.1	8.1	7.4	8.0
Daily Max	8.1	8.0	8.0	8.0	7.9	8.6	8.6	8.3	8.4	8.4	8.4	8.4	8.3	8.2	8.0
Daily Min	7.9	7.8	7.5	7.6	7.4	7.7	8.3	7.8	7.9	8.0	8.0	8.1	7.5	7.2	7.5
Average	8.0	7.9	7.8	7.8	7.7	8.1	8.4	8.1	8.1	8.2	8.2	8.2	8.0	7.8	7.8

High Falls Tailrace Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	8.0	8.4	8.4	8.1	7.5	8.5	8.7	8.6	8.3	9.0	8.9	8.9	8.7	8.4	9.2	9.4
10000	8.1	8.4	8.4	8.0	7.6	8.4	8.5	8.7	8.3	9.0	8.8	8.9	8.4	8.4	9.3	9.4
20000	8.0	8.4	8.4	8.1	7.4	8.7	8.5	8.7	8.4	8.9	8.9	8.9	8.4	8.5	9.3	9.4
30000	8.1	8.3	8.4	7.9	7.4	8.7	8.4	8.7	8.3	9.0	8.9	8.9	8.5	8.6	9.3	9.4
40000	8.0	8.5	8.1	6.6	7.6	8.8	8.8	8.4	8.5	8.9	9.0	8.7	8.3	8.9	9.3	9.4
50000	7.8	8.5	8.3	6.5	8.3	8.6	8.8	8.2	8.5	8.9	8.9	8.8	8.4	9.0	9.3	9.4
60000	7.8	8.3	8.3	6.8	8.3	8.6	8.9	8.4	8.6	8.9	8.9	8.8	8.5	9.0	9.3	9.4
70000	7.7	8.4	8.3	6.9	8.3	8.7	8.8	8.0	8.5	8.8	9.0	8.9	8.3	9.1	9.4	9.5
80000	7.5	8.5	8.2	6.7	8.3	8.6	8.7	8.5	8.6	8.7	9.0	8.7	8.3	9.2	9.4	9.5
90000		8.6	8.3	7.1	8.4	8.6	8.9	8.5	8.6	8.9	9.0	8.7	8.5	9.1	9.4	9.5
100000	8.3	8.5	8.3	7.4	8.6	8.7	8.8	8.4	8.6	8.8	9.0	8.7	8.6	9.2	9.5	9.5
110000	8.7	8.5	8.3	7.4	8.5	8.8	8.9	8.4	8.5	9.0	9.0	8.6	8.6	9.3	9.5	9.6
120000	8.5	8.6	8.3	7.4	8.5	8.8	8.8	8.6	8.5	8.9	9.0	8.8	8.7	9.3	9.5	9.6
130000	8.5	8.6	8.4	7.4	8.6	8.7	8.9	8.5	9.1	8.9	9.0	8.7	8.7	9.3	9.6	8.9
140000	8.6	8.6	8.5	7.6	8.5	8.4	8.9	8.4	9.0	8.9	8.9	8.8	8.7	9.2	9.5	8.9
150000	8.5	8.6	8.1	7.9	8.4	8.4	8.5	8.5	9.0	8.8	9.0	8.5	8.6	9.2	9.5	9.1
160000	8.5	8.6	8.3	7.8	8.2	8.4	8.8	8.3	9.0	8.9	9.0	8.6	8.7	9.2	9.4	8.8
170000	8.5	8.5	8.4	7.9	8.4	8.4	8.7	8.4	9.0	8.9	8.9	8.7	8.6	9.2	9.4	9.0
180000	8.6	8.3	8.1	7.5	8.4	8.5	8.6	8.2	9.0	8.9	8.9	8.4	8.6	9.2	9.4	8.6
190000	8.4	8.4	8.3	7.6	8.3	8.6	8.6	8.3	8.9	8.8	8.8	8.6	8.6	9.2	9.3	8.6
200000	8.5	8.4	8.0	7.5	8.5	8.6	8.6	8.4	8.9	8.9	8.8	8.6	8.7	9.2	9.4	8.9
210000	8.4	8.4	8.3	7.6	8.3	8.6	8.7	8.4	8.9	8.9	8.9	8.8	8.6	9.2	9.4	8.8
220000	8.3	8.4	7.9	7.5	8.4	8.7	8.6	8.4	8.9	8.9	8.9	8.8	8.6	9.2	9.4	8.9
230000	8.4	8.4	7.9	7.5	8.5	8.7	8.7	8.4	9.0	8.9	8.9	8.2	8.4	9.2	9.3	8.9
Daily Max	8.7	8.6	8.5	8.1	8.6	8.8	8.9	8.7	9.1	9.0	9.0	8.9	8.7	9.3	9.6	9.6
Daily Min	7.5	8.3	7.9	6.5	7.4	8.4	8.4	8.0	8.3	8.7	8.8	8.2	8.3	8.4	9.2	8.6
Average	8.2	8.5	8.3	7.4	8.2	8.6	8.7	8.4	8.7	8.9	8.9	8.7	8.5	9.0	9.4	9.2
		Missing data due to equipment maintenance.														
		Aeration flow released through gates														
		License Minimum Dissolved Oxygen: 5.0 mg/l														

High Falls Tailrace Dissolved Oxygen Summary - September 2011

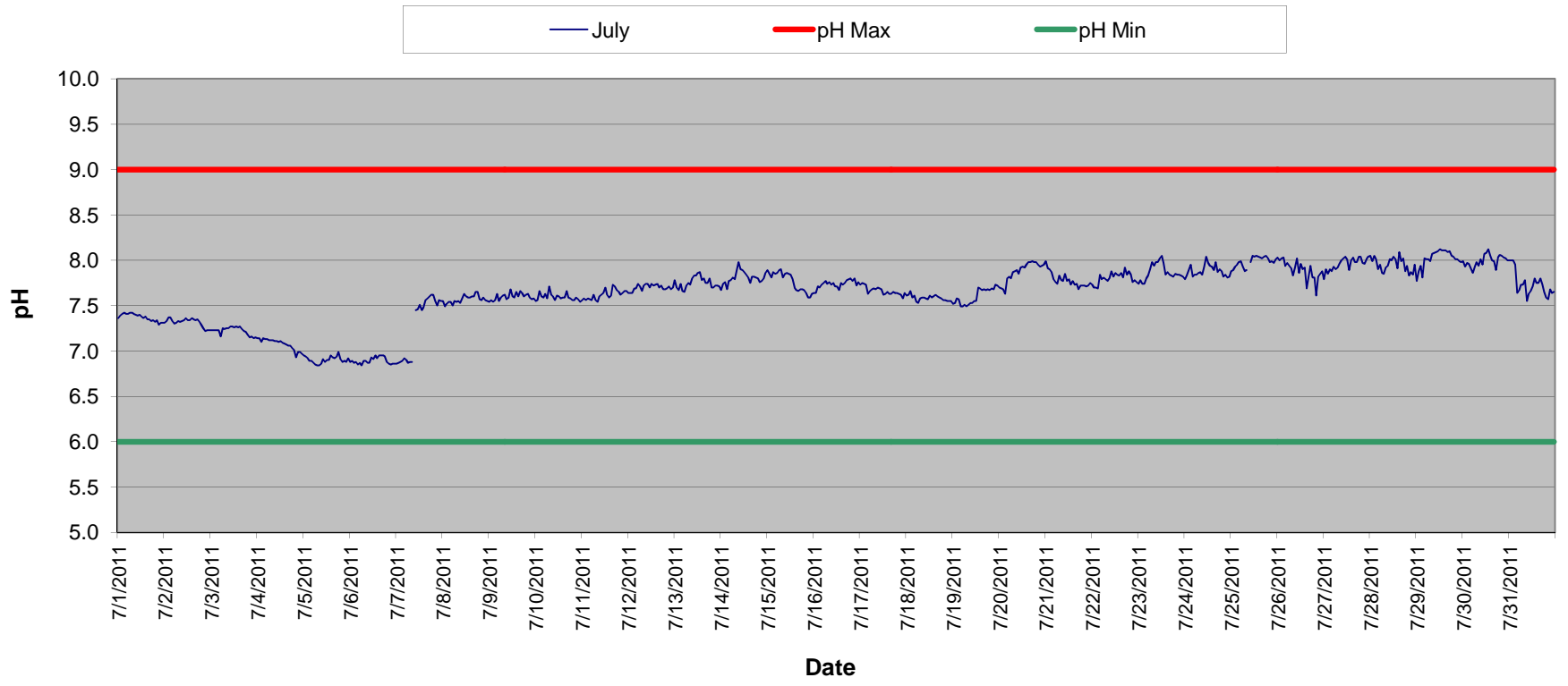
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	8.7	8.6	8.3	7.7	7.3	7.8	7.8	8.0	7.8	8.0	7.8	7.8	7.6	8.5
10000	8.5	8.7	8.2	7.7	7.1	7.7	7.9	8.1	7.8	8.0	7.8	7.7	7.7	8.3
20000	8.6	8.7	8.3	7.6	7.1	8.0	7.8	8.4	7.9	7.9	7.8	7.7	7.6	8.3
30000	8.7	8.7	8.2	7.7	7.1	7.8	7.8	8.4	7.8	8.0	7.7	7.8	7.6	8.3
40000	8.7	8.3	7.8	7.7	7.7	7.4	8.2	7.9	7.8	7.7	7.7	7.8	7.5	8.4
50000	8.3	8.2	7.9	7.6	7.7	7.6	8.3	7.9	7.8	7.7	7.7	7.8	7.6	8.3
60000	8.4	8.4	7.7	7.6	7.8	7.5	8.0	7.9	7.8	7.8	7.7	7.8	7.6	8.3
70000	8.4	8.2	7.8	7.6	7.9	7.5	8.1	7.9	7.8	7.7	7.7	7.7	7.6	8.4
80000	8.8	8.3	7.9	7.7	7.9	7.8	8.2	8.0	7.8	7.8	7.7	7.7	7.5	8.4
90000	8.6	8.5	8.0	7.7	7.8	7.7	8.3	8.0	7.8	7.8	7.6	7.9	7.6	8.5
100000	8.7	8.3		7.8	8.1	7.9	8.3	8.0	8.0	7.9	7.7	7.9	7.5	8.5
110000	8.7	8.4	8.0	7.7	8.0	7.9	8.2	8.1	8.1	7.9	7.8	8.0	7.5	8.5
120000	8.8	8.4	8.0	7.7	7.9	8.0	8.5	8.1	8.1	7.9	7.8	7.9	7.5	8.6
130000	8.9	8.6	8.1	7.8	7.6	8.0	8.4	8.0	8.2	8.0	7.9	7.9	7.5	8.6
140000	8.9	8.2	8.1	7.7	8.0	7.9	8.4	8.1	8.0	7.9	7.8	7.8	7.5	8.7
150000	8.9	8.4	8.1	7.6	7.9	7.8	8.4	8.1	8.0	8.0	7.8	7.8	7.5	8.7
160000	8.8	8.3	8.0	7.5	7.8	8.0	8.4	8.0	8.0	8.1	7.8	8.0	7.5	8.7
170000	8.6	8.0	8.1	7.7	7.9	7.9	8.2	8.0	8.0	8.0	7.8	7.8	7.6	8.7
180000	8.6	8.0	7.9	7.3	7.7	7.9	8.2	7.9	7.9	8.0	7.8	7.7	7.6	8.7
190000	8.6	7.8	7.7	7.2	7.9	7.9	8.2	7.8	7.9	7.9	7.8	7.7	8.1	8.6
200000	8.8	8.0	7.9	7.2	7.8	7.8	8.2	7.8	7.9	7.8	7.8	7.7	8.4	8.7
210000	8.7	8.1	7.7	7.4	7.8	7.9	8.1	7.9	8.0	7.8	7.7	7.6	8.5	8.7
220000	8.7	8.1	7.7	7.3	7.8	7.8	8.2	7.9	8.0	7.8	7.7	7.6	8.7	8.7
230000	8.6	8.2	7.8	7.2	7.9	7.8	8.1	7.7	8.0	7.8	7.8	7.7	8.4	8.7
Daily Max	8.9	8.7	8.3	7.8	8.1	8.0	8.5	8.4	8.2	8.1	7.9	8.0	8.7	8.7
Daily Min	8.3	7.8	7.7	7.2	7.1	7.4	7.8	7.7	7.8	7.7	7.6	7.6	7.5	8.3
Average	8.7	8.3	8.0	7.6	7.7	7.8	8.2	8.0	7.9	7.9	7.7	7.8	7.7	8.5

Missing data on 9/18 due to equipment change out.

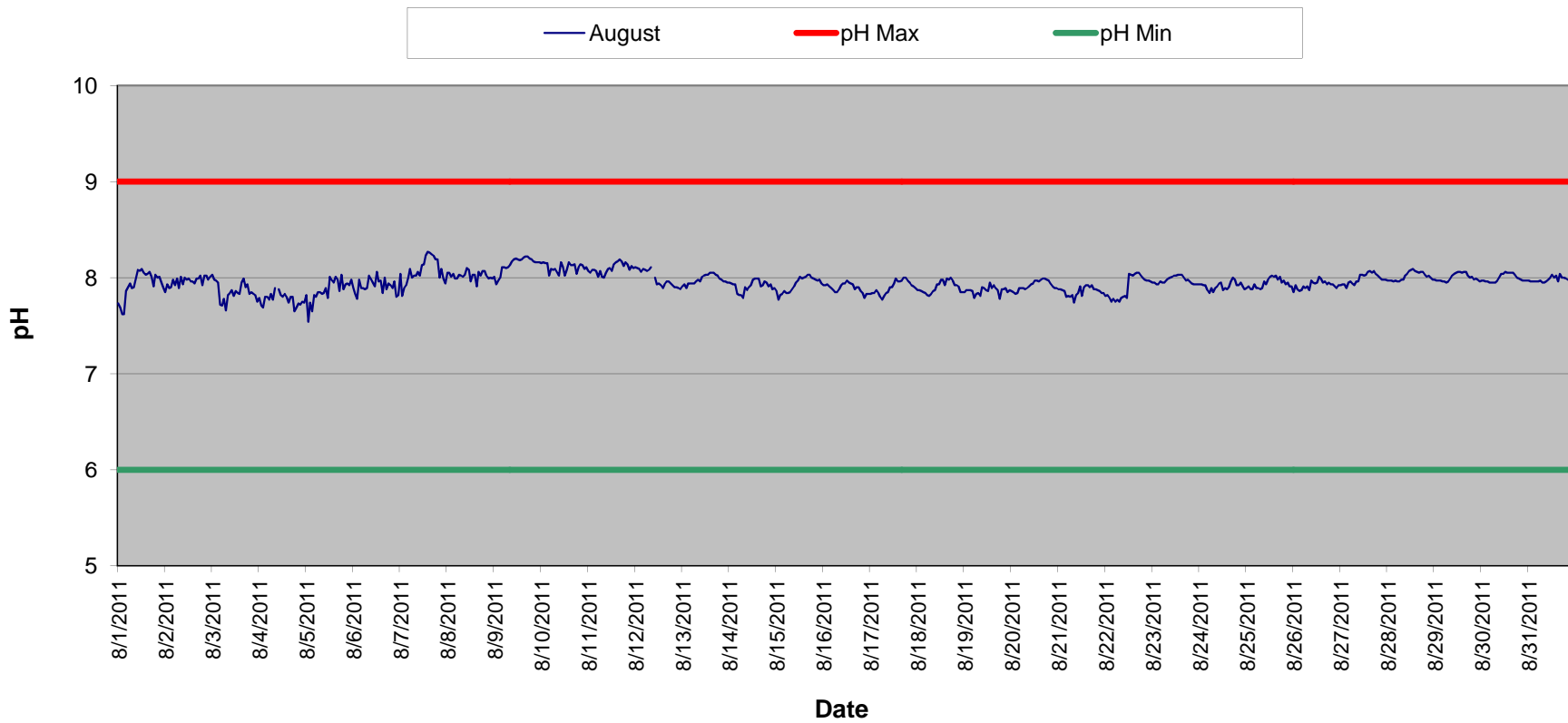
### High Falls Tailrace pH Summary - June 2011



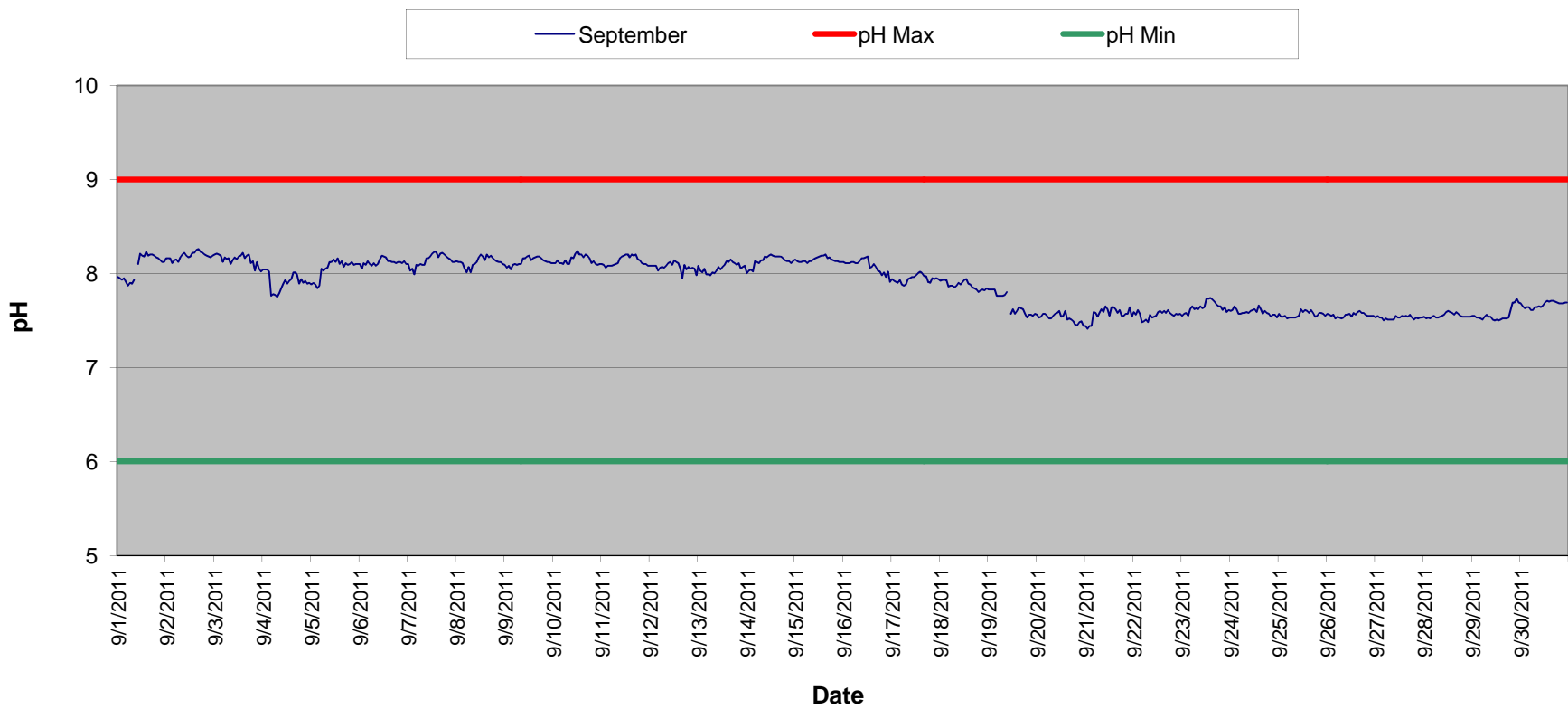
### High Falls Tailrace pH Summary - July 2011



### High Falls Tailrace pH Summary - August 2011



### High Falls Tailrace pH Summary - September 2011





High Falls Tailrace pH Summary - June 2011

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

License maximum pH: 9  
License minimum pH: 6

Missing data due to equipment maintenance.

High Falls Tailrace pH Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.5	7.2	7.3	7.3	7.2	7.1	7.5	7.6	7.7	7.7	7.6	7.3	7.5	7.4
10000	7.5	7.2	7.3	7.3	7.2	7.5	7.5	7.6	7.7	7.8	7.7	7.3	7.4	7.3
20000	7.5	7.2	7.3	7.3	7.2	7.5	7.5	7.6	7.7	7.8	7.7	7.3	7.4	7.3
30000	7.5	7.2	7.3	7.3	7.2	7.5	7.5	7.6	7.6	7.8	7.7	7.3	7.4	7.4
40000	7.5	7.2	7.2	7.3	7.2	7.5	7.5	7.7	7.7	7.7	7.8	7.3	7.4	7.4
50000	7.5	7.2	7.3	7.3	7.2	7.6	7.5	7.7	7.7	7.8	7.8	7.3	7.4	7.5
60000	7.5	7.3	7.3	7.3	7.3	7.6	7.5	7.7	7.7	7.8	7.8	7.4	7.3	7.5
70000	7.5	7.3	7.3	7.3	7.3	7.7	7.5	7.7	7.7	7.8	7.8	7.4	7.4	7.5
80000	7.5	7.3	7.3	7.3	7.2	7.7	7.6	7.6	7.7	7.8	7.6	7.4	7.4	7.5
90000	7.5	7.3	7.2	7.3	7.3	7.5	7.6	7.7	7.7	7.4	7.8	7.4	7.4	7.5
100000	7.2	7.2	7.2	7.3	7.3	7.5	7.6	7.7	7.7	7.4	7.8	7.4	7.4	7.5
110000	7.2	7.3	7.2	7.2	7.3	7.5	7.6	7.7	7.7	7.4	7.8	7.4	7.4	7.5
120000	7.2	7.3	7.2	7.3	7.3	7.5	7.5	7.7	7.7	7.4	7.6	7.5	7.4	7.5
130000	7.2	7.3	7.3	7.3	7.3	7.5	7.5	7.7	7.7	7.4	7.6	7.5	7.4	7.4
140000	7.2	7.2	7.3	7.3	7.3	7.5	7.5	7.7	7.7	7.4	7.6	7.5	7.4	7.4
150000	7.2	7.2	7.2	7.3	7.3	7.5	7.5	7.7	7.7	7.3	7.6	7.5	7.3	7.4
160000	7.2	7.2	7.2	7.3	7.3	7.5	7.5	7.7	7.7	7.3	7.6	7.5	7.4	7.4
170000	7.2	7.2	7.3	7.3	7.2	7.5	7.6	7.7	7.7	7.3	7.3	7.5	7.3	7.3
180000	7.2	7.3	7.3	7.2	7.2	7.6	7.5	7.7	7.8	7.3	7.3	7.5	7.3	7.3
190000	7.2	7.3	7.3	7.2	7.1	7.6	7.5	7.7	7.8	7.3	7.3	7.5	7.3	7.3
200000	7.2	7.2	7.3	7.2	7.2	7.6	7.6	7.7	7.7	7.6	7.3	7.5	7.3	7.3
210000	7.2	7.3	7.3	7.2	7.2	7.6	7.6	7.7	7.7	7.5	7.3	7.5	7.3	7.3
220000	7.2	7.3	7.3	7.2	7.2	7.6	7.5	7.7	7.7	7.6	7.3	7.4	7.4	7.3
230000	7.2	7.2	7.3	7.2	7.1	7.6	7.5	7.7	7.7	7.5	7.3	7.4	7.4	7.3
Daily Max	7.5	7.3	7.3	7.3	7.3	7.7	7.6	7.7	7.8	7.8	7.8	7.5	7.5	7.5
Daily Min	7.2	7.2	7.2	7.2	7.1	7.1	7.5	7.6	7.6	7.3	7.3	7.3	7.3	7.3
Average	7.3	7.2	7.3	7.2	7.2	7.5	7.5	7.7	7.7	7.5	7.6	7.4	7.4	7.4

High Falls Tailrace pH Summary - July 2011

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

Missing data due to equipment maintenance

License maximum pH: 9

License minimum pH: 6

High Falls Tailrace pH Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.7	7.6	7.5	7.7	8.0	7.7	7.7	7.8	7.9	8.0	7.8	8.1	7.8	8.0	8.0
10000	7.8	7.6	7.5	7.7	7.9	7.7	7.8	7.8	7.9	8.0	7.9	8.0	7.9	7.9	8.0
20000	7.7	7.7	7.6	7.7	7.9	7.7	7.7	7.9	7.9	8.0	7.9	8.1	7.9	8.0	8.0
30000	7.7	7.6	7.6	7.6	7.9	7.7	7.7	8.0	8.0	8.0	7.9	8.0	7.8	8.0	8.0
40000	7.6	7.6	7.5	7.8	7.8	7.8	7.8	7.8	8.0	7.9	7.9	7.9	8.0	7.9	7.6
50000	7.7	7.5	7.5	7.8	7.8	7.8	7.8	7.8	8.0	8.0	7.9	8.0	8.0	7.9	7.7
60000	7.7	7.5	7.5	7.8	7.7	7.8	7.9	7.8	7.9	7.9	7.9	7.9	8.0	7.9	7.7
70000	7.7	7.6	7.5	7.9	7.8	7.8	8.0	7.9	7.9	7.9	7.9	7.9	8.0	8.0	7.7
80000	7.7	7.6	7.5	7.9	7.8	7.8	7.9	7.9	7.9	7.8	8.0	7.9	8.1	7.9	7.8
90000	7.7	7.6	7.5	7.9	7.8	7.8	8.0	7.8		7.9	8.0	7.9	8.1	8.0	7.6
100000	7.7	7.6	7.5	7.9	7.9	7.9	8.0	7.9	8.0	8.0	8.0	8.0	8.1	8.0	7.6
110000	7.7	7.6	7.6	7.9	7.8	7.8	8.0	8.0	8.1	7.9	8.0	8.0	8.1	8.1	7.7
120000	7.6	7.6	7.6	7.9	7.8	7.9	8.1	8.0	8.0	8.0	8.0	8.0	8.1	8.1	7.7
130000	7.6	7.6	7.7	7.9	7.7	7.8	8.0	7.9	8.1	7.9	7.9	8.0	8.1	8.1	7.8
140000	7.7	7.6	7.7	8.0	7.8	7.8	7.8	7.9	8.0	7.9	8.0	7.9	8.1	8.1	7.8
150000	7.6	7.6	7.7	8.0	7.7	7.9	7.9	7.9	8.0	7.7	8.0	8.1	8.1	8.0	7.8
160000	7.6	7.6	7.7	8.0	7.7	7.8	7.8	8.0	8.0	7.8	8.0	8.0	8.1	8.0	7.8
170000	7.7	7.6	7.7	8.0	7.7	7.9	7.8	7.9	8.0	7.9	8.0	8.0	8.1	7.9	7.7
180000	7.6	7.6	7.7	8.0	7.7	7.8	7.8	7.9	8.1	7.8	8.0	7.9	8.1	8.0	7.7
190000	7.6	7.6	7.7	8.0	7.7	7.9	7.9	7.9	8.0	7.8	8.0	7.9	8.0	8.1	7.6
200000	7.6	7.6	7.7	8.0	7.7	7.8	7.8	7.8	8.0	7.6	8.0	7.8	8.0	8.1	7.6
210000	7.6	7.6	7.7	7.9	7.7	7.8	7.8	7.8	8.0	7.8	8.0	7.9	8.0	8.0	7.7
220000	7.6	7.6	7.7	7.9	7.7	7.8	7.8	7.8	8.0	7.9	8.0	7.8	8.0	8.0	7.6
230000	7.6	7.6	7.7	8.0	7.8	7.8	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	7.7
Daily Max	7.8	7.7	7.7	8.0	8.0	7.9	8.1	8.0	8.1	8.0	8.0	8.1	8.1	8.1	8.0
Daily Min	7.6	7.5	7.5	7.6	7.7	7.7	7.7	7.8	7.9	7.6	7.8	7.8	7.8	7.9	7.6
Average	7.7	7.6	7.6	7.9	7.8	7.8	7.9	7.9	8.0	7.9	8.0	8.0	8.0	8.0	7.7

Missing data due to equipment maintenance

High Falls Tailrace pH Summary - August 2011

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

Missing data due to equipment maintenance

License maximum pH: 9

License minimum pH: 6

High Falls Tailrace pH Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.8	7.9	7.9	7.9	7.9	7.8	8.0	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0
10000	7.8	7.9	7.9	7.9	7.9	7.8	8.0	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0
20000	7.8	7.9	7.9	7.8	7.9	7.8	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0
30000	7.9	7.9	7.9	7.8	7.9	7.8	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0
40000	7.8	7.8	7.9	7.9	7.8	7.8	8.0	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0
50000	7.8	7.8	7.8	7.9	7.8	7.8	8.0	7.8	7.9	7.9	8.0	8.0	8.0	8.0	8.0
60000	7.8	7.8	7.8	7.9	7.8	7.8	8.0	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0
70000	7.8	7.8	7.8	7.9	7.8	7.8	8.0	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0
80000	7.8	7.9	7.8	7.9	7.7	7.8	8.0	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0
90000	7.9	7.9	7.9	7.9	7.8	7.8	8.0	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0
100000	7.9	7.9	7.9	7.9	7.8	7.8	8.0	7.9	7.9	8.0	8.0	8.0	8.0	8.0	8.0
110000	7.9	7.9	7.9	7.9	7.9	7.8	8.0	8.0	8.0	7.9	8.0	8.1	8.1	8.0	8.0
120000	7.9	8.0	7.9	8.0	7.8	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.0
130000	8.0	8.0	8.0	8.0	7.9	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.0
140000	8.0	7.9	7.9	8.0	7.9	8.0	8.0	7.9	8.0	8.0	8.1	8.1	8.1	8.1	8.0
150000	8.0	8.0	7.9	8.0	7.9	8.0	8.0	7.9	8.0	8.0	8.1	8.1	8.1	8.1	8.0
160000	8.0	8.0	7.9	8.0	7.9	8.1	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0
170000	8.0	8.0	7.9	8.0	7.9	8.1	8.0	8.0	8.0	7.9	8.1	8.1	8.0	8.0	8.0
180000	8.0	8.0	7.8	8.0	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.0	8.0
190000	8.0	7.9	7.9	8.0	7.9	8.0	8.0	7.9	8.0	7.9	8.0	8.0	8.0	8.0	8.0
200000	8.0	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0
210000	7.9	7.9	7.9	7.9	7.9	8.0	7.9	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0
220000	7.9	7.9	7.9	7.9	7.8	8.0	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0
230000	7.9	7.9	7.9	7.9	7.8	8.0	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0
Daily Max	8.0	8.0	8.0	8.0	7.9	8.1	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0
Daily Min	7.8	7.8	7.8	7.8	7.7	7.8	7.9	7.8	7.9	7.9	7.9	8.0	8.0	8.0	8.0
Average	7.9	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.0

High Falls Tailrace pH Summary - September 2011

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

License maximum pH: 9  
License minimum pH: 6

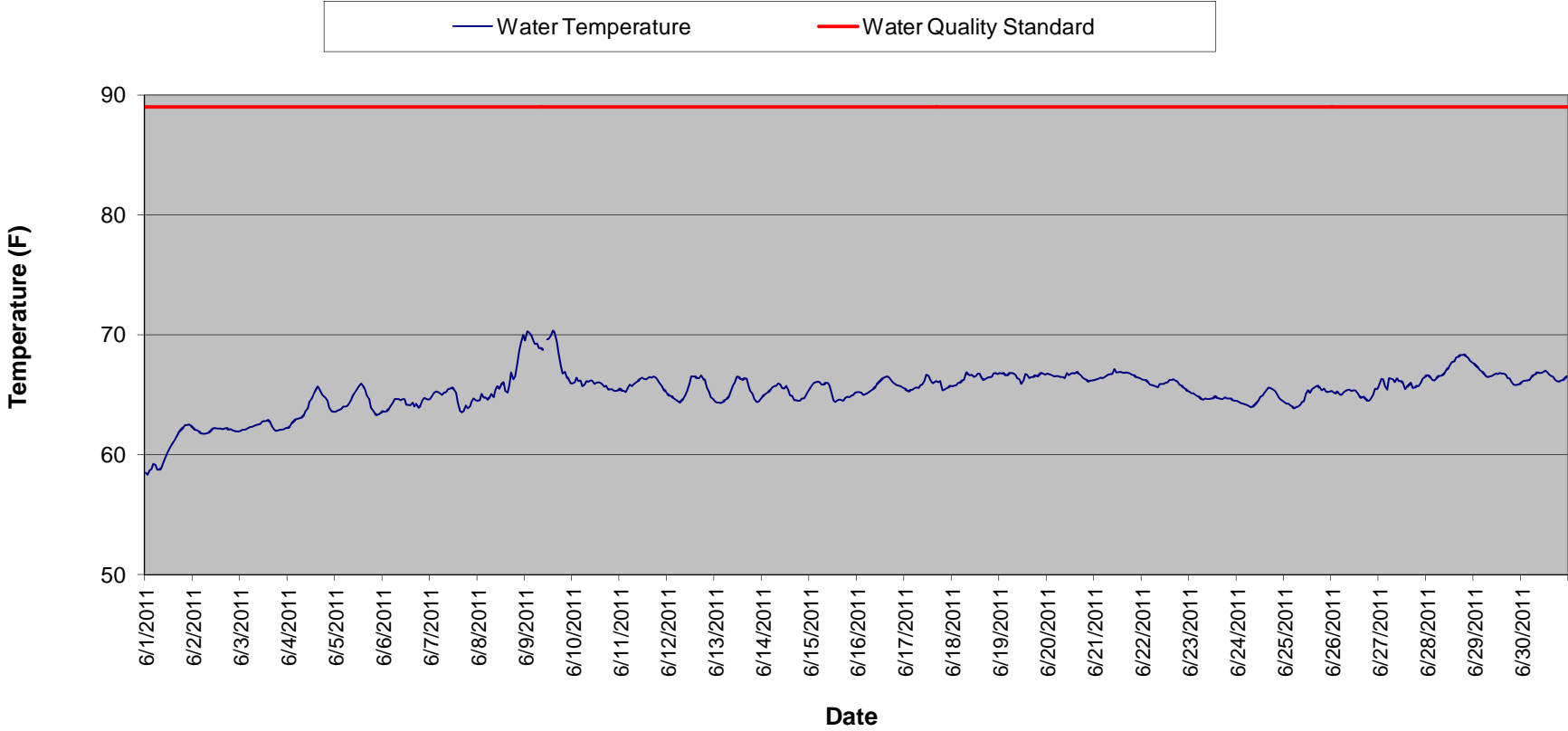
Missing data due to equipment maintenance.

High Falls Tailrace pH Summary - September 2011

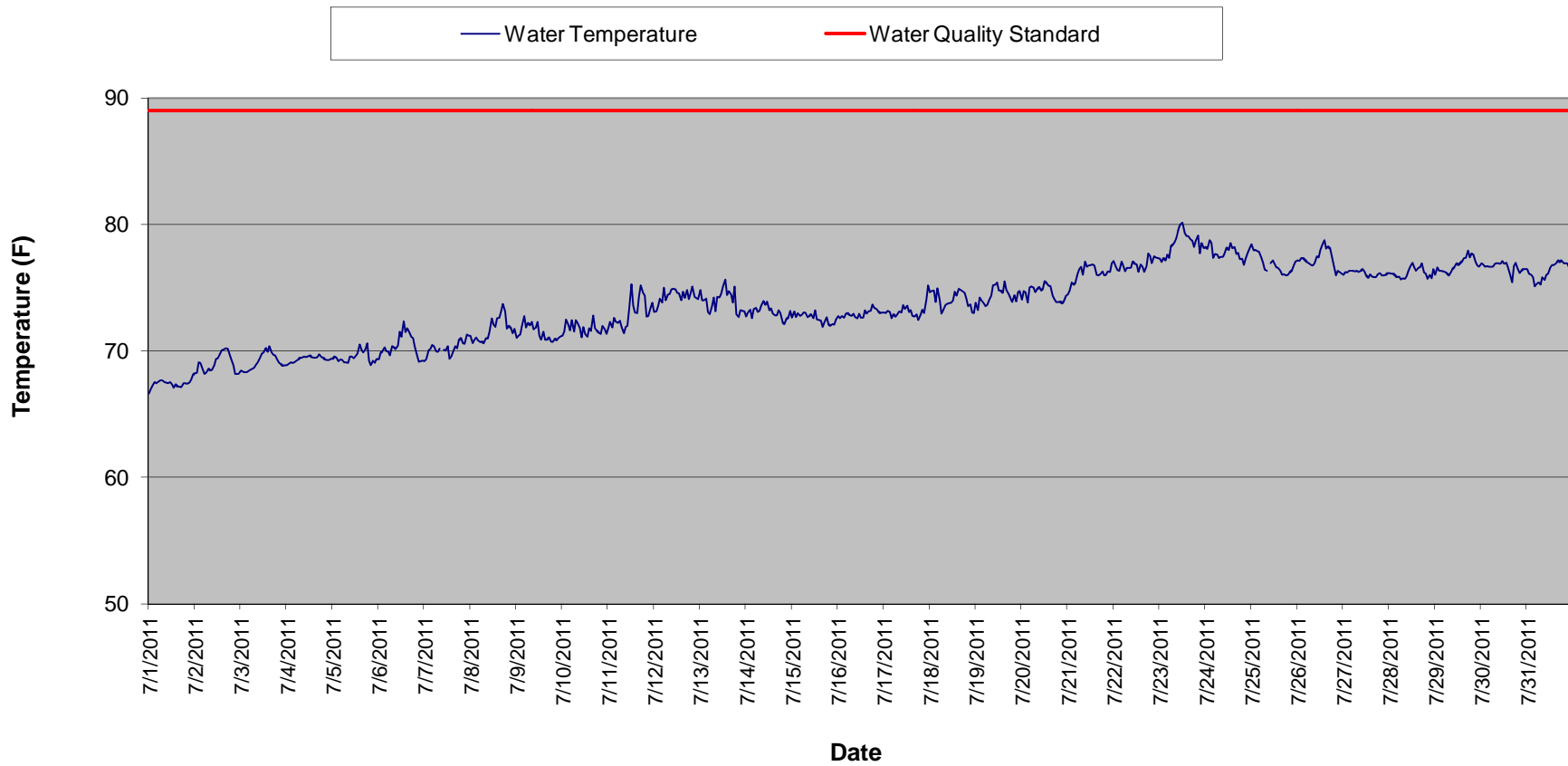
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	7.9	7.9	7.8	7.6	7.4	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.6	7.7
10000	7.9	7.9	7.8	7.5	7.4	7.6	7.6	7.6	7.5	7.6	7.6	7.5	7.6	7.7
20000	7.9	7.9	7.8	7.5	7.4	7.6	7.6	7.7	7.5	7.6	7.5	7.5	7.5	7.6
30000	7.9	7.9	7.8	7.6	7.4	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.6
40000	7.9	7.9	7.8	7.6	7.6	7.5	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.6
50000	7.9	7.9	7.8	7.6	7.6	7.5	7.7	7.6	7.5	7.5	7.5	7.6	7.5	7.6
60000	7.9	7.9	7.8	7.5	7.5	7.5	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.6
70000	7.9	7.9	7.8	7.5	7.6	7.5	7.6	7.6	7.5	7.5	7.5	7.5	7.6	7.6
80000	7.9	7.9	7.8	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.6
90000	8.0	7.9	7.8	7.6	7.6	7.5	7.7	7.6	7.5	7.6	7.5	7.6	7.5	7.7
100000	8.0	7.9	7.6	7.6	7.7	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.6
110000	8.0	7.9	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.6	7.5	7.7
120000	8.0	7.9	7.6	7.5	7.6	7.6	7.7	7.6	7.6	7.5	7.5	7.6	7.5	7.7
130000	8.0	7.9	7.6	7.6	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.6	7.5	7.7
140000	8.0	7.9	7.6	7.6	7.6	7.6	7.7	7.7	7.6	7.6	7.5	7.6	7.5	7.7
150000	8.0	7.9	7.6	7.5	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.6	7.5	7.7
160000	8.0	7.9	7.6	7.5	7.6	7.6	7.7	7.6	7.6	7.6	7.5	7.6	7.5	7.7
170000	8.0	7.8	7.6	7.5	7.6	7.6	7.7	7.6	7.6	7.6	7.6	7.6	7.5	7.7
180000	7.9	7.8	7.6	7.5	7.6	7.6	7.7	7.6	7.5	7.6	7.5	7.6	7.5	7.7
190000	7.9	7.8	7.5	7.5	7.6	7.6	7.7	7.6	7.6	7.6	7.5	7.5	7.6	7.7
200000	8.0	7.8	7.6	7.5	7.6	7.6	7.6	7.5	7.6	7.6	7.5	7.5	7.7	7.7
210000	7.9	7.8	7.6	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.7	7.7
220000	8.0	7.8	7.6	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.7	7.7
230000	7.9	7.8	7.6	7.4	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.5	7.7	7.7
Daily Max	8.0	7.9	7.8	7.6	7.7	7.6	7.7	7.7	7.6	7.6	7.6	7.6	7.7	7.7
Daily Min	7.9	7.8	7.5	7.4	7.4	7.5	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.6
Average	7.9	7.9	7.7	7.5	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.6	7.6	7.7



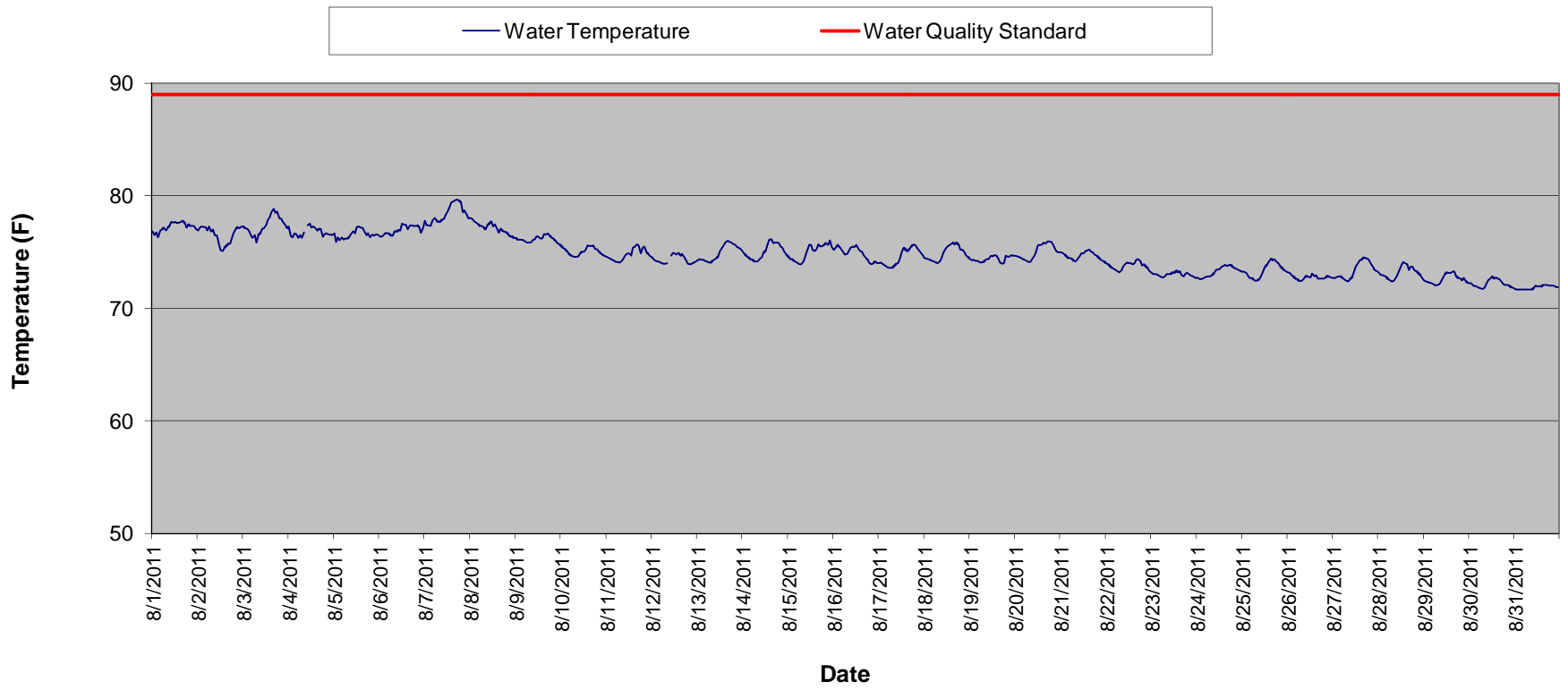
### High Falls Tailrace Water Temperature - June 2011



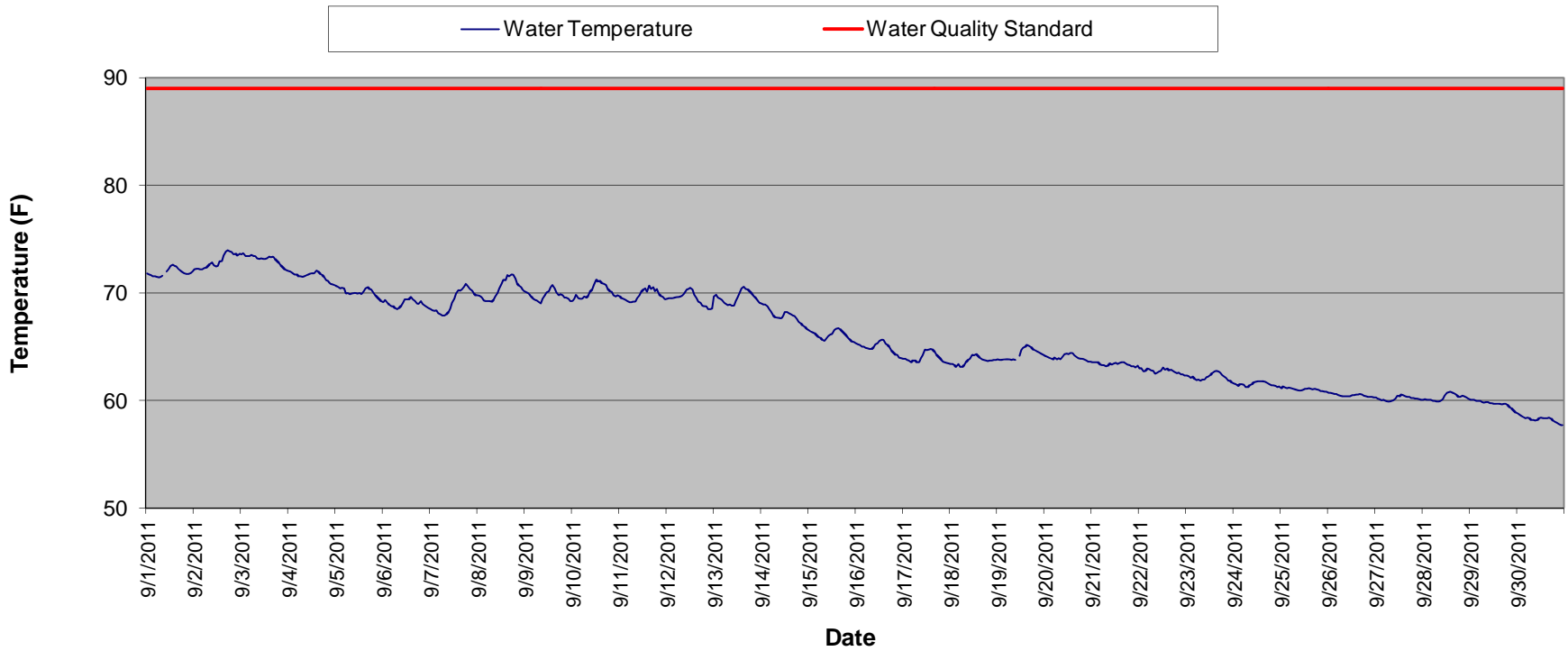
### High Falls Tailrace Water Temperature - July 2011



### High Falls Tailrace Water Temperature - August 2011



### High Falls Tailrace Water Temperature - September 2011



High Falls Tailrace Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	58.5	62.2	62.0	62.2	63.6	63.6	64.6	64.5	69.5	65.9	65.5	65.0	64.4	64.9	65.5	65.2
10000	58.3	62.1	62.1	62.4	63.7	63.6	64.9	64.5	70.3	66.0	65.3	64.9	64.4	65.0	65.8	65.2
20000	58.7	62.0	62.1	62.6	63.7	63.6	65.2	65.0	70.2	66.4	65.3	64.9	64.4	65.1	66.0	65.2
30000	58.8	61.9	62.1	62.8	63.8	63.8	65.3	64.7	69.9	66.1	65.2	64.7	64.3	65.2	66.1	65.0
40000	59.2	61.8	62.2	62.9	64.0	64.1	65.2	64.8	69.6	66.2	65.6	64.6	64.4	65.4	66.1	65.0
50000	59.1	61.7	62.3	63.0	64.0	64.3	65.1	64.6	69.2	65.7	65.9	64.5	64.5	65.6	66.0	65.1
60000	58.8	61.7	62.3	63.0	64.1	64.6	65.0	64.8	69.3	65.9	65.7	64.4	64.6	65.7	65.8	65.2
70000	58.7	61.8	62.4	63.1	64.2	64.6	65.2	65.1	68.9	66.1	65.9	64.5	64.8	65.8	65.8	65.4
80000	58.9	61.8	62.5	63.3	64.6	64.6	65.2	64.8	68.9	66.1	66.0	64.6	65.2	65.9	66.0	65.5
90000	59.3	62.0	62.5	63.6	65.0	64.5	65.5	65.4	68.8	66.2	66.1	65.0	65.7	65.9	66.0	65.7
100000	59.8	62.2	62.6	63.9	65.2	64.7	65.5	65.7		66.2	66.3	65.3	66.0	65.6	65.8	65.9
110000	60.1	62.2	62.8	64.5	65.5	64.6	65.6	65.5	69.6	65.9	66.4	65.9	66.5	65.5	65.2	66.1
120000	60.5	62.2	62.8	64.7	65.7	64.1	65.5	65.8	69.6	66.0	66.3	66.5	66.5	65.8	64.5	66.2
130000	60.7	62.2	62.8	65.1	65.9	64.1	65.2	66.0	70.0	66.0	66.3	66.5	66.3	65.5	64.4	66.4
140000	61.1	62.2	62.9	65.3	65.8	64.1	64.3	65.3	70.3	66.0	66.4	66.5	66.2	64.9	64.5	66.5
150000	61.3	62.1	62.7	65.7	65.4	64.3	63.6	65.2	70.2	65.9	66.5	66.4	66.4	64.9	64.6	66.5
160000	61.6	62.2	62.4	65.4	64.9	64.0	63.5	65.8	69.4	65.7	66.4	66.4	66.3	64.6	64.5	66.5
170000	62.0	62.2	62.1	65.1	64.6	64.3	63.6	66.8	68.5	65.7	66.5	66.6	65.8	64.5	64.5	66.2
180000	62.1	62.1	62.0	64.9	63.9	63.9	64.1	66.3	67.4	65.4	66.4	66.3	65.3	64.5	64.7	66.1
190000	62.3	62.1	62.0	64.8	63.7	64.1	63.8	66.5	66.8	65.5	66.2	66.2	65.0	64.5	64.8	65.9
200000	62.5	62.0	62.1	64.5	63.4	64.6	64.0	67.7	66.9	65.5	66.0	65.6	64.7	64.7	64.8	65.8
210000	62.5	62.0	62.1	63.9	63.3	64.7	64.4	68.6	66.5	65.3	65.8	65.2	64.4	64.7	64.9	65.8
220000	62.5	61.9	62.1	63.6	63.4	64.6	64.7	69.3	66.3	65.3	65.4	64.8	64.4	64.9	65.0	65.7
230000	62.4	62.0	62.2	63.6	63.5	64.6	64.6	70.0	65.9	65.4	65.2	64.6	64.6	65.2	65.2	65.6
Daily Max	62.5	62.2	62.9	65.7	65.9	64.7	65.6	70.0	70.3	66.4	66.5	66.6	66.5	65.9	66.1	66.5
Daily Min	58.3	61.7	62.0	62.2	63.3	63.6	63.5	64.5	65.9	65.3	65.2	64.4	64.3	64.5	64.4	65.0
Average	60.4	62.0	62.3	63.9	64.4	64.3	64.7	66.0	68.8	65.8	65.9	65.4	65.2	65.2	65.3	65.7

Monthly average Temp: 65.2  
 License Maximum Temperature: 89 F

High Falls Tailrace Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	65.5	65.7	66.8	66.7	66.2	66.3	65.3	64.5	64.4	65.3	65.8	66.6	67.6	66.0
10000	65.4	65.7	66.8	66.7	66.3	66.2	65.1	64.4	64.3	65.2	66.3	66.6	67.4	66.1
20000	65.3	65.8	66.8	66.7	66.3	66.2	65.1	64.3	64.2	65.1	66.3	66.4	67.2	66.2
30000	65.4	66.0	66.6	66.6	66.4	66.0	65.0	64.3	64.1	65.2	65.7	66.2	67.1	66.2
40000	65.4	66.0	66.6	66.5	66.4	65.8	64.9	64.2	64.0	65.0	65.4	66.2	66.9	66.2
50000	65.6	66.2	66.8	66.6	66.5	65.8	64.8	64.1	63.9	65.0	66.4	66.4	66.8	66.5
60000	65.6	66.3	66.8	66.5	66.6	65.8	64.6	64.0	64.0	65.2	66.3	66.6	66.5	66.6
70000	65.5	66.8	66.8	66.5	66.7	65.7	64.6	64.0	64.0	65.3	66.3	66.6	66.5	66.7
80000	65.8	66.7	66.7	66.5	66.7	65.6	64.7	64.0	64.1	65.4	66.0	66.6	66.5	66.9
90000	65.8	66.6	66.4	66.4	66.7	65.9	64.6	64.2	64.4	65.4	66.4	66.8	66.6	66.8
100000	66.2	66.7	66.3	66.8	67.1	65.9	64.6	64.3	64.4	65.3	66.1	67.0	66.7	66.8
110000	66.7	66.5	65.9	66.6	66.8	65.9	64.7	64.6	65.1	65.4	66.1	67.2	66.8	66.9
120000	66.6	66.6	66.2	66.8	66.9	66.0	64.7	64.8	65.4	65.4	66.0	67.6	66.7	67.0
130000	66.3	66.8	66.7	66.8	66.9	66.0	64.9	64.9	65.2	65.1	65.4	67.7	66.8	66.9
140000	65.9	66.8	66.7	66.8	66.9	66.3	64.7	65.2	65.5	64.9	65.7	67.8	66.7	66.7
150000	66.0	66.4	66.4	66.9	66.8	66.3	64.7	65.4	65.6	64.7	65.8	68.1	66.8	66.6
160000	66.1	66.2	66.5	66.8	66.9	66.3	64.6	65.6	65.7	64.8	66.0	68.1	66.7	66.5
170000	66.1	66.3	66.5	66.6	66.8	66.2	64.6	65.6	65.8	64.7	65.6	68.3	66.4	66.2
180000	66.1	66.4	66.6	66.4	66.8	66.1	64.8	65.4	65.5	64.5	65.6	68.3	66.4	66.1
190000	65.4	66.5	66.5	66.3	66.7	65.8	64.7	65.4	65.4	64.5	65.8	68.4	66.0	66.1
200000	65.4	66.5	66.7	66.3	66.6	65.8	64.7	65.1	65.5	64.7	65.7	68.2	65.9	66.2
210000	65.5	66.7	66.8	66.1	66.5	65.6	64.7	64.9	65.3	65.0	66.0	68.1	65.8	66.2
220000	65.6	66.8	66.8	66.2	66.4	65.5	64.5	64.7	65.2	65.5	66.3	67.8	65.8	66.4
230000	65.7	66.7	66.7	66.2	66.4	65.3	64.5	64.5	65.3	65.5	66.5	67.7	65.9	66.5
Daily Max	66.7	66.8	66.8	66.9	67.1	66.3	65.3	65.6	65.8	65.5	66.5	68.4	67.6	67.0
Daily Min	65.3	65.7	65.9	66.1	66.2	65.3	64.5	64.0	63.9	64.5	65.4	66.2	65.8	66.0
Average	65.8	66.4	66.6	66.5	66.6	65.9	64.8	64.7	64.8	65.1	66.0	67.3	66.6	66.5

High Falls Tailrace Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11		
0	66.6	68.2	68.4	68.9	69.4	69.3	69.2	71.2	71.0	71.2	71.8	73.1	74.8	72.7	72.6	72.8		
10000	66.9	68.3	68.4	68.9	69.5	69.8	69.4	70.6	71.2	71.5	72.3	73.1	74.0	73.0	73.1	72.6		
20000	67.3	69.1	68.3	69.1	69.5	69.9	70.1	70.9	71.3	72.5	71.9	73.5	74.0	73.3	72.7	72.8		
30000	67.5	69.1	68.3	69.1	69.2	70.3	70.1	71.1	72.0	72.1	72.6	74.1	74.1	72.6	73.0	72.6		
40000	67.5	68.5	68.4	69.1	69.3	70.0	70.5	70.8	72.8	71.6	72.3	73.8	73.1	73.3	72.8	72.9		
50000	67.6	68.2	68.5	69.2	69.3	69.9	70.4	70.7	71.9	72.4	72.2	75.0	72.9	73.4	72.9	73.0		
60000	67.7	68.3	68.6	69.3	69.1	69.6	70.0	70.7	72.2	71.5	72.4	74.0	73.5	73.1	73.0	72.9		
70000	67.7	68.6	68.7	69.4	69.1	70.4	69.9	70.6	72.0	72.4	71.9	74.5	74.2	73.2	73.0	72.8		
80000	67.5	68.5	68.9	69.5	69.1	70.3	70.2	71.0	72.3	72.2	71.4	74.5	73.1	73.6	72.7	72.9		
90000	67.5	68.5	69.1	69.5	69.5	70.2		71.0	71.7	71.8	71.9	74.9	74.3	73.9	72.8	72.7		
100000	67.5	68.9	69.5	69.5	69.5	70.4	70.1	71.5	71.9	71.0	72.0	74.9	74.2	73.7	72.9	72.6		
110000	67.6	69.4	69.8	69.5	69.4	71.5	70.0	72.6	72.3	71.9	73.3	74.9	74.5	73.9	72.6	72.9		
120000	67.3	69.4	69.9	69.7	69.6	71.1	70.4	72.1	71.2	71.3	75.3	74.6	75.1	73.2	73.2	72.6		
130000	67.1	69.7	70.2	69.5	69.8	72.4	69.4	71.9	70.9	71.1	73.6	74.5	75.6	73.3	72.5	72.6		
140000	67.4	70.1	69.9	69.5	70.5	71.5	69.6	72.6	71.5	71.8	73.0	74.0	74.4	72.9	72.4	73.2		
150000	67.2	70.1	70.4	69.5	70.1	71.8	69.9	72.6	70.9	71.6	73.0	74.7	74.7	72.8	72.4	73.0		
160000	67.2	70.2	69.9	69.5	69.9	71.4	70.4	73.1	70.9	72.8	74.3	74.2	74.4	72.8	71.9	73.1		
170000	67.1	70.2	69.7	69.7	70.1	71.1	70.2	73.7	71.1	71.8	75.2	74.8	73.8	73.2	72.2	73.2		
180000	67.4	69.8	69.7	69.5	70.6	71.0	70.8	73.1	70.8	71.6	74.6	74.1	75.1	73.0	72.7	73.7		
190000	67.5	69.4	69.3	69.5	69.2	70.3	71.0	71.8	70.7	71.4	74.4	74.6	72.9	72.2	72.1	73.4		
200000	67.4	68.9	69.1	69.3	68.9	69.6	70.6	72.0	71.0	71.3	72.7	75.1	72.7	72.1	72.0	73.3		
210000	67.5	68.2	68.9	69.3	69.2	69.2	70.6	71.8	70.8	72.0	72.8	74.3	73.2	72.5	72.1	73.1		
220000	67.7	68.2	68.8	69.3	69.0	69.2	71.3	71.4	71.0	71.7	73.4	74.2	73.2	72.7	72.1	73.0		
230000	68.1	68.2	68.9	69.4	69.4	69.2	71.2	71.8	71.2	71.3	73.8	74.1	73.1	73.2	72.5	73.0		
Daily Max	68.1	70.2	70.4	69.7	70.6	72.4	71.3	73.7	72.8	72.8	75.3	75.1	75.6	73.9	73.2	73.7		
Daily Min	66.6	68.2	68.3	68.9	68.9	69.2	69.2	70.6	70.7	71.0	71.4	73.1	72.7	72.1	71.9	72.6		
Average	67.4	69.0	69.1	69.4	69.5	70.4	70.2	71.7	71.4	71.8	73.0	74.3	74.0	73.1	72.6	72.9		
									Missing data due to equipment maintenance.									
						Monthly Average Temp:	73.6											
						License Maximum Temperature:	89 F											

High Falls Tailrace Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	73.0	74.7	73.8	74.0	74.5	77.1	77.3	78.2	78.4	77.2	76.0	76.2	76.0	76.9	76.5
10000	73.0	74.7	73.2	74.7	74.8	76.6	77.0	78.1	77.9	77.1	76.2	76.1	76.6	76.8	76.1
20000	73.2	74.8	74.2	74.6	75.4	76.4	77.3	78.8	78.0	77.4	76.2	76.1	76.3	76.7	76.0
30000	73.1	73.9	74.0	73.8	75.3	76.3	77.2	78.5	77.9	77.3	76.4	76.0	76.4	76.7	75.8
40000	72.6	75.0	73.8	75.0	75.4	77.1	77.6	77.4	77.8	77.1	76.3	75.8	76.3	76.7	75.1
50000	72.9	74.0	73.5	75.1	76.1	76.7	77.3	77.6	77.4	77.0	76.3	75.9	76.2	76.7	75.3
60000	72.7	72.9	73.7	75.0	76.5	76.3	78.3	77.6	77.0	76.9	76.3	75.7	76.2	76.7	75.4
70000	72.9	73.2	74.1	74.7	76.6	76.6	78.5	77.3	76.4	76.8	76.3	75.8	76.0	76.9	75.2
80000	73.1	73.7	74.4	74.9	76.0	76.6	78.7	77.5	76.3	76.8	76.3	75.7	76.2	76.9	75.8
90000	73.0	73.7	75.2	75.1	77.1	76.6	79.0	77.4		76.9	76.3	75.9	76.5	76.9	75.6
100000	73.6	73.8	75.2	74.8	76.7	77.1	79.8	77.8	76.9	77.5	76.5	76.3	76.6	76.9	76.0
110000	73.3	73.8	75.4	74.9	76.7	76.9	80.0	78.2	77.2	77.4	76.3	76.6	76.9	77.1	76.1
120000	73.6	74.0	74.8	75.5	76.8	76.8	80.2	78.0	76.9	78.0	76.0	77.0	76.8	76.9	76.6
130000	73.1	74.7	74.8	75.3	76.8	76.3	79.3	78.5	76.6	78.3	75.8	76.6	76.9	77.0	76.8
140000	73.2	74.4	74.6	75.1	76.7	76.8	79.1	78.1	76.6	78.8	76.1	76.3	77.1	76.6	76.8
150000	72.8	74.9	75.5	75.1	76.0	76.6	79.1	78.2	76.3	78.1	75.9	76.6	77.3	76.1	76.9
160000	72.7	74.8	74.8	74.4	76.0	76.2	78.8	77.6	76.0	78.3	75.8	76.6	77.4	75.4	77.1
170000	72.9	74.8	74.5	74.1	76.0	76.7	78.7	77.7	76.0	78.1	75.8	76.9	77.9	76.7	77.0
180000	72.4	74.6	74.2	73.9	76.3	77.7	78.2	77.3	76.0	77.5	76.1	76.2	77.4	77.0	77.2
190000	72.8	74.2	73.9	73.9	76.0	77.5	78.7	77.3	76.0	76.8	76.2	76.1	77.7	76.6	76.9
200000	73.3	73.5	74.4	73.9	76.0	76.9	79.1	76.8	76.2	76.0	76.0	75.7	77.6	76.2	76.9
210000	73.0	73.7	73.9	73.8	76.3	77.5	77.7	77.3	76.4	76.3	76.0	76.0	77.0	76.4	76.9
220000	74.0	73.0	74.6	73.9	76.3	77.4	78.5	77.8	76.7	76.3	76.0	75.7	76.8	76.5	76.5
230000	75.2	73.0	74.7	74.4	76.9	77.4	78.1	78.1	77.1	76.1	76.2	76.5	76.7	76.5	76.5
Daily Max	75.2	75.0	75.5	75.5	77.1	77.7	80.2	78.8	78.4	78.8	76.5	77.0	77.9	77.1	77.2
Daily Min	72.4	72.9	73.2	73.8	74.5	76.2	77.0	76.8	76.0	76.0	75.8	75.7	76.0	75.4	75.1
Average	73.1	74.1	74.4	74.6	76.1	76.8	78.5	77.8	76.9	77.2	76.1	76.2	76.8	76.6	76.3

Missing data due to equipment maintenance.



High Falls Tailrace Temperature Summary - August 2011

Time	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	76.9	76.9	77.3	77.3	76.7	76.4	77.8	78.0	76.3	75.5	74.6	74.6	74.3	75.0	74.6	75.2
10000	76.5	77.2	77.1	76.4	75.9	76.4	77.4	78.0	76.1	75.4	74.5	74.3	74.4	74.8	74.4	75.4
20000	76.7	77.3	77.1	76.3	76.3	76.5	77.4	77.7	76.1	75.3	74.4	74.2	74.3	74.6	74.4	75.7
30000	76.3	77.2	76.9	76.7	76.0	76.7	77.3	77.6	76.1	75.1	74.3	74.2	74.3	74.5	74.2	75.5
40000	76.9	77.2	76.5	76.6	76.3	76.6	77.8	77.5	76.1	74.9	74.2	74.1	74.2	74.4	74.1	75.2
50000	77.0	76.9	76.2	76.3	76.1	76.7	78.1	77.3	76.0	74.7	74.1	74.0	74.2	74.3	74.0	75.1
60000	77.2	77.3	76.5	76.5	76.2	76.5	77.8	77.3	75.9	74.6	74.1	74.0	74.1	74.2	73.9	74.8
70000	76.9	76.8	75.8	76.3	76.2	76.5	77.7	77.2	75.8	74.6	74.1	74.0	74.1	74.2	73.9	74.8
80000	77.2	77.0	76.5	76.7	76.4	76.9	77.7	77.0	75.9	74.6	74.2	74.0	74.2	74.2	74.2	75.1
90000	77.3	76.5	76.7		76.6	76.8	77.9	77.4	76.0	74.6	74.5		74.3	74.4	74.6	75.4
100000	77.7	76.5	77.1	77.4	76.9	77.0	77.9	77.5	76.2	74.9	74.7	74.7	74.5	74.5	75.1	75.5
110000	77.6	75.8	77.1	77.5	76.7	76.9	78.3	77.8	76.4	75.0	74.9	74.9	74.6	74.9	75.7	75.4
120000	77.7	75.2	77.4	77.2	77.2	77.5	78.6	77.3	76.4	75.1	74.9	74.9	75.1	75.1	75.6	75.6
130000	77.6	75.1	77.9	77.3	77.3	77.4	79.0	77.5	76.2	75.2	74.7	74.8	75.4	75.7	75.2	75.3
140000	77.6	75.4	78.1	77.2	77.2	77.4	79.4	77.1	76.2	75.6	75.4	74.9	75.6	76.1	75.1	75.1
150000	77.7	75.5	78.5	76.9	77.2	77.0	79.5	76.7	76.6	75.5	75.5	74.7	75.9	76.2	75.3	75.0
160000	77.8	75.8	78.8	77.1	76.9	77.4	79.6	77.1	76.6	75.6	75.7	74.8	76.0	75.8	75.7	74.7
170000	77.6	75.7	78.5	77.1	76.5	77.4	79.7	76.9	76.7	75.6	75.6	74.5	75.9	75.9	75.5	74.5
180000	77.2	76.3	78.6	76.4	76.6	77.3	79.6	76.8	76.4	75.3	74.9	74.3	75.9	75.8	75.6	74.3
190000	77.5	76.7	78.0	76.6	76.3	77.3	79.4	76.8	76.3	75.2	75.4	74.0	75.7	75.8	75.7	74.0
200000	77.3	77.1	78.0	76.7	76.6	77.4	78.6	76.6	76.2	75.1	75.5	73.9	75.7	75.5	75.8	73.9
210000	77.3	77.2	77.7	76.6	76.5	77.2	78.7	76.4	76.0	74.9	75.0	74.0	75.4	75.4	75.7	74.0
220000	77.3	77.1	77.5	76.6	76.6	76.7	78.3	76.4	75.8	74.8	74.8	74.0	75.4	75.0	76.0	74.2
230000	77.1	77.3	77.1	76.5	76.6	77.2	78.0	76.2	75.7	74.7	74.6	74.1	75.2	74.8	75.5	74.0
Daily Max	77.8	77.3	78.8	77.5	77.3	77.5	79.7	78.0	76.7	75.6	75.7	74.9	76.0	76.2	76.0	75.7
Daily Min	76.3	75.1	75.8	76.3	75.9	76.4	77.3	76.2	75.7	74.6	74.1	73.9	74.1	74.2	73.9	73.9
Average	77.2	76.5	77.4	76.8	76.6	77.0	78.4	77.2	76.2	75.1	74.8	74.3	74.9	75.0	75.0	74.9

Missing data due to equipment maintenance.

Monthly Average Temp: 74.8  
 License Maximum Temperature: 89 F

High Falls Tailrace Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	74.0	74.5	74.4	74.7	75.0	74.0	73.1	72.7	73.3	73.2	72.7	73.2	72.5	72.2	71.7
10000	74.0	74.4	74.3	74.6	74.9	73.9	73.1	72.7	73.3	73.1	72.7	73.0	72.4	72.2	71.7
20000	73.9	74.4	74.3	74.6	74.8	73.8	73.0	72.6	73.1	73.0	72.8	73.0	72.4	72.1	71.7
30000	73.8	74.3	74.2	74.5	74.6	73.6	73.0	72.6	72.9	72.8	72.9	72.9	72.3	72.0	71.7
40000	73.7	74.2	74.2	74.4	74.5	73.5	72.9	72.8	72.7	72.7	72.8	72.8	72.2	71.9	71.7
50000	73.6	74.2	74.1	74.3	74.5	73.4	72.8	72.8	72.7	72.6	72.7	72.6	72.1	71.8	71.7
60000	73.6	74.0	74.1	74.2	74.4	73.3	72.8	72.8	72.6	72.5	72.5	72.5	72.0	71.8	71.7
70000	73.6	74.0	74.1	74.1	74.2	73.2	72.8	72.8	72.5	72.4	72.4	72.4	72.1	71.7	71.7
80000	73.7	74.2	74.3	74.1	74.2	73.4	73.0	73.0	72.5	72.5	72.4	72.4	72.1	71.9	71.7
90000	74.0	74.5	74.4	74.4	74.4	73.7	73.1	73.2	72.7	72.8	72.6	72.7	72.4	72.2	71.7
100000	74.0	74.9	74.4	74.7	74.6	73.9	73.1	73.4	72.9	72.9	72.8	73.0	72.7	72.5	71.9
110000	74.4	75.3	74.7	75.0	74.9	74.1	73.2	73.5	73.2	72.8	73.3	73.4	73.0	72.7	72.0
120000	75.1	75.5	74.6	75.6	74.9	74.0	73.1	73.5	73.7	72.8	73.7	73.8	73.2	72.8	71.9
130000	75.4	75.6	74.7	75.7	75.1	74.0	73.3	73.7	73.9	73.1	74.0	74.1	73.1	72.6	72.0
140000	75.3	75.7	74.7	75.7	75.1	73.9	73.2	73.8	74.1	72.9	74.3	74.0	73.1	72.8	71.9
150000	75.1	75.8	74.4	75.8	75.2	74.0	73.3	73.9	74.4	73.0	74.3	73.9	73.2	72.6	72.1
160000	75.3	75.7	74.1	75.7	75.0	74.3	73.0	73.8	74.3	72.6	74.5	73.4	73.3	72.6	72.1
170000	75.5	75.8	74.0	75.9	75.0	74.4	72.9	73.9	74.4	72.6	74.5	73.7	72.9	72.4	72.1
180000	75.7	75.7	74.0	75.9	74.8	74.2	73.1	73.9	74.1	72.7	74.4	73.7	72.7	72.2	72.1
190000	75.7	75.2	74.7	75.9	74.7	73.8	73.1	73.7	74.0	72.6	74.3	73.4	72.7	72.1	72.1
200000	75.4	75.2	74.6	75.6	74.5	73.9	73.0	73.6	73.8	72.8	73.9	73.3	72.5	72.1	72.0
210000	75.2	75.0	74.6	75.3	74.4	73.7	72.9	73.5	73.6	72.9	73.7	73.1	72.7	72.0	72.0
220000	74.9	74.7	74.7	75.0	74.2	73.6	72.8	73.4	73.4	72.8	73.4	73.0	72.4	71.9	71.9
230000	74.7	74.6	74.7	75.0	74.2	73.3	72.7	73.3	73.3	72.8	73.3	72.7	72.3	71.8	71.9
Daily Max	75.7	75.8	74.7	75.9	75.2	74.4	73.3	73.9	74.4	73.2	74.5	74.1	73.3	72.8	72.1
Daily Min	73.6	74.0	74.0	74.1	74.2	73.2	72.7	72.6	72.5	72.4	72.4	72.4	72.0	71.7	71.7
Average	74.6	74.9	74.4	75.0	74.7	73.8	73.0	73.3	73.4	72.8	73.4	73.2	72.6	72.2	71.9

High Falls Tailrace Temperature Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	71.8	72.2	73.6	72.1	70.7	69.1	68.5	69.8	70.1	69.2	69.7	69.5	69.7	69.0	66.5	65.3
10000	71.7	72.2	73.7	72.0	70.6	69.3	68.4	69.7	70.1	69.4	69.5	69.5	69.8	68.9	66.4	65.2
20000	71.7	72.2	73.4	71.8	70.4	69.1	68.3	69.6	69.9	69.8	69.4	69.5	69.6	68.9	66.3	65.2
30000	71.5	72.2	73.4	71.7	70.5	68.9	68.4	69.3	69.7	69.5	69.3	69.5	69.5	68.8	66.2	65.0
40000	71.5	72.2	73.4	71.7	70.4	68.8	68.1	69.2	69.5	69.5	69.2	69.5	69.3	68.5	66.1	65.0
50000	71.5	72.3	73.5	71.6	69.9	68.8	68.0	69.2	69.4	69.4	69.1	69.6	69.1	68.3	65.9	64.9
60000	71.5	72.4	73.4	71.5	70.0	68.6	67.9	69.2	69.3	69.7	69.2	69.6	69.0	67.9	65.8	64.9
70000	71.5	72.5	73.4	71.5	69.9	68.5	67.9	69.2	69.1	69.5	69.2	69.7	68.9	67.7	65.6	64.8
80000	71.6	72.7	73.2	71.6	70.0	68.6	68.0	69.3	69.0	69.7	69.2	69.8	68.9	67.7	65.6	64.8
90000		72.9	73.2	71.7	70.0	68.8	68.3	69.7	69.4	70.1	69.5	70.0	68.8	67.7	65.8	64.9
100000	72.0	72.6	73.2	71.7	70.0	69.1	68.5	70.0	69.8	70.3	69.8	70.3	68.8	67.6	66.0	65.2
110000	72.3	72.5	73.1	71.8	69.9	69.4	69.1	70.4	70.1	70.7	70.1	70.4	69.2	67.9	66.1	65.4
120000	72.5	72.5	73.2	71.8	70.0	69.4	69.5	70.8	70.2	71.2	70.3	70.5	69.6	68.2	66.2	65.6
130000	72.6	72.9	73.2	71.8	69.9	69.4	69.9	71.2	70.6	71.1	70.4	70.3	70.1	68.2	66.5	65.6
140000	72.5	72.9	73.4	72.1	70.2	69.6	70.3	71.2	70.8	71.1	70.1	69.9	70.4	68.1	66.7	65.6
150000	72.4	73.5	73.3	72.0	70.4	69.4	70.2	71.6	70.4	70.9	70.7	69.5	70.6	68.0	66.7	65.3
160000	72.2	73.9	73.4	71.7	70.6	69.2	70.3	71.5	70.1	70.9	70.4	69.2	70.4	67.9	66.6	65.2
170000	72.1	74.0	73.2	71.6	70.4	69.0	70.6	71.7	69.8	70.7	70.5	69.1	70.3	67.9	66.4	65.0
180000	71.9	73.8	73.0	71.5	70.3	69.0	70.9	71.7	69.9	70.4	70.2	68.8	70.2	67.6	66.2	64.7
190000	71.8	73.8	72.8	71.2	70.0	69.2	70.6	71.3	69.8	70.1	70.4	68.8	70.0	67.3	66.1	64.5
200000	71.8	73.6	72.6	71.1	69.8	69.0	70.4	70.8	69.6	70.1	69.9	68.7	69.7	67.1	65.8	64.2
210000	71.8	73.7	72.3	70.9	69.5	68.8	70.2	70.7	69.5	69.8	69.7	68.5	69.6	67.0	65.7	64.3
220000	71.8	73.5	72.2	70.8	69.4	68.7	69.9	70.5	69.4	69.7	69.6	68.5	69.3	66.8	65.5	64.0
230000	72.0	73.6	72.1	70.8	69.3	68.6	69.8	70.3	69.2	69.8	69.4	68.5	69.1	66.7	65.4	63.9
Daily Max	72.6	74.0	73.7	72.1	70.7	69.6	70.9	71.7	70.8	71.2	70.7	70.5	70.6	69.0	66.7	65.6
Daily Min	71.5	72.2	72.1	70.8	69.3	68.5	67.9	69.2	69.0	69.2	69.1	68.5	68.8	66.7	65.4	63.9
Average	71.9	72.9	73.1	71.6	70.1	69.0	69.2	70.3	69.8	70.1	69.8	69.5	69.6	67.9	66.1	64.9

Monthly Average Temp: 66.1  
 License Maximum Temperature: 89 F

Missing data due to equipment maintenance.

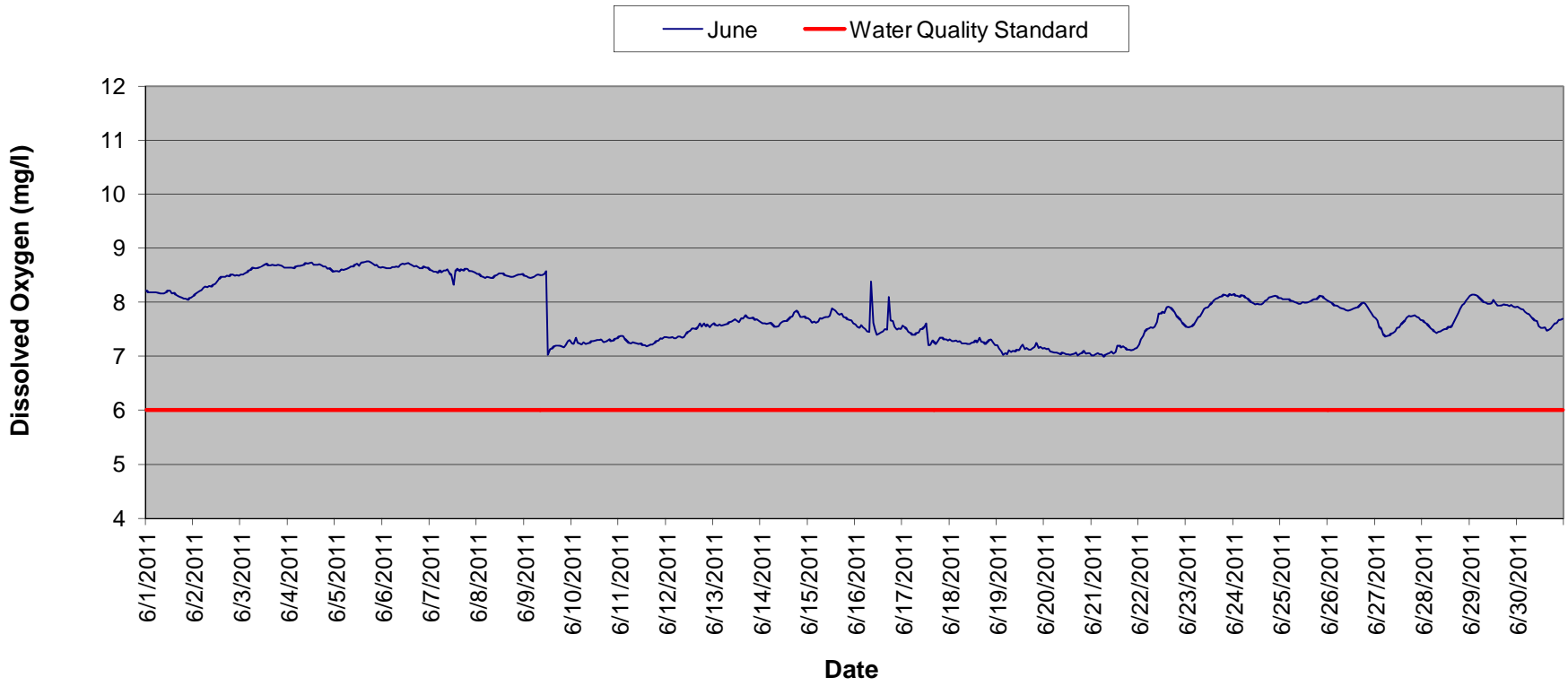
High Falls Tailrace Temperature Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	63.9	63.4	63.8	64.1	63.6	63.0	62.3	61.6	61.2	60.7	60.3	60.1	60.1	58.8
10000	63.9	63.4	63.8	64.1	63.6	63.0	62.3	61.5	61.3	60.7	60.2	60.1	60.1	58.7
20000	63.8	63.3	63.8	64.0	63.6	62.7	62.1	61.4	61.2	60.7	60.1	60.1	60.1	58.6
30000	63.7	63.1	63.8	63.9	63.5	62.8	62.2	61.5	61.1	60.6	60.0	60.1	60.0	58.5
40000	63.5	63.4	63.8	63.8	63.4	63.0	62.0	61.5	61.2	60.6	60.1	60.1	60.0	58.4
50000	63.7	63.1	63.8	64.0	63.3	62.9	61.9	61.4	61.2	60.5	60.0	60.0	60.0	58.4
60000	63.7	63.1	63.8	63.8	63.3	62.8	61.9	61.3	61.1	60.4	59.9	60.0	59.9	58.4
70000	63.6	63.3	63.8	63.9	63.2	62.8	61.8	61.3	61.0	60.4	59.9	59.9	59.8	58.2
80000	63.5	63.5	63.8	63.8	63.2	62.5	61.9	61.4	61.0	60.4	60.0	59.9	59.9	58.2
90000	63.9	63.8	63.8	64.1	63.5	62.6	62.0	61.5	60.9	60.4	60.0	60.0	59.9	58.1
100000	64.2	63.9	64.1	64.3	63.4	62.7	62.2	61.7	60.9	60.4	60.2	60.1	59.8	58.2
110000	64.7	64.3	64.1	64.4	63.4	62.8	62.2	61.8	61.0	60.4	60.4	60.5	59.7	58.3
120000	64.7	64.2	64.7	64.3	63.5	63.1	62.4	61.8	61.1	60.5	60.4	60.7	59.7	58.4
130000	64.7	64.3	64.9	64.4	63.4	62.9	62.5	61.8	61.1	60.5	60.5	60.8	59.7	58.4
140000	64.8	64.1	65.0	64.4	63.5	62.9	62.7	61.8	61.1	60.5	60.5	60.8	59.7	58.4
150000	64.7	64.0	65.2	64.2	63.6	62.8	62.8	61.8	61.1	60.5	60.4	60.7	59.7	58.4
160000	64.5	63.8	65.0	64.0	63.5	62.9	62.7	61.7	61.0	60.6	60.3	60.7	59.7	58.4
170000	64.3	63.8	65.0	64.0	63.5	62.7	62.6	61.6	61.1	60.5	60.3	60.5	59.7	58.3
180000	64.0	63.7	64.7	63.9	63.4	62.7	62.4	61.5	61.0	60.4	60.2	60.4	59.7	58.1
190000	63.9	63.7	64.7	63.9	63.3	62.6	62.2	61.4	61.0	60.4	60.2	60.3	59.6	58.0
200000	63.6	63.7	64.6	63.8	63.2	62.6	62.1	61.4	60.9	60.3	60.2	60.4	59.4	57.9
210000	63.6	63.7	64.5	63.7	63.2	62.5	61.9	61.4	60.9	60.3	60.2	60.4	59.3	57.8
220000	63.5	63.8	64.4	63.6	63.1	62.5	61.8	61.3	60.8	60.3	60.1	60.3	59.0	57.7
230000	63.5	63.8	64.3	63.6	63.2	62.3	61.7	61.3	60.8	60.3	60.1	60.2	58.9	57.7
Daily Max	64.8	64.3	65.2	64.4	63.6	63.1	62.8	61.8	61.3	60.7	60.5	60.8	60.1	58.8
Daily Min	63.5	63.1	63.8	63.6	63.1	62.3	61.7	61.3	60.8	60.3	59.9	59.9	58.9	57.7
Average	64.0	63.7	64.3	64.0	63.4	62.7	62.2	61.5	61.0	60.5	60.2	60.3	59.7	58.3

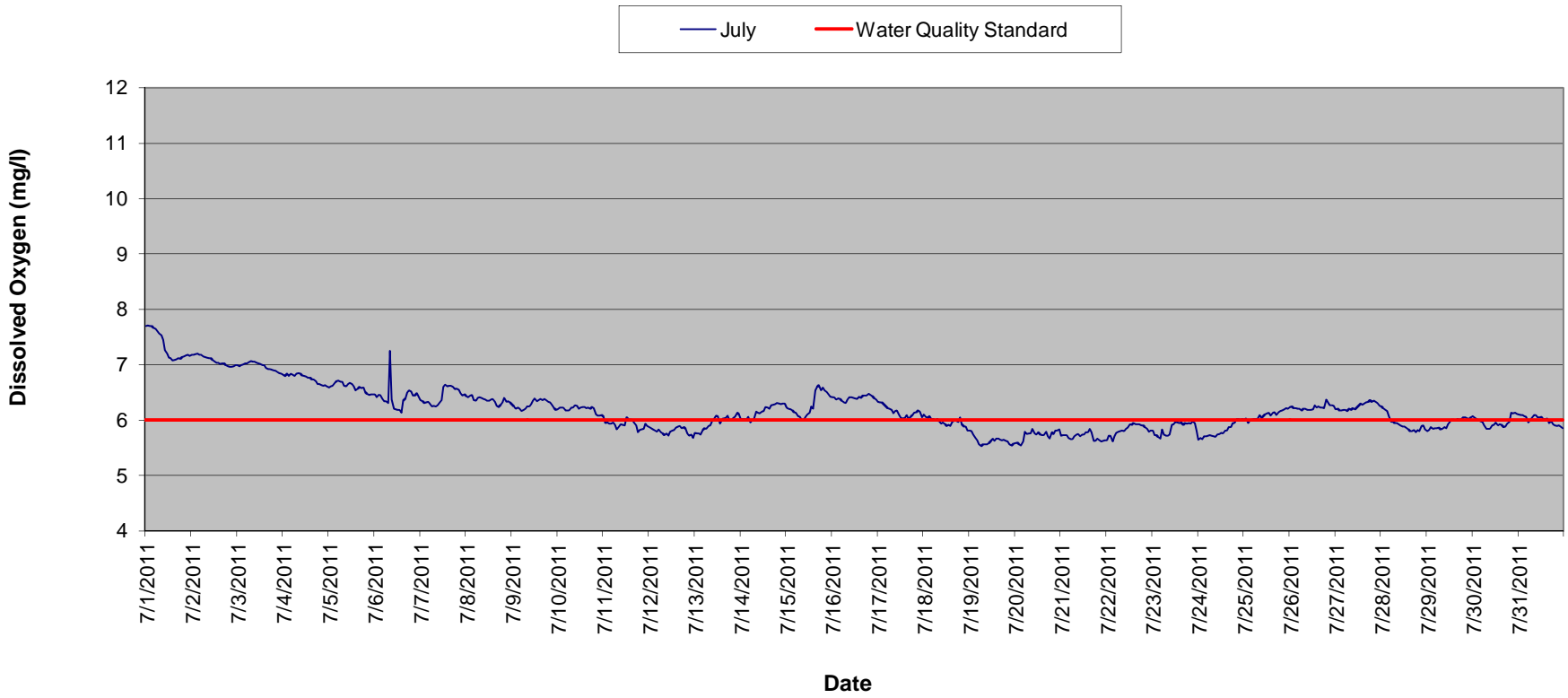
**Johnson Falls Hydroelectric Project**

**FERC Project No. 2522**

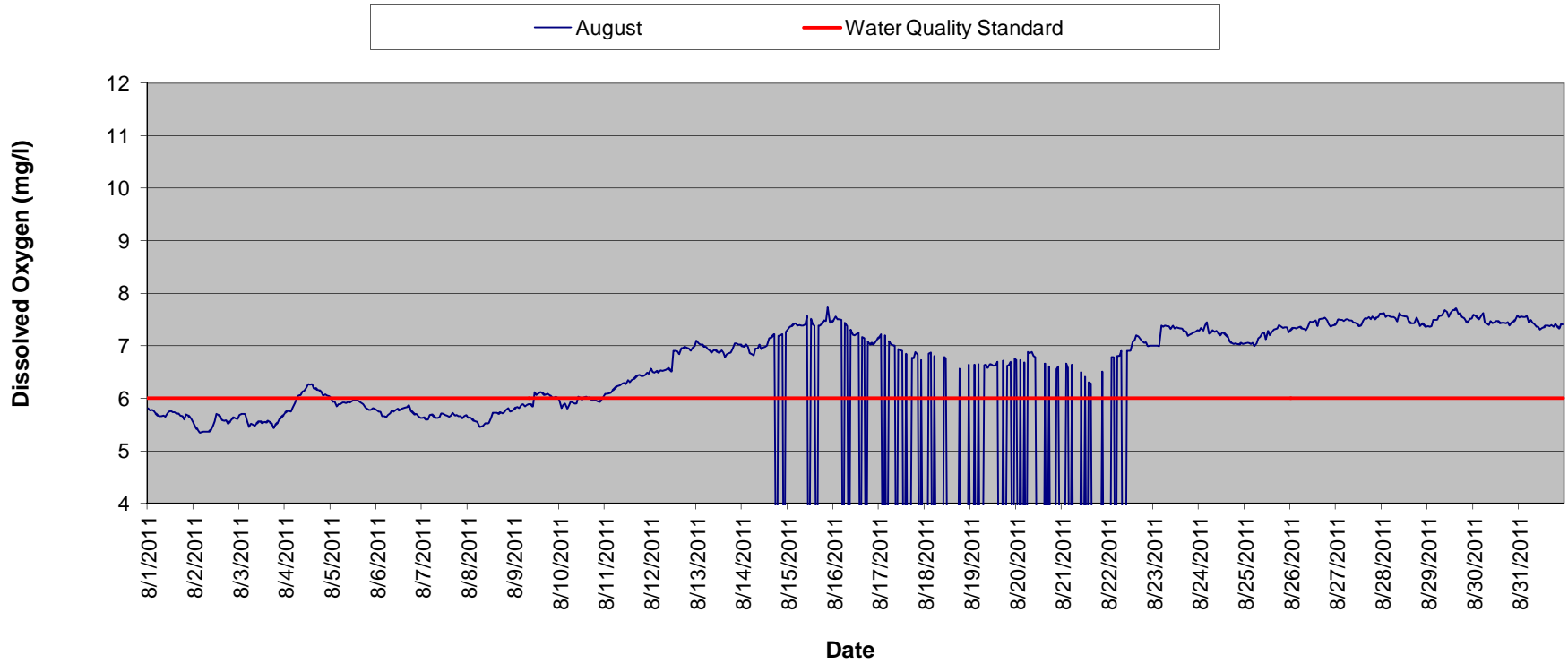
### Johnson Falls Tailwater Dissolved Oxygen - June 2011



### Johnson Falls Tailwater Dissolved Oxygen - July 2011

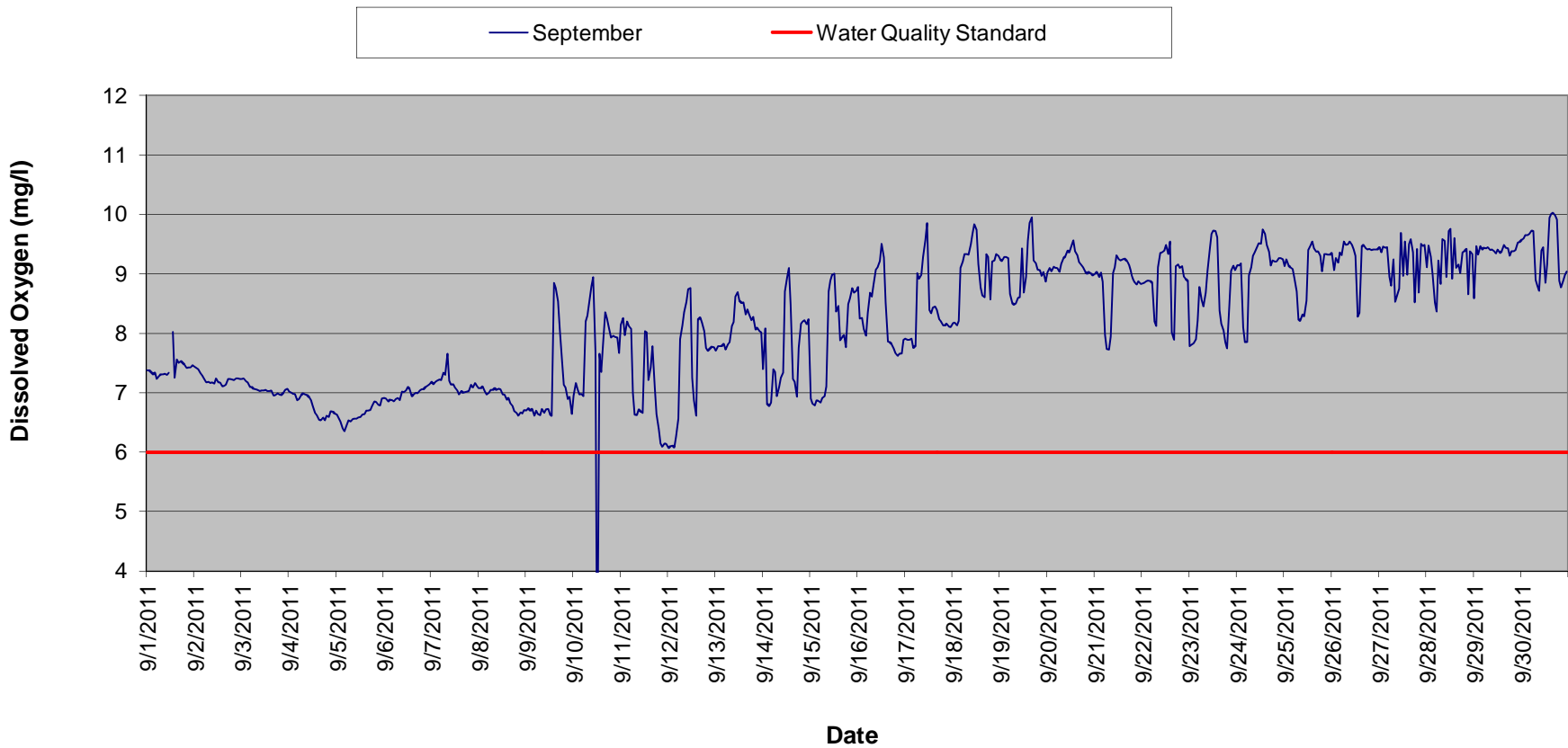


### Johnson Falls Tailwater Dissolved Oxygen - August 2011





### Johnson Falls Tailwater Dissolved Oxygen - September 2011



Map Created on Aug 23, 2011



**Legend**

- County Boundaries
- Civil Towns
- Civil Town
- Cities and Villages
- Village
- City

In stream dissolved oxygen readings on August 22, 2011.

D.O. improving with distance from powerhouse



Scale: 1:4,010

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Johnson Falls Tailwater Dissolved Oxygen Summary - June 2011

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

License Minimum DO: 6.0 mg/l

Johnson Falls Tailwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.6	7.3	7.2	7.2	7.0	7.2	7.6	8.2	8.1	8.0	7.7	7.7	8.1	7.9
10000	7.5	7.3	7.1	7.1	7.0	7.3	7.5	8.1	8.1	8.0	7.7	7.6	8.1	7.9
20000	7.5	7.3	7.1	7.1	7.0	7.4	7.6	8.1	8.1	8.0	7.5	7.6	8.1	7.9
30000	7.4	7.3	7.0	7.1	7.1	7.5	7.6	8.1	8.1	7.9	7.5	7.6	8.1	7.9
40000	7.4	7.3	7.1	7.1	7.0	7.5	7.6	8.1	8.1	7.9	7.4	7.5	8.1	7.8
50000	7.4	7.3	7.0	7.1	7.0	7.5	7.7	8.1	8.0	7.9	7.4	7.5	8.1	7.8
60000	7.4	7.2	7.1	7.1	7.0	7.5	7.7	8.1	8.0	7.9	7.4	7.5	8.0	7.8
70000	7.4	7.2	7.1	7.1	7.0	7.5	7.7	8.1	8.0	7.9	7.4	7.4	8.0	7.7
80000	7.4	7.2	7.1	7.0	7.1	7.5	7.8	8.0	8.0	7.9	7.4	7.4	8.0	7.7
90000	7.5	7.2	7.1	7.1	7.1	7.6	7.9	8.0	8.0	7.9	7.4	7.5	8.0	7.7
100000	7.5	7.2	7.1	7.1	7.1	7.8	7.9	8.0	8.0	7.8	7.5	7.5	8.0	7.6
110000	7.5	7.3	7.1	7.0	7.1	7.8	7.9	8.0	8.0	7.9	7.5	7.5	8.0	7.6
120000	7.6	7.3	7.2	7.0	7.1	7.8	8.0	8.0	8.0	7.9	7.5	7.5	8.0	7.5
130000	7.2	7.3	7.2	7.0	7.2	7.8	8.0	8.0	8.0	7.9	7.6	7.6	8.0	7.5
140000	7.2	7.3	7.1	7.0	7.2	7.9	8.0	8.0	8.0	7.9	7.6	7.5	7.9	7.5
150000	7.3	7.3	7.2	7.1	7.2	7.9	8.1	8.0	8.0	7.9	7.7	7.6	7.9	7.5
160000	7.3	7.3	7.1	7.1	7.2	7.9	8.1	8.0	8.0	7.9	7.7	7.6	7.9	7.5
170000	7.2	7.3	7.1	7.0	7.2	7.9	8.1	8.0	8.1	8.0	7.7	7.7	8.0	7.5
180000	7.3	7.2	7.2	7.1	7.1	7.8	8.1	8.1	8.1	8.0	7.7	7.8	7.9	7.6
190000	7.3	7.3	7.2	7.1	7.1	7.8	8.1	8.1	8.1	8.0	7.7	7.9	7.9	7.6
200000	7.3	7.3	7.3	7.1	7.1	7.7	8.1	8.1	8.1	7.9	7.8	7.9	7.9	7.6
210000	7.3	7.3	7.2	7.1	7.1	7.7	8.1	8.1	8.1	7.9	7.7	8.0	7.9	7.7
220000	7.3	7.3	7.2	7.1	7.1	7.6	8.2	8.1	8.1	7.8	7.7	8.0	7.9	7.7
230000	7.3	7.2	7.1	7.1	7.2	7.6	8.1	8.1	8.0	7.7	7.7	8.1	7.9	7.7
Daily Max	7.6	7.3	7.3	7.2	7.2	7.9	8.2	8.2	8.1	8.0	7.8	8.1	8.1	7.9
Daily Min	7.2	7.2	7.0	7.0	7.0	7.2	7.5	8.0	8.0	7.7	7.4	7.4	7.9	7.5
Average	7.4	7.3	7.1	7.1	7.1	7.6	7.9	8.1	8.0	7.9	7.6	7.6	8.0	7.7

Johnson Falls Tailwater Dissolved Oxygen Summary - July 2011

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

Readings Below Water Quality Standard

License Minimum Dissolved Oxygen: 6.0 mg/l

Johnson Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	6.3	6.1	5.8	5.6	5.7	5.6	5.8	5.7	6.0	6.2	6.2	6.3	5.8	6.1	6.1
10000	6.3	6.1	5.8	5.6	5.7	5.7	5.7	5.7	6.0	6.3	6.2	6.2	5.8	6.0	6.1
20000	6.3	6.0	5.7	5.6	5.7	5.7	5.7	5.7	6.0	6.2	6.2	6.2	5.9	6.0	6.1
30000	6.3	6.1	5.7	5.5	5.7	5.6	5.7	5.7	6.0	6.2	6.2	6.2	5.8	6.0	6.1
40000	6.3	6.0	5.6	5.6	5.7	5.7	5.7	5.7	6.0	6.2	6.2	6.1	5.9	6.0	6.1
50000	6.2	6.0	5.6	5.8	5.7	5.8	5.8	5.7	6.0	6.2	6.2	6.0	5.9	6.0	6.0
60000	6.2	6.0	5.5	5.8	5.7	5.8	5.7	5.7	6.0	6.2	6.2	6.0	5.9	5.9	6.0
70000	6.2	6.0	5.6	5.8	5.7	5.8	5.7	5.7	6.0	6.2	6.2	6.0	5.8	5.8	6.0
80000	6.1	6.0	5.6	5.8	5.7	5.8	5.7	5.7	6.1	6.2	6.2	6.0	5.8	5.8	6.1
90000	6.2	5.9	5.6	5.8	5.8	5.8	5.7	5.7	6.0	6.2	6.2	5.9	5.9	5.8	6.1
100000	6.2	6.0	5.6	5.8	5.7	5.8	5.9	5.7	6.1	6.2	6.2	5.9	5.9	5.9	6.1
110000	6.1	5.9	5.6	5.7	5.7	5.9	5.9	5.8	6.1	6.2	6.2	5.9	5.9	5.9	6.1
120000	6.0	5.9	5.7	5.8	5.7	5.9	6.0	5.8	6.1	6.2	6.3	5.9	6.0	6.0	6.1
130000	6.0	5.9	5.6	5.7	5.8	5.9	6.0	5.8	6.1	6.3	6.3	5.9	6.0	5.9	6.0
140000	6.0	5.9	5.7	5.7	5.8	6.0	6.0	5.8	6.1	6.2	6.3	5.8	6.0	5.9	6.0
150000	6.1	6.0	5.7	5.7	5.8	5.9	6.0	5.8	6.1	6.3	6.3	5.8	6.0	5.9	6.0
160000	6.0	6.0	5.7	5.8	5.8	5.9	5.9	5.9	6.1	6.2	6.3	5.8	6.0	5.9	6.0
170000	6.1	6.0	5.6	5.7	5.6	5.9	6.0	5.9	6.1	6.2	6.3	5.8	6.0	5.9	6.0
180000	6.1	6.0	5.7	5.7	5.6	5.9	5.9	6.0	6.1	6.2	6.4	5.8	6.0	5.9	5.9
190000	6.1	6.1	5.6	5.8	5.7	5.9	6.0	6.0	6.2	6.4	6.3	5.8	6.1	6.0	5.9
200000	6.1	5.9	5.6	5.8	5.6	5.9	5.9	6.0	6.2	6.3	6.4	5.8	6.1	6.1	5.9
210000	6.2	5.9	5.6	5.8	5.6	5.8	6.0	6.0	6.2	6.3	6.3	5.9	6.0	6.1	5.9
220000	6.2	5.9	5.5	5.8	5.6	5.8	6.0	6.0	6.2	6.3	6.3	5.9	6.0	6.1	5.9
230000	6.1	5.8	5.6	5.8	5.6	5.8	5.8	6.0	6.2	6.3	6.3	5.8	6.1	6.1	5.9
Daily Max	6.3	6.1	5.8	5.8	5.8	6.0	6.0	6.0	6.2	6.4	6.4	6.3	6.1	6.1	6.1
Daily Min	6.0	5.8	5.5	5.5	5.6	5.6	5.7	5.7	6.0	6.2	6.2	5.8	5.8	5.8	5.9
Average	6.2	6.0	5.6	5.7	5.7	5.8	5.9	5.8	6.1	6.2	6.3	5.9	5.9	6.0	6.0

Johnson Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	5.8	5.5	5.7	5.7	6.0	5.8	5.6	5.6	5.8	6.0	6.1	6.6	7.1	7.0	7.3	7.5
10000	5.8	5.4	5.7	5.8	5.9	5.7	5.6	5.6	5.8	5.8	6.1	6.5	7.1	7.0	7.4	7.6
20000	5.8	5.4	5.7	5.8	5.9	5.7	5.6	5.6	5.8	5.9	6.1	6.5	7.0	7.0	7.4	7.5
30000	5.8	5.4	5.7	5.8	5.8	5.7	5.6	5.6	5.8	5.9	6.1	6.5	7.0	7.0	7.4	7.5
40000	5.7	5.4	5.6	5.8	5.9	5.7	5.7	5.6	5.9	5.8	6.1	6.5	7.0	6.9	7.4	7.5
50000	5.7	5.4	5.5	5.9	5.9	5.6	5.7	5.5	5.9	5.9	6.2	6.5	7.0	6.8	7.4	0.2
60000	5.7	5.4	5.5	6.0	5.9	5.7	5.7	5.5	5.8	5.9	6.2	6.5	6.9	6.8	7.4	7.4
70000	5.7	5.4	5.5	6.1	5.9	5.7	5.6	5.5	5.9	5.9	6.2	6.5	6.9	7.0	7.4	7.4
80000	5.7	5.4	5.5	6.1	5.9	5.8	5.6	5.5	5.9	5.9	6.3	6.5	6.9	7.0	7.4	0.2
90000	5.7	5.4	5.5	6.1	5.9	5.8	5.6	5.5	5.9	5.9	6.3	6.6	6.9	7.0	7.4	7.3
100000	5.7	5.5	5.6	6.1	5.9	5.8	5.7	5.5	5.9	6.0	6.3	6.5	6.9	6.9	7.6	7.2
110000	5.8	5.6	5.6	6.2	5.9	5.8	5.7	5.5	6.1	6.0	6.3	6.5	6.9	7.0	0.2	7.2
120000	5.8	5.7	5.5	6.3	6.0	5.8	5.7	5.6	6.1	6.0	6.3	6.9	6.9	7.0	7.5	7.2
130000	5.7	5.7	5.6	6.3	6.0	5.8	5.7	5.7	6.1	6.0	6.3	6.9	6.9	7.0	7.4	7.3
140000	5.7	5.7	5.5	6.3	6.0	5.8	5.6	5.7	6.1	6.0	6.4	6.9	6.9	7.2	7.4	0.2
150000	5.7	5.6	5.6	6.2	5.9	5.8	5.7	5.7	6.1	6.0	6.4	6.8	6.8	7.2	0.2	7.2
160000	5.7	5.6	5.6	6.2	5.9	5.8	5.7	5.7	6.1	6.0	6.4	7.0	6.8	7.2	7.4	7.2
170000	5.7	5.6	5.5	6.2	5.9	5.9	5.7	5.7	6.1	6.0	6.4	7.0	6.9	7.2	7.4	0.2
180000	5.7	5.5	5.4	6.2	5.8	5.8	5.7	5.7	6.1	6.0	6.4	7.0	6.9	0.2	7.5	7.1
190000	5.6	5.6	5.5	6.1	5.8	5.7	5.7	5.7	6.1	6.0	6.4	7.0	6.9	7.2	7.5	7.0
200000	5.7	5.6	5.5	6.1	5.8	5.7	5.7	5.8	6.0	5.9	6.4	7.0	7.1	7.2	7.5	7.1
210000	5.7	5.6	5.6	6.1	5.8	5.7	5.6	5.8	6.0	5.9	6.4	6.9	7.1	7.2	7.7	7.0
220000	5.6	5.6	5.6	6.1	5.8	5.7	5.7	5.8	6.0	6.0	6.5	7.0	7.0	0.2	7.4	7.1
230000	5.6	5.6	5.7	6.0	5.8	5.6	5.7	5.8	6.0	6.0	6.5	7.0	7.0	7.3	7.5	7.1
Daily Max	5.8	5.7	5.7	6.3	6.0	5.9	5.7	5.8	6.1	6.0	6.5	7.0	7.1	7.3	7.7	7.6
Daily Min	5.6	5.4	5.4	5.7	5.8	5.6	5.6	5.5	5.8	5.8	6.1	6.5	6.8	0.2	0.2	0.2
Average	5.7	5.5	5.6	6.0	5.9	5.7	5.7	5.6	6.0	5.9	6.3	6.7	6.9	6.5	6.8	6.1

Readings below water quality standard.

Missing data due to equipment malfunction (loose sensor connection)

License Minimum Dissolved Oxygen: 6.0 mg/l  
Instrument Precision - +/- 0.2 mg/l

Johnson Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.2	0.3	0.2	6.7	0.2	0.2	7.0	7.3	7.0	7.3	7.4	7.6	7.4	7.6	7.5
10000	7.2	0.3	0.3	0.3	0.2	0.2	7.0	7.3	7.1	7.3	7.5	7.6	7.4	7.6	7.6
20000	0.3	6.9	6.6	6.7	6.7	6.8	7.0	7.3	7.1	7.3	7.5	7.5	7.4	7.5	7.5
30000	7.2	6.9	0.2	0.3	6.6	6.8	7.0	7.4	7.0	7.3	7.5	7.6	7.5	7.5	7.6
40000	0.3	0.3	6.7	6.7	0.2	0.2	7.4	7.4	7.1	7.3	7.5	7.6	7.5	7.6	7.6
50000	7.1	6.8	0.2	0.3	6.6	6.8	7.4	7.2	7.0	7.4	7.5	7.5	7.5	7.6	7.4
60000	7.0	0.3	0.2	6.9	0.2	6.8	7.4	7.2	7.1	7.3	7.5	7.5	7.6	7.4	7.5
70000	7.0	0.3	6.6	6.9	0.2	6.9	7.4	7.3	7.1	7.3	7.5	7.5	7.6	7.4	7.4
80000	7.0	0.3	6.6	6.9	0.2	0.2	7.4	7.3	7.2	7.3	7.5	7.5	7.6	7.4	7.4
90000	0.3	0.3	6.6	6.8	0.2	0.2	7.3	7.3	7.2	7.4	7.4	7.6	7.7	7.5	7.4
100000	6.9	6.8	6.7	6.8	6.5	6.9	7.4	7.2	7.3	7.5	7.4	7.6	7.6	7.4	7.4
110000	6.9	6.8	6.6	0.2	0.2	6.9	7.3	7.2	7.1	7.5	7.4	7.6	7.5	7.5	7.3
120000	6.9	0.3	6.6	0.2	6.4	6.9	7.4	7.3	7.3	7.5	7.4	7.6	7.6	7.5	7.3
130000	0.3	0.3	6.6	0.2	0.2	7.1	7.3	7.2	7.2	7.5	7.4	7.6	7.7	7.5	7.4
140000	6.9	0.3	6.7	0.2	6.3	7.1	7.3	7.2	7.3	7.4	7.5	7.5	7.7	7.4	7.4
150000	0.3	0.3	0.3	6.7	6.3	7.2	7.3	7.2	7.3	7.5	7.5	7.4	7.7	7.4	7.4
160000	0.3	0.3	0.3	0.2	0.2	7.2	7.3	7.1	7.3	7.5	7.5	7.4	7.6	7.4	7.4
170000	6.8	0.3	6.7	6.6	0.2	7.1	7.3	7.1	7.3	7.5	7.5	7.4	7.6	7.4	7.4
180000	6.8	6.6	0.3	0.2	0.2	7.1	7.2	7.0	7.4	7.5	7.5	7.5	7.5	7.5	7.4
190000	6.9	0.3	6.6	0.2	0.2	7.1	7.2	7.1	7.4	7.5	7.6	7.5	7.5	7.4	7.4
200000	6.8	0.3	6.6	0.2	0.2	7.1	7.2	7.0	7.3	7.4	7.5	7.4	7.5	7.5	7.4
210000	0.3	0.2	6.7	6.6	6.5	7.0	7.3	7.0	7.4	7.4	7.5	7.4	7.4	7.5	7.3
220000	6.7	0.2	0.3	6.6	0.2	7.0	7.3	7.1	7.4	7.4	7.5	7.4	7.5	7.5	7.4
230000	0.3	6.6	6.8	0.2	0.2	7.0	7.3	7.0	7.3	7.4	7.6	7.4	7.5	7.6	7.4
Daily Max	7.2	6.9	6.8	6.9	6.7	7.2	7.4	7.4	7.4	7.5	7.6	7.6	7.7	7.6	7.6
Daily Min	0.3	0.2	0.2	0.2	0.2	0.2	7.0	7.0	7.0	7.3	7.4	7.4	7.4	7.4	7.3
Average	4.7	2.1	4.3	3.5	2.3	5.6	7.3	7.2	7.2	7.4	7.5	7.5	7.5	7.5	7.4

Missing data due to equipment malfunction (loose sensor connection)



Johnson Falls Tailwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	7.4	7.4	7.2	7.0	6.6	6.9	7.2	7.1	6.7	7.0	8.1	6.1	7.7	7.4	6.9	8.8
10000	7.4	7.4	7.2	7.0	6.6	6.9	7.1	7.1	6.7	7.2	8.3	6.1	7.8	8.1	6.8	8.3
20000	7.3	7.4	7.2	7.0	6.5	6.9	7.2	7.1	6.7	7.1	8.0	6.1	7.8	6.8	6.8	8.3
30000	7.3	7.3	7.2	7.0	6.4	6.9	7.2	7.0	6.7	7.0	8.2	6.1	7.8	6.8	6.9	8.1
40000	7.3	7.3	7.1	6.9	6.3	6.9	7.2	7.0	6.6	7.0	8.1	6.3	7.8	6.8	6.9	8.0
50000	7.2	7.2	7.1	6.9	6.5	6.9	7.2	7.0	6.7	6.9	8.1	6.6	7.7	7.4	6.8	8.3
60000	7.3	7.2	7.1	7.0	6.5	6.9	7.3	7.1	6.6	8.2	7.0	7.9	7.8	7.4	6.9	8.7
70000	7.3	7.2	7.1	7.0	6.5	6.9	7.3	7.0	6.6	8.3	6.6	8.1	7.9	6.9	6.9	8.6
80000	7.3	7.2	7.0	7.0	6.6	6.9	7.7	7.1	6.7	8.6	6.6	8.4	8.1	7.1	7.1	8.8
90000	7.3	7.2	7.0	7.0	6.6	7.0	7.2	7.1	6.7	8.8	6.7	8.5	8.2	7.3	8.7	9.1
100000	7.3	7.2	7.0	6.9	6.6	7.0	7.1	7.1	6.7	8.9	6.7	8.7	8.6	7.3	8.9	9.1
110000	7.3	7.2	7.0	6.9	6.6	7.0	7.1	7.1	6.7	7.7	6.7	8.8	8.7	8.7	9.0	9.2
120000		7.2	7.0	6.8	6.6	7.1	7.1	7.0	6.6	1.9	8.0	7.3	8.6	8.9	9.0	9.5
130000	8.0	7.2	7.0	6.7	6.6	7.1	7.0	7.0	6.6	7.7	8.0	6.9	8.5	9.1	8.4	9.3
140000	7.3	7.1	7.0	6.6	6.6	6.9	7.0	6.9	8.9	7.4	7.2	6.6	8.5	8.5	8.5	8.5
150000	7.6	7.1	7.0	6.5	6.7	7.0	7.0	6.9	8.8	7.9	7.4	8.2	8.3	7.2	7.9	7.9
160000	7.5	7.1	7.0	6.5	6.7	7.0	7.0	6.8	8.5	8.4	7.8	8.3	8.4	7.2	7.9	7.9
170000	7.5	7.2	7.0	6.6	6.7	7.0	7.0	6.8	8.1	8.3	7.1	8.2	8.3	6.9	8.0	7.8
180000	7.5	7.2	7.0	6.5	6.8	7.0	7.0	6.7	7.5	8.1	6.6	8.0	8.2	7.8	7.8	7.7
190000	7.5	7.2	7.0	6.6	6.9	7.1	7.0	6.7	7.1	7.9	6.4	7.8	8.3	8.2	8.5	7.7
200000	7.4	7.2	7.0	6.6	6.8	7.1	7.1	6.6	7.1	8.0	6.2	7.7	8.1	8.2	8.6	7.6
210000	7.4	7.2	7.0	6.7	6.8	7.1	7.1	6.7	6.9	7.9	6.1	7.7	8.1	8.2	8.8	7.7
220000	7.4	7.2	7.0	6.7	6.8	7.1	7.2	6.7	6.9	7.9	6.2	7.8	8.0	8.2	8.7	7.7
230000	7.5	7.2	7.1	6.7	6.9	7.1	7.1	6.7	6.6	7.7	6.1	7.8	8.0	8.2	8.7	7.9
Daily Max	8.0	7.4	7.2	7.0	6.9	7.1	7.7	7.1	8.9	8.9	8.3	8.8	8.7	9.1	9.0	9.5
Daily Min	7.2	7.1	7.0	6.5	6.3	6.9	7.0	6.6	6.6	1.9	6.1	6.1	7.7	6.8	6.8	7.6
Average	7.4	7.2	7.1	6.8	6.6	7.0	7.1	6.9	7.1	7.6	7.2	7.5	8.1	7.7	7.9	8.3

License Minimum Dissolved Oxygen: 6.0 mg/l

Low reading on 9/10 is an anomaly. Likely an equipment malfunction.

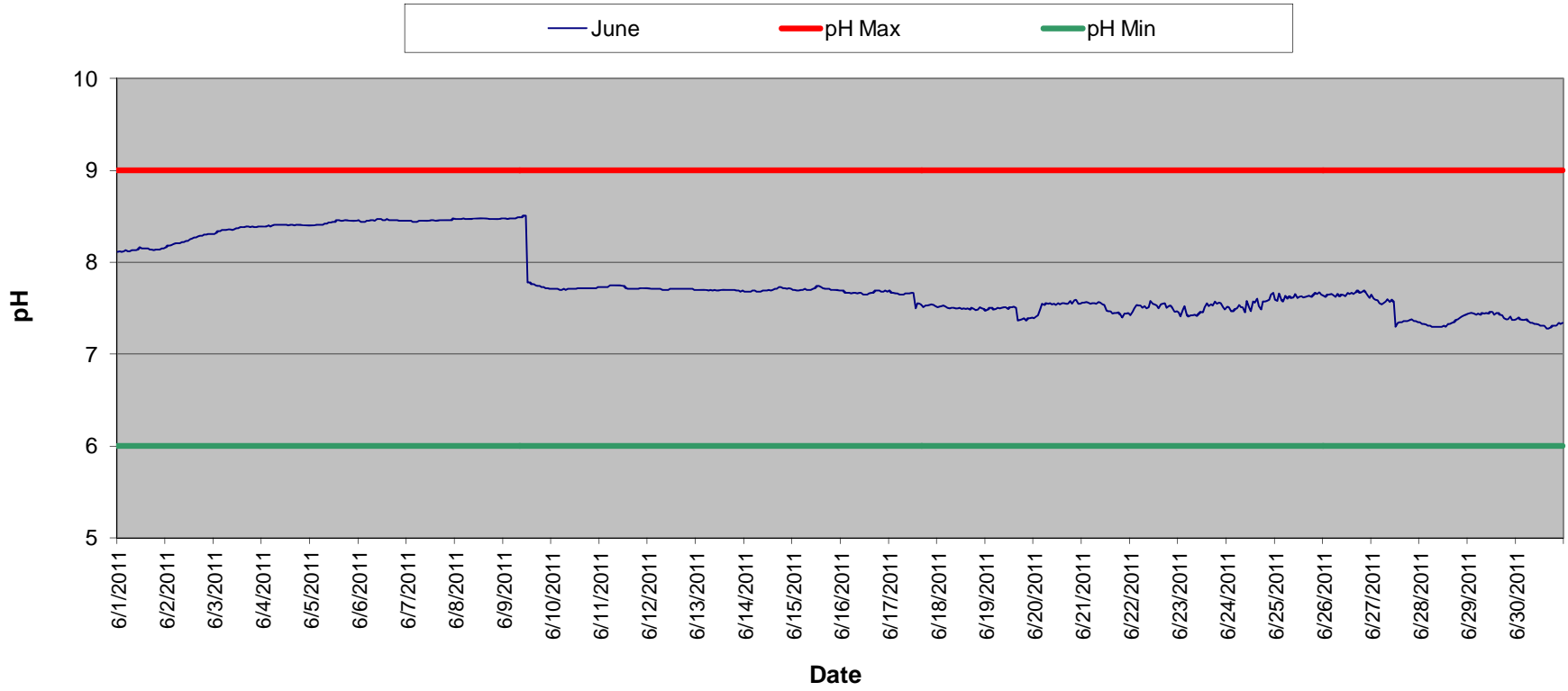
Powerhouse off-line for scheduled maintenance. All water, except for leakage through units, being released through gates.

Missing data due to equipment maintenance.

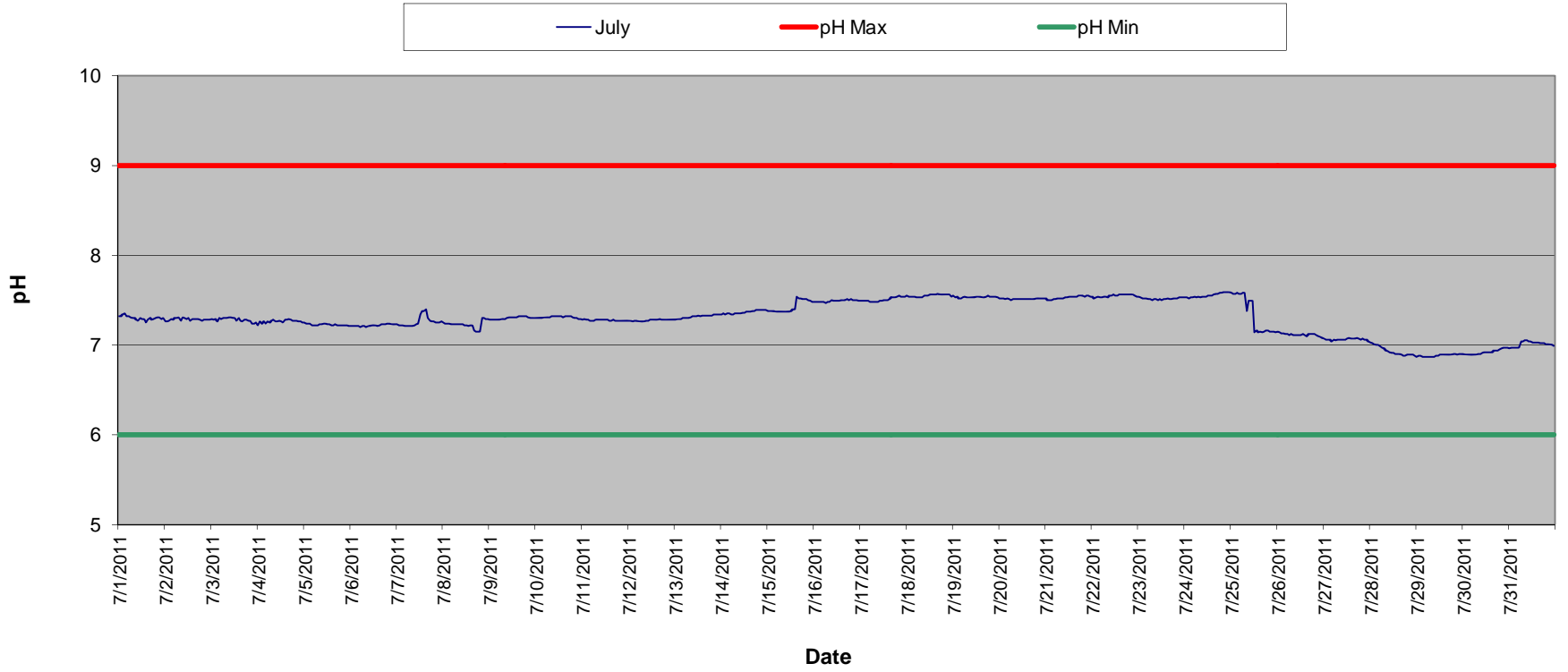
Johnson Falls Tailwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	7.9	8.2	9.2	9.0	9.0	8.8	7.8	9.2	9.1	9.4	9.4	9.1	8.6	9.6
10000	7.9	8.2	9.2	9.1	9.0	8.9	7.8	9.1	9.2	9.1	9.4	9.5	9.5	9.6
20000	7.9	8.1	9.3	9.0	8.9	8.9	7.8	9.2	9.1	9.3	9.5	9.3	9.3	9.6
30000	7.9	8.2	9.3	9.1	9.0	8.9	7.9	8.1	9.1	9.2	9.4	9.0	9.5	9.6
40000	7.8	9.1	9.3	9.1	8.9	8.9	8.2	7.9	9.1	9.4	9.4	8.5	9.4	9.7
50000	7.8	9.2	8.7	9.1	8.0	8.8	8.8	7.8	8.9	9.3	9.0	8.4	9.4	9.7
60000	9.0	9.3	8.5	9.0	7.7	8.2	8.6	9.0	8.7	9.5	8.8	9.2	9.4	9.7
70000	8.9	9.3	8.5	9.2	7.7	8.1	8.4	9.1	8.2	9.5	9.2	8.8	9.5	8.9
80000	9.0	9.3	8.5	9.3	7.9	9.1	8.7	9.3	8.2	9.5	8.5	9.6	9.4	8.8
90000	9.3	9.5	8.6	9.3	9.0	9.3	9.0	9.4	8.3	9.5	8.6	9.6	9.4	8.7
100000	9.6	9.7	8.6	9.4	9.1	9.4	9.4	9.5	8.3	9.5	8.8	8.9	9.4	9.4
110000	9.9	9.8	9.4	9.4	9.3	9.4	9.7	9.5	8.6	9.4	9.7	9.7	9.3	9.4
120000	8.4	9.7	8.7	9.5	9.2	9.5	9.7	9.5	9.4	9.3	9.0	9.8	9.4	8.8
130000	8.3	9.2	9.0	9.6	9.2	9.3	9.7	9.8	9.5	8.3	9.5	8.9	9.4	9.2
140000	8.4	8.8	9.6	9.4	9.2	9.5	9.6	9.7	9.5	8.3	9.0	9.6	9.4	9.9
150000	8.5	8.6	9.9	9.3	9.3	8.0	8.4	9.5	9.4	9.5	9.5	9.1	9.5	10.0
160000	8.4	8.6	10.0	9.2	9.2	7.9	8.2	9.4	9.4	9.5	9.6	9.2	9.4	10.0
170000	8.2	9.3	9.2	9.1	9.2	9.1	8.0	9.1	9.4	9.4	9.4	9.0	9.4	10.0
180000	8.2	9.3	9.2	9.1	9.1	9.2	7.8	9.2	9.3	9.4	8.5	9.4	9.3	9.9
190000	8.1	8.6	9.1	9.0	8.9	9.1	7.7	9.2	9.0	9.4	9.4	9.4	9.4	8.9
200000	8.1	9.2	9.1	9.0	8.9	9.1	8.5	9.2	9.3	9.4	8.7	9.4	9.4	8.8
210000	8.2	9.2	9.0	9.0	8.8	9.0	9.0	9.3	9.3	9.4	9.5	8.7	9.4	8.9
220000	8.1	9.3	9.0	9.0	8.9	8.9	9.1	9.3	9.3	9.4	9.5	9.4	9.5	9.0
230000	8.1	9.3	8.9	9.0	8.8	8.9	9.1	9.2	9.3	9.4	9.5	9.3	9.5	9.0
Daily Max	9.9	9.8	10.0	9.6	9.3	9.5	9.7	9.8	9.5	9.5	9.7	9.8	9.5	10.0
Daily Min	7.8	8.1	8.5	9.0	7.7	7.9	7.7	7.8	8.2	8.3	8.5	8.4	8.6	8.7
Average	8.4	9.0	9.1	9.2	8.8	8.9	8.6	9.1	9.0	9.3	9.2	9.2	9.4	9.4

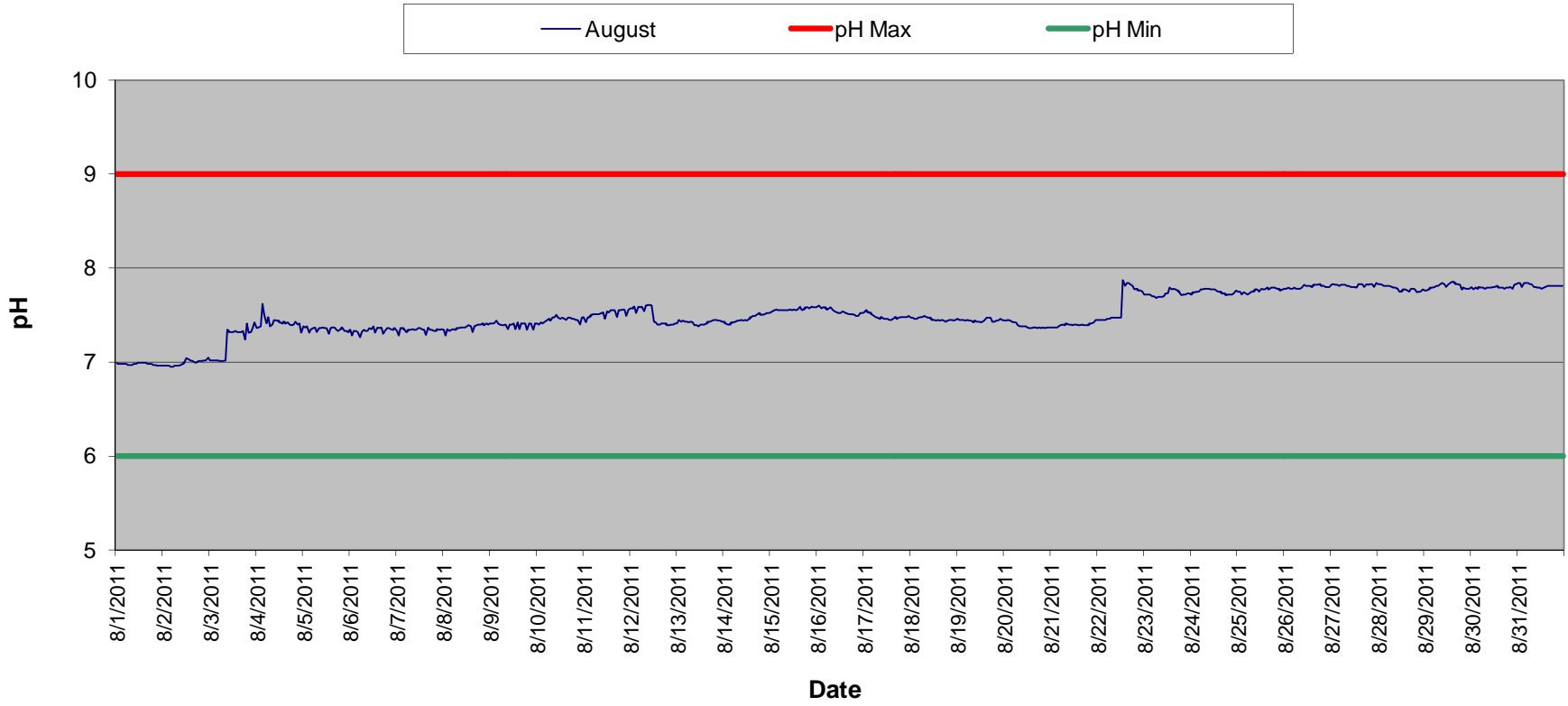
### Johnson Falls pH Summary - June 2011



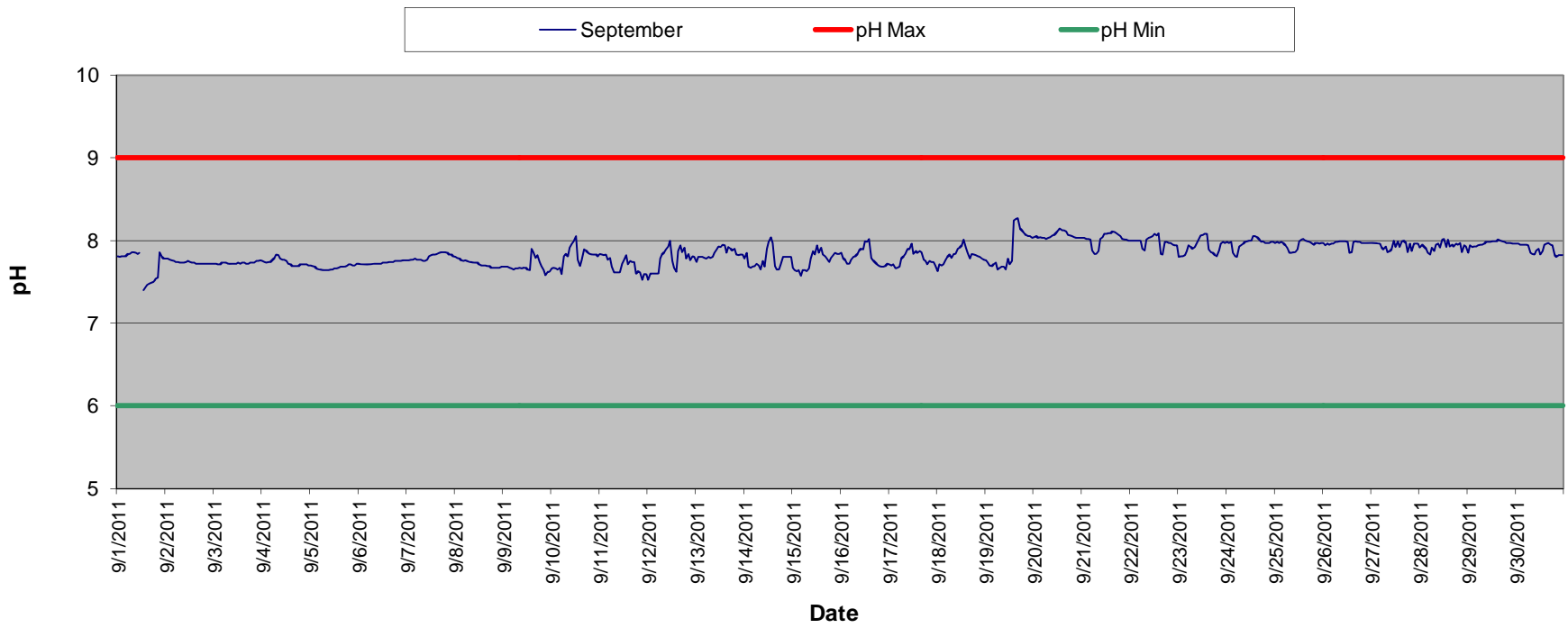
### Johnson Falls pH Summary - July 2011



### Johnson Falls pH Summary - August 2011



### Johnson Falls pH Summary - September 2011



Johnson Falls Tailwater pH Summary - June 2011

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

License maximum pH: 9  
License minimum pH: 6

Johnson Falls Tailwater pH Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.7	7.5	7.5	7.4	7.6	7.4	7.5	7.5	7.6	7.6	7.6	7.4	7.4	7.4
10000	7.7	7.5	7.5	7.4	7.6	7.5	7.4	7.5	7.6	7.6	7.6	7.3	7.5	7.4
20000	7.7	7.5	7.5	7.4	7.6	7.5	7.5	7.5	7.7	7.6	7.6	7.3	7.5	7.4
30000	7.7	7.5	7.5	7.5	7.6	7.5	7.5	7.5	7.6	7.6	7.6	7.3	7.4	7.4
40000	7.7	7.5	7.5	7.5	7.5	7.5	7.4	7.5	7.6	7.7	7.6	7.3	7.4	7.4
50000	7.7	7.5	7.5	7.5	7.6	7.5	7.4	7.5	7.6	7.6	7.5	7.3	7.4	7.4
60000	7.7	7.5	7.5	7.6	7.6	7.5	7.4	7.5	7.6	7.6	7.6	7.3	7.4	7.4
70000	7.7	7.5	7.5	7.5	7.5	7.5	7.4	7.5	7.6	7.7	7.6	7.3	7.5	7.3
80000	7.7	7.5	7.5	7.6	7.6	7.5	7.4	7.5	7.6	7.6	7.6	7.3	7.4	7.3
90000	7.7	7.5	7.5	7.5	7.6	7.5	7.4	7.5	7.6	7.6	7.6	7.3	7.5	7.3
100000	7.7	7.5	7.5	7.5	7.5	7.6	7.4	7.6	7.7	7.6	7.6	7.3	7.4	7.3
110000	7.7	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.3	7.5	7.3
120000	7.7	7.5	7.5	7.6	7.5	7.5	7.5	7.5	7.6	7.7	7.3	7.3	7.5	7.3
130000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.7	7.3	7.3	7.4	7.3
140000	7.6	7.5	7.5	7.6	7.5	7.5	7.6	7.6	7.6	7.7	7.4	7.3	7.5	7.3
150000	7.6	7.5	7.5	7.6	7.4	7.5	7.5	7.6	7.6	7.7	7.4	7.3	7.5	7.3
160000	7.5	7.5	7.4	7.5	7.4	7.6	7.5	7.5	7.6	7.7	7.4	7.3	7.4	7.3
170000	7.5	7.5	7.4	7.5	7.4	7.6	7.5	7.5	7.6	7.7	7.4	7.4	7.4	7.3
180000	7.5	7.5	7.4	7.6	7.5	7.5	7.6	7.6	7.6	7.7	7.4	7.4	7.4	7.3
190000	7.5	7.5	7.4	7.5	7.4	7.5	7.6	7.6	7.6	7.7	7.4	7.4	7.4	7.3
200000	7.5	7.5	7.4	7.6	7.4	7.5	7.6	7.6	7.7	7.7	7.4	7.4	7.4	7.3
210000	7.5	7.5	7.4	7.6	7.4	7.5	7.6	7.6	7.7	7.7	7.4	7.4	7.4	7.3
220000	7.5	7.5	7.4	7.5	7.4	7.5	7.5	7.7	7.7	7.6	7.4	7.4	7.4	7.3
230000	7.5	7.5	7.4	7.5	7.4	7.5	7.5	7.7	7.6	7.6	7.4	7.4	7.4	7.3
Daily Max	7.7	7.5	7.5	7.6	7.6	7.6	7.6	7.7	7.7	7.7	7.6	7.4	7.5	7.4
Daily Min	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.5	7.6	7.6	7.3	7.3	7.4	7.3
Average	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.7	7.5	7.3	7.4	7.3



Johnson Falls Tailwater pH Summary - July 2011

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

License maximum pH: 9

License minimum pH: 6

Johnson Falls Tailwater pH Summary - July 2011

Time	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.5	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.6	7.2	7.1	7.0	6.9	6.9	7.0
10000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.1	7.1	7.0	6.9	6.9	7.0
20000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.1	7.1	7.0	6.9	6.9	7.0
30000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.1	7.1	7.0	6.9	6.9	7.0
40000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.1	7.0	7.0	6.9	6.9	7.0
50000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.1	7.1	7.0	6.9	6.9	7.0
60000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.1	7.1	7.0	6.9	6.9	7.0
70000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.1	7.1	7.0	6.9	6.9	7.0
80000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.1	7.1	6.9	6.9	6.9	7.1
90000	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.5	7.5	7.1	7.1	6.9	6.9	6.9	7.1
100000	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.5	7.5	7.1	7.1	6.9	6.9	6.9	7.0
110000	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.5	7.5	7.1	7.1	6.9	6.9	6.9	7.0
120000	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.6	7.1	7.1	7.1	6.9	6.9	6.9	7.0
130000	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.6	7.2	7.1	7.1	6.9	6.9	6.9	7.0
140000	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.6	7.1	7.1	7.1	6.9	6.9	6.9	7.0
150000	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.6	7.2	7.1	7.1	6.9	6.9	6.9	7.0
160000	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.6	7.1	7.1	7.1	6.9	6.9	6.9	7.0
170000	7.5	7.6	7.5	7.5	7.6	7.6	7.5	7.6	7.2	7.1	7.1	6.9	6.9	6.9	7.0
180000	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.6	7.2	7.1	7.1	6.9	6.9	6.9	7.0
190000	7.5	7.6	7.5	7.5	7.6	7.6	7.5	7.6	7.2	7.1	7.1	6.9	6.9	7.0	7.0
200000	7.6	7.6	7.5	7.5	7.5	7.6	7.5	7.6	7.2	7.1	7.1	6.9	6.9	7.0	7.0
210000	7.5	7.6	7.5	7.5	7.6	7.6	7.5	7.6	7.2	7.1	7.1	6.9	6.9	7.0	7.0
220000	7.5	7.6	7.5	7.5	7.6	7.6	7.5	7.6	7.2	7.1	7.1	6.9	6.9	7.0	7.0
230000	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.1	7.1	7.0	6.9	6.9	7.0	7.0
Daily Max	7.6	7.6	7.6	7.5	7.6	7.6	7.5	7.6	7.6	7.2	7.1	7.0	6.9	7.0	7.1
Daily Min	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.1	7.1	7.0	6.9	6.9	6.9	7.0
Average	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.3	7.1	7.1	6.9	6.9	6.9	7.0

Johnson Falls Tailwater pH Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	7.0	7.0	7.0	7.4	7.4	7.3	7.3	7.3	7.4	7.4	7.5	7.6	7.4	7.4	7.5	7.6
10000	7.0	7.0	7.0	7.4	7.4	7.3	7.3	7.3	7.4	7.4	7.4	7.6	7.5	7.4	7.5	7.6
20000	7.0	7.0	7.0	7.4	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.6	7.4	7.4	7.6	7.6
30000	7.0	7.0	7.0	7.6	7.3	7.3	7.4	7.3	7.4	7.4	7.5	7.5	7.4	7.4	7.6	7.6
40000	7.0	7.0	7.0	7.5	7.4	7.3	7.3	7.3	7.4	7.4	7.5	7.6	7.4	7.4	7.6	7.6
50000	7.0	7.0	7.0	7.4	7.4	7.3	7.3	7.4	7.4	7.4	7.5	7.6	7.4	7.4	7.6	7.6
60000	7.0	7.0	7.0	7.5	7.4	7.3	7.3	7.3	7.4	7.5	7.5	7.6	7.4	7.4	7.6	7.6
70000	7.0	7.0	7.0	7.4	7.3	7.3	7.3	7.4	7.4	7.4	7.5	7.5	7.4	7.4	7.6	7.6
80000	7.0	7.0	7.0	7.4	7.4	7.3	7.4	7.4	7.4	7.5	7.5	7.6	7.4	7.4	7.6	7.6
90000	7.0	7.0	7.3	7.5	7.4	7.3	7.3	7.4	7.4	7.5	7.5	7.6	7.4	7.5	7.6	7.5
100000	7.0	7.0	7.3	7.4	7.4	7.4	7.3	7.4	7.4	7.5	7.5	7.6	7.4	7.4	7.6	7.5
110000	7.0	7.0	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.6	7.4	7.5	7.6	7.5
120000	7.0	7.0	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.4	7.4	7.4	7.6	7.5
130000	7.0	7.0	7.3	7.4	7.3	7.3	7.4	7.4	7.4	7.5	7.5	7.4	7.4	7.5	7.6	7.5
140000	7.0	7.0	7.3	7.4	7.4	7.4	7.3	7.4	7.4	7.5	7.6	7.4	7.4	7.5	7.6	7.5
150000	7.0	7.0	7.3	7.4	7.4	7.4	7.3	7.3	7.4	7.5	7.6	7.4	7.4	7.5	7.6	7.5
160000	7.0	7.0	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.6	7.4	7.4	7.5	7.6	7.5
170000	7.0	7.0	7.3	7.4	7.3	7.3	7.3	7.4	7.4	7.5	7.5	7.4	7.4	7.5	7.6	7.5
180000	7.0	7.0	7.2	7.4	7.3	7.3	7.3	7.4	7.4	7.5	7.6	7.4	7.4	7.5	7.6	7.5
190000	7.0	7.0	7.4	7.4	7.4	7.4	7.3	7.4	7.3	7.5	7.6	7.4	7.5	7.5	7.6	7.5
200000	7.0	7.0	7.3	7.4	7.4	7.4	7.3	7.4	7.4	7.5	7.6	7.4	7.5	7.5	7.6	7.5
210000	7.0	7.0	7.3	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.6	7.4	7.4	7.5	7.6	7.5
220000	7.0	7.0	7.4	7.4	7.3	7.3	7.3	7.4	7.3	7.4	7.5	7.4	7.4	7.5	7.6	7.5
230000	7.0	7.1	7.4	7.3	7.3	7.4	7.4	7.4	7.4	7.5	7.6	7.4	7.4	7.5	7.6	7.5
Daily Max	7.0	7.1	7.4	7.6	7.4	7.4	7.4	7.4	7.4	7.5	7.6	7.6	7.5	7.5	7.6	7.6
Daily Min	7.0	7.0	7.0	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.4	7.4	7.5	7.5
Average	7.0	7.0	7.2	7.4	7.4	7.3	7.3	7.4	7.4	7.5	7.5	7.5	7.4	7.5	7.6	7.5
License maximum pH: 9																
License minimum pH: 6																

Johnson Falls Tailwater pH Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.5	7.5	7.5	7.4	7.4	7.5	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
10000	7.6	7.5	7.5	7.4	7.4	7.5	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
20000	7.5	7.5	7.5	7.5	7.4	7.5	7.7	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8
30000	7.5	7.5	7.5	7.4	7.4	7.5	7.7	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8
40000	7.5	7.5	7.4	7.4	7.4	7.5	7.7	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8
50000	7.5	7.5	7.5	7.4	7.4	7.5	7.7	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8
60000	7.5	7.5	7.4	7.4	7.4	7.5	7.7	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8
70000	7.5	7.5	7.4	7.4	7.4	7.5	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
80000	7.5	7.5	7.4	7.4	7.4	7.5	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
90000	7.5	7.5	7.4	7.4	7.4	7.5	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
100000	7.5	7.5	7.4	7.4	7.4	7.5	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
110000	7.5	7.5	7.4	7.4	7.4	7.5	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
120000	7.5	7.5	7.4	7.4	7.4	7.5	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
130000	7.5	7.4	7.4	7.4	7.4	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
140000	7.5	7.5	7.5	7.4	7.4	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.8	7.8
150000	7.5	7.4	7.5	7.4	7.4	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.8	7.8
160000	7.5	7.5	7.5	7.4	7.4	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
170000	7.5	7.4	7.5	7.4	7.4	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
180000	7.5	7.4	7.4	7.4	7.4	7.8	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
190000	7.5	7.4	7.4	7.4	7.4	7.8	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
200000	7.5	7.5	7.4	7.4	7.4	7.8	7.7	7.7	7.8	7.8	7.8	7.7	7.8	7.8	7.8
210000	7.5	7.5	7.4	7.4	7.4	7.8	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
220000	7.5	7.4	7.5	7.4	7.4	7.8	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8
230000	7.5	7.5	7.5	7.4	7.5	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Daily Max	7.6	7.5	7.5	7.5	7.5	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.8	7.8
Daily Min	7.5	7.4	7.4	7.4	7.4	7.5	7.7	7.7	7.7	7.8	7.8	7.7	7.8	7.8	7.8
Average	7.5	7.5	7.4	7.4	7.4	7.6	7.7	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8

Johnson Falls Tailwater pH Summary - September 2011

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

License maximum pH: 9

License minimum pH: 6

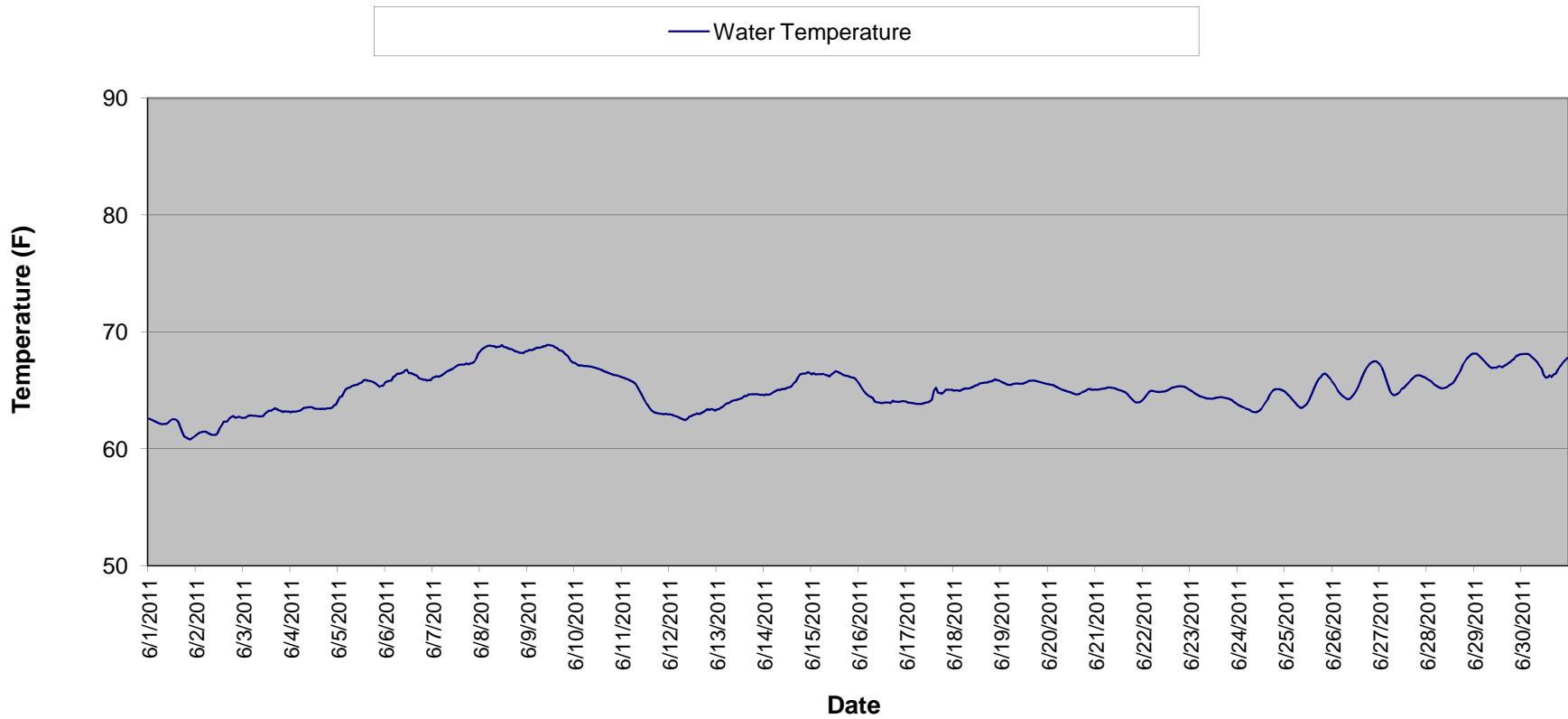
Missing data due to equipment maintenance.

Monitor relocated downstream approximately 100' on 9/9/11 between 13:00 and 14:00 to keep monitor in flowing water as powerhouse was off-line.

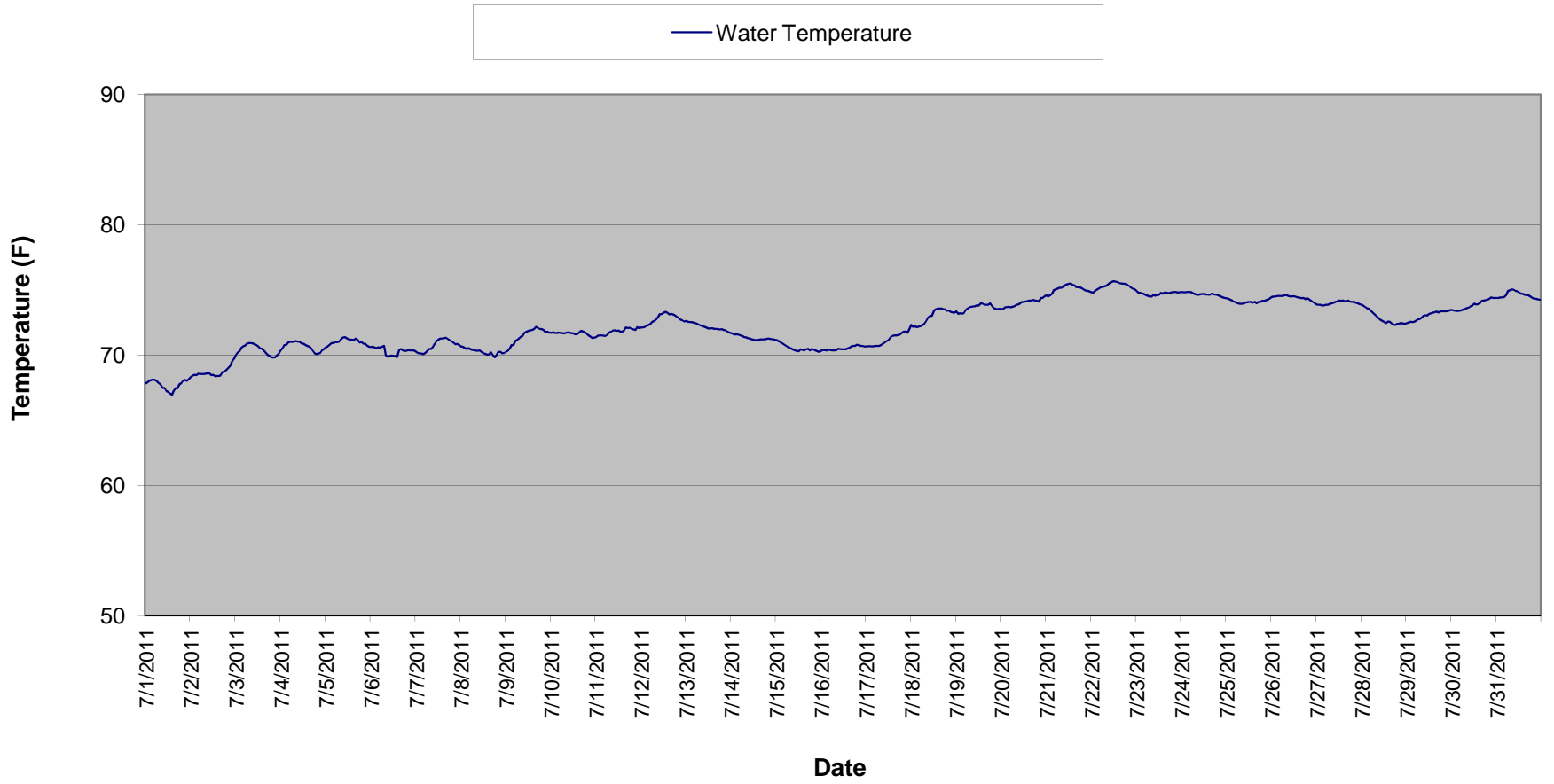
Johnson Falls Tailwater pH Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	7.7	7.6	7.8	8.0	8.0	8.0	7.8	8.0	8.0	8.0	8.0	7.9	7.9	8.0
10000	7.7	7.7	7.7	8.1	8.0	8.0	7.8	8.0	8.0	7.9	8.0	8.0	7.9	8.0
20000	7.7	7.7	7.7	8.0	8.0	8.0	7.8	8.0	8.0	8.0	8.0	7.9	7.9	8.0
30000	7.7	7.7	7.7	8.0	8.0	8.0	7.8	7.9	8.0	8.0	8.0	7.9	7.9	8.0
40000	7.7	7.8	7.7	8.0	8.0	8.0	7.9	7.8	8.0	8.0	8.0	7.9	7.9	8.0
50000	7.7	7.8	7.7	8.0	7.9	8.0	7.9	7.8	7.9	8.0	7.9	7.8	7.9	8.0
60000	7.8	7.8	7.7	8.0	7.8	7.9	7.9	7.9	7.9	8.0	7.9	7.9	8.0	7.9
70000	7.8	7.8	7.7	8.0	7.8	7.9	7.9	7.9	7.9	8.0	7.9	7.9	8.0	7.9
80000	7.8	7.8	7.7	8.0	7.9	8.0	7.9	8.0	7.9	8.0	7.9	8.0	8.0	7.8
90000	7.9	7.8	7.7	8.1	8.0	8.0	8.0	8.0	7.9	8.0	7.9	8.0	8.0	7.8
100000	7.9	7.9	7.7	8.1	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.9	8.0	7.9
110000	8.0	7.9	7.8	8.1	8.1	8.1	8.1	8.0	7.9	8.0	8.0	8.0	8.0	7.9
120000	7.8	7.9	7.7	8.1	8.1	8.1	8.1	8.0	8.0	8.0	7.9	8.0	8.0	7.8
130000	7.9	8.0	7.8	8.1	8.1	8.1	8.1	8.1	8.0	7.9	8.0	7.9	8.0	7.9
140000	7.9	7.9	8.2	8.1	8.1	8.1	8.1	8.1	8.0	7.9	7.9	8.0	8.0	8.0
150000	7.9	7.9	8.3	8.1	8.1	7.8	7.9	8.0	8.0	8.0	8.0	7.9	8.0	8.0
160000	7.9	7.8	8.3	8.1	8.1	7.8	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0
170000	7.8	7.8	8.1	8.1	8.1	8.0	7.9	8.0	8.0	8.0	8.0	7.9	8.0	8.0
180000	7.8	7.8	8.1	8.1	8.1	8.0	7.8	8.0	8.0	8.0	7.9	8.0	8.0	7.9
190000	7.7	7.8	8.1	8.1	8.1	8.0	7.8	8.0	8.0	8.0	8.0	8.0	8.0	7.8
200000	7.8	7.8	8.1	8.0	8.0	8.0	7.9	8.0	8.0	8.0	7.9	8.0	8.0	7.8
210000	7.7	7.8	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	7.8
220000	7.7	7.8	8.1	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0	7.9	8.0	7.8
230000	7.7	7.8	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0	7.9	8.0	7.8
Daily Max	8.0	8.0	8.3	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0	8.0	8.0
Daily Min	7.7	7.6	7.7	8.0	7.8	7.8	7.8	7.8	7.9	7.9	7.9	7.8	7.9	7.8
Average	7.8	7.8	7.9	8.1	8.0	8.0	7.9	8.0	8.0	8.0	7.9	7.9	8.0	7.9

### Johnson Falls Tailwater Temperature - June 2011

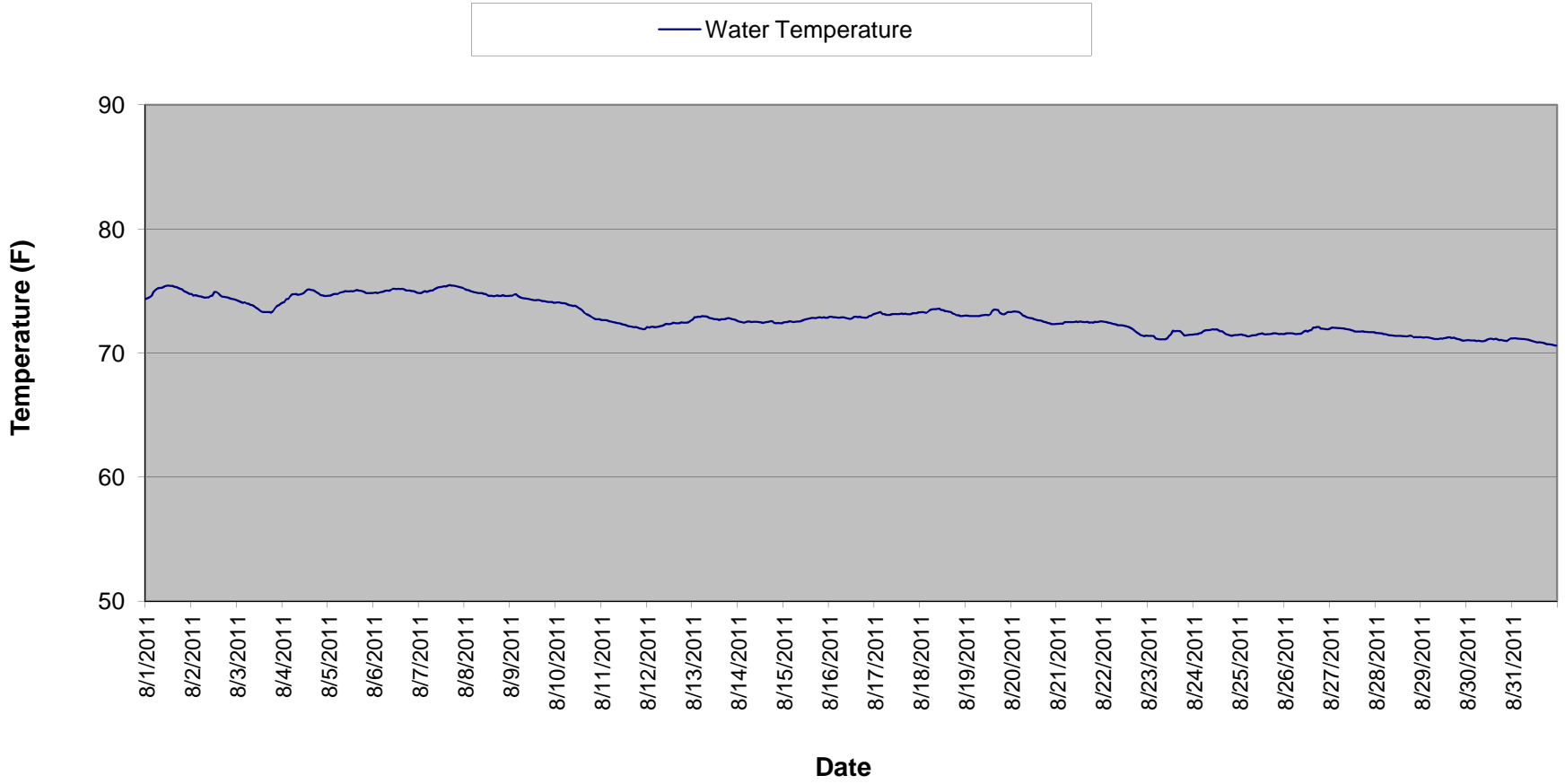


### Johnson Falls Tailwater Temperature - July 2011

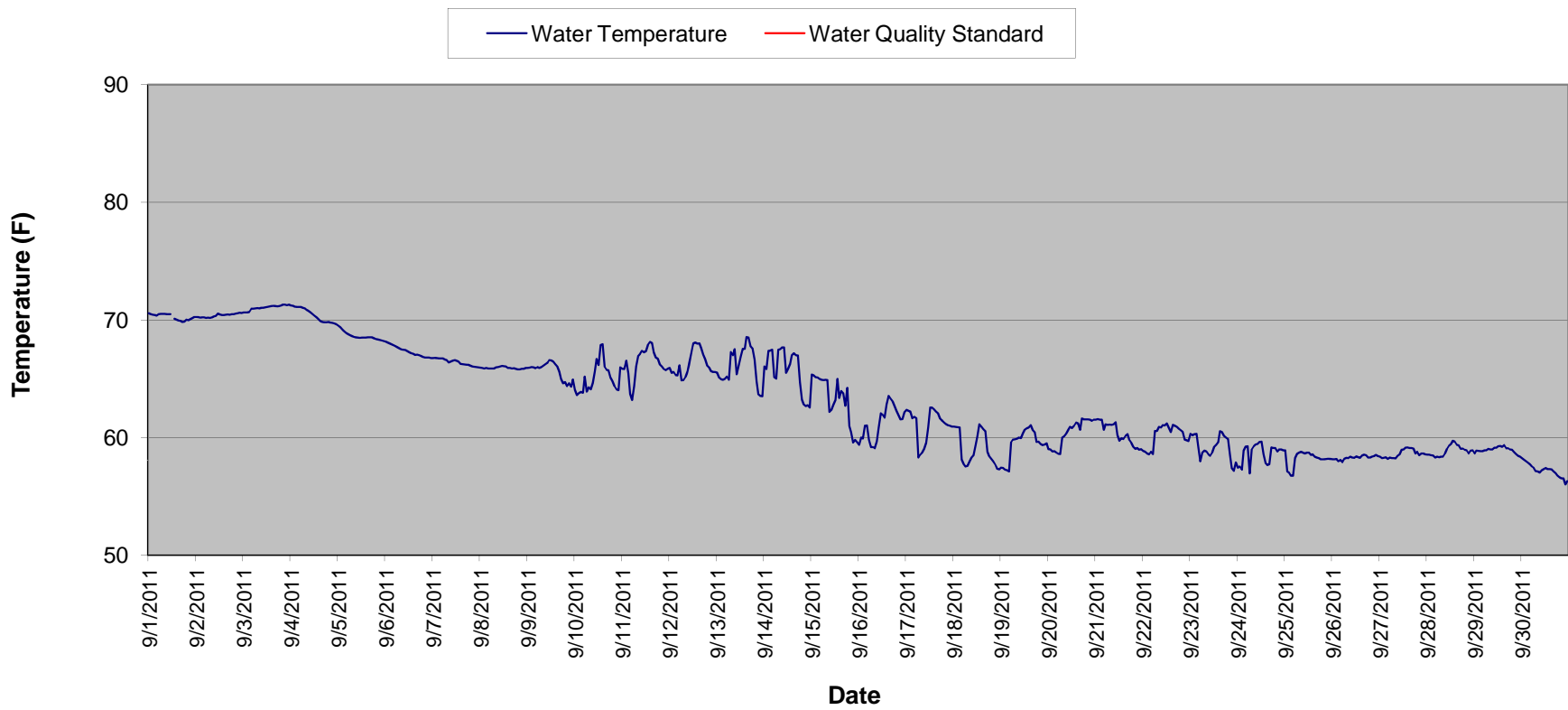




### Johnson Falls Tailwater Temperature - August 2011



### Johnson Falls Tailwater Temperature - September 2011



Johnson Falls Tailwater Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	62.6	61.1	62.6	63.1	64.1	65.7	66.1	68.3	68.4	67.3	66.1	62.9	63.4	64.6	66.3	65.6
10000	62.5	61.3	62.6	63.2	64.4	65.8	66.1	68.5	68.5	67.2	66.1	62.9	63.4	64.6	66.5	65.3
20000	62.5	61.4	62.8	63.2	64.5	65.8	66.2	68.6	68.4	67.1	66.0	62.9	63.5	64.6	66.4	65.0
30000	62.3	61.4	62.8	63.2	64.8	65.8	66.2	68.7	68.5	67.1	65.9	62.8	63.6	64.6	66.4	64.8
40000	62.3	61.5	62.8	63.2	65.1	66.1	66.2	68.8	68.6	67.1	65.8	62.7	63.8	64.8	66.4	64.6
50000	62.2	61.4	62.8	63.3	65.2	66.2	66.3	68.8	68.6	67.1	65.8	62.6	63.9	64.9	66.4	64.5
60000	62.1	61.4	62.8	63.4	65.2	66.4	66.5	68.8	68.6	67.1	65.7	62.6	63.9	65.0	66.4	64.4
70000	62.1	61.3	62.8	63.5	65.4	66.4	66.6	68.8	68.7	67.0	65.5	62.5	64.0	65.0	66.3	64.3
80000	62.1	61.2	62.8	63.5	65.4	66.5	66.7	68.7	68.8	67.0	65.2	62.5	64.1	65.0	66.3	64.0
90000	62.1	61.2	62.8	63.6	65.5	66.5	66.7	68.7	68.8	67.0	64.9	62.5	64.1	65.1	66.2	64.0
100000	62.3	61.2	62.8	63.6	65.5	66.7	66.8	68.7	68.9	66.9	64.6	62.7	64.2	65.1	66.3	64.0
110000	62.4	61.3	63.0	63.5	65.6	66.8	67.0	68.9	68.9	66.9	64.2	62.8	64.2	65.2	66.5	63.9
120000	62.5	61.7	63.1	63.4	65.7	66.5	67.1	68.7	68.8	66.8	63.9	62.9	64.3	65.2	66.6	63.9
130000	62.5	62.0	63.3	63.4	65.9	66.5	67.2	68.7	68.8	66.8	63.7	62.9	64.3	65.3	66.6	64.0
140000	62.5	62.3	63.2	63.4	65.9	66.4	67.2	68.6	68.6	66.7	63.5	63.0	64.5	65.4	66.5	64.0
150000	62.3	62.3	63.4	63.4	65.8	66.3	67.2	68.5	68.6	66.6	63.3	63.0	64.5	65.6	66.4	64.0
160000	61.9	62.3	63.5	63.4	65.8	66.3	67.2	68.5	68.4	66.5	63.1	63.1	64.6	65.8	66.3	63.9
170000	61.4	62.6	63.4	63.4	65.8	66.0	67.3	68.4	68.4	66.5	63.1	63.1	64.6	66.1	66.3	64.1
180000	61.1	62.7	63.3	63.4	65.7	66.0	67.2	68.3	68.3	66.4	63.0	63.2	64.7	66.3	66.2	64.0
190000	61.0	62.8	63.2	63.5	65.6	65.9	67.3	68.3	68.1	66.4	63.0	63.4	64.7	66.4	66.2	64.0
200000	60.9	62.6	63.1	63.5	65.4	65.9	67.3	68.2	68.0	66.3	63.0	63.3	64.7	66.4	66.1	64.0
210000	60.8	62.7	63.2	63.5	65.3	65.8	67.4	68.2	67.8	66.3	62.9	63.4	64.7	66.4	66.1	64.0
220000	60.9	62.7	63.2	63.7	65.4	65.9	67.7	68.2	67.5	66.2	63.0	63.4	64.6	66.6	66.0	64.1
230000	61.0	62.7	63.2	63.8	65.4	65.9	68.1	68.3	67.4	66.2	62.9	63.3	64.6	66.5	65.8	64.1
Daily Max	62.6	62.8	63.5	63.8	65.9	66.8	68.1	68.9	68.9	67.3	66.1	63.4	64.7	66.6	66.6	65.6
Daily Min	60.8	61.1	62.6	63.1	64.1	65.7	66.1	68.2	67.4	66.2	62.9	62.5	63.4	64.6	65.8	63.9
Average	61.9	61.9	63.0	63.4	65.3	66.2	66.9	68.6	68.4	66.8	64.3	62.9	64.2	65.4	66.3	64.3

Monthly average: 65.2

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

Johnson Falls Tailwater Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	64.0	65.0	65.7	65.5	65.1	64.2	65.0	63.8	64.9	65.7	67.2	66.0	68.1	68.1
10000	63.9	65.0	65.7	65.5	65.0	64.4	64.9	63.7	64.7	65.4	66.9	65.9	68.1	68.1
20000	63.9	65.0	65.6	65.5	65.1	64.7	64.7	63.6	64.5	65.2	66.5	65.8	68.0	68.1
30000	63.9	64.9	65.5	65.4	65.1	64.9	64.6	63.5	64.3	64.9	66.0	65.6	67.8	68.1
40000	63.9	65.0	65.5	65.3	65.1	65.0	64.6	63.4	64.1	64.7	65.5	65.4	67.7	68.0
50000	63.8	65.1	65.5	65.2	65.2	64.9	64.5	63.4	64.0	64.5	65.0	65.3	67.5	67.8
60000	63.8	65.2	65.5	65.1	65.2	64.9	64.4	63.3	63.7	64.4	64.7	65.2	67.3	67.7
70000	63.8	65.1	65.6	65.0	65.2	64.9	64.4	63.2	63.6	64.3	64.6	65.2	67.1	67.5
80000	63.8	65.2	65.6	65.0	65.2	64.9	64.3	63.1	63.5	64.2	64.6	65.2	67.0	67.4
90000	63.9	65.2	65.6	64.9	65.2	64.9	64.3	63.1	63.5	64.3	64.7	65.2	66.9	67.1
100000	64.0	65.3	65.6	64.9	65.1	64.9	64.3	63.2	63.7	64.5	64.9	65.3	67.0	66.8
110000	64.0	65.4	65.6	64.8	65.1	64.9	64.3	63.3	63.8	64.7	65.1	65.4	66.9	66.3
120000	64.1	65.4	65.6	64.8	65.0	65.0	64.3	63.4	64.2	65.0	65.2	65.5	67.0	66.1
130000	64.2	65.6	65.7	64.7	65.0	65.0	64.4	63.7	64.5	65.3	65.4	65.6	67.0	66.1
140000	65.0	65.6	65.8	64.7	64.9	65.2	64.4	64.0	64.9	65.7	65.6	65.8	67.0	66.3
150000	65.2	65.6	65.8	64.7	64.8	65.2	64.4	64.2	65.3	66.1	65.7	66.1	67.1	66.1
160000	64.8	65.7	65.8	64.7	64.7	65.3	64.4	64.5	65.7	66.5	65.9	66.4	67.2	66.4
170000	64.8	65.7	65.8	64.8	64.5	65.3	64.4	64.8	65.9	66.8	66.1	66.7	67.3	66.4
180000	64.7	65.7	65.8	64.9	64.3	65.3	64.3	65.0	66.1	67.1	66.2	67.2	67.4	66.7
190000	64.9	65.8	65.7	65.0	64.1	65.3	64.3	65.1	66.3	67.3	66.3	67.5	67.6	67.0
200000	65.0	65.8	65.7	65.1	64.0	65.3	64.2	65.1	66.4	67.4	66.3	67.7	67.7	67.2
210000	65.0	65.9	65.6	65.1	64.0	65.3	64.1	65.1	66.3	67.5	66.2	67.9	67.9	67.4
220000	65.0	65.9	65.6	65.0	64.0	65.2	64.0	65.0	66.2	67.5	66.2	68.0	68.0	67.6
230000	65.0	65.8	65.6	65.0	64.1	65.1	63.9	65.0	65.9	67.4	66.1	68.1	68.1	67.8
Daily Max	65.2	65.9	65.8	65.5	65.2	65.3	65.0	65.1	66.4	67.5	67.2	68.1	68.1	68.1
Daily Min	63.8	64.9	65.5	64.7	64.0	64.2	63.9	63.1	63.5	64.2	64.6	65.2	66.9	66.1
Average	64.4	65.4	65.6	65.0	64.8	65.0	64.4	64.0	64.8	65.7	65.7	66.2	67.4	67.2

Johnson Falls Tailwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	67.8	68.3	70.0	70.4	70.6	70.6	70.3	70.7	70.3	71.7	71.4	72.1	72.6	71.7	71.2	70.3
10000	67.9	68.4	70.2	70.5	70.7	70.6	70.2	70.6	70.3	71.7	71.5	72.1	72.6	71.6	71.1	70.4
20000	68.0	68.5	70.3	70.8	70.8	70.6	70.1	70.5	70.5	71.7	71.5	72.2	72.5	71.6	71.0	70.4
30000	68.1	68.5	70.6	70.8	70.9	70.5	70.1	70.5	70.8	71.7	71.5	72.2	72.5	71.6	70.9	70.4
40000	68.1	68.6	70.7	71.0	70.9	70.6	70.1	70.5	70.8	71.7	71.5	72.3	72.5	71.5	70.8	70.4
50000	68.1	68.5	70.7	71.0	71.0	70.6	70.2	70.5	71.1	71.7	71.5	72.4	72.4	71.5	70.7	70.4
60000	68.0	68.5	70.9	71.0	71.0	70.6	70.3	70.4	71.2	71.7	71.5	72.6	72.4	71.5	70.6	70.4
70000	67.8	68.5	70.9	71.0	71.0	70.7	70.4	70.4	71.3	71.7	71.7	72.6	72.3	71.4	70.5	70.4
80000	67.7	68.6	70.9	71.1	71.2	70.0	70.5	70.3	71.4	71.7	71.8	72.7	72.3	71.3	70.5	70.4
90000	67.5	68.6	70.9	71.0	71.3	69.9	70.6	70.3	71.5	71.7	71.9	72.9	72.2	71.3	70.4	70.5
100000	67.5	68.6	70.8	71.0	71.4	69.9	70.8	70.3	71.7	71.7	71.9	73.1	72.2	71.3	70.4	70.5
110000	67.2	68.5	70.8	70.9	71.3	70.0	71.1	70.2	71.8	71.7	71.9	73.1	72.1	71.2	70.3	70.4
120000	67.2	68.5	70.6	70.9	71.2	69.9	71.2	70.1	71.9	71.7	71.9	73.2	72.0	71.2	70.3	70.4
130000	67.0	68.4	70.5	70.8	71.2	69.9	71.3	70.1	71.9	71.6	71.8	73.3	72.1	71.1	70.4	70.4
140000	67.0	68.4	70.5	70.7	71.2	69.9	71.3	70.0	71.9	71.6	71.8	73.2	72.1	71.2	70.4	70.5
150000	67.3	68.4	70.3	70.6	71.2	70.4	71.3	70.0	72.0	71.7	71.9	73.1	72.0	71.2	70.4	70.6
160000	67.5	68.4	70.2	70.5	71.3	70.4	71.3	70.2	72.2	71.9	72.1	73.2	72.0	71.2	70.4	70.7
170000	67.4	68.7	70.0	70.3	71.2	70.4	71.2	70.0	72.1	71.8	72.1	73.1	72.0	71.2	70.5	70.7
180000	67.8	68.7	69.9	70.1	71.0	70.3	71.1	69.8	72.0	71.7	72.1	73.1	72.0	71.2	70.4	70.7
190000	67.8	68.8	69.8	70.1	71.0	70.3	71.0	70.0	72.0	71.6	72.0	73.0	72.0	71.2	70.4	70.8
200000	68.0	69.0	69.8	70.1	70.9	70.4	71.0	70.3	71.9	71.5	72.0	72.8	71.9	71.3	70.4	70.8
210000	68.1	69.2	69.8	70.2	70.8	70.4	70.8	70.3	71.8	71.4	71.9	72.7	71.9	71.2	70.3	70.7
220000	68.0	69.5	70.0	70.3	70.7	70.4	70.8	70.1	71.8	71.3	72.1	72.7	71.8	71.2	70.3	70.7
230000	68.1	69.7	70.1	70.5	70.6	70.3	70.8	70.2	71.7	71.3	72.1	72.6	71.7	71.2	70.3	70.6
Daily Max	68.1	69.7	70.9	71.1	71.4	70.7	71.3	70.7	72.2	71.9	72.1	73.3	72.6	71.7	71.2	70.8
Daily Min	67.0	68.3	69.8	70.1	70.6	69.9	70.1	69.8	70.3	71.3	71.4	72.1	71.7	71.1	70.3	70.3
Average	67.7	68.7	70.4	70.7	71.0	70.3	70.7	70.3	71.5	71.6	71.8	72.8	72.2	71.3	70.5	70.5

Monthly average: 72.3

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

Johnson Falls Tailwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	70.7	72.3	73.3	73.5	74.6	74.8	74.9	74.8	74.4	74.4	73.9	73.9	72.4	73.5	74.4
10000	70.7	72.2	73.2	73.5	74.5	74.8	74.8	74.8	74.3	74.5	73.9	73.8	72.5	73.4	74.4
20000	70.7	72.2	73.2	73.7	74.6	74.9	74.8	74.8	74.2	74.5	73.9	73.7	72.6	73.4	74.4
30000	70.7	72.1	73.2	73.7	74.7	75.0	74.7	74.8	74.2	74.5	73.8	73.6	72.5	73.4	74.4
40000	70.7	72.2	73.2	73.7	75.0	75.1	74.7	74.8	74.1	74.5	73.8	73.5	72.6	73.4	74.4
50000	70.7	72.2	73.4	73.7	75.0	75.2	74.6	74.8	74.0	74.5	73.9	73.4	72.6	73.4	74.6
60000	70.7	72.3	73.6	73.7	75.1	75.2	74.6	74.8	74.0	74.5	73.9	73.3	72.7	73.5	74.9
70000	70.7	72.4	73.7	73.7	75.2	75.3	74.5	74.7	73.9	74.6	73.9	73.1	72.8	73.5	75.0
80000	70.8	72.6	73.7	73.9	75.2	75.3	74.5	74.6	73.9	74.6	74.0	73.0	72.9	73.6	75.0
90000	70.9	72.9	73.7	73.9	75.2	75.5	74.6	74.6	74.0	74.5	74.0	72.8	73.0	73.6	75.0
100000	71.0	73.0	73.7	74.0	75.4	75.6	74.6	74.7	74.0	74.5	74.1	72.7	73.1	73.7	74.9
110000	71.1	73.0	73.8	74.1	75.4	75.6	74.6	74.7	74.0	74.5	74.1	72.6	73.0	73.8	74.9
120000	71.2	73.4	73.8	74.1	75.5	75.7	74.6	74.7	74.1	74.5	74.2	72.6	73.2	73.9	74.8
130000	71.4	73.5	74.0	74.1	75.5	75.6	74.8	74.6	74.1	74.5	74.2	72.4	73.2	73.9	74.7
140000	71.5	73.6	73.9	74.1	75.4	75.6	74.7	74.6	74.0	74.4	74.2	72.6	73.2	73.9	74.7
150000	71.5	73.6	73.9	74.2	75.3	75.5	74.8	74.6	74.1	74.4	74.1	72.6	73.3	74.0	74.6
160000	71.5	73.6	73.9	74.2	75.2	75.5	74.8	74.7	74.0	74.4	74.1	72.4	73.3	74.2	74.6
170000	71.5	73.5	73.9	74.2	75.2	75.5	74.8	74.7	74.1	74.4	74.2	72.3	73.3	74.2	74.6
180000	71.6	73.5	74.0	74.2	75.2	75.5	74.8	74.6	74.1	74.3	74.1	72.3	73.3	74.2	74.5
190000	71.7	73.4	73.7	74.2	75.1	75.4	74.8	74.6	74.2	74.4	74.1	72.4	73.3	74.2	74.4
200000	71.8	73.4	73.6	74.1	75.0	75.3	74.8	74.6	74.1	74.3	74.1	72.4	73.4	74.3	74.3
210000	71.8	73.3	73.5	74.4	74.9	75.2	74.8	74.5	74.2	74.2	74.0	72.5	73.4	74.4	74.3
220000	71.7	73.3	73.5	74.4	74.9	75.1	74.8	74.4	74.2	74.1	74.0	72.4	73.4	74.4	74.3
230000	72.0	73.3	73.6	74.5	74.9	75.1	74.8	74.4	74.3	74.0	73.9	72.4	73.5	74.4	74.2
Daily Max	72.0	73.6	74.0	74.5	75.5	75.7	74.9	74.8	74.4	74.6	74.2	73.9	73.5	74.4	75.0
Daily Min	70.7	72.1	73.2	73.5	74.5	74.8	74.5	74.4	73.9	74.0	73.8	72.3	72.4	73.4	74.2
Average	71.2	72.9	73.6	74.0	75.1	75.3	74.7	74.7	74.1	74.4	74.0	72.9	73.0	73.8	74.6

Johnson Falls Tailwater Temperature Summary - August 2011

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

Monthly average: 72.9

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

Johnson Falls Tailwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	73.2	73.3	73.0	73.3	72.4	72.5	71.4	71.5	71.5	71.5	72.0	71.6	71.3	71.0	71.2
10000	73.2	73.3	73.0	73.3	72.4	72.5	71.4	71.5	71.5	71.6	72.1	71.6	71.2	71.0	71.2
20000	73.3	73.3	73.0	73.3	72.4	72.5	71.4	71.5	71.5	71.6	72.0	71.6	71.3	71.0	71.2
30000	73.3	73.2	73.0	73.3	72.4	72.4	71.4	71.6	71.4	71.6	72.0	71.6	71.3	71.0	71.2
40000	73.1	73.3	73.0	73.3	72.5	72.4	71.2	71.6	71.3	71.6	72.0	71.5	71.2	71.0	71.2
50000	73.1	73.5	73.0	73.2	72.5	72.4	71.1	71.8	71.3	71.5	72.0	71.5	71.2	71.0	71.1
60000	73.1	73.5	73.0	73.0	72.5	72.3	71.1	71.8	71.4	71.5	72.0	71.5	71.2	71.0	71.1
70000	73.1	73.5	73.0	73.0	72.5	72.3	71.1	71.9	71.4	71.5	72.0	71.4	71.1	71.0	71.1
80000	73.1	73.5	73.0	72.9	72.5	72.2	71.1	71.9	71.4	71.5	71.9	71.4	71.1	71.0	71.1
90000	73.1	73.6	73.1	72.8	72.5	72.2	71.1	71.9	71.5	71.6	71.9	71.4	71.1	71.0	71.0
100000	73.1	73.6	73.1	72.8	72.5	72.2	71.2	71.9	71.5	71.7	71.9	71.4	71.2	71.0	71.0
110000	73.1	73.5	73.1	72.8	72.5	72.2	71.4	71.9	71.5	71.8	71.9	71.4	71.2	71.1	70.9
120000	73.1	73.5	73.1	72.7	72.5	72.2	71.5	71.9	71.6	71.7	71.8	71.4	71.2	71.2	70.9
130000	73.1	73.4	73.1	72.7	72.5	72.1	71.8	71.9	71.5	71.8	71.7	71.4	71.2	71.2	70.8
140000	73.2	73.4	73.4	72.6	72.5	72.1	71.7	71.8	71.5	71.8	71.7	71.3	71.3	71.1	70.9
150000	73.1	73.3	73.5	72.6	72.5	72.0	71.8	71.7	71.5	72.1	71.7	71.3	71.3	71.2	70.8
160000	73.2	73.3	73.5	72.6	72.5	71.9	71.8	71.6	71.5	72.1	71.7	71.3	71.2	71.1	70.8
170000	73.1	73.2	73.5	72.5	72.4	71.8	71.8	71.5	71.5	72.1	71.7	71.4	71.2	71.0	70.8
180000	73.1	73.1	73.2	72.5	72.5	71.7	71.6	71.5	71.6	72.1	71.7	71.4	71.2	71.1	70.7
190000	73.1	73.1	73.1	72.4	72.4	71.6	71.4	71.4	71.6	72.0	71.7	71.3	71.1	71.0	70.7
200000	73.2	73.1	73.1	72.4	72.5	71.5	71.4	71.4	71.6	72.0	71.7	71.3	71.1	71.0	70.7
210000	73.2	73.0	73.2	72.3	72.5	71.4	71.5	71.4	71.5	71.9	71.7	71.3	71.0	71.0	70.7
220000	73.2	73.0	73.3	72.3	72.5	71.4	71.5	71.5	71.5	71.9	71.7	71.3	71.0	71.1	70.6
230000	73.3	73.0	73.3	72.3	72.6	71.4	71.5	71.5	71.5	71.9	71.7	71.3	71.0	71.2	70.6
Daily Max	73.3	73.6	73.5	73.3	72.6	72.5	71.8	71.9	71.6	72.1	72.1	71.6	71.3	71.2	71.2
Daily Min	73.1	73.0	73.0	72.3	72.4	71.4	71.1	71.4	71.3	71.5	71.7	71.3	71.0	71.0	70.6
Average	73.2	73.3	73.1	72.8	72.5	72.1	71.4	71.7	71.5	71.8	71.8	71.4	71.2	71.0	70.9



Johnson Falls Tailwater Temperature Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	70.6	70.3	70.6	71.2	69.5	68.2	66.8	65.9	65.9	64.1	65.9	65.9	65.5	66.0	65.4	59.4
10000	70.5	70.3	70.6	71.2	69.4	68.1	66.8	65.9	65.9	63.6	65.8	65.5	65.1	65.8	65.3	60.0
20000	70.4	70.2	70.6	71.1	69.2	68.0	66.8	65.9	66.0	63.8	66.5	65.6	65.0	67.4	65.1	59.9
30000	70.4	70.2	70.7	71.1	69.0	67.9	66.7	65.9	66.0	63.9	65.5	65.3	64.9	67.4	65.1	61.0
40000	70.4	70.2	71.0	71.1	68.9	67.9	66.7	65.9	65.9	63.8	63.7	65.3	65.0	67.5	65.0	61.0
50000	70.5	70.2	71.0	71.1	68.8	67.8	66.7	65.9	66.0	65.2	63.2	66.1	65.2	65.1	64.9	59.8
60000	70.5	70.2	71.0	71.0	68.7	67.7	66.6	65.9	65.9	63.9	64.3	64.9	64.9	65.0	64.9	59.2
70000	70.5	70.2	71.0	71.0	68.6	67.6	66.6	65.9	66.0	64.3	66.0	64.9	67.3	67.5	64.9	59.2
80000	70.5	70.2	71.0	70.9	68.6	67.5	66.4	66.0	66.1	64.1	66.9	65.2	67.0	67.5	64.9	59.1
90000	70.5	70.3	71.0	70.8	68.5	67.5	66.5	66.0	66.2	64.6	67.1	65.6	67.5	67.7	62.2	59.7
100000	70.5	70.3	71.0	70.6	68.5	67.4	66.5	66.1	66.4	65.6	67.4	66.4	65.4	67.7	62.4	60.9
110000	70.5	70.5	71.1	70.5	68.5	67.4	66.6	66.1	66.6	66.7	67.2	67.2	66.1	65.5	62.8	62.1
120000		70.5	71.1	70.3	68.5	67.2	66.5	66.1	66.6	66.2	67.4	68.0	66.9	65.8	63.2	61.9
130000	70.1	70.4	71.1	70.2	68.5	67.2	66.5	66.0	66.5	67.9	67.9	68.1	67.5	66.3	65.0	61.7
140000	70.0	70.4	71.2	70.1	68.5	67.1	66.3	65.9	66.2	67.9	68.1	68.0	67.6	67.0	63.4	62.8
150000	70.0	70.4	71.2	69.9	68.5	67.0	66.2	65.9	66.1	66.0	68.0	68.0	68.5	67.2	64.0	63.5
160000	69.9	70.5	71.2	69.8	68.5	67.0	66.2	65.9	65.6	65.8	67.2	67.6	68.5	67.0	63.8	63.3
170000	69.8	70.4	71.2	69.8	68.5	67.0	66.2	65.9	65.0	65.7	66.8	67.1	67.8	67.0	62.7	63.1
180000	69.9	70.5	71.2	69.8	68.5	66.9	66.2	65.8	64.6	65.1	66.7	66.7	67.6	64.7	64.2	62.7
190000	70.0	70.5	71.2	69.8	68.4	66.9	66.1	65.8	64.7	64.8	66.2	66.1	66.6	63.2	61.0	62.3
200000	70.0	70.5	71.3	69.8	68.3	66.8	66.1	65.8	64.4	64.4	66.1	65.9	64.8	62.8	60.5	61.9
210000	70.1	70.6	71.3	69.8	68.3	66.8	66.0	65.8	64.6	64.1	65.8	65.6	63.7	62.7	59.6	61.5
220000	70.1	70.6	71.3	69.7	68.3	66.8	66.0	65.8	64.3	64.0	65.7	65.6	63.5	62.8	59.8	61.6
230000	70.3	70.6	71.3	69.6	68.2	66.8	66.0	65.9	64.9	66.0	65.9	65.6	63.5	62.6	59.6	62.2
Daily Max	70.6	70.6	71.3	71.2	69.5	68.2	66.8	66.1	66.6	67.9	68.1	68.1	68.5	67.7	65.4	63.5
Daily Min	69.8	70.2	70.6	69.6	68.2	66.8	66.0	65.8	64.3	63.6	63.2	64.9	63.5	62.6	59.6	59.1
Average	70.3	70.4	71.0	70.4	68.6	67.4	66.4	65.9	65.7	65.1	66.3	66.3	66.1	65.8	63.3	61.2

Monthly average: 63.3

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

Missing data due to equipment maintenance.

Powerhouse off-line for scheduled maintenance starting on 9/7 at 07:00. All water, except for leakage through units, being released through gates.

Monitor relocated downstream approximately 100' on 9/9/11 between 13:00 and 14:00 to keep monitor in flowing water as powerhouse was off-line.

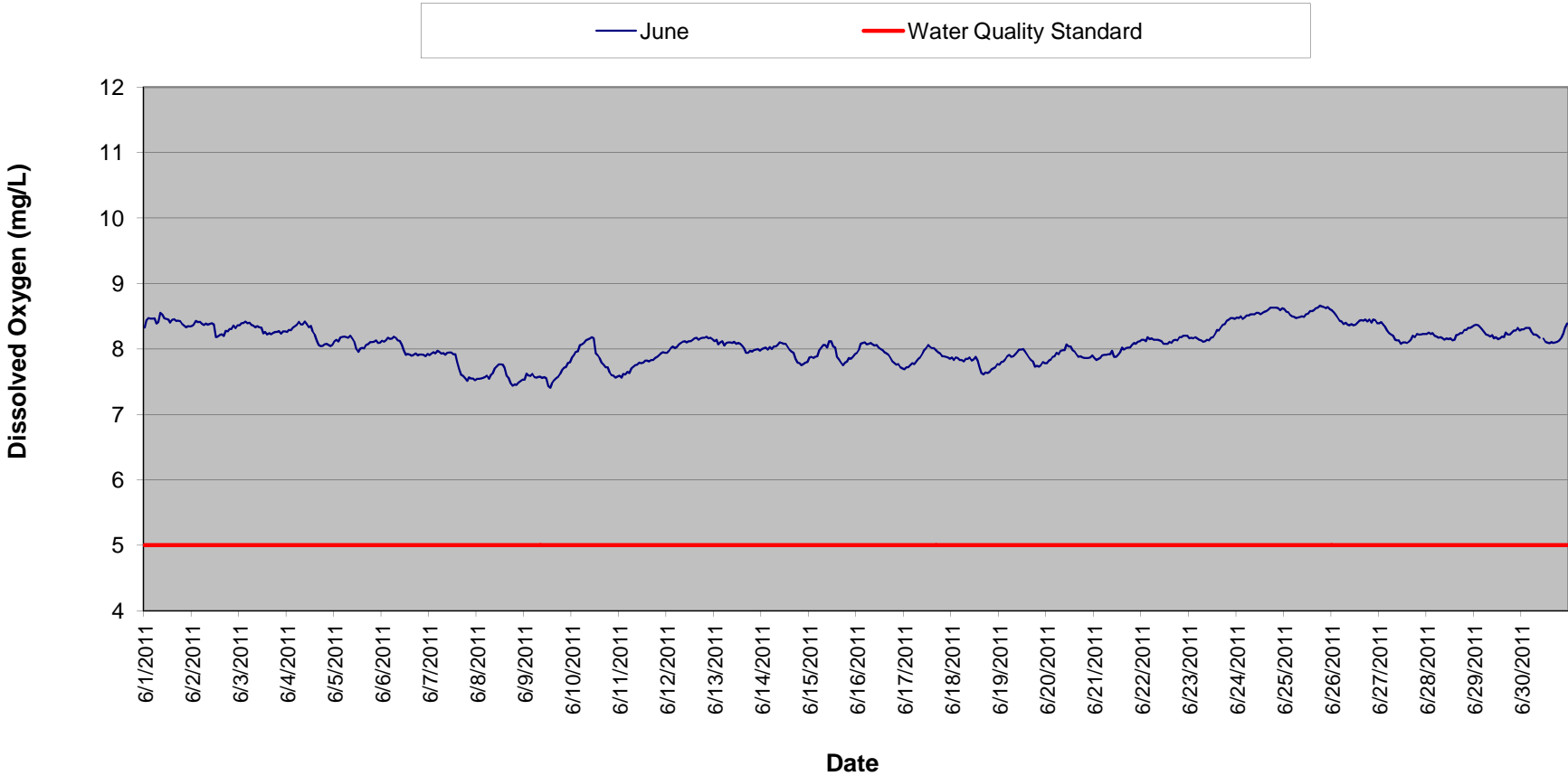
Johnson Falls Tailwater Temperature Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	62.3	60.9	57.4	59.0	61.5	58.9	60.3	57.5	58.9	58.2	58.4	58.6	58.7	58.2
10000	62.3	60.9	57.4	59.0	61.6	58.8	60.2	57.5	57.1	58.2	58.2	58.6	58.9	58.1
20000	62.2	60.9	57.3	58.8	61.5	58.7	60.3	57.3	57.0	58.2	58.3	58.5	58.9	58.0
30000	61.6	60.9	57.2	58.9	61.5	58.6	60.3	58.9	56.8	58.0	58.3	58.5	58.9	57.9
40000	61.8	58.1	57.1	58.7	60.7	58.8	59.2	59.2	56.8	58.1	58.2	58.3	58.8	57.7
50000	61.6	57.7	59.6	58.6	61.1	58.6	58.0	59.3	58.2	57.9	58.3	58.4	58.9	57.5
60000	58.3	57.5	59.8	58.6	61.1	60.6	58.7	56.9	58.6	58.2	58.3	58.3	58.9	57.4
70000	58.5	57.6	59.9	60.0	61.1	60.6	58.9	59.0	58.7	58.3	58.3	58.4	59.0	57.1
80000	58.7	58.0	59.9	60.1	61.1	60.9	58.8	59.3	58.8	58.2	58.2	58.4	59.0	57.1
90000	59.0	58.3	60.0	60.4	61.1	60.9	58.6	59.4	58.7	58.4	58.4	58.6	59.0	57.0
100000	59.6	58.5	60.0	60.7	61.3	61.1	58.4	59.5	58.7	58.3	58.6	59.0	59.1	57.2
110000	60.9	59.3	60.4	60.9	60.2	61.0	58.7	59.6	58.7	58.3	59.0	59.3	59.1	57.3
120000	62.6	60.1	60.7	60.8	59.7	61.2	59.2	59.6	58.7	58.4	59.0	59.5	59.3	57.4
130000	62.5	61.1	60.8	61.0	60.0	60.8	59.4	58.6	58.5	58.3	59.1	59.7	59.3	57.3
140000	62.4	60.9	60.9	61.3	59.9	60.5	59.6	57.8	58.6	58.3	59.2	59.7	59.2	57.3
150000	62.2	60.7	61.1	61.2	60.2	61.1	60.5	57.7	58.4	58.5	59.1	59.4	59.4	57.3
160000	62.1	60.5	60.6	60.7	60.3	61.0	60.5	57.7	58.3	58.6	59.1	59.3	59.1	57.1
170000	61.6	58.8	60.4	61.6	59.8	60.9	60.2	59.2	58.3	58.5	59.1	59.0	59.1	57.0
180000	61.4	58.4	59.6	61.6	59.6	60.8	60.0	59.1	58.2	58.3	58.6	59.1	59.0	56.8
190000	61.3	58.2	59.6	61.5	59.2	60.6	59.9	59.1	58.2	58.3	58.8	59.0	59.0	56.6
200000	61.2	58.0	59.5	61.5	59.1	60.5	58.5	58.8	58.2	58.4	58.5	58.9	58.8	56.5
210000	61.1	57.7	59.4	61.5	59.1	59.8	57.4	59.0	58.2	58.4	58.7	58.6	58.6	56.5
220000	61.0	57.3	59.4	61.4	59.0	59.8	57.2	59.0	58.2	58.5	58.7	58.9	58.5	56.0
230000	60.9	57.3	59.5	61.5	59.0	59.7	57.9	58.9	58.2	58.4	58.6	58.9	58.4	56.3
Daily Max	62.6	61.1	61.1	61.6	61.6	61.2	60.5	59.6	58.9	58.6	59.2	59.7	59.4	58.2
Daily Min	58.3	57.3	57.1	58.6	59.0	58.6	57.2	56.9	56.8	57.9	58.2	58.3	58.4	56.0
Average	61.1	59.1	59.5	60.4	60.4	60.2	59.2	58.7	58.2	58.3	58.6	58.9	58.9	57.2

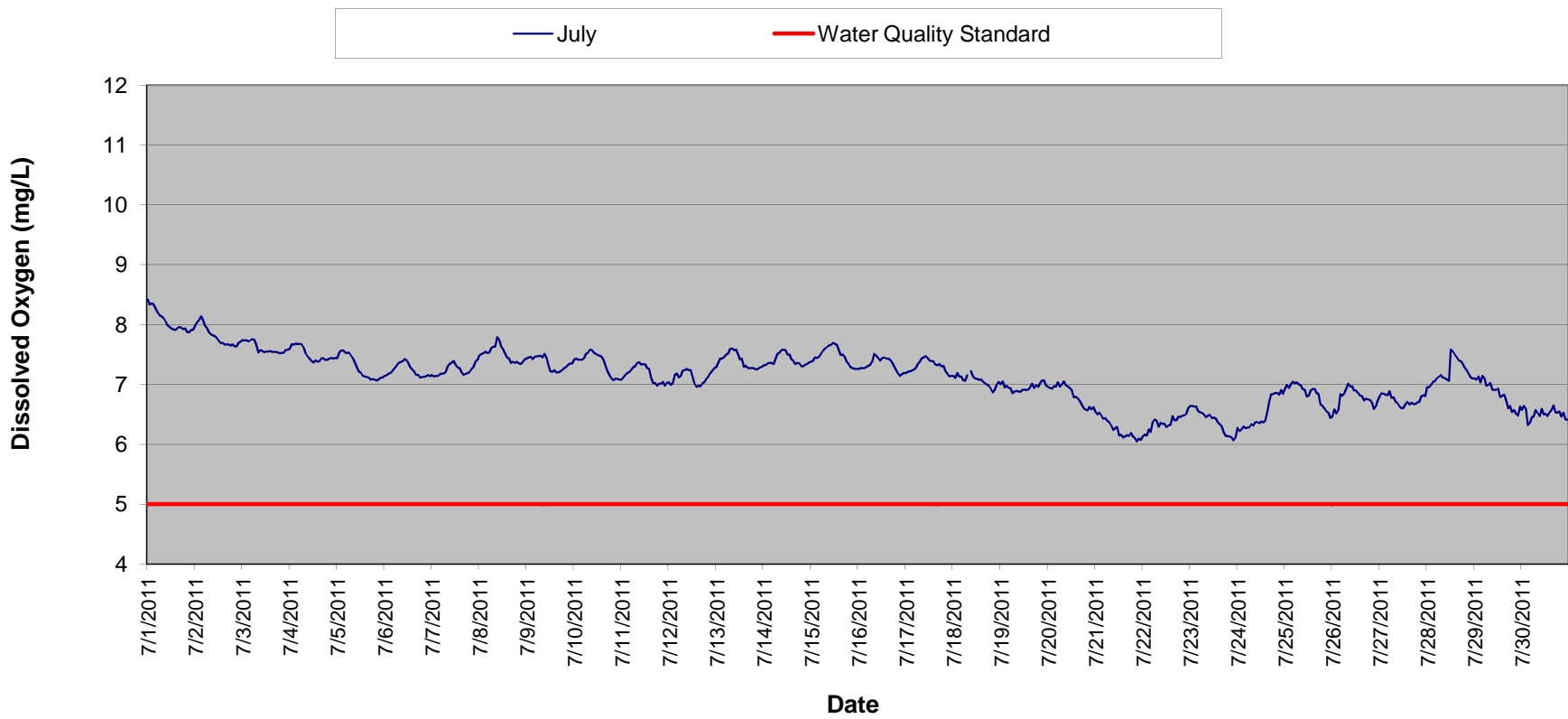
**Sandstone Rapids Hydroelectric Project**

**FERC Project No. 2546**

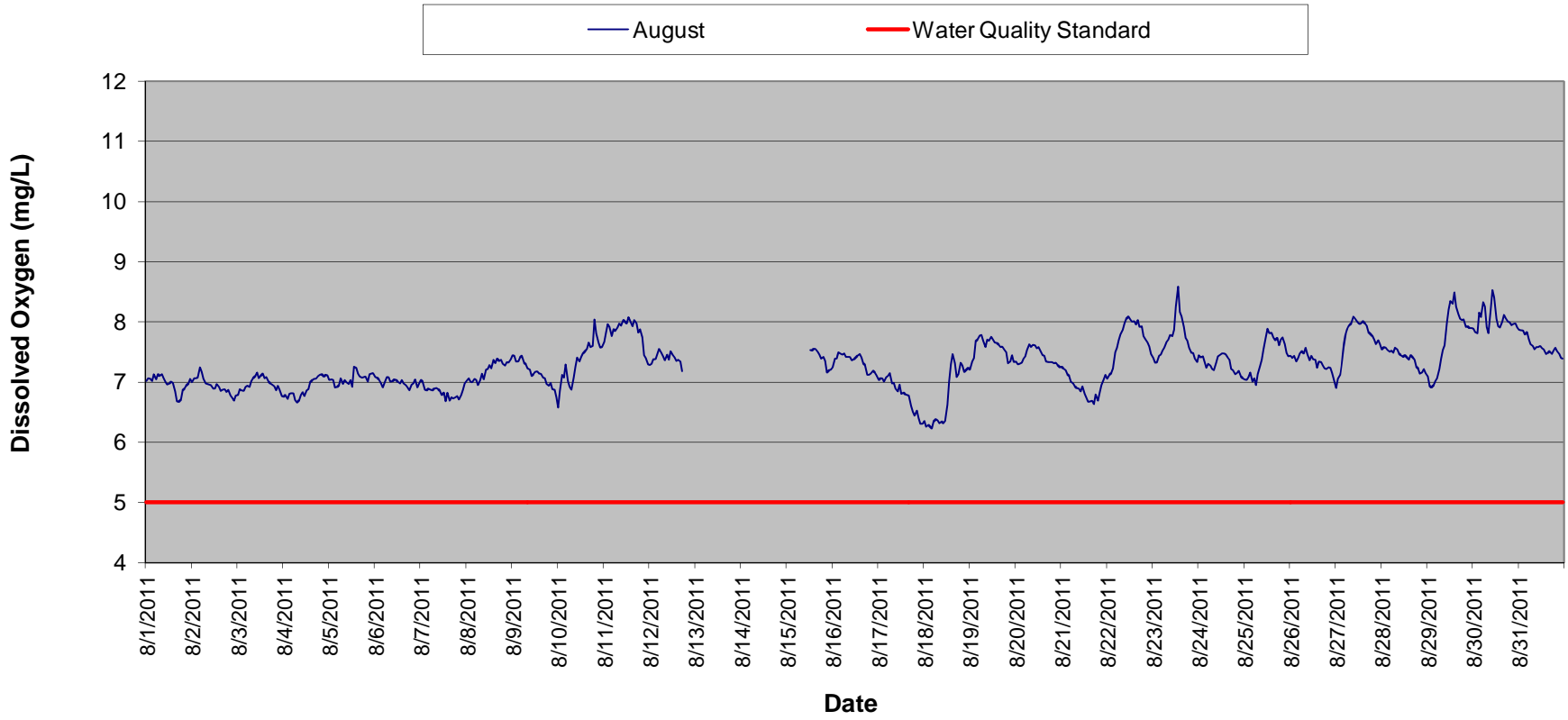
### Sandstone Rapids Dissolved Oxygen Summary - June 2011



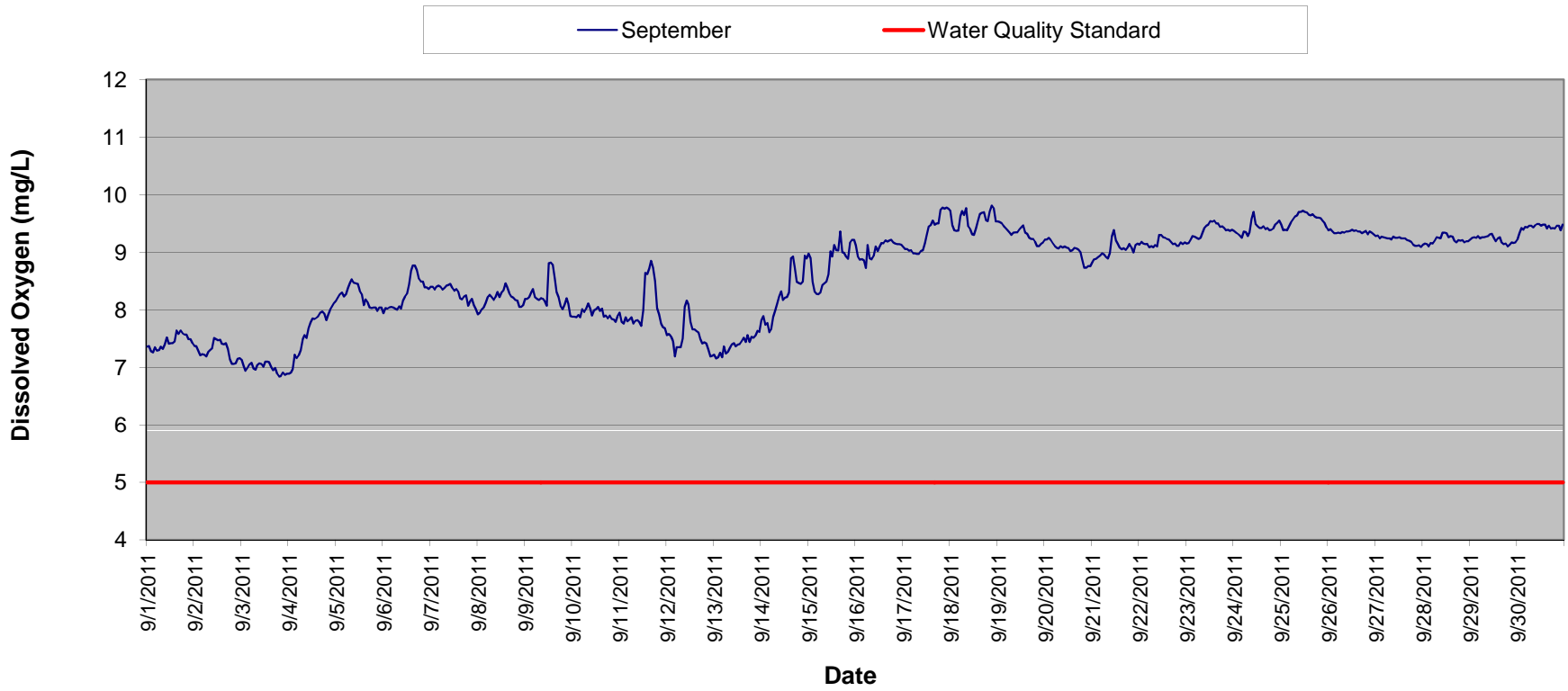
### Sandstone Rapids Dissolved Oxygen Summary - July 2011



### Sandstone Rapids Dissolved Oxygen Summary - August 2011



### Sandstone Rapids Dissolved Oxygen Summary - September 2011



Sandstone Rapids Dissolved Oxygen Summary - June 2011


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

License Minimum Dissolved Oxygen: 5.0 mg/l



Sandstone Rapids Dissolved Oxygen Summary - June 2011


Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.7	7.9	7.8	7.8	7.9	8.1	8.2	8.5	8.6	8.6	8.4	8.2	8.4	8.3
10000	7.7	7.8	7.8	7.8	7.8	8.1	8.2	8.5	8.6	8.6	8.4	8.3	8.4	8.3
20000	7.7	7.9	7.8	7.8	7.9	8.1	8.2	8.5	8.6	8.5	8.4	8.2	8.4	8.3
30000	7.8	7.9	7.8	7.9	7.9	8.2	8.2	8.5	8.5	8.5	8.3	8.2	8.3	8.3
40000	7.8	7.8	7.9	7.9	7.9	8.2	8.2	8.5	8.5	8.4	8.3	8.2	8.3	8.3
50000	7.8	7.8	7.9	7.9	7.9	8.2	8.1	8.5	8.5	8.4	8.2	8.2	8.3	8.3
60000	7.8	7.8	7.9	7.9	7.9	8.1	8.1	8.5	8.5	8.4	8.2	8.2	8.2	8.2
70000	7.9	7.9	7.9	8.0	7.9	8.1	8.1	8.5	8.5	8.4	8.2	8.2	8.2	8.2
80000	7.9	7.9	7.9	8.0	7.9	8.1	8.1	8.5	8.5	8.4	8.1	8.2	8.2	8.2
90000	7.9	7.9	8.0	8.0	8.0	8.1	8.1	8.5	8.5	8.4	8.1	8.1	8.2	8.2
100000	8.0	7.8	8.0	8.1	7.9	8.1	8.1	8.6	8.5	8.4	8.1	8.2	8.2	
110000	8.0	7.8	8.0	8.0	7.9	8.1	8.2	8.6	8.5	8.4	8.1	8.2	8.2	8.2
120000	8.1	7.9	8.0	8.0	7.9	8.1	8.2	8.5	8.5	8.4	8.1	8.2	8.2	8.1
130000	8.0	7.8	8.0	8.0	8.0	8.1	8.2	8.6	8.6	8.4	8.1	8.1	8.2	8.1
140000	8.0	7.7	7.9	8.0	8.0	8.1	8.3	8.6	8.6	8.4	8.1	8.1	8.2	8.1
150000	8.0	7.6	7.9	7.9	8.0	8.1	8.3	8.6	8.6	8.4	8.1	8.2	8.2	8.1
160000	8.0	7.6	7.8	7.9	8.0	8.1	8.3	8.6	8.6	8.4	8.1	8.2	8.3	8.1
170000	8.0	7.6	7.8	7.9	8.0	8.1	8.4	8.6	8.6	8.5	8.2	8.2	8.2	8.1
180000	7.9	7.6	7.7	7.9	8.0	8.1	8.4	8.6	8.7	8.4	8.2	8.2	8.2	8.1
190000	7.9	7.7	7.7	7.9	8.1	8.2	8.4	8.6	8.7	8.5	8.2	8.3	8.3	8.1
200000	7.9	7.7	7.7	7.9	8.1	8.2	8.5	8.6	8.6	8.4	8.2	8.3	8.3	8.2
210000	7.9	7.7	7.8	7.9	8.1	8.2	8.5	8.6	8.6	8.5	8.2	8.3	8.3	8.2
220000	7.9	7.7	7.8	7.9	8.1	8.2	8.5	8.6	8.6	8.4	8.2	8.3	8.3	8.3
230000	7.9	7.8	7.8	7.9	8.1	8.2	8.5	8.6	8.6	8.4	8.2	8.3	8.3	8.4
Daily Max	8.1	7.9	8.0	8.1	8.1	8.2	8.5	8.6	8.7	8.6	8.4	8.3	8.4	8.4
Daily Min	7.7	7.6	7.7	7.8	7.8	8.1	8.1	8.5	8.5	8.4	8.1	8.1	8.2	8.1
Average	7.9	7.8	7.9	7.9	8.0	8.1	8.3	8.6	8.6	8.4	8.2	8.2	8.2	8.2

 Missing data due to equipment maintenance

Sandstone Rapids Dissolved Oxygen Summary - July 2011

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

License Minimum Dissolved Oxygen: 5.0 mg/l

 Missing data due to equipment maintenance

Sandstone Rapids Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.2	7.1	7.0	7.0	6.5	6.1	6.6	6.3	6.9	6.5	6.8	7.0	7.1	6.6	6.5
10000	7.2	7.1	7.0	6.9	6.5	6.2	6.6	6.2	7.0	6.6	6.9	7.0	7.1	6.6	6.5
20000	7.2	7.2	6.9	6.9	6.5	6.1	6.6	6.2	6.9	6.5	6.8	7.0	7.1	6.6	6.3
30000	7.2	7.1	7.0	7.0	6.5	6.2	6.6	6.3	7.0	6.6	6.8	7.0	7.0	6.3	6.5
40000	7.3	7.1	6.9	7.0	6.4	6.2	6.6	6.3	7.0	6.8	6.8	7.1	7.1	6.4	6.4
50000	7.3	7.1	6.9	7.0	6.4	6.4	6.5	6.3	7.0	6.8	6.9	7.1	7.1	6.5	6.5
60000	7.3	7.1	6.9	7.0	6.4	6.4	6.5	6.3	7.0	6.8	6.8	7.1	7.0	6.5	6.6
70000	7.4	7.2	6.9	7.0	6.4	6.4	6.5	6.3	7.0	6.9	6.8	7.2	7.0	6.6	6.5
80000	7.4		6.9	7.1	6.3	6.3	6.5	6.3	7.0	7.0	6.7	7.1	7.0	6.5	6.6
90000	7.5	7.2	6.9	7.0	6.2	6.4	6.5	6.4	6.9	7.0	6.7	7.1	6.9	6.5	6.4
100000	7.5	7.1	6.9	7.0	6.3	6.3	6.5	6.4	6.9	7.0	6.6	7.1	6.9	6.6	6.6
110000	7.4	7.1	6.9	6.9	6.3	6.3	6.4	6.3	6.8	6.9	6.6	7.1	6.9	6.5	6.6
120000	7.4	7.1	6.9	6.9	6.1	6.3	6.4	6.4	6.8	6.9	6.6	7.6	6.9	6.5	6.8
130000	7.4	7.1	6.9	6.8	6.2	6.3	6.4	6.4	6.9	6.9	6.7	7.6	6.8	6.5	6.8
140000	7.4	7.1	6.9	6.8	6.1	6.3	6.4	6.4	6.9	6.8	6.7	7.5	6.8	6.5	6.9
150000	7.3	7.1	7.0	6.8	6.1	6.5	6.3	6.5	6.9	6.8	6.7	7.5	6.8	6.6	6.8
160000	7.3	7.0	7.0	6.7	6.2	6.4	6.3	6.7	6.9	6.7	6.7	7.4	6.7	6.7	6.9
170000	7.3	7.0	6.9	6.7	6.1	6.4	6.2	6.8	6.8	6.8	6.7	7.4	6.6	6.5	6.9
180000	7.3	7.0	7.0	6.6	6.2	6.5	6.1	6.8	6.7	6.8	6.7	7.4	6.6	6.5	7.0
190000	7.3	6.9	7.0	6.6	6.1	6.5	6.1	6.9	6.6	6.7	6.7	7.3	6.5	6.6	7.0
200000	7.2	6.9	7.0	6.6	6.1	6.5	6.1	6.9	6.6	6.7	6.7	7.2	6.6	6.5	7.0
210000	7.2	6.9	7.1	6.6	6.0	6.5	6.1	6.8	6.5	6.6	6.8	7.2	6.5	6.5	7.0
220000	7.1	7.0	7.1	6.6	6.1	6.5	6.1	6.9	6.5	6.6	6.8	7.1	6.5	6.4	7.0
230000	7.1	7.0	7.0	6.6	6.1	6.6	6.1	6.8	6.4	6.7	6.8	7.1	6.6	6.4	7.1
Daily Max	7.5	7.2	7.1	7.1	6.5	6.6	6.6	6.9	7.0	7.0	6.9	7.6	7.1	6.7	7.1
Daily Min	7.1	6.9	6.9	6.6	6.0	6.1	6.1	6.2	6.4	6.5	6.6	7.0	6.5	6.3	6.3
Average	7.3	7.1	7.0	6.8	6.3	6.4	6.4	6.5	6.8	6.8	6.7	7.2	6.8	6.5	6.7

Powerhouse off-line for scheduled maintenance. All water, except for leakage through units, being released through gates.

Sandstone Rapids Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	7.0	7.0	6.8	6.8	7.0	7.1	7.0	7.0	7.5	6.6	7.7	7.3				7.3
10000	7.1	7.1	6.9	6.8	7.0	7.1	7.0	7.1	7.4	6.9	7.8	7.3				7.4
20000	7.1	7.1	6.9	6.7	7.0	7.0	6.9	7.0	7.3	7.1	8.0	7.4				7.4
30000	7.0	7.1	6.9	6.8	6.9	7.0	6.9	7.0	7.3	7.1	7.9	7.4				7.5
40000	7.1	7.3	6.9	6.8	6.9	6.9	6.9	7.1	7.4	7.3	7.8	7.5				7.5
50000	7.0	7.2	6.9	6.8	7.0	7.0	6.9	7.0	7.4	7.0	7.9	7.6				7.5
60000	7.1	7.1	6.9	6.7	7.1	7.1	6.9	7.0	7.3	6.9	7.9	7.5				7.5
70000	7.1	7.0	7.0	6.7	7.0	7.1	6.9	7.0	7.3	6.9	7.9	7.4				7.4
80000	7.1	7.0	7.1	6.7	7.0	7.0	6.9	7.1	7.2	7.1	8.0	7.4				7.4
90000	7.1	7.0	7.1	6.8	7.0	7.0	6.9	7.0	7.2	7.3	7.9	7.5				7.4
100000	7.0	7.0	7.2	6.8	7.0	7.0	6.9	7.2	7.1	7.4	8.0	7.4				7.4
110000	7.0	6.9	7.1	6.8	7.0	7.0	6.8	7.2	7.1	7.3	8.0	7.5				7.4
120000	7.0	6.9	7.1	6.9	6.9	7.0	6.8	7.3	7.2	7.4	8.0	7.5		7.5		7.4
130000	7.0	7.0	7.1	6.9	7.3	7.0	6.7	7.2	7.2	7.5	8.1	7.4		7.5		7.4
140000	7.0	6.9	7.1	7.0	7.2	7.0	6.8	7.4	7.1	7.5	8.0	7.4		7.6		7.5
150000	6.8	6.9	7.1	7.0	7.1	7.0	6.7	7.3	7.1	7.6	7.9	7.4		7.6		7.4
160000	6.7	6.9	7.0	7.1	7.1	7.0	6.8	7.4	7.1	7.7	8.0	7.3		7.5		7.3
170000	6.7	6.9	7.0	7.1	7.1	6.9	6.7	7.4	7.1	7.6	8.0	7.2		7.5		7.3
180000	6.7	6.8	7.0	7.1	7.1	6.9	6.8	7.4	7.0	7.6	7.8			7.4		7.1
190000	6.9	6.9	6.9	7.1	7.1	7.0	6.8	7.3	6.9	8.0	7.9			7.4		7.1
200000	6.9	6.8	6.9	7.1	7.0	7.0	6.7	7.3	7.0	7.8	7.7			7.3		7.1
210000	6.9	6.7	6.9	7.1	7.1	7.0	6.8	7.3	6.9	7.7	7.5			7.2		7.2
220000	7.0	6.7	6.9	7.1	7.1	6.9	6.9	7.3	6.9	7.6	7.4			7.2		7.2
230000	7.1	6.8	6.8	7.1	7.2	7.0	7.0	7.4	6.8	7.6	7.3			7.2		7.1
Daily Max	7.1	7.3	7.2	7.1	7.3	7.1	7.0	7.4	7.5	8.0	8.1	7.6	0.0	0.0	7.6	7.5
Daily Min	6.7	6.7	6.8	6.7	6.9	6.9	6.7	7.0	6.8	6.6	7.3	7.2	0.0	0.0	7.2	7.1
Average	7.0	6.9	7.0	6.9	7.1	7.0	6.8	7.2	7.2	7.3	7.8	7.4	#DIV/0!	#DIV/0!	7.4	7.3

Missing data due to equipment setup error

License Minimum Dissolved Oxygen: 5.0 mg/l

Powerhouse off-line for scheduled maintenance. All water, except for leakage through units, being released through gates.

Sandstone Rapids Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.0	6.4	7.2	7.3	7.3	7.1	7.4	7.4	7.0	7.4	6.9	7.5	7.1	7.9	7.9
10000	7.1	6.3	7.3	7.3	7.2	7.1	7.3	7.4	7.0	7.4	7.1	7.6	6.9	7.8	7.9
20000	7.1	6.3	7.4	7.3	7.2	7.1	7.3	7.4	7.1	7.4	7.1	7.6	6.9	7.8	7.9
30000	7.0	6.3	7.7	7.3	7.1	7.2	7.4	7.3	7.2	7.3	7.3	7.5	7.0	8.2	7.8
40000	7.1	6.2	7.7	7.4	7.1	7.5	7.5	7.2	7.0	7.4	7.6	7.5	7.0	8.1	7.8
50000	7.1	6.3	7.8	7.4	7.0	7.6	7.5	7.3	7.1	7.5	7.8	7.5	7.1	8.3	7.7
60000	7.2	6.4	7.8	7.5	7.0	7.7	7.6	7.3	6.9	7.5	7.9	7.5	7.2	8.3	7.6
70000	7.0	6.4	7.7	7.6	6.9	7.8	7.7	7.2	7.1	7.5	8.0	7.6	7.4	7.9	7.6
80000	7.0	6.3	7.6	7.6	6.9	7.9	7.7	7.2	7.3	7.6	8.0	7.5	7.5	7.8	7.5
90000	6.9	6.3	7.7	7.6	6.9	8.0	7.8	7.3	7.4	7.5	8.1	7.5	7.6	8.2	7.6
100000	6.8	6.3	7.7	7.6	6.8	8.1	7.8	7.4	7.5	7.4	8.1	7.5	8.0	8.5	7.6
110000	7.0	6.4	7.8	7.6	6.9	8.1	7.9	7.5	7.7	7.4	8.0	7.4	8.2	8.4	7.6
120000	6.8	6.6	7.7	7.6	6.8	8.0	8.3	7.5	7.9	7.4	8.0	7.5	8.4	8.1	7.6
130000	6.8	7.0	7.7	7.5	6.7	8.0	8.6	7.5	7.8	7.4	8.0	7.4	8.3	7.9	7.5
140000	6.8	7.3	7.6	7.4	6.7	8.0	8.2	7.5	7.8	7.2	8.0	7.4	8.5	7.9	7.5
150000	6.8	7.5	7.6	7.4	6.7	8.0	8.1	7.4	7.7	7.3	8.0	7.5	8.3	8.0	7.5
160000	6.8	7.3	7.6	7.3	6.7	8.0	7.9	7.4	7.7	7.3	7.9	7.4	8.1	8.1	7.5
170000	6.6	7.1	7.6	7.3	6.6	7.9	7.7	7.2	7.7	7.3	7.8	7.4	8.1	8.1	7.5
180000	6.5	7.1	7.5	7.3	6.8	7.9	7.7	7.2	7.6	7.2	7.8	7.3	8.0	8.0	7.5
190000	6.4	7.3	7.5	7.3	6.7	7.8	7.6	7.1	7.7	7.2	7.8	7.2	8.0	8.0	7.6
200000	6.5	7.3	7.3	7.3	6.8	7.7	7.5	7.1	7.7	7.3	7.7	7.1	7.9	8.0	7.5
210000	6.4	7.2	7.3	7.3	7.0	7.7	7.5	7.2	7.6	7.2	7.6	7.2	7.9	8.0	7.5
220000	6.3	7.2	7.4	7.3	7.0	7.6	7.4	7.1	7.5	7.2	7.7	7.2	7.9	8.0	7.4
230000	6.3	7.2	7.3	7.2	7.1	7.5	7.3	7.1	7.4	7.0	7.6	7.2	7.9	7.9	7.4
Daily Max	7.2	7.5	7.8	7.6	7.3	8.1	8.6	7.5	7.9	7.6	8.1	7.6	8.5	8.5	7.9
Daily Min	6.3	6.2	7.2	7.2	6.6	7.1	7.3	7.1	6.9	7.0	6.9	7.1	6.9	7.8	7.4
Average	6.8	6.7	7.6	7.4	6.9	7.7	7.7	7.3	7.4	7.3	7.7	7.4	7.7	8.0	7.6

Sandstone Rapids Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	7.4	7.4	7.1	6.9	8.2	7.9	8.4	7.9	8.2	7.9	8.0	7.6	7.2	7.8	9.0	9.1
10000	7.4	7.4	7.0	6.9	8.2	8.0	8.4	8.0	8.2	7.9	7.8	7.6	7.2	7.9	8.9	8.9
20000	7.3	7.3	6.9	7.0	8.3	8.0	8.4	8.0	8.2	7.9	7.8	7.5	7.2	7.7	8.5	8.9
30000	7.3	7.2	7.0	7.2	8.3	8.0	8.4	8.0	8.3	7.9	7.9	7.5	7.3	7.8	8.3	8.9
40000	7.4	7.2	7.1	7.2	8.2	8.1	8.4	8.1	8.4	7.9	7.8	7.2	7.2	7.6	8.3	8.9
50000	7.3	7.2	7.1	7.2	8.3	8.0	8.4	8.2	8.2	8.0	7.8	7.4	7.4	7.7	8.3	8.7
60000	7.3	7.2	7.0	7.3	8.4	8.0	8.4	8.3	8.2	8.0	7.9	7.4	7.2	7.9	8.3	9.1
70000	7.4	7.3	7.0	7.5	8.5	8.0	8.4	8.2	8.2	8.0	7.8	7.4	7.3	8.0	8.4	8.9
80000	7.3	7.3	7.0	7.6	8.5	8.1	8.4	8.2	8.2	8.1	7.8	7.5	7.3	8.1	8.5	8.9
90000	7.4	7.3	7.1	7.5	8.5	8.0	8.4	8.2	8.2	8.0	7.8	8.1	7.4	8.2	8.5	8.9
100000	7.5	7.5	7.1	7.7	8.5	8.2	8.5	8.3	8.2	7.9	7.8	8.2	7.4	8.3	8.6	9.1
110000	7.4	7.5	7.0	7.8	8.5	8.2	8.4	8.2	8.1	8.0	7.7	8.1	7.4	8.2	9.0	9.0
120000	7.4	7.5	7.1	7.9	8.3	8.3	8.3	8.3	8.8	8.0	8.0	7.8	7.4	8.2	8.9	9.1
130000	7.4	7.5	7.1	7.8	8.3	8.4	8.4	8.3	8.8	8.1	8.6	7.7	7.4	8.2	9.1	9.2
140000	7.5	7.4	7.1	7.9	8.1	8.7	8.3	8.5	8.8	8.0	8.6	7.7	7.5	8.3	9.0	9.2
150000	7.6	7.4	7.0	7.9	8.2	8.8	8.2	8.4	8.5	8.0	8.7	7.6	7.5	8.9	9.0	9.2
160000	7.6	7.4	7.0	8.0	8.1	8.8	8.2	8.3	8.3	7.9	8.9	7.6	7.4	8.9	9.4	9.2
170000	7.6	7.3	7.0	8.0	8.0	8.7	8.2	8.2	8.2	7.9	8.7	7.5	7.6	8.7	9.0	9.2
180000	7.6	7.1	6.9	7.9	8.0	8.5	8.3	8.2	8.1	7.9	8.5	7.4	7.4	8.5	9.0	9.2
190000	7.6	7.1	6.8	7.8	8.0	8.5	8.1	8.2	8.0	7.9	8.0	7.4	7.5	8.5	8.9	9.2
200000	7.6	7.1	6.9	7.9	8.0	8.5	8.2	8.2	8.1	7.8	7.9	7.4	7.5	8.5	8.9	9.1
210000	7.5	7.1	6.9	8.0	8.0	8.4	8.2	8.1	8.2	7.8	7.8	7.3	7.6	8.5	9.2	9.1
220000	7.5	7.2	6.9	8.1	8.0	8.4	8.1	8.1	8.1	7.8	7.7	7.2	7.6	8.9	9.2	9.1
230000	7.4	7.2	6.9	8.1	8.0	8.4	8.0	8.1	7.9	7.9	7.7	7.2	7.6	8.9	9.2	9.1
Daily Max	7.6	7.5	7.1	8.1	8.5	8.8	8.5	8.5	8.8	8.1	8.9	8.2	7.6	8.9	9.4	9.2
Daily Min	7.3	7.1	6.8	6.9	8.0	7.9	8.0	7.9	7.9	7.8	7.7	7.2	7.2	7.6	8.3	8.7
Average	7.4	7.3	7.0	7.6	8.2	8.3	8.3	8.2	8.3	7.9	8.0	7.5	7.4	8.3	8.8	9.1

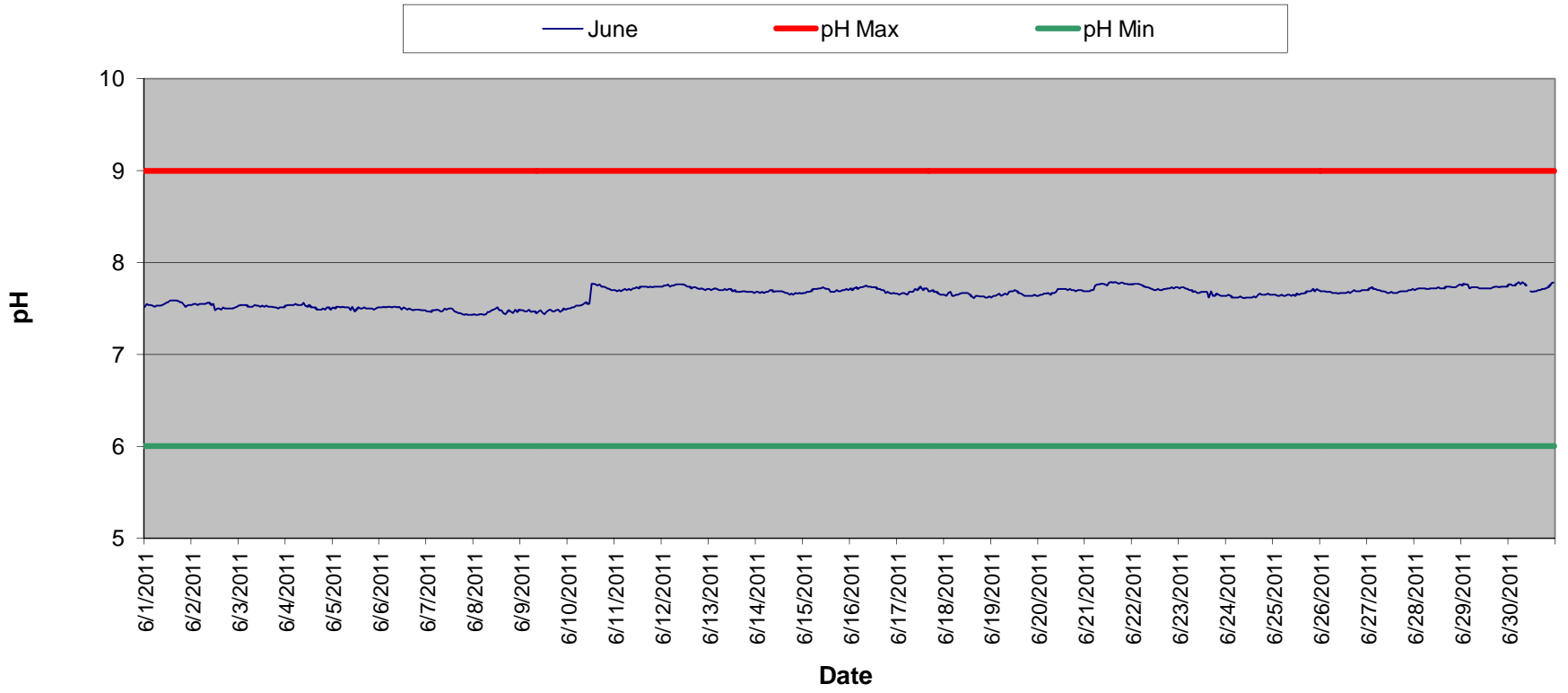
License Minimum Dissolved Oxygen: 5.0 mg/l

Powerhouse off-line for scheduled maintenance. All water, except for leakage through units, being released through gates.

Sandstone Rapids Dissolved Oxygen Summary - September 2011

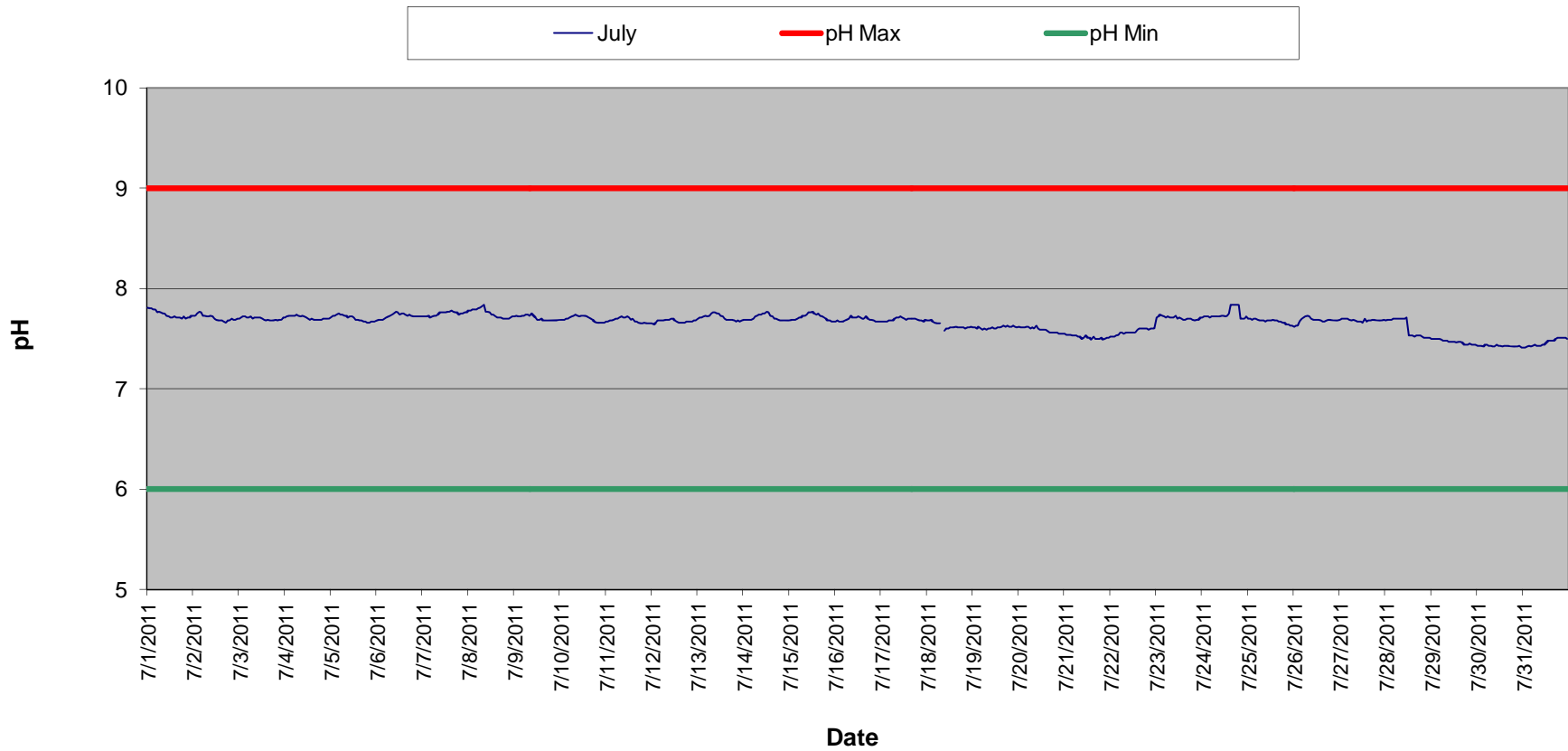
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	9.1	9.7	9.5	9.2	8.8	9.1	9.2	9.4	9.5	9.4	9.3	9.1	9.2	9.2
10000	9.1	9.5	9.5	9.2	8.9	9.2	9.2	9.3	9.4	9.4	9.3	9.2	9.3	9.3
20000	9.1	9.4	9.5	9.2	8.9	9.1	9.2	9.3	9.4	9.4	9.2	9.1	9.3	9.4
30000	9.0	9.4	9.5	9.2	8.9	9.1	9.3	9.3	9.4	9.3	9.3	9.1	9.3	9.4
40000	9.0	9.4	9.4	9.2	8.9	9.1	9.3	9.3	9.5	9.3	9.3	9.2	9.3	9.4
50000	9.0	9.6	9.4	9.1	9.0	9.1	9.3	9.4	9.5	9.3	9.3	9.2	9.2	9.4
60000	9.0	9.7	9.3	9.1	9.0	9.1	9.2	9.4	9.6	9.3	9.2	9.2	9.3	9.5
70000	9.0	9.6	9.3	9.1	8.9	9.1	9.3	9.3	9.6	9.4	9.2	9.3	9.3	9.5
80000	9.0	9.8	9.3	9.1	8.9	9.1	9.3	9.4	9.6	9.3	9.2	9.3	9.3	9.4
90000	9.0	9.5	9.3	9.1	9.0	9.1	9.4	9.6	9.7	9.4	9.3	9.2	9.3	9.5
100000	9.0	9.4	9.3	9.1	9.3	9.3	9.5	9.7	9.7	9.4	9.3	9.3	9.3	9.5
110000	9.2	9.3	9.4	9.1	9.4	9.3	9.5	9.5	9.7	9.4	9.3	9.3	9.3	9.5
120000	9.3	9.3	9.4	9.1	9.2	9.3	9.5	9.5	9.7	9.4	9.3	9.3	9.3	9.5
130000	9.4	9.4	9.5	9.0	9.2	9.3	9.5	9.4	9.7	9.4	9.2	9.3	9.2	9.5
140000	9.5	9.5	9.3	9.0	9.1	9.2	9.6	9.4	9.7	9.4	9.2	9.3	9.2	9.5
150000	9.5	9.7	9.3	9.1	9.0	9.2	9.5	9.5	9.6	9.4	9.2	9.3	9.3	9.4
160000	9.5	9.7	9.2	9.1	9.1	9.2	9.5	9.4	9.7	9.4	9.2	9.2	9.2	9.5
170000	9.5	9.7	9.2	9.0	9.0	9.1	9.4	9.4	9.6	9.3	9.2	9.2	9.1	9.4
180000	9.5	9.6	9.2	9.0	9.1	9.2	9.5	9.4	9.6	9.4	9.2	9.2	9.2	9.4
190000	9.7	9.5	9.2	8.9	9.1	9.1	9.4	9.4	9.6	9.4	9.1	9.2	9.1	9.4
200000	9.8	9.7	9.1	8.7	9.1	9.1	9.4	9.4	9.6	9.3	9.1	9.2	9.1	9.5
210000	9.8	9.8	9.1	8.7	9.0	9.2	9.4	9.5	9.6	9.4	9.1	9.2	9.2	9.5
220000	9.8	9.8	9.1	8.8	9.1	9.1	9.4	9.5	9.5	9.3	9.1	9.2	9.2	9.4
230000	9.8	9.5	9.2	8.8	9.2	9.2	9.4	9.6	9.4	9.3	9.1	9.2	9.2	9.5
Daily Max	9.8	9.8	9.5	9.2	9.4	9.3	9.6	9.7	9.7	9.4	9.3	9.3	9.3	9.5
Daily Min	9.0	9.3	9.1	8.7	8.8	9.1	9.2	9.3	9.4	9.3	9.1	9.1	9.1	9.2
Average	9.3	9.6	9.3	9.0	9.0	9.2	9.4	9.4	9.6	9.4	9.2	9.2	9.2	9.4

### Sandstone Rapids Tailwater pH - June 2011

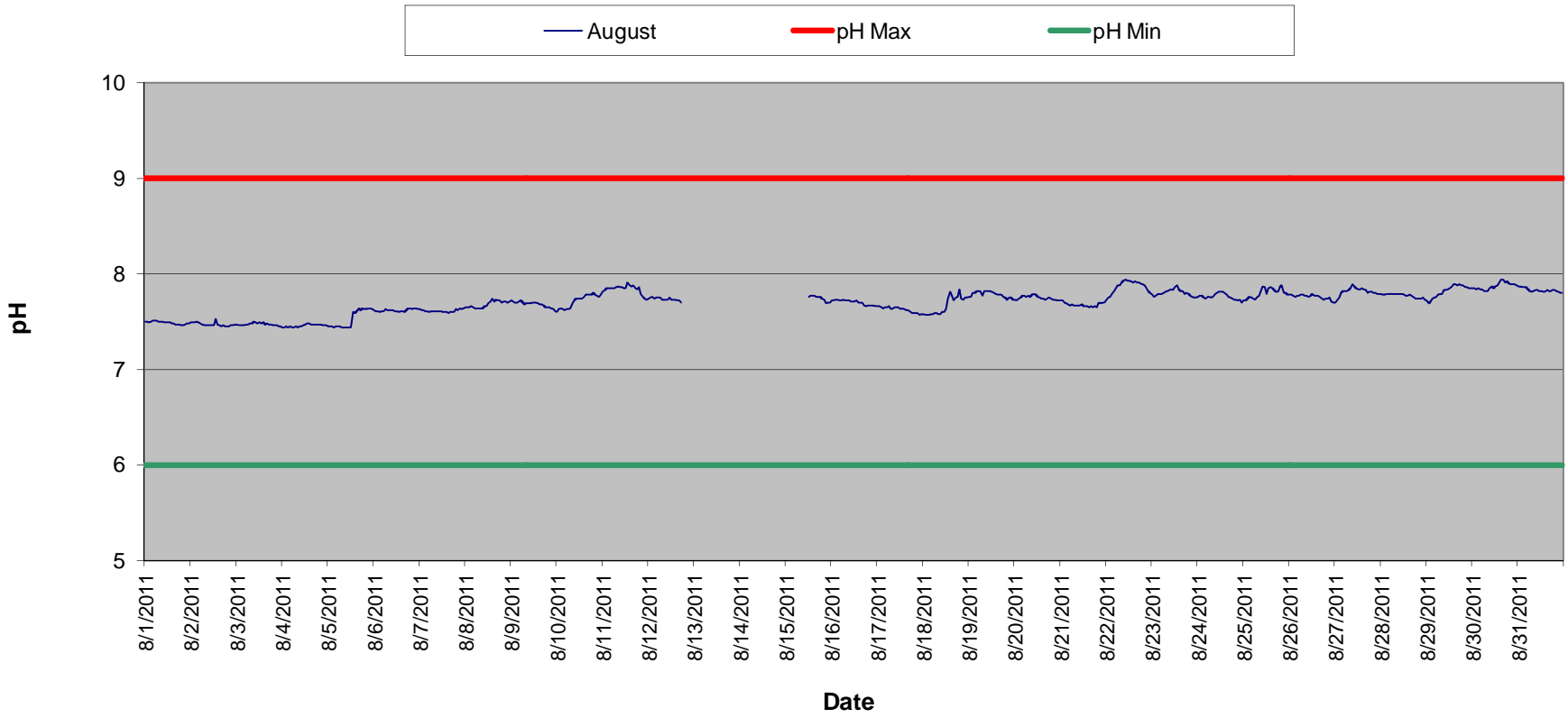




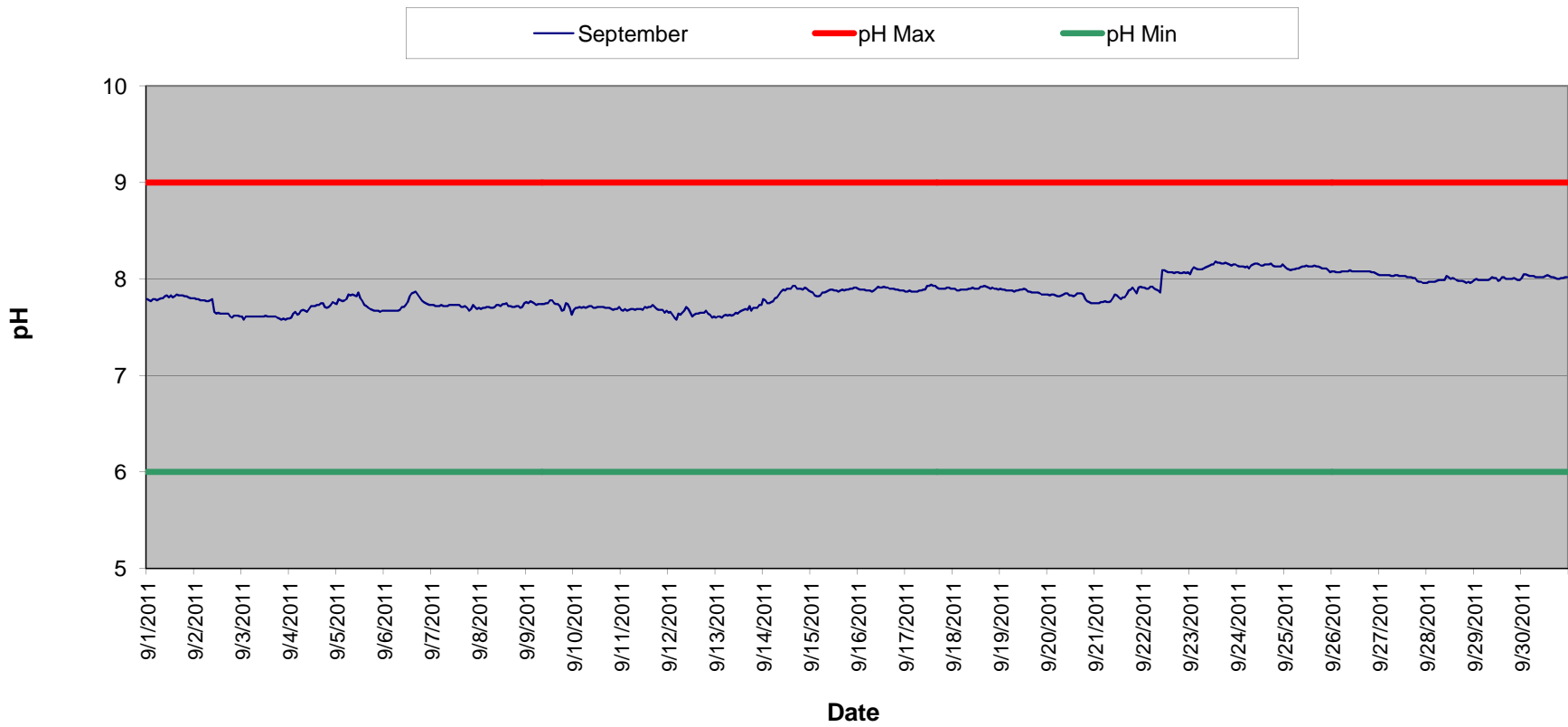
### Sandstone Rapids Tailwater pH- July 2011



### Sandstone Rapids Tailwater pH- August 2011



### Sandstone Rapids Tailwater pH - September 2011



Sandstone Rapids pH Summary - June 2011

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

License maximum pH: 9

License minimum pH: 6

Sandstone Rapids pH Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.7	7.7	7.6	7.6	7.7	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.8	7.8
10000	7.7	7.6	7.6	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.8	7.8
20000	7.7	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.8
30000	7.7	7.7	7.7	7.7	7.7	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.8
40000	7.7	7.6	7.7	7.7	7.7	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.8
50000	7.7	7.6	7.6	7.7	7.8	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.7	7.8
60000	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.6	7.7	7.7	7.7	7.7	7.8
70000	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.8
80000	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.8
90000	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.6	7.7	7.7	7.7	7.7	7.8
100000	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.8
110000	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.6	7.7	7.7	7.7	7.7	7.7
120000	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7
130000	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7
140000	7.7	7.6	7.7	7.7	7.8	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7
150000	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.7	7.7	7.7
160000	7.7	7.6	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
170000	7.7	7.6	7.6	7.7	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.7
180000	7.7	7.6	7.6	7.7	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.7
190000	7.7	7.6	7.6	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
200000	7.7	7.6	7.6	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
210000	7.7	7.6	7.6	7.7	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.8
220000	7.7	7.6	7.7	7.7	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.8	7.7	7.8
230000	7.7	7.6	7.6	7.7	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.8	7.7	7.8
Daily Max	7.7	7.7	7.7	7.7	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.8	7.8	7.8
Daily Min	7.7	7.6	7.6	7.6	7.7	7.7	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.7
Average	7.7	7.6	7.7	7.7	7.8	7.7	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7

Missing data due to equipment maintenance.

Sandstone Rapids pH Summary - July 2011

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

License maximum pH: 9

License minimum pH: 6

Sandstone Rapids pH Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.7	7.7	7.6	7.6	7.6	7.5	7.7	7.7	7.7	7.6	7.7	7.7	7.5	7.4	7.4
10000	7.7	7.7	7.6	7.6	7.5	7.5	7.7	7.7	7.7	7.6	7.7	7.7	7.5	7.4	7.4
20000	7.7	7.7	7.6	7.6	7.5	7.5	7.7	7.7	7.7	7.6	7.7	7.7	7.5	7.4	7.4
30000	7.7	7.7	7.6	7.6	7.5	7.5	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
40000	7.7	7.7	7.6	7.6	7.5	7.5	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
50000	7.7	7.7	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
60000	7.7	7.7	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
70000	7.7	7.7	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
80000	7.7		7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
90000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
100000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
110000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.5	7.4	7.4
120000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.5	7.5	7.4	7.5
130000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.5	7.5	7.4	7.5
140000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.8	7.7	7.7	7.7	7.5	7.5	7.4	7.5
150000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.8	7.7	7.7	7.7	7.5	7.5	7.4	7.5
160000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.8	7.7	7.7	7.7	7.5	7.5	7.4	7.5
170000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.8	7.7	7.7	7.7	7.5	7.4	7.4	7.5
180000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.8	7.7	7.7	7.7	7.5	7.4	7.4	7.5
190000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.8	7.7	7.7	7.7	7.5	7.4	7.4	7.5
200000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.6	7.7	7.7	7.5	7.5	7.4	7.5
210000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.6	7.7	7.7	7.5	7.4	7.4	7.5
220000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.6	7.7	7.7	7.5	7.4	7.4	7.5
230000	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.6	7.7	7.7	7.5	7.4	7.4	7.5
Daily Max	7.7	7.7	7.6	7.6	7.6	7.6	7.7	7.8	7.7	7.7	7.7	7.7	7.5	7.4	7.5
Daily Min	7.7	7.6	7.6	7.6	7.5	7.5	7.7	7.7	7.6	7.6	7.7	7.5	7.4	7.4	7.4
Average	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.4	7.5

Missing data due to equipment maintenance

Sandstone Rapids pH Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	7.5	7.5	7.5	7.4	7.5	7.6	7.6	7.7	7.7	7.6	7.8	7.7				7.7
10000	7.5	7.5	7.5	7.4	7.5	7.6	7.6	7.7	7.7	7.6	7.8	7.8				7.7
20000	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.7	7.7	7.6	7.9	7.8				7.7
30000	7.5	7.5	7.5	7.4	7.4	7.6	7.6	7.7	7.7	7.6	7.9	7.7				7.7
40000	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.7	7.7	7.6	7.9	7.8				7.7
50000	7.5	7.5	7.5	7.4	7.5	7.6	7.6	7.6	7.7	7.6	7.9	7.8				7.7
60000	7.5	7.5	7.5	7.4	7.5	7.6	7.6	7.6	7.7	7.6	7.9	7.8				7.7
70000	7.5	7.5	7.5	7.5	7.4	7.6	7.6	7.6	7.7	7.6	7.9	7.7				7.7
80000	7.5	7.5	7.5	7.4	7.4	7.6	7.6	7.6	7.7	7.7	7.9	7.7				7.7
90000	7.5	7.5	7.5	7.5	7.4	7.6	7.6	7.6	7.7	7.7	7.9	7.7				7.7
100000	7.5	7.5	7.5	7.5	7.4	7.6	7.6	7.7	7.7	7.7	7.9	7.7				7.7
110000	7.5	7.5	7.5	7.5	7.4	7.6	7.6	7.7	7.7	7.7	7.9	7.8				7.7
120000	7.5	7.5	7.5	7.5	7.4	7.6	7.6	7.7	7.7	7.7	7.9	7.7			7.8	7.7
130000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.7	7.9	7.7			7.8	7.7
140000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.8	7.9	7.7			7.8	7.7
150000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.8	7.9	7.7			7.8	7.7
160000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.8	7.9	7.7			7.8	7.7
170000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.8	7.9	7.7			7.8	7.7
180000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.8	7.8				7.8	7.7
190000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.8	7.9				7.7	7.7
200000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.8	7.8				7.7	7.7
210000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.6	7.8	7.8				7.7	7.7
220000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.6	7.8	7.7				7.7	7.7
230000	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.6	7.8	7.7				7.7	7.7
Daily Max	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.8	7.9	7.8	0.0	0.0	7.8	7.7
Daily Min	7.5	7.5	7.5	7.4	7.4	7.6	7.6	7.6	7.6	7.6	7.7	7.7	0.0	0.0	7.7	7.7
Average	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.7	7.7	7.7	7.8	7.7	#DIV/0!	#DIV/0!	7.7	7.7

License maximum pH: 9  
License minimum pH: 6

Missing data due to equipment setup error



Sandstone Rapids pH Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.7	7.6	7.8	7.7	7.7	7.7	7.8	7.8	7.7	7.8	7.7	7.8	7.7	7.9	7.9
10000	7.7	7.6	7.8	7.7	7.7	7.8	7.8	7.8	7.7	7.8	7.7	7.8	7.7	7.9	7.9
20000	7.7	7.6	7.8	7.7	7.7	7.8	7.8	7.8	7.7	7.8	7.8	7.8	7.7	7.8	7.9
30000	7.6	7.6	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.9	7.9
40000	7.7	7.6	7.8	7.8	7.7	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.9
50000	7.7	7.6	7.8	7.8	7.7	7.9	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8
60000	7.7	7.6	7.8	7.8	7.7	7.9	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8
70000	7.6	7.6	7.8	7.8	7.7	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
80000	7.6	7.6	7.8	7.8	7.7	7.9	7.8	7.8	7.8	7.8	7.9	7.8	7.8	7.8	7.8
90000	7.7	7.6	7.8	7.8	7.7	7.9	7.8	7.8	7.8	7.8	7.9	7.8	7.8	7.9	7.8
100000	7.7	7.6	7.8	7.8	7.7	7.9	7.8	7.8	7.9	7.8	7.9	7.8	7.8	7.9	7.8
110000	7.7	7.6	7.8	7.8	7.7	7.9	7.8	7.8	7.9	7.8	7.9	7.8	7.8	7.9	7.8
120000	7.6	7.6	7.8	7.8	7.7	7.9	7.9	7.8	7.8	7.8	7.8	7.8	7.9	7.9	7.8
130000	7.6	7.7	7.8	7.8	7.7	7.9	7.9	7.8	7.9	7.8	7.8	7.8	7.9	7.9	7.8
140000	7.6	7.8	7.8	7.7	7.7	7.9	7.8	7.8	7.9	7.8	7.9	7.8	7.9	7.9	7.8
150000	7.6	7.8	7.8	7.7	7.7	7.9	7.8	7.8	7.9	7.8	7.8	7.8	7.9	7.9	7.8
160000	7.6	7.7	7.8	7.7	7.7	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.9	7.8
170000	7.6	7.8	7.8	7.7	7.7	7.9	7.8	7.8	7.8	7.7	7.8	7.8	7.9	7.9	7.8
180000	7.6	7.8	7.8	7.8	7.7	7.9	7.8	7.7	7.8	7.7	7.8	7.7	7.9	7.9	7.8
190000	7.6	7.8	7.8	7.7	7.7	7.9	7.8	7.7	7.9	7.7	7.8	7.7	7.9	7.9	7.8
200000	7.6	7.7	7.7	7.7	7.7	7.9	7.8	7.7	7.9	7.7	7.8	7.7	7.9	7.9	7.8
210000	7.6	7.7	7.8	7.7	7.7	7.9	7.8	7.7	7.8	7.8	7.8	7.7	7.9	7.9	7.8
220000	7.6	7.8	7.8	7.7	7.7	7.8	7.8	7.7	7.8	7.7	7.8	7.8	7.9	7.9	7.8
230000	7.6	7.8	7.7	7.7	7.7	7.8	7.8	7.7	7.8	7.7	7.8	7.7	7.9	7.9	7.8
Daily Max	7.7	7.8	7.8	7.8	7.7	7.9	7.9	7.8	7.9	7.8	7.9	7.8	7.9	7.9	7.9
Daily Min	7.6	7.6	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.8	7.8
Average	7.6	7.7	7.8	7.7	7.7	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.8

Sandstone Rapids pH Summary - September 2011

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

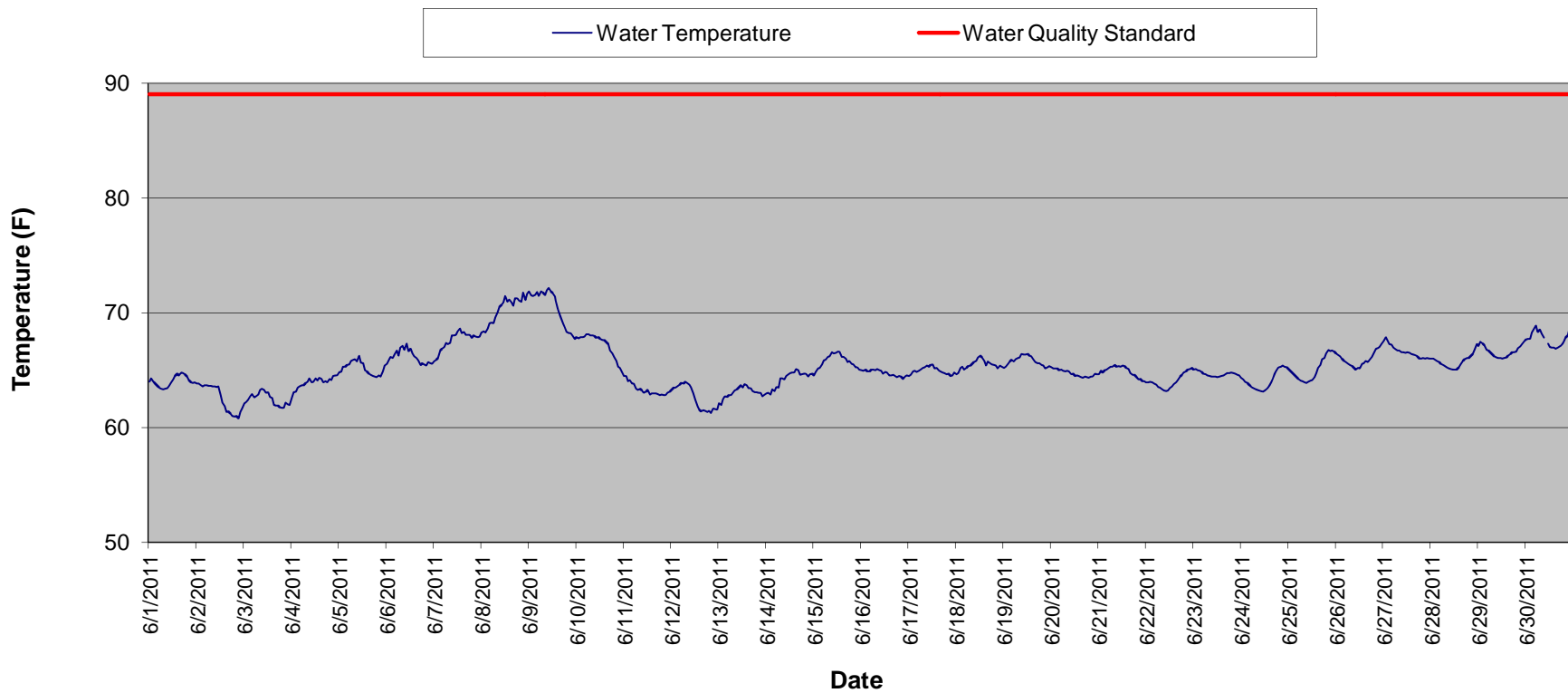
License maximum pH: 9

License minimum pH: 6

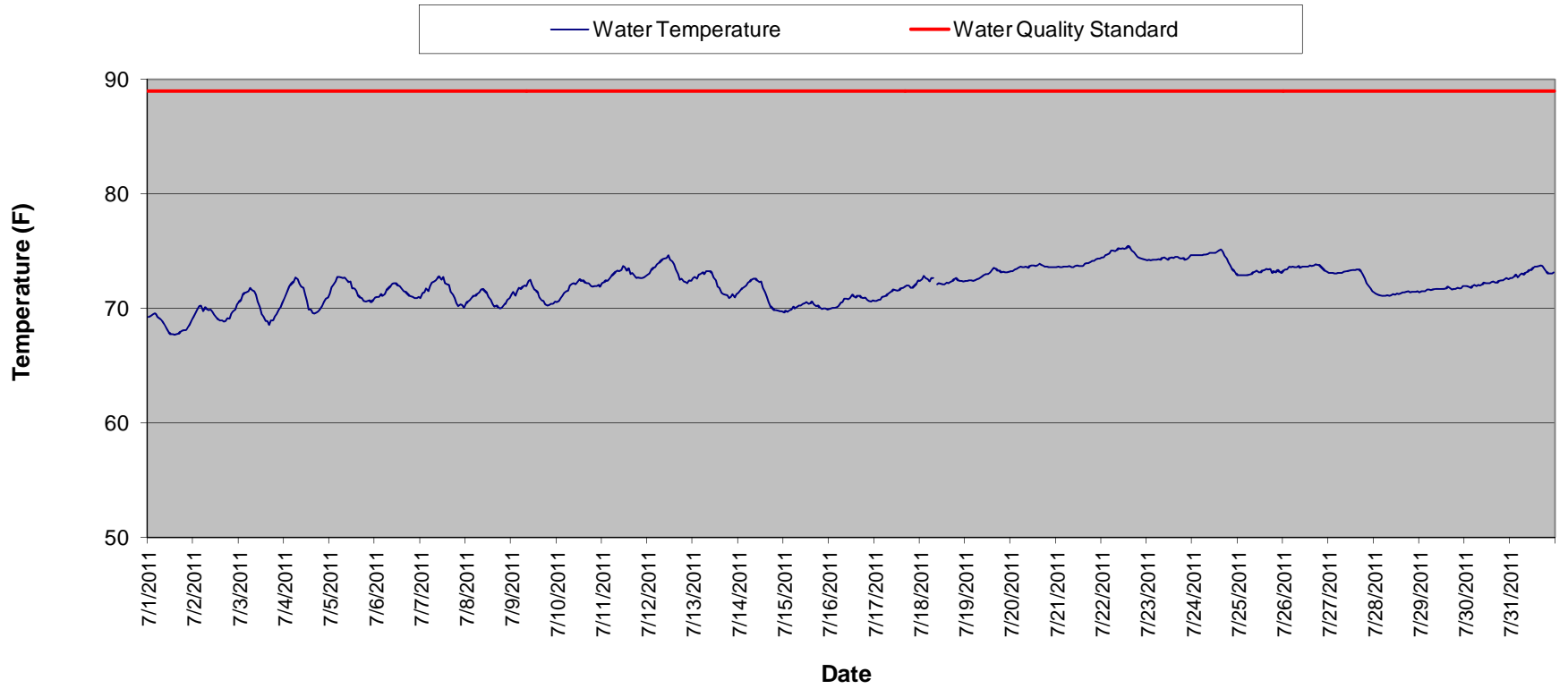
Sandstone Rapids pH Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
10000	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.1
20000	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.1
30000	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
40000	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
50000	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
60000	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
70000	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
80000	7.9	7.9	7.9	7.8	7.8	7.9	8.1	8.2	8.1	8.1	8.0	8.0	8.0	8.0
90000	7.9	7.9	7.9	7.9	7.8	7.9	8.1	8.2	8.1	8.1	8.0	8.0	8.0	8.0
100000	7.9	7.9	7.9	7.9	7.8	8.1	8.1	8.2	8.1	8.1	8.0	8.0	8.0	8.0
110000	7.9	7.9	7.9	7.8	7.8	8.1	8.2	8.2	8.1	8.1	8.0	8.0	8.0	8.0
120000	7.9	7.9	7.9	7.8	7.8	8.1	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
130000	7.9	7.9	7.9	7.8	7.8	8.1	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
140000	7.9	7.9	7.9	7.8	7.8	8.1	8.2	8.2	8.1	8.1	8.0	8.0	8.0	8.0
150000	7.9	7.9	7.9	7.9	7.8	8.1	8.2	8.2	8.1	8.1	8.0	8.0	8.0	8.0
160000	7.9	7.9	7.9	7.9	7.8	8.1	8.2	8.2	8.1	8.1	8.0	8.0	8.0	8.0
170000	7.9	7.9	7.9	7.9	7.9	8.1	8.2	8.2	8.1	8.1	8.0	8.0	8.0	8.0
180000	7.9	7.9	7.9	7.8	7.9	8.1	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
190000	7.9	7.9	7.9	7.8	7.9	8.1	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
200000	7.9	7.9	7.9	7.8	7.9	8.1	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
210000	7.9	7.9	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
220000	7.9	7.9	7.8	7.8	7.9	8.1	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.0
230000	7.9	7.9	7.8	7.8	7.9	8.1	8.2	8.2	8.1	8.1	8.0	8.0	8.0	8.0
Daily Max	7.9	7.9	7.9	7.9	7.9	8.1	8.2	8.2	8.1	8.1	8.0	8.0	8.0	8.1
Daily Min	7.9	7.9	7.8	7.8	7.8	7.9	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
Average	7.9	7.9	7.9	7.8	7.8	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0

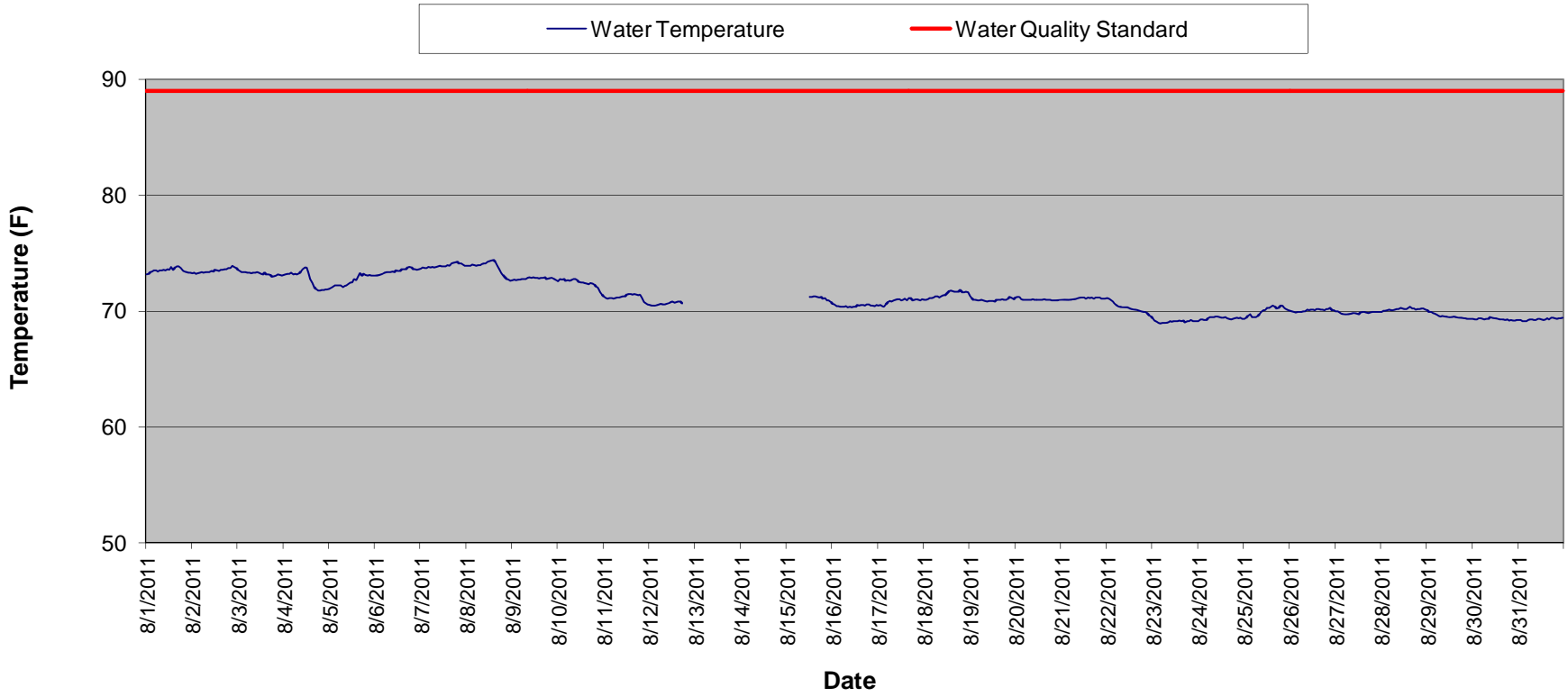
### Sandstone Rapids Tailwater Temperature - June 2011



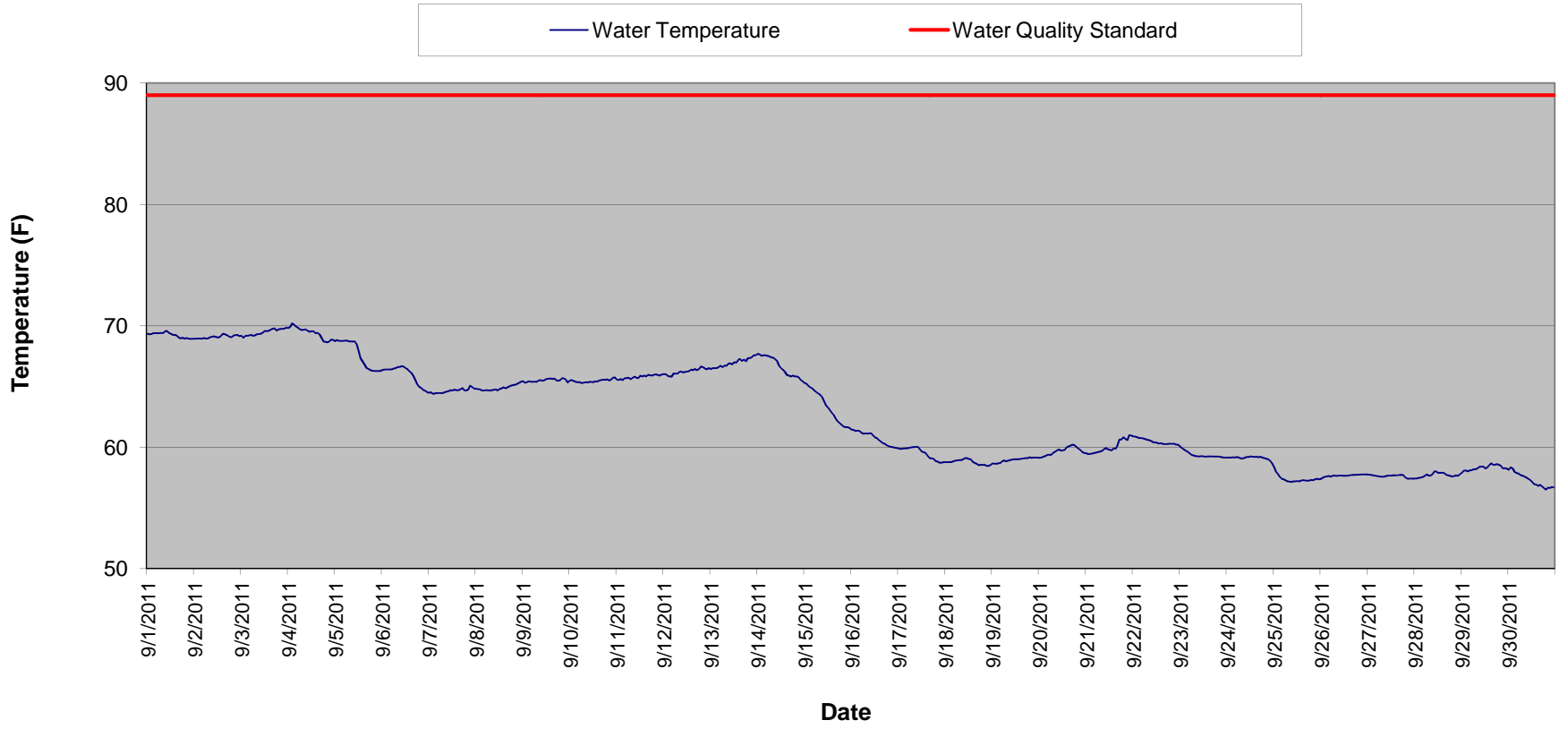
### Sandstone Rapids Tailwater Temperature - July 2011



### Sandstone Rapids Tailwater Temperature - August 2011



### Sandstone Rapids Tailwater Temperature - September 2011



Sandstone Tailwater Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	64.0	63.8	62.1	62.6	64.8	65.5	65.8	68.3	71.8	67.9	64.5	63.3	62.1	63.0	64.5	65.0
10000	64.3	63.8	62.2	63.1	64.9	65.8	65.9	68.4	71.5	67.8	64.5	63.5	62.0	63.0	64.8	65.0
20000	64.0	63.7	62.5	63.1	65.3	66.2	66.0	68.3	71.4	67.9	64.1	63.5	62.5	62.9	65.1	65.0
30000	63.8	63.6	62.7	63.5	65.3	66.1	66.7	68.6	71.6	67.9	64.1	63.6	62.7	63.3	65.2	64.9
40000	63.6	63.7	62.9	63.6	65.4	66.4	66.9	69.1	71.8	67.9	63.8	63.7	62.7	63.2	65.5	64.9
50000	63.5	63.7	62.6	63.7	65.5	66.7	67.0	69.1	71.5	68.1	63.8	63.9	62.8	63.5	65.8	65.1
60000	63.4	63.6	62.7	63.7	65.8	66.2	67.4	69.1	71.9	68.1	63.4	63.8	62.8	63.5	65.9	65.1
70000	63.3	63.6	62.9	63.9	65.9	67.0	67.2	69.6	71.8	68.0	63.3	64.0	63.0	64.3	66.1	65.0
80000	63.4	63.6	63.3	64.0	66.0	67.1	67.4	70.0	71.5	68.0	63.4	63.9	63.2	64.3	66.2	65.1
90000	63.4	63.6	63.4	64.3	65.7	66.7	68.0	70.5	71.9	67.9	63.2	63.7	63.3	64.2	66.6	65.0
100000	63.6	63.5	63.3	64.0	66.3	67.3	68.0	70.7	72.2	67.8	63.0	63.5	63.5	64.5	66.5	64.9
110000	63.9	63.6	63.0	64.0	65.6	66.7	68.1	70.9	71.8	67.9	63.1	62.9	63.7	64.6	66.5	64.7
120000	64.2	62.8	63.1	64.3	65.6	66.8	68.4	71.4	71.7	67.7	63.3	62.4	63.5	64.7	66.6	64.8
130000	64.5	62.2	62.7	64.1	65.0	66.5	68.6	71.0	71.4	67.6	62.9	61.9	63.8	64.8	66.6	64.8
140000	64.7	61.9	62.6	64.3	64.9	66.2	68.2	71.2	70.6	67.6	63.0	61.6	63.7	64.8	66.2	64.6
150000	64.6	61.4	62.0	64.2	64.7	66.1	68.3	70.9	70.0	67.5	63.0	61.4	63.4	65.1	66.1	64.5
160000	64.8	61.4	61.9	63.9	64.6	65.8	68.1	70.6	69.5	67.2	63.0	61.5	63.4	65.0	66.0	64.6
170000	64.7	61.2	61.9	64.0	64.5	65.4	68.1	71.3	69.2	66.7	62.9	61.4	63.2	64.6	65.7	64.5
180000	64.6	61.0	61.8	63.9	64.5	65.6	68.1	71.3	68.7	66.5	62.8	61.3	63.1	64.7	65.8	64.4
190000	64.4	61.0	61.7	64.3	64.4	65.5	67.8	71.0	68.3	66.1	62.9	61.4	63.1	64.7	65.6	64.5
200000	64.1	61.0	61.7	64.1	64.6	65.4	68.0	71.0	68.2	65.8	62.8	61.3	63.0	64.7	65.5	64.5
210000	63.9	60.8	62.2	64.5	64.5	65.7	67.9	71.8	68.2	65.3	62.8	61.6	63.0	64.5	65.2	64.3
220000	63.9	61.3	62.0	64.5	64.9	65.6	67.9	71.1	68.0	65.2	63.0	61.6	62.7	64.7	65.2	64.5
230000	63.9	61.7	62.0	64.6	65.4	65.5	67.9	71.7	67.7	64.8	63.1	61.6	62.9	64.7	65.1	64.5
Daily Max	64.8	63.8	63.4	64.6	66.3	67.3	68.6	71.8	72.2	68.1	64.5	64.0	63.8	65.1	66.6	65.1
Daily Min	63.3	60.8	61.7	62.6	64.4	65.4	65.8	68.3	67.7	64.8	62.8	61.3	62.0	62.9	64.5	64.3
Average	64.0	62.6	62.5	63.9	65.2	66.2	67.6	70.3	70.5	67.2	63.3	62.6	63.0	64.2	65.8	64.7

Monthly average: 65.6  
 License Maximum: 89 F



Sandstone Tailwater Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	64.5	64.6	65.2	65.2	64.6	63.9	65.0	64.3	65.1	66.4	67.5	66.0	67.1	67.7
10000	64.6	64.8	65.3	65.2	65.0	63.9	65.1	64.2	64.9	66.3	67.9	66.0	67.5	67.7
20000	64.9	65.2	65.6	65.1	64.8	64.0	65.0	64.0	64.8	66.2	67.6	65.9	67.3	67.7
30000	64.9	65.3	65.7	65.2	65.0	63.9	64.9	63.9	64.6	66.0	67.3	65.8	67.2	68.3
40000	64.9	65.0	65.9	65.0	65.0	63.8	64.8	63.8	64.4	65.8	67.2	65.7	66.8	68.6
50000	64.9	65.2	65.8	65.0	65.2	63.7	64.7	63.6	64.2	65.7	67.0	65.6	66.7	68.9
60000	65.1	65.4	65.9	64.9	65.3	63.5	64.6	63.4	64.1	65.6	66.8	65.5	66.5	68.3
70000	65.2	65.4	66.1	64.9	65.3	63.5	64.5	63.4	64.0	65.5	66.7	65.3	66.4	68.5
80000	65.2	65.5	66.1	64.9	65.4	63.3	64.5	63.3	63.9	65.4	66.7	65.3	66.2	68.2
90000	65.4	65.7	66.4	64.9	65.3	63.2	64.5	63.2	63.9	65.2	66.6	65.1	66.1	67.8
100000	65.3	65.8	66.3	64.6	65.3	63.2	64.4	63.2	64.0	65.1	66.6	65.1	66.1	
110000	65.4	66.1	66.4	64.7	65.3	63.2	64.4	63.1	64.1	65.2	66.5	65.0	66.0	67.3
120000	65.5	66.3	66.4	64.5	65.4	63.4	64.4	63.2	64.1	65.2	66.5	65.0	66.0	67.0
130000	65.1	66.1	66.3	64.5	65.3	63.6	64.4	63.4	64.4	65.6	66.5	65.1	66.1	67.0
140000	65.2	65.8	66.2	64.5	65.2	63.8	64.5	63.6	64.8	65.6	66.4	65.3	66.1	66.9
150000	65.0	65.4	65.9	64.4	65.1	63.9	64.5	63.9	65.2	65.8	66.3	65.5	66.2	66.8
160000	64.9	65.8	65.7	64.3	64.8	64.1	64.6	64.2	65.4	65.7	66.3	65.8	66.4	66.9
170000	64.8	65.6	65.6	64.4	64.6	64.4	64.7	64.7	66.0	65.9	66.2	65.9	66.5	67.0
180000	64.7	65.5	65.6	64.4	64.6	64.6	64.8	65.0	66.1	66.1	66.0	66.0	66.5	67.2
190000	64.7	65.4	65.5	64.3	64.4	64.8	64.8	65.2	66.5	66.4	66.0	66.1	66.6	67.5
200000	64.7	65.4	65.4	64.5	64.2	64.9	64.8	65.3	66.8	66.9	66.0	66.2	66.9	67.8
210000	64.5	65.2	65.2	64.5	64.3	65.0	64.7	65.4	66.7	66.9	66.0	66.4	67.1	68.0
220000	64.6	65.4	65.2	64.7	64.1	65.1	64.6	65.3	66.7	67.0	66.1	66.8	67.2	68.6
230000	64.8	65.3	65.3	64.6	64.0	65.2	64.5	65.2	66.6	67.3	66.0	67.2	67.5	69.0
Daily Max	65.5	66.3	66.4	65.2	65.4	65.2	65.1	65.4	66.8	67.3	67.9	67.2	67.5	69.0
Daily Min	64.5	64.6	65.2	64.3	64.0	63.2	64.4	63.1	63.9	65.1	66.0	65.0	66.0	66.8
Average	64.9	65.5	65.8	64.7	64.9	64.0	64.7	64.1	65.0	65.9	66.6	65.7	66.6	67.8

Missing data due to equipment maintenance

Sandstone Tailwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	69.3	69.3	70.5	70.9	71.3	71.0	70.9	70.5	71.2	70.6	72.2	73.0	72.7	71.4	69.6	70.0
10000	69.3	69.6	70.7	71.3	71.9	71.0	71.4	70.6	71.5	70.7	72.3	73.1	72.8	71.6	69.8	70.0
20000	69.4	70.0	71.2	71.7	72.1	71.0	71.4	70.7	71.1	70.9	72.5	73.4	72.6	71.7	69.7	70.1
30000	69.6	70.2	71.4	72.0	72.4	71.3	71.8	71.0	71.5	71.1	72.4	73.5	73.0	71.9	69.9	70.1
40000	69.5	70.3	71.4	72.2	72.8	71.1	71.5	71.1	71.8	71.4	72.7	73.6	73.0	72.0	69.9	70.1
50000	69.3	69.8	71.5	72.4	72.8	71.2	72.0	71.1	71.7	71.5	72.9	73.9	73.2	72.3	70.1	70.2
60000	69.1	70.1	71.8	72.7	72.7	71.6	72.2	71.2	71.9	71.6	73.0	74.0	73.0	72.4	70.0	70.5
70000	69.0	69.9	71.6	72.6	72.6	71.8	72.3	71.4	72.0	72.0	73.2	74.2	73.3	72.5	70.1	70.6
80000	68.7	69.9	71.5	72.2	72.7	72.0	72.4	71.7	72.0	72.2	73.3	74.3	73.3	72.6	70.3	70.9
90000	68.5	69.9	71.2	71.9	72.5	72.2	72.6	71.7	72.4	72.2	73.2	74.3	73.2	72.6	70.3	70.8
100000	68.1	69.7	70.6	71.8	72.3	72.2	72.8	71.5	72.5	72.1	73.3	74.4	73.1	72.5	70.4	70.8
110000	67.9	69.5	70.1	71.2	72.4	72.2	72.5	71.3	72.1	72.4	73.7	74.6	72.7	72.3	70.5	70.9
120000	67.8	69.2	69.5	70.7	71.8	72.0	72.8	71.0	71.7	72.6	73.6	74.2	72.4	72.4	70.6	71.2
130000	67.8	69.0	69.3	69.9	71.8	71.9	72.2	70.8	71.5	72.4	73.3	74.1	71.9	71.8	70.4	71.1
140000	67.7	69.0	68.9	69.9	71.5	71.8	72.1	70.4	71.4	72.5	73.5	73.9	71.8	71.4	70.5	71.0
150000	67.8	69.0	68.9	69.6	71.2	71.5	72.1	70.2	71.0	72.2	73.0	73.4	71.3	71.0	70.6	71.1
160000	67.8	68.9	68.6	69.6	71.0	71.5	71.4	70.3	70.7	72.2	73.1	73.0	71.2	70.6	70.4	71.1
170000	67.9	68.9	69.0	69.7	70.9	71.3	71.2	70.1	70.7	72.2	72.9	72.5	71.2	70.2	70.2	71.0
180000	68.1	69.2	69.0	69.7	70.7	71.1	70.9	70.0	70.4	72.0	72.7	72.6	71.2	70.0	70.3	70.9
190000	68.1	69.1	69.3	69.9	70.6	71.1	70.5	70.1	70.3	71.9	72.7	72.4	70.9	69.9	70.1	71.0
200000	68.1	69.6	69.5	70.3	70.6	71.0	70.2	70.3	70.3	72.0	72.7	72.3	71.0	69.9	70.0	70.7
210000	68.4	69.7	69.9	70.6	70.7	70.9	70.4	70.5	70.4	72.0	72.7	72.2	71.3	69.8	70.0	70.7
220000	68.6	69.9	70.1	70.9	70.6	70.9	70.3	70.8	70.4	72.1	72.7	72.4	71.0	69.7	70.0	70.6
230000	69.0	70.4	70.5	71.0	70.8	71.0	70.1	70.9	70.6	71.9	72.8	72.4	71.2	69.8	69.9	70.7
Daily Max	69.6	70.4	71.8	72.7	72.8	72.2	72.8	71.7	72.5	72.6	73.7	74.6	73.3	72.6	70.6	71.2
Daily Min	67.7	68.9	68.6	69.6	70.6	70.9	70.1	70.0	70.3	70.6	72.2	72.2	70.9	69.7	69.6	70.0
Average	68.5	69.6	70.3	71.0	71.7	71.4	71.6	70.8	71.3	71.9	72.9	73.4	72.2	71.3	70.2	70.7
Monthly average:					72.1											
License Maximum:					89 F											

Sandstone Tailwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	70.6	72.4	72.4	73.3	73.6	74.5	74.2	74.7	72.9	73.3	73.1	71.4	71.4	71.9	72.7
10000	70.6	72.6	72.4	73.3	73.7	74.5	74.2	74.6	72.9	73.4	73.1	71.3	71.5	71.9	72.7
20000	70.8	72.9	72.4	73.4	73.6	74.7	74.2	74.7	72.9	73.4	73.1	71.2	71.5	71.9	72.8
30000	70.8	72.6	72.5	73.5	73.6	74.7	74.2	74.7	72.9	73.7	73.1	71.2	71.5	71.8	73.0
40000	71.0	72.6	72.4	73.6	73.7	74.8	74.3	74.7	72.9	73.6	73.1	71.1	71.7	72.0	72.7
50000	71.1	72.3	72.5	73.7	73.7	75.1	74.3	74.7	72.9	73.7	73.1	71.1	71.7	72.1	73.0
60000	71.1	72.7	72.5	73.6	73.7	75.0	74.3	74.7	73.0	73.6	73.1	71.1	71.6	72.0	73.1
70000	71.2	72.7	72.6	73.6	73.7	75.0	74.3	74.7	73.0	73.6	73.1	71.2	71.7	72.1	73.0
80000	71.4		72.7	73.7	73.6	75.1	74.4	74.8	73.2	73.7	73.2	71.1	71.7	72.0	73.1
90000	71.5	72.1	72.8	73.6	73.6	75.2	74.4	74.8	73.2	73.6	73.3	71.2	71.7	72.1	73.2
100000	71.6	72.2	73.0	73.7	73.7	75.2	74.4	74.9	73.3	73.7	73.3	71.2	71.7	72.3	73.4
110000	71.6	72.2	73.0	73.7	73.8	75.3	74.3	74.9	73.2	73.7	73.3	71.2	71.7	72.2	73.4
120000	71.5	72.1	73.0	73.7	73.7	75.2	74.4	74.9	73.2	73.7	73.3	71.3	71.7	72.2	73.5
130000	71.6	72.1	73.1	73.7	73.7	75.3	74.5	74.9	73.3	73.7	73.3	71.3	71.7	72.2	73.7
140000	71.8	72.3	73.4	73.8	73.7	75.5	74.4	75.0	73.4	73.8	73.4	71.3	71.8	72.3	73.7
150000	71.8	72.2	73.5	73.9	73.9	75.3	74.5	75.2	73.5	73.7	73.4	71.4	71.9	72.4	73.7
160000	71.9	72.3	73.5	73.8	74.0	75.1	74.5	75.0	73.4	73.8	73.4	71.4	71.8	72.2	73.8
170000	72.0	72.4	73.3	73.8	74.0	74.9	74.4	74.6	73.4	73.9	73.2	71.4	71.7	72.3	73.7
180000	72.0	72.6	73.3	73.7	74.1	74.7	74.3	74.3	73.1	73.8	73.0	71.5	71.7	72.4	73.4
190000	71.8	72.7	73.1	73.7	74.2	74.5	74.4	74.0	73.3	73.8	72.6	71.4	71.7	72.4	73.2
200000	71.8	72.4	73.2	73.6	74.2	74.4	74.2	73.7	73.1	73.6	72.2	71.4	71.8	72.5	73.1
210000	72.0	72.4	73.1	73.6	74.3	74.3	74.3	73.5	73.4	73.5	72.0	71.4	71.8	72.5	73.1
220000	72.1	72.4	73.2	73.6	74.4	74.3	74.4	73.3	73.2	73.3	71.7	71.5	71.8	72.6	73.1
230000	72.5	72.4	73.2	73.6	74.4	74.2	74.7	73.0	73.1	73.2	71.5	71.5	72.0	72.6	73.2
Daily Max	72.5	72.9	73.5	73.9	74.4	75.5	74.7	75.2	73.5	73.9	73.4	71.5	72.0	72.6	73.8
Daily Min	70.6	72.1	72.4	73.3	73.6	74.2	74.2	73.0	72.9	73.2	71.5	71.1	71.4	71.8	72.7
Average	71.5	72.4	72.9	73.6	73.8	74.9	74.4	74.5	73.2	73.6	73.0	71.3	71.7	72.2	73.2

Missing data due to equipment maintenance

Sandstoen Tailwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	73.2	73.3	73.6	73.1	71.9	73.1	73.7	73.9	72.7	72.6	71.3	70.5				70.6
10000	73.2	73.3	73.5	73.2	72.0	73.1	73.8	73.9	72.7	72.8	71.1	70.5				70.6
20000	73.4	73.2	73.4	73.2	72.1	73.1	73.7	73.9	72.6	72.7	71.1	70.5				70.4
30000	73.4	73.3	73.3	73.2	72.2	73.2	73.7	74.0	72.7	72.8	71.1	70.5				70.4
40000	73.5	73.3	73.4	73.3	72.2	73.2	73.8	74.0	72.7	72.6	71.1	70.5				70.4
50000	73.5	73.4	73.3	73.2	72.2	73.3	73.8	73.9	72.8	72.6	71.1	70.6				70.4
60000	73.4	73.3	73.3	73.2	72.2	73.4	73.8	73.9	72.8	72.6	71.1	70.6				70.4
70000	73.5	73.4	73.3	73.2	72.1	73.4	73.8	73.9	72.8	72.7	71.2	70.6				70.4
80000	73.5	73.4	73.3	73.3	72.2	73.4	73.8	74.1	72.9	72.8	71.2	70.6				70.3
90000	73.6	73.3	73.3	73.4	72.2	73.4	73.9	74.1	72.9	72.8	71.2	70.6				70.4
100000	73.5	73.5	73.3	73.6	72.4	73.4	73.9	74.1	72.9	72.6	71.3	70.7				70.3
110000	73.6	73.4	73.3	73.7	72.5	73.5	73.9	74.3	72.9	72.5	71.3	70.8				70.4
120000	73.6	73.5	73.2	73.8	72.5	73.5	73.9	74.3	72.8	72.5	71.4	70.8			71.2	70.4
130000	73.8	73.5	73.2	73.3	72.8	73.5	73.9	74.4	72.9	72.4	71.5	70.7			71.2	70.5
140000	73.6	73.5	73.3	72.8	72.7	73.6	74.0	74.4	72.8	72.4	71.5	70.8			71.3	70.5
150000	73.8	73.6	73.2	72.4	73.0	73.6	73.9	74.3	72.9	72.4	71.4	70.8			71.3	70.5
160000	73.9	73.6	73.1	72.1	73.3	73.6	74.1	74.0	72.9	72.3	71.5	70.8			71.2	70.5
170000	73.9	73.6	73.1	71.9	73.0	73.8	74.2	73.6	72.9	72.4	71.4	70.7			71.2	70.5
180000	73.7	73.6	73.0	71.8	73.2	73.8	74.2	73.3	72.8	72.4	71.4				71.2	70.6
190000	73.5	73.7	73.0	71.7	73.1	73.8	74.3	73.1	72.8	72.3	71.4				71.1	70.6
200000	73.4	73.7	73.0	71.8	73.1	73.6	74.1	72.9	72.9	72.1	71.2				71.1	70.5
210000	73.3	73.9	73.1	71.8	73.1	73.6	74.1	72.8	72.9	72.0	70.8				70.9	70.5
220000	73.3	73.8	73.1	71.9	73.1	73.6	74.0	72.7	72.8	71.6	70.7				70.9	70.4
230000	73.3	73.7	73.1	71.9	73.1	73.6	73.9	72.6	72.6	71.4	70.6				70.8	70.5
Daily Max	73.9	73.9	73.6	73.8	73.3	73.8	74.3	74.4	72.9	72.8	71.5	70.8	0.0	0.0	71.3	70.6
Daily Min	73.2	73.2	73.0	71.7	71.9	73.1	73.7	72.6	72.6	71.4	70.6	70.5	0.0	0.0	70.8	70.3
Average	73.5	73.5	73.2	72.8	72.6	73.5	73.9	73.8	72.8	72.4	71.2	70.6	#DIV/0!	#DIV/0!	71.1	70.5

Missing data due to equipment setup error

Monthly average: 71.3  
License Maximum: 89 F

Sandstoen Tailwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	70.5	71.0	71.3	71.2	71.0	71.1	69.4	69.2	69.4	70.0	70.0	69.9	70.1	69.3	69.2
10000	70.5	71.0	71.1	71.2	71.0	71.1	69.2	69.3	69.4	70.0	70.0	70.0	69.9	69.3	69.2
20000	70.4	71.0	71.0	71.2	71.0	71.0	69.1	69.3	69.6	69.9	69.9	70.0	69.9	69.3	69.2
30000	70.4	71.1	71.0	71.0	71.0	70.8	69.0	69.2	69.7	69.9	69.8	70.1	69.8	69.4	69.2
40000	70.6	71.1	70.9	71.0	71.0	70.6	68.9	69.2	69.5	69.9	69.7	70.1	69.8	69.4	69.2
50000	70.8	71.2	70.9	71.0	71.0	70.5	69.0	69.4	69.5	69.9	69.7	70.1	69.7	69.3	69.2
60000	70.9	71.3	71.0	71.0	71.0	70.4	69.0	69.5	69.5	69.9	69.7	70.1	69.6	69.3	69.3
70000	70.8	71.3	70.9	71.0	71.0	70.4	69.0	69.5	69.6	70.0	69.7	70.1	69.5	69.4	69.3
80000	70.9	71.2	70.9	71.0	71.1	70.3	69.0	69.5	69.7	70.0	69.8	70.2	69.6	69.4	69.2
90000	71.0	71.3	70.8	71.0	71.1	70.3	69.1	69.5	69.9	70.1	69.8	70.2	69.5	69.5	69.2
100000	71.0	71.4	70.9	71.0	71.2	70.3	69.1	69.5	70.1	70.1	69.8	70.3	69.5	69.4	69.3
110000	71.0	71.4	70.9	71.0	71.2	70.3	69.2	69.5	70.1	70.1	69.8	70.2	69.5	69.4	69.3
120000	70.9	71.5	70.9	71.0	71.2	70.2	69.1	69.4	70.3	70.1	69.7	70.2	69.5	69.4	69.3
130000	71.0	71.7	70.8	71.0	71.1	70.2	69.1	69.4	70.3	70.1	69.9	70.2	69.5	69.4	69.2
140000	71.1	71.8	71.0	71.0	71.2	70.1	69.2	69.5	70.4	70.2	69.9	70.3	69.5	69.3	69.3
150000	70.9	71.7	71.0	71.0	71.1	70.1	69.1	69.4	70.5	70.2	69.9	70.4	69.5	69.3	69.4
160000	71.1	71.7	71.0	71.0	71.2	70.1	69.2	69.4	70.4	70.1	69.9	70.2	69.4	69.3	69.3
170000	71.1	71.7	71.0	71.0	71.1	70.0	69.0	69.3	70.2	70.1	69.8	70.2	69.4	69.2	69.4
180000	70.9	71.7	71.0	71.0	71.2	70.0	69.2	69.3	70.3	70.1	69.9	70.1	69.4	69.3	69.4
190000	71.0	71.8	71.0	70.9	71.2	69.9	69.2	69.4	70.5	70.2	69.9	70.2	69.4	69.2	69.4
200000	71.0	71.6	71.1	70.9	71.2	69.9	69.2	69.4	70.5	70.2	69.9	70.2	69.4	69.2	69.3
210000	71.0	71.6	71.2	70.9	71.1	69.8	69.2	69.4	70.3	70.3	69.9	70.2	69.3	69.2	69.4
220000	70.9	71.7	71.1	70.9	71.1	69.6	69.1	69.4	70.2	70.1	69.9	70.2	69.3	69.2	69.4
230000	71.0	71.6	71.0	71.0	71.1	69.5	69.2	69.3	70.1	70.1	69.9	70.1	69.3	69.2	69.4
Daily Max	71.1	71.8	71.3	71.2	71.2	71.1	69.4	69.5	70.5	70.3	70.0	70.4	70.1	69.5	69.4
Daily Min	70.4	71.0	70.8	70.9	71.0	69.5	68.9	69.2	69.4	69.9	69.7	69.9	69.3	69.2	69.2
Average	70.9	71.4	71.0	71.0	71.1	70.3	69.1	69.4	70.0	70.1	69.8	70.2	69.6	69.3	69.3

Sandstone Tailwater Temperature Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	69.4	69.0	69.2	69.8	68.7	66.3	64.5	64.8	65.4	65.5	65.6	66.0	66.4	67.7	65.3	61.4
10000	69.3	69.0	69.0	69.9	68.8	66.4	64.5	64.8	65.3	65.5	65.6	66.0	66.5	67.6	65.2	61.4
20000	69.3	69.0	69.2	70.2	68.8	66.4	64.4	64.8	65.4	65.5	65.6	65.9	66.5	67.5	65.0	61.4
30000	69.4	68.9	69.2	70.1	68.8	66.4	64.4	64.7	65.4	65.4	65.5	65.8	66.5	67.6	64.9	61.4
40000	69.4	69.0	69.2	69.9	68.8	66.4	64.5	64.7	65.4	65.4	65.7	65.8	66.6	67.6	64.9	61.3
50000	69.4	69.0	69.2	69.9	68.8	66.4	64.5	64.7	65.4	65.4	65.7	66.1	66.7	67.5	64.7	61.2
60000	69.4	68.9	69.2	69.7	68.8	66.5	64.5	64.7	65.4	65.3	65.7	66.1	66.6	67.5	64.5	61.1
70000	69.4	69.0	69.2	69.7	68.7	66.5	64.5	64.7	65.4	65.3	65.6	66.1	66.7	67.4	64.4	61.1
80000	69.4	69.1	69.3	69.7	68.7	66.6	64.5	64.7	65.5	65.4	65.7	66.2	66.7	67.4	64.3	61.1
90000	69.5	69.1	69.3	69.7	68.7	66.6	64.6	64.7	65.5	65.3	65.8	66.2	66.9	67.2	64.1	61.1
100000	69.6	69.1	69.4	69.6	68.7	66.7	64.6	64.8	65.5	65.4	65.7	66.2	66.9	67.1	63.8	61.2
110000	69.4	69.1	69.4	69.5	68.5	66.6	64.7	64.7	65.5	65.4	65.7	66.2	66.8	66.7	63.4	61.0
120000	69.4	69.0	69.6	69.6	67.9	66.5	64.7	64.8	65.6	65.4	65.9	66.2	67.0	66.5	63.2	60.8
130000	69.3	69.1	69.6	69.5	67.4	66.4	64.7	64.9	65.6	65.4	65.8	66.3	67.0	66.4	63.0	60.8
140000	69.2	69.3	69.6	69.4	67.1	66.3	64.7	64.9	65.7	65.4	65.9	66.4	67.2	66.2	62.8	60.6
150000	69.2	69.4	69.7	69.4	66.8	66.1	64.7	64.9	65.6	65.5	65.8	66.4	67.3	65.9	62.6	60.5
160000	69.0	69.3	69.7	69.3	66.5	65.9	64.8	64.9	65.7	65.5	66.0	66.5	67.1	65.9	62.3	60.3
170000	69.0	69.2	69.8	69.0	66.5	65.5	64.9	65.0	65.5	65.6	65.9	66.4	67.2	65.8	62.1	60.3
180000	69.0	69.1	69.6	68.7	66.3	65.2	64.7	65.1	65.5	65.6	65.9	66.5	67.1	65.9	62.0	60.2
190000	68.9	69.1	69.7	68.7	66.3	65.0	64.7	65.1	65.5	65.6	66.0	66.7	67.3	65.8	61.8	60.1
200000	69.0	69.2	69.7	68.6	66.3	64.9	64.7	65.1	65.7	65.5	66.0	66.6	67.4	65.8	61.7	60.0
210000	69.0	69.2	69.7	68.7	66.3	64.7	65.1	65.2	65.7	65.6	65.9	66.5	67.4	65.8	61.6	60.0
220000	68.9	69.2	69.8	68.9	66.3	64.7	65.0	65.3	65.6	65.7	65.9	66.4	67.6	65.6	61.6	60.0
230000	68.9	69.2	69.8	68.8	66.3	64.5	64.9	65.4	65.3	65.8	66.0	66.5	67.6	65.4	61.6	59.9
Daily Max	69.6	69.4	69.8	70.2	68.8	66.7	65.1	65.4	65.7	65.8	66.0	66.7	67.6	67.7	65.3	61.4
Daily Min	68.9	68.9	69.0	68.6	66.3	64.5	64.4	64.7	65.3	65.3	65.5	65.8	66.4	65.4	61.6	59.9
Average	69.2	69.1	69.5	69.4	67.7	66.0	64.6	64.9	65.5	65.5	65.8	66.2	67.0	66.7	63.4	60.8
Monthly average:					62.8											
License Maximum:					89 F											

Sandstone Tailwater Temperature Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	59.9	58.8	58.7	59.1	59.5	60.9	60.1	59.2	58.4	57.4	57.8	57.4	57.9	58.1
10000	59.9	58.8	58.7	59.1	59.4	60.9	59.9	59.1	58.0	57.5	57.7	57.4	58.1	58.4
20000	59.9	58.8	58.6	59.2	59.5	60.8	59.8	59.2	57.8	57.6	57.7	57.5	58.1	58.3
30000	59.9	58.8	58.7	59.3	59.5	60.7	59.7	59.2	57.6	57.6	57.7	57.5	58.0	58.0
40000	59.9	58.8	58.7	59.4	59.5	60.7	59.6	59.2	57.4	57.6	57.7	57.5	58.1	57.9
50000	59.9	58.9	58.9	59.4	59.6	60.7	59.5	59.2	57.4	57.6	57.6	57.6	58.1	57.8
60000	60.0	58.9	58.9	59.4	59.6	60.7	59.4	59.1	57.3	57.7	57.6	57.8	58.2	57.7
70000	60.0	58.9	58.8	59.5	59.6	60.6	59.3	59.1	57.2	57.7	57.6	57.7	58.2	57.7
80000	60.0	58.9	58.9	59.6	59.7	60.6	59.3	59.1	57.2	57.7	57.6	57.7	58.3	57.6
90000	60.0	59.0	58.9	59.7	59.8	60.5	59.2	59.1	57.1	57.7	57.6	57.8	58.4	57.5
100000	60.0	59.1	59.0	59.8	59.9	60.4	59.2	59.2	57.2	57.7	57.7	58.0	58.4	57.4
110000	59.8	59.1	59.0	59.7	59.8	60.4	59.3	59.2	57.2	57.7	57.7	58.0	58.4	57.3
120000	59.6	59.0	59.0	59.7	59.8	60.4	59.3	59.2	57.2	57.7	57.7	57.9	58.3	57.1
130000	59.6	59.0	59.0	59.8	59.7	60.3	59.2	59.2	57.2	57.7	57.7	57.9	58.3	56.9
140000	59.5	58.8	59.0	60.0	59.9	60.3	59.2	59.2	57.3	57.7	57.7	57.9	58.5	56.9
150000	59.3	58.7	59.1	60.1	59.9	60.3	59.3	59.2	57.3	57.7	57.7	57.9	58.7	56.8
160000	59.1	58.6	59.1	60.1	60.1	60.3	59.3	59.2	57.3	57.7	57.7	57.7	58.6	56.9
170000	59.1	58.5	59.1	60.2	60.6	60.3	59.2	59.2	57.2	57.7	57.7	57.7	58.6	56.8
180000	59.0	58.6	59.1	60.2	60.6	60.3	59.2	59.1	57.3	57.7	57.7	57.7	58.6	56.6
190000	58.9	58.5	59.2	60.0	60.8	60.3	59.2	59.1	57.3	57.8	57.5	57.6	58.6	56.5
200000	58.8	58.6	59.1	59.9	60.7	60.3	59.2	59.1	57.3	57.8	57.4	57.6	58.5	56.7
210000	58.7	58.5	59.1	59.8	60.6	60.3	59.2	59.0	57.4	57.8	57.4	57.7	58.2	56.7
220000	58.7	58.5	59.1	59.6	61.0	60.2	59.2	58.9	57.4	57.8	57.4	57.7	58.3	56.7
230000	58.8	58.5	59.2	59.5	61.0	60.2	59.2	58.7	57.4	57.8	57.4	57.8	58.2	56.7
Daily Max	60.0	59.1	59.2	60.2	61.0	60.9	60.1	59.2	58.4	57.8	57.8	58.0	58.7	58.4
Daily Min	58.7	58.5	58.6	59.1	59.4	60.2	59.2	58.7	57.1	57.4	57.4	57.4	57.9	56.5
Average	59.5	58.8	59.0	59.7	60.0	60.5	59.4	59.1	57.4	57.7	57.6	57.7	58.3	57.3

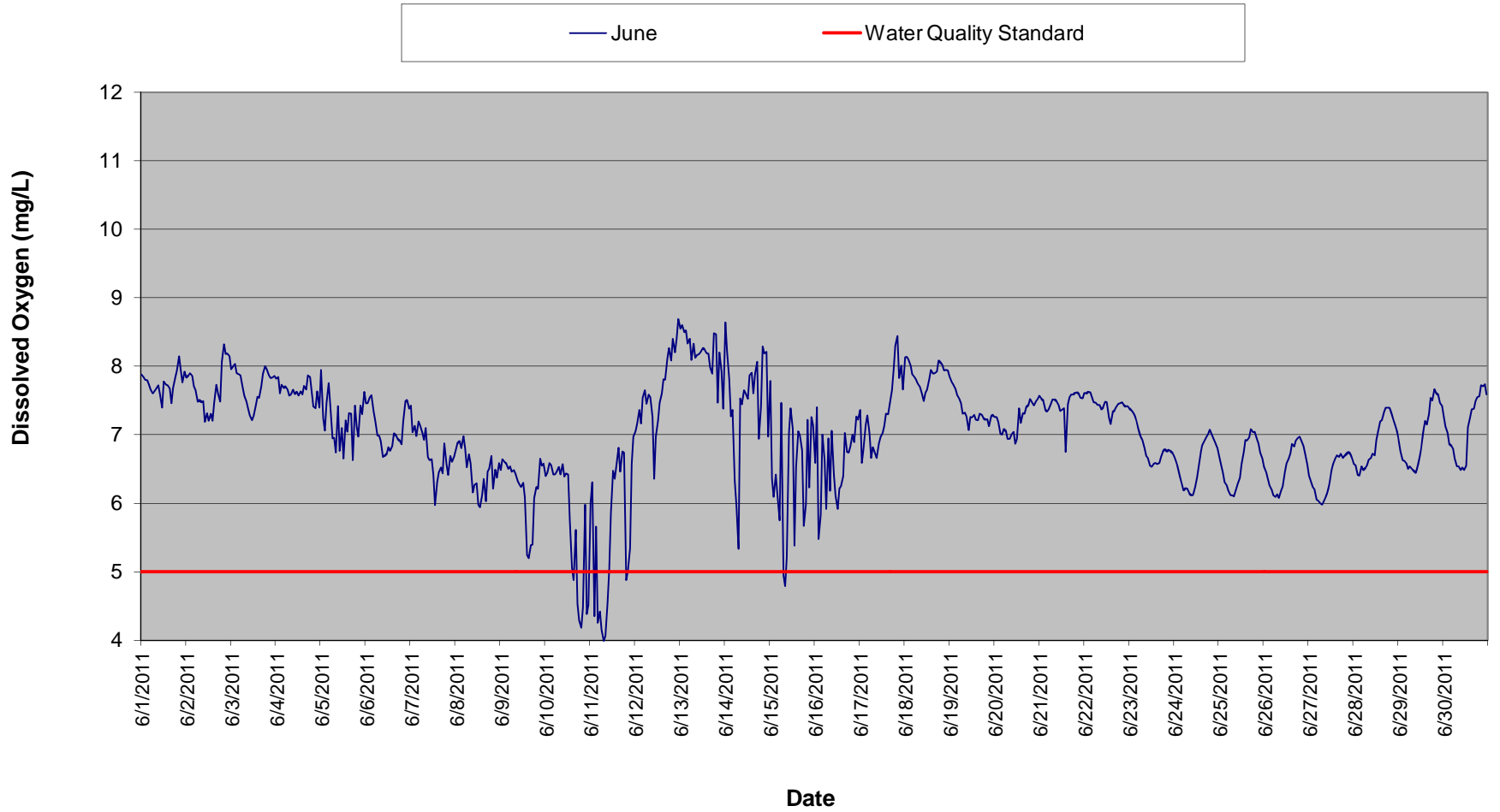
**Potato Rapids Hydroelectric Project**

**FERC Project No. 2560**

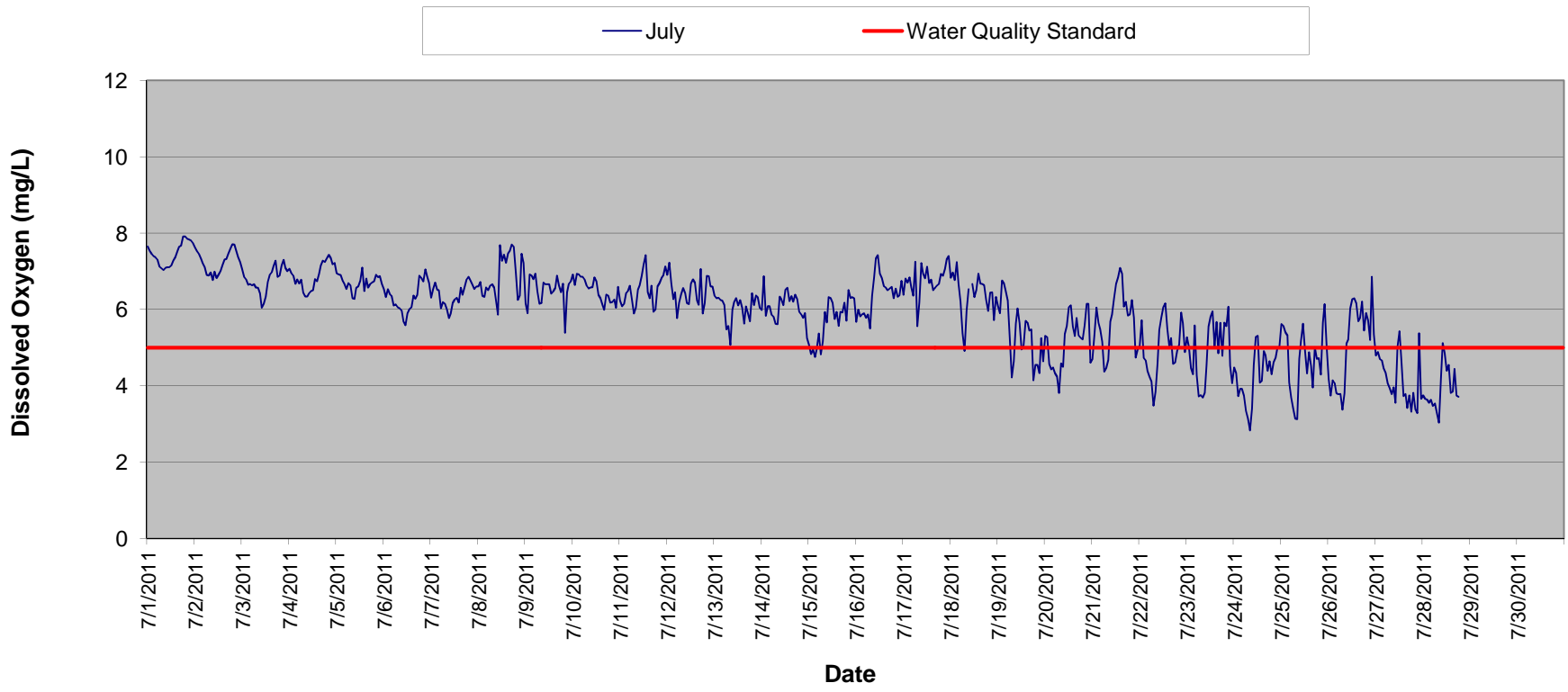


## **Potato Rapids Headwater Monitoring Location**

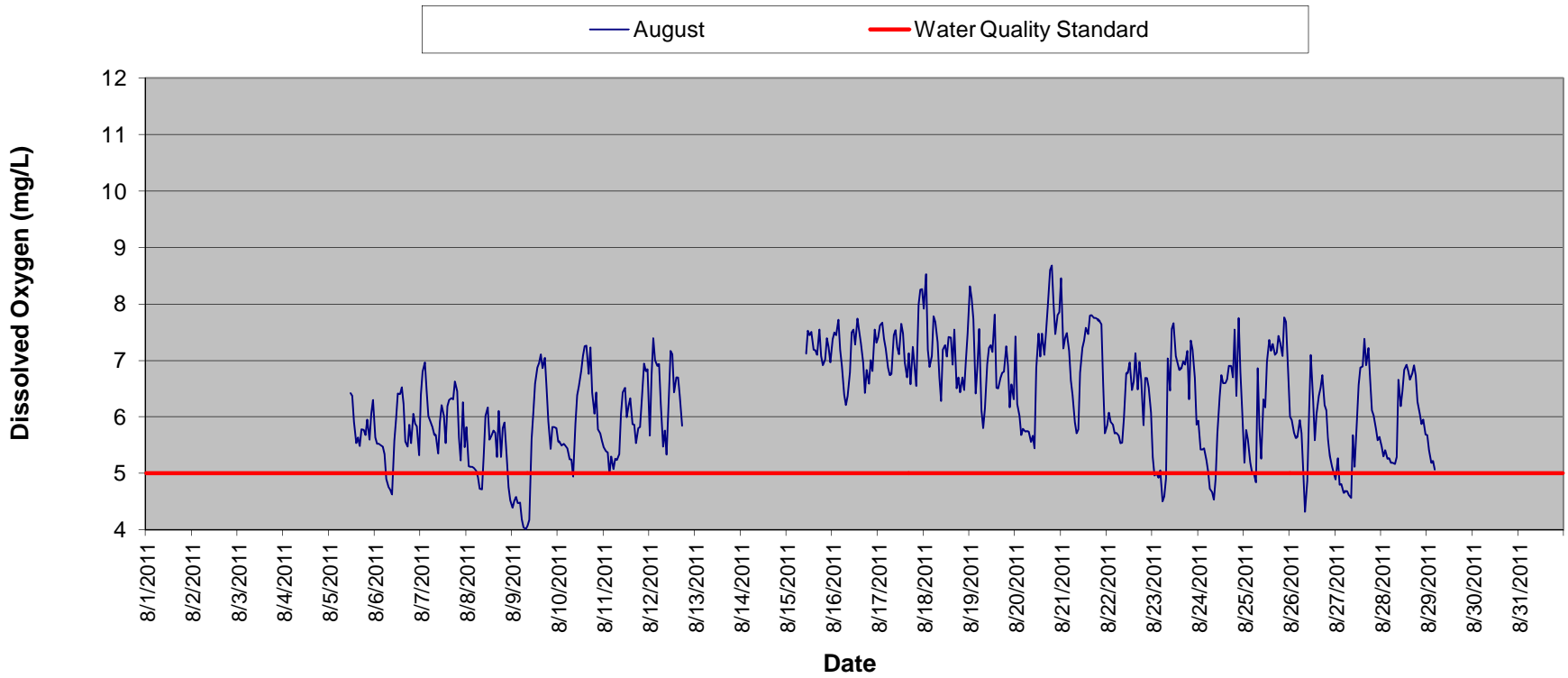
### Potato Rapids Headwater Dissolved Oxygen Summary - June 2011



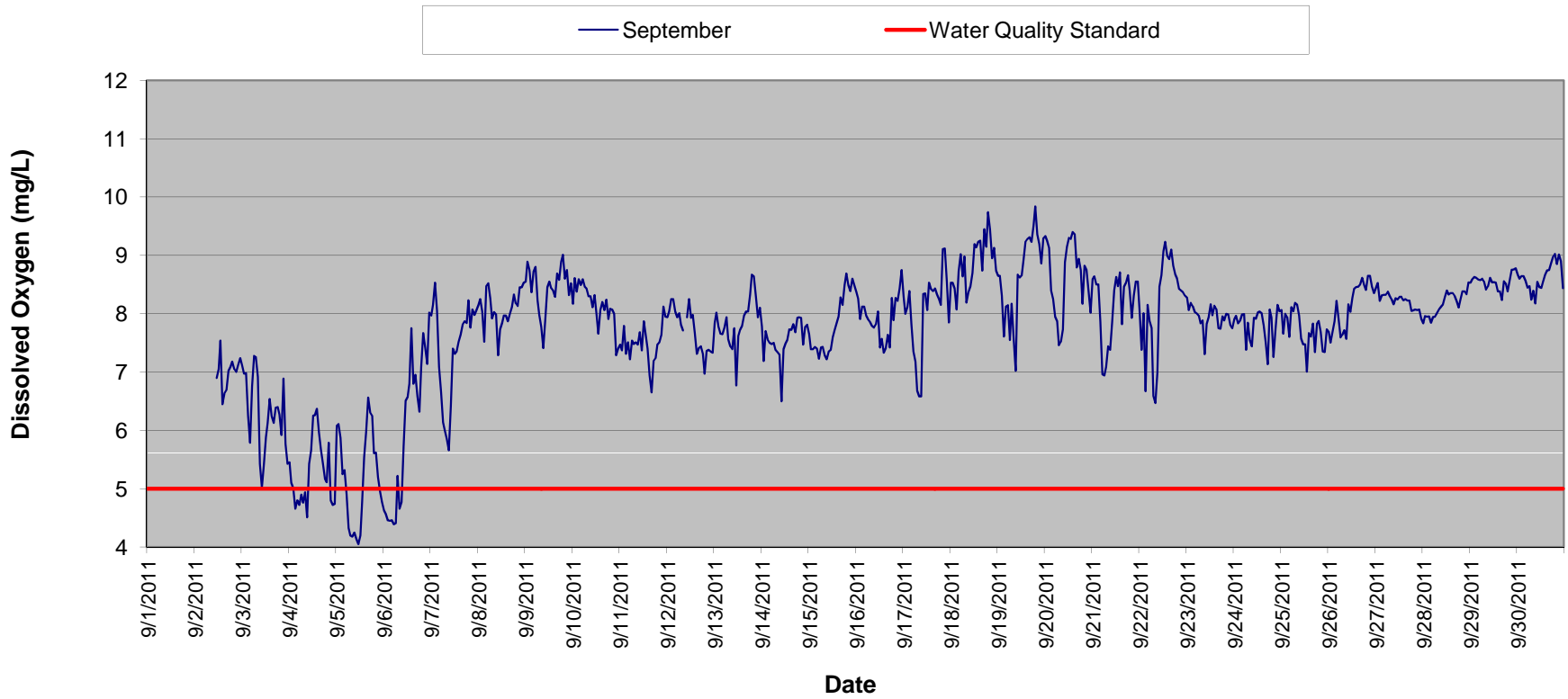
### Potato Rapids Headwater Dissolved Oxygen Summary - July 2011



### Potato Rapids Headwater Dissolved Oxygen Summary - August 2011



### Potato Rapids Headwater Dissolved Oxygen Summary - September 2011



Potato Rapids Headwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	7.9	7.8	8.0	7.8	7.9	7.5	7.4	6.8	6.5	6.4	6.0	7.1	8.6	8.6	7.8	6.6
10000	7.8	7.9	8.0	7.8	7.2	7.5	7.0	6.9	6.6	6.4	6.3	7.2	8.6	8.2	6.4	7.4
20000	7.8	7.9	8.0	7.6	7.1	7.6	7.1	6.9	6.6	6.6	4.4	7.4	8.5	7.8	6.1	5.5
30000	7.8	7.9	7.9	7.7	7.5	7.6	7.0	6.8	6.6	6.6	5.7	7.2	8.5	7.3	6.4	5.8
40000	7.7	7.7	7.9	7.7	7.8	7.3	7.2	7.0	6.5	6.4	4.3	7.5	8.3	7.4	6.1	7.0
50000	7.7	7.6	7.9	7.7	7.4	7.2	7.1	6.8	6.5	6.4	4.4	7.7	8.4	6.3	5.8	6.6
60000	7.6	7.5	7.7	7.7	6.9	7.0	7.0	6.5	6.5	6.5	4.2	7.5	8.1	6.0	7.5	5.9
70000	7.6	7.5	7.6	7.6	7.0	7.0	6.9	6.7	6.5	6.5	4.0	7.6	8.3	5.3	5.0	7.0
80000	7.7	7.5	7.5	7.6	6.7	6.9	7.1	6.6	6.4	6.4	4.1	7.6	8.1	7.5	4.8	6.2
90000	7.7	7.5	7.4	7.7	7.4	6.7	6.7	6.2	6.3	6.6	4.6	7.3	8.2	7.4	5.2	7.1
100000	7.6	7.2	7.3	7.6	6.8	6.7	6.6	6.3	6.3	6.4	5.0	6.4	8.2	7.7	7.0	6.4
110000	7.4	7.3	7.2	7.6	7.1	6.7	6.6	6.3	6.2	6.4	5.9	7.0	8.2	7.6	7.4	6.1
120000	7.8	7.2	7.3	7.6	6.7	6.8	6.4	6.0	6.3	6.4	6.5	7.2	8.3	7.5	7.1	5.9
130000	7.7	7.3	7.4	7.6	7.2	6.8	6.0	5.9	6.1	5.8	6.4	7.5	8.2	7.9	5.4	6.2
140000	7.7	7.2	7.6	7.6	7.0	6.8	6.3	6.1	5.2	5.1	6.6	7.6	8.2	7.9	6.5	6.3
150000	7.7	7.5	7.5	7.7	7.3	7.0	6.5	6.4	5.2	4.9	6.8	7.8	8.2	7.6	7.1	6.4
160000	7.5	7.7	7.7	7.7	7.3	7.0	6.5	6.0	5.4	5.6	6.5	7.8	8.0	7.9	7.0	7.0
170000	7.7	7.6	7.9	7.9	6.6	6.9	6.4	6.5	5.4	4.5	6.8	8.1	7.9	8.1	6.8	6.8
180000	7.8	7.5	8.0	7.8	7.4	6.9	6.9	6.5	6.1	4.3	6.7	8.3	8.5	6.9	5.7	6.7
190000	7.9	8.1	8.0	7.6	7.1	6.9	6.6	6.7	6.2	4.2	4.9	8.1	8.5	7.4	6.0	6.8
200000	8.1	8.3	7.9	7.4	7.0	7.2	6.4	6.2	6.2	4.5	5.0	8.4	7.5	8.3	7.2	7.0
210000	7.9	8.2	7.8	7.4	7.4	7.5	6.7	6.5	6.7	6.0	5.3	8.2	8.2	8.2	6.2	6.9
220000	7.8	8.2	7.8	7.6	7.3	7.5	6.6	6.4	6.6	4.4	6.6	8.4	7.9	8.2	7.3	7.3
230000	7.9	8.2	7.9	7.4	7.6	7.4	6.7	6.6	6.6	4.5	7.0	8.7	7.4	7.0	7.1	7.2
Daily Max	8.1	8.3	8.0	7.9	7.9	7.6	7.4	7.0	6.7	6.6	7.0	8.7	8.6	8.6	7.8	7.4
Daily Min	7.4	7.2	7.2	7.4	6.6	6.7	6.0	5.9	5.2	4.2	4.0	6.4	7.4	5.3	4.8	5.5
Average	7.7	7.7	7.7	7.6	7.2	7.1	6.7	6.5	6.2	5.7	5.6	7.6	8.2	7.5	6.4	6.6

Low readings due to stratification of reservoir  
 License Minimum DO: 5.0 mg/l

Potato Rapids Headwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.4	8.1	7.9	7.3	7.6	7.6	7.4	6.7	6.7	6.5	6.4	6.6	6.9	7.3
10000	6.6	8.1	7.8	7.3	7.5	7.6	7.4	6.6	6.6	6.4	6.3	6.6	6.8	7.1
20000	6.8	8.1	7.7	7.2	7.5	7.6	7.3	6.5	6.4	6.4	6.2	6.4	6.6	7.0
30000	7.1	8.0	7.7	7.0	7.4	7.6	7.3	6.4	6.3	6.3	6.2	6.4	6.6	6.9
40000	7.3	7.9	7.6	7.0	7.3	7.5	7.2	6.3	6.3	6.2	6.1	6.5	6.6	6.8
50000	7.0	7.8	7.5	7.1	7.4	7.5	7.1	6.2	6.2	6.1	6.0	6.5	6.5	6.8
60000	6.7	7.8	7.5	7.1	7.5	7.5	7.0	6.2	6.1	6.1	6.0	6.5	6.5	6.7
70000	6.8	7.8	7.3	6.9	7.5	7.4	6.9	6.2	6.1	6.1	6.0	6.6	6.5	6.5
80000	6.7	7.7	7.3	6.9	7.5	7.4	6.8	6.1	6.1	6.1	6.0	6.6	6.5	6.5
90000	6.7	7.6	7.3	7.0	7.5	7.4	6.7	6.1	6.2	6.2	6.1	6.7	6.4	6.5
100000	6.9	7.5	7.1	7.0	7.4	7.4	6.7	6.1	6.3	6.2	6.2	6.7	6.5	6.5
110000	7.0	7.6	7.3	6.9	7.3	7.5	6.6	6.2	6.4	6.5	6.3	6.7	6.7	6.5
120000	7.0	7.7	7.3	6.9	7.4	7.5	6.5	6.3	6.6	6.6	6.5	6.9	6.8	6.6
130000	7.1	7.8	7.3	7.4	7.4	7.3	6.6	6.6	6.7	6.7	6.6	7.0	7.0	7.1
140000	7.3	8.0	7.2	7.2	6.7	7.2	6.6	6.7	6.9	6.7	6.6	7.2	7.2	7.3
150000	7.3	7.9	7.2	7.3	7.4	7.3	6.6	6.8	6.9	6.9	6.7	7.2	7.2	7.4
160000	7.5	7.9	7.3	7.3	7.5	7.4	6.6	6.9	7.0	6.8	6.7	7.3	7.3	7.4
170000	7.7	7.9	7.3	7.4	7.6	7.4	6.7	7.0	7.1	6.9	6.7	7.4	7.5	7.5
180000	8.0	8.1	7.2	7.4	7.6	7.5	6.8	7.0	7.0	7.0	6.7	7.4	7.5	7.6
190000	8.3	8.1	7.2	7.5	7.6	7.5	6.8	7.1	7.0	7.0	6.7	7.4	7.7	7.6
200000	8.4	8.0	7.2	7.5	7.6	7.5	6.8	7.0	7.0	6.9	6.7	7.3	7.6	7.7
210000	7.8	7.9	7.1	7.4	7.6	7.4	6.8	6.9	6.9	6.8	6.7	7.2	7.6	7.7
220000	8.0	8.0	7.3	7.5	7.5	7.4	6.8	6.9	6.7	6.7	6.7	7.2	7.5	7.7
230000	7.7	7.9	7.3	7.5	7.5	7.4	6.7	6.8	6.6	6.6	6.7	7.0	7.4	7.6
Daily Max	8.4	8.1	7.9	7.5	7.6	7.6	7.4	7.1	7.1	7.0	6.7	7.4	7.7	7.7
Daily Min	6.6	7.5	7.1	6.9	6.7	7.2	6.5	6.1	6.1	6.1	6.0	6.4	6.4	6.5
Average	7.3	7.9	7.4	7.2	7.5	7.4	6.8	6.6	6.6	6.5	6.4	6.9	7.0	7.1

Potato Rapids Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.7	7.6	7.1	7.1	7.0	6.5	6.3	6.6	6.2	6.9	6.2	6.9	6.4	6.0	5.1	5.7
10000	7.5	7.5	6.9	7.0	6.9	6.3	6.5	6.7	5.9	6.6	6.1	7.2	6.3	6.9	4.8	6.0
20000	7.5	7.5	6.8	6.9	6.9	6.5	6.7	6.4	6.9	6.9	6.2	6.7	6.3	5.8	5.0	5.8
30000	7.4	7.3	6.7	6.7	6.8	6.4	6.5	6.3	6.9	6.9	6.4	6.3	6.3	6.1	4.8	5.9
40000	7.4	7.2	6.7	6.8	6.7	6.4	6.5	6.6	6.8	6.9	6.5	6.5	6.2	6.1	5.0	5.9
50000	7.3	7.1	6.6	6.7	6.5	6.1	6.0	6.5	6.9	6.9	6.6	5.8	6.1	5.9	5.4	5.8
60000	7.1	6.9	6.7	6.8	6.7	6.1	6.2	6.6	6.5	6.8	6.3	6.2	5.5	5.8	4.8	5.9
70000	7.1	6.9	6.6	6.4	6.6	6.1	6.2	6.7	6.2	6.6	5.9	6.4	5.6	5.6	5.2	5.5
80000	7.0	7.0	6.6	6.3	6.3	6.0	6.0	6.6	6.2	6.6	6.1	6.6	5.1	5.6	5.9	6.4
90000	7.1	6.8	6.4	6.3	6.3	6.0	5.8	6.2	6.7	6.6	6.5	6.4	6.0	6.3	5.7	6.8
100000	7.1	7.0	6.0	6.4	6.6	5.7	5.9	5.9	6.7	6.6	6.6	6.2	6.2	6.3	6.3	7.3
110000	7.1	6.8	6.2	6.5	6.6	5.6	6.2	7.7	6.7	6.8	6.9	6.1	6.3	6.1	6.3	7.4
120000	7.2	6.9	6.3	6.5	6.8	5.9	6.3	7.3	6.7	6.7	7.2	6.7	6.1	6.5	6.2	6.9
130000	7.3	7.0	6.7	6.8	7.1	6.0	6.3	7.4	6.4	6.4	7.4	6.8	6.3	6.6	5.8	6.8
140000	7.4	7.2	6.9	6.7	6.5	6.1	6.2	7.2	6.5	6.3	6.5	6.7	6.0	6.2	5.9	6.6
150000	7.5	7.3	7.0	6.9	6.8	6.4	6.6	7.5	6.6	6.1	6.3	6.2	5.6	6.4	5.6	6.6
160000	7.6	7.3	7.1	7.2	6.6	6.3	6.4	7.5	6.9	6.0	6.6	6.1	6.1	6.2	5.9	6.5
170000	7.7	7.5	7.3	7.3	6.7	6.4	6.6	7.7	6.6	6.4	5.9	7.1	5.9	6.4	5.9	6.6
180000	7.9	7.6	6.9	7.2	6.7	6.9	6.8	7.6	6.5	6.4	6.0	5.9	5.7	6.3	6.2	6.6
190000	7.9	7.7	6.9	7.3	6.7	6.8	6.9	7.0	6.7	6.2	6.6	6.2	6.4	5.9	5.7	6.3
200000	7.9	7.7	7.2	7.4	6.9	6.7	6.8	6.3	5.4	6.2	6.7	6.9	6.1	5.9	6.5	6.6
210000	7.8	7.5	7.3	7.3	6.8	7.1	6.6	6.4	6.5	6.3	6.8	6.9	6.4	5.8	6.3	6.3
220000	7.8	7.4	7.1	7.2	6.9	6.9	6.5	7.5	6.7	6.0	6.9	6.6	6.3	5.9	6.3	6.4
230000	7.7	7.2	7.0	7.2	6.7	6.7	6.6	7.2	6.7	6.6	7.1	6.6	6.0	5.3	6.3	6.8
Daily Max	7.9	7.7	7.3	7.4	7.1	7.1	6.9	7.7	6.9	6.9	7.4	7.2	6.4	6.9	6.5	7.4
Daily Min	7.0	6.8	6.0	6.3	6.3	5.6	5.8	5.9	5.4	6.0	5.9	5.8	5.1	5.3	4.8	5.5
Average	7.5	7.2	6.8	6.9	6.7	6.3	6.4	6.9	6.5	6.5	6.5	6.5	6.0	6.1	5.7	6.4

Low readings due to stratification of reservoir

License Minimum Dissolved Oxygen: 5.0 mg/l



Potato Rapids Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	6.4	6.8	6.1	5.3	4.7	5.1	5.3	4.5	5.6	4.2	4.8	3.8			
10000	6.8	7.0	5.9	5.3	5.4	5.7	5.0	4.3	5.6	3.7	4.9	3.7			
20000	6.7	6.8	6.8	4.6	6.1	4.7	4.5	3.7	5.4	4.1	4.7	3.6			
30000	6.8	7.2	6.7	4.4	5.7	4.7	4.3	3.9	5.3	4.1	4.7	3.6			
40000	6.6	6.7	6.5	4.5	5.5	4.4	5.6	3.9	4.1	3.8	4.5	3.6			
50000	6.4	6.2	6.2	4.3	5.2	4.2	4.3	3.7	3.7	3.8	4.3	3.5			
60000	7.3	5.4	5.2	4.2	4.4	4.1	3.7	3.3	3.4	3.8	4.1	3.5			
70000	5.6	4.9	4.2	3.8	4.5	3.5	3.8	3.1	3.1	3.4	3.9	3.3			
80000	6.2	6.0	4.6	4.6	4.7	3.8	3.7	2.8	3.1	3.8	3.8	3.0			
90000	7.2	6.5	5.6	4.5	5.7	4.6	3.8	3.4	4.7	5.1	4.0	4.2			
100000	6.9		6.0	5.4	5.9	5.5	4.5	4.5	5.2	5.2	3.6	5.1			
110000	6.8	6.7	5.6	5.6	6.3	5.8	5.6	5.3	5.6	6.0	5.0	4.9			
120000	7.1	6.3	5.0	6.1	6.7	6.1	5.8	5.3	4.9	6.3	5.4	4.4			
130000	6.7	6.5	5.1	6.1	6.8	6.2	6.0	4.1	4.3	6.3	4.6	4.6			
140000	6.8	6.9	5.7	5.6	7.1	5.5	5.0	4.1	4.9	6.2	3.7	3.8			
150000	6.5	6.7	5.7	5.3	6.9	5.0	5.7	4.9	4.5	5.7	3.8	3.9			
160000	6.6	6.7	5.5	5.8	6.1	5.3	4.9	4.8	4.0	5.8	3.4	4.4			
170000	6.6	6.6	5.5	5.3	6.2	4.6	5.7	4.4	5.0	6.2	3.8	3.7			
180000	6.7	6.3	4.1	5.3	5.8	4.6	4.8	4.7	4.7	5.5	3.3	3.7			
190000	6.9	6.0	4.6	5.2	5.9	4.9	5.7	4.3	4.7	5.9	3.8				
200000	6.9	6.4	4.6	5.6	6.3	5.1	5.6	4.6	4.3	5.7	3.4				
210000	7.1	6.5	4.3	6.2	5.8	5.9	6.1	4.7	5.7	5.2	3.3				
220000	7.3	5.7	5.3	6.2	4.7	5.6	4.5	5.0	6.1	6.9	5.4				
230000	7.4	6.3	4.6	4.6	5.0	4.9	4.1	5.0	5.0	5.4	3.7				
Daily Max	7.4	7.2	6.8	6.2	7.1	6.2	6.1	5.3	6.1	6.9	5.4	5.1	0.0	0.0	0.0
Daily Min	5.6	4.9	4.1	3.8	4.4	3.5	3.7	2.8	3.1	3.4	3.3	3.0	0.0	0.0	0.0
Average	6.8	6.4	5.4	5.1	5.7	5.0	4.9	4.3	4.7	5.1	4.2	3.9	#DIV/0!	#DIV/0!	#DIV/0!

Missing data due to equipment maintenance

Missing data due to power failure

Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						5.6	6.4	5.8	4.4	5.6	5.5	5.7				7.4
10000						5.5	6.8	5.1	4.5	5.5	5.4	6.7				7.5
20000						5.5	7.0	5.1	4.6	5.5	5.4	7.4				7.4
30000						5.5	6.5	5.1	4.5	5.5	5.0	7.0				7.7
40000						5.5	6.0	5.1	4.5	5.5	5.3	6.9				7.2
50000						5.3	5.9	5.0	4.2	5.4	5.1	6.9				6.9
60000						4.9	5.8	4.9	4.0	5.3	5.3	6.2				6.4
70000						4.8	5.7	4.7	4.0	5.3	5.2	5.5				6.2
80000						4.7	5.7	4.7	4.1	4.9	5.3	5.8				6.4
90000						4.6	5.4	5.3	4.2	5.9	6.1	5.3				6.8
100000						5.6	5.9	6.0	5.6	6.4	6.4	6.4				7.5
110000					6.4	6.0	6.2	6.2	6.1	6.6	6.5	7.2			7.1	7.5
120000					6.4	6.4	6.0	5.6	6.6	6.8	6.0	7.1			7.5	7.5
130000					5.9	6.4	5.5	5.7	6.9	7.1	6.2	6.4			7.4	7.3
140000					5.5	6.5	6.2	5.8	7.0	7.3	6.3	6.7			7.5	7.7
150000					5.6	6.2	6.3	5.7	7.1	7.3	5.9	6.7			7.2	7.5
160000					5.5	5.6	6.3	5.3	6.9	6.8	5.9	6.4			7.1	7.0
170000					5.8	5.5	6.3	6.1	7.1	7.2	5.5	5.8			7.1	7.0
180000					5.8	5.9	6.6	5.3	6.5	6.4	5.8				7.5	6.4
190000					5.7	5.5	6.5	5.8	5.9	6.1	5.8				7.1	6.8
200000					6.0	6.1	5.6	5.9	5.4	6.4	6.3				6.9	6.6
210000					5.6	5.9	5.2	5.3	5.8	5.8	6.9				7.0	7.0
220000					6.1	5.8	6.3	4.8	5.8	5.7	6.8				7.4	6.8
230000					6.3	5.3	5.5	4.5	5.8	5.6	6.8				7.2	7.5
															7.0	7.3
Daily Max	0.0	0.0	0.0	0.0	6.4	6.5	7.0	6.2	7.1	7.3	6.9	7.4	0.0	0.0	7.5	7.7
Daily Min	0.0	0.0	0.0	0.0	5.5	4.6	5.2	4.5	4.0	4.9	5.0	5.3	0.0	0.0	6.9	6.2
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.9	5.6	6.1	5.4	5.5	6.1	5.9	6.5	#DIV/0!	#DIV/0!	7.2	7.1

Missing data due to power failure  
 Low readings due to stratification of reservoir

Missing data due to equipment setup error

License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.4	7.9	8.3	7.4	8.5	5.8	5.3	5.9	5.2	6.0	4.9	5.5	5.7		
10000	7.6	8.5	8.1	6.2	7.2	6.1	5.0	5.4	5.8	5.9	5.3	5.3	5.4		
20000	7.7	7.2	7.7	6.0	7.4	5.9	5.0	5.4	5.6	5.7	4.8	5.4	5.2		
30000	7.4	6.9	6.4	5.7	7.5	5.9	4.9	5.4	5.2	5.6	4.8	5.3	5.2		
40000	7.2	7.1	6.9	5.8	7.2	5.7	5.1	5.2	5.0	5.7	4.7	5.3	5.1		
50000	6.9	7.8	7.6	5.7	6.6	5.7	4.5	5.0	5.0	5.9	4.7	5.2			
60000	6.7	7.7	6.1	5.7	6.4	5.7	4.6	4.7	4.8	5.7	4.7	5.2			
70000	6.8	7.3	5.8	5.7	5.9	5.5	4.9	4.7	6.9	5.0	4.6	5.2			
80000	7.4	6.7	6.2	5.5	5.7	5.5	7.0	4.5	5.8	4.3	4.6	5.3			
90000	7.5	6.3	6.9	5.7	5.8	6.0	6.5	4.9	5.3	4.9	5.7	6.7			
100000	7.2	7.2	7.2	5.4	6.8	6.8	7.6	5.7	6.3	6.1	5.1	6.2			
110000	7.1	7.3	7.3	6.9	7.2	6.8	7.7	6.4	6.2	7.1	5.9	6.5			
120000	7.6	7.1	7.1	7.5	7.4	7.0	7.1	6.7	7.0	6.3	6.6	6.8			
130000	7.5	7.4	7.8	7.1	7.6	6.5	7.0	6.6	7.4	5.6	6.9	6.9			
140000	7.0	7.4	6.5	7.5	7.5	6.6	6.8	6.6	7.2	6.1	6.9	6.8			
150000	6.7	6.9	6.5	7.1	7.8	7.1	6.9	6.7	7.3	6.4	7.4	6.7			
160000	7.1	7.5	6.7	7.5	7.8	6.5	7.0	6.9	7.1	6.5	6.9	6.8			
170000	6.6	6.5	6.8	8.0	7.8	7.0	6.9	6.9	7.1	6.7	7.2	6.9			
180000	7.2	6.7	6.8	8.6	7.8	6.7	7.2	6.7	7.4	6.2	6.7	6.7			
190000	6.9	6.4	7.2	8.7	7.7	5.9	6.3	7.5	7.3	6.1	6.1	6.3			
200000	6.5	6.7	6.9	8.0	7.7	6.7	7.4	6.4	7.1	5.6	6.0	6.1			
210000	8.0	6.5	6.2	7.5	7.6	6.7	7.2	7.8	7.8	5.3	5.8	5.9			
220000	8.3	7.0	6.6	7.8	6.6	6.5	6.7	6.8	7.7	5.1	5.6	6.0			
230000	8.3	7.5	6.3	7.9	5.7	6.1	5.9	6.1	6.7	5.0	5.7	5.7			
Daily Max	8.3	8.5	8.3	8.7	8.5	7.1	7.7	7.8	7.8	7.1	7.4	6.9	5.7	0.0	0.0
Daily Min	6.5	6.3	5.8	5.4	5.7	5.5	4.5	4.5	4.8	4.3	4.6	5.2	5.1	0.0	0.0
Average	7.3	7.1	6.9	6.9	7.1	6.3	6.3	6.0	6.4	5.8	5.7	6.0	5.3	#DIV/0!	#DIV/0!

Missing data due to power failure  
 Below water quality standard

Potato Rapids Headwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0			7.1	5.5	6.1	4.6	8.0	8.2	8.6	8.2	7.5	7.9	8.0	7.2	7.4	8.3
10000			7.0	5.1	6.1	4.6	8.2	8.3	8.9	8.6	7.4	8.0	7.8	7.7	7.4	7.9
20000			7.0	5.0	5.9	4.5	8.5	8.0	8.8	8.4	7.8	8.3	7.7	7.6	7.4	8.1
30000			6.3	4.7	5.3	4.5	8.1	7.5	8.4	8.6	7.3	8.3	7.7	7.5	7.4	8.1
40000			5.8	4.8	5.3	4.5	7.1	8.5	8.7	8.5	7.5	8.0	7.8	7.5	7.2	8.0
50000			6.8	4.7	4.9	4.4	6.7	8.5	8.8	8.6	7.2	7.9	7.9	7.5	7.4	7.9
60000			7.3	4.9	4.3	4.4	6.1	8.3	8.2	8.5	7.5	8.0	7.6	7.4	7.4	7.9
70000			7.3	4.8	4.2	5.2	6.0	7.9	8.0	8.4	7.5	7.8	7.4	7.3	7.3	7.8
80000			6.9	4.9	4.2	4.7	5.9	8.0	7.8	8.3	7.5	7.7	7.4	7.3	7.2	7.8
90000			5.4	4.5	4.3	4.8	5.7	8.0	7.4	8.3	7.5	7.9	7.8	6.5	7.4	7.8
100000			5.0	5.4	4.1	5.7	6.4	7.3	7.9	8.1	7.7	8.3	6.8	7.4	7.4	8.0
110000		6.9	5.4	5.7	4.1	6.5	7.4	7.7	8.5	8.3	7.4	7.9	7.6	7.5	7.6	7.4
120000		7.1	5.9	6.3	4.2	6.6	7.3	7.8	8.6	8.0	7.9	8.0	7.7	7.6	7.7	7.6
130000		7.5	6.1	6.3	4.8	6.8	7.4	8.0	8.4	7.7	7.7	7.7	7.8	7.7	7.8	7.3
140000		6.5	6.5	6.4	5.5	7.8	7.5	8.0	8.4	8.1	7.4	7.3	8.0	7.7	8.0	7.4
150000		6.6	6.2	6.0	6.0	6.8	7.6	7.9	8.3	8.2	6.9	7.4	8.0	7.8	8.3	7.6
160000		6.7	6.1	5.7	6.6	7.0	7.8	8.0	8.7	8.1	6.7	7.4	8.0	7.7	8.2	7.4
170000		7.0	6.4	5.4	6.3	6.6	7.9	8.1	8.6	8.2	7.2	7.3	8.3	7.9	8.5	8.3
180000		7.1	6.4	5.2	6.3	6.3	7.8	8.3	8.9	7.9	7.2	7.0	8.7	7.9	8.7	7.9
190000		7.2	6.3	5.1	5.6	7.1	8.2	8.2	9.0	8.1	7.5	7.4	8.6	7.9	8.5	8.3
200000		7.1	5.9	5.8	5.6	7.7	7.8	8.1	8.6	8.1	7.5	7.4	8.3	7.5	8.4	8.2
210000		7.0	6.9	4.8	5.2	7.4	8.1	8.5	8.8	8.0	7.6	7.4	7.9	7.8	8.6	8.4
220000		7.1	5.8	4.7	5.0	7.1	8.0	8.5	8.3	7.3	8.1	7.3	8.1	7.8	8.5	8.8
230000		7.2	5.4	4.7	4.8	8.0	8.1	8.5	8.5	7.4	8.0	7.8	7.8	7.7	8.4	8.3
Daily Max	0.0	7.5	7.3	6.4	6.6	8.0	8.5	8.5	9.0	8.6	8.1	8.3	8.7	7.9	8.7	8.8
Daily Min	0.0	6.5	5.0	4.5	4.1	4.4	5.7	7.3	7.4	7.3	6.7	7.0	6.8	6.5	7.2	7.3
Average	#DIV/0!	7.0	6.3	5.3	5.2	6.0	7.4	8.1	8.5	8.2	7.5	7.7	7.9	7.6	7.8	7.9

Missing data due to power failure  
 Below water quality standard

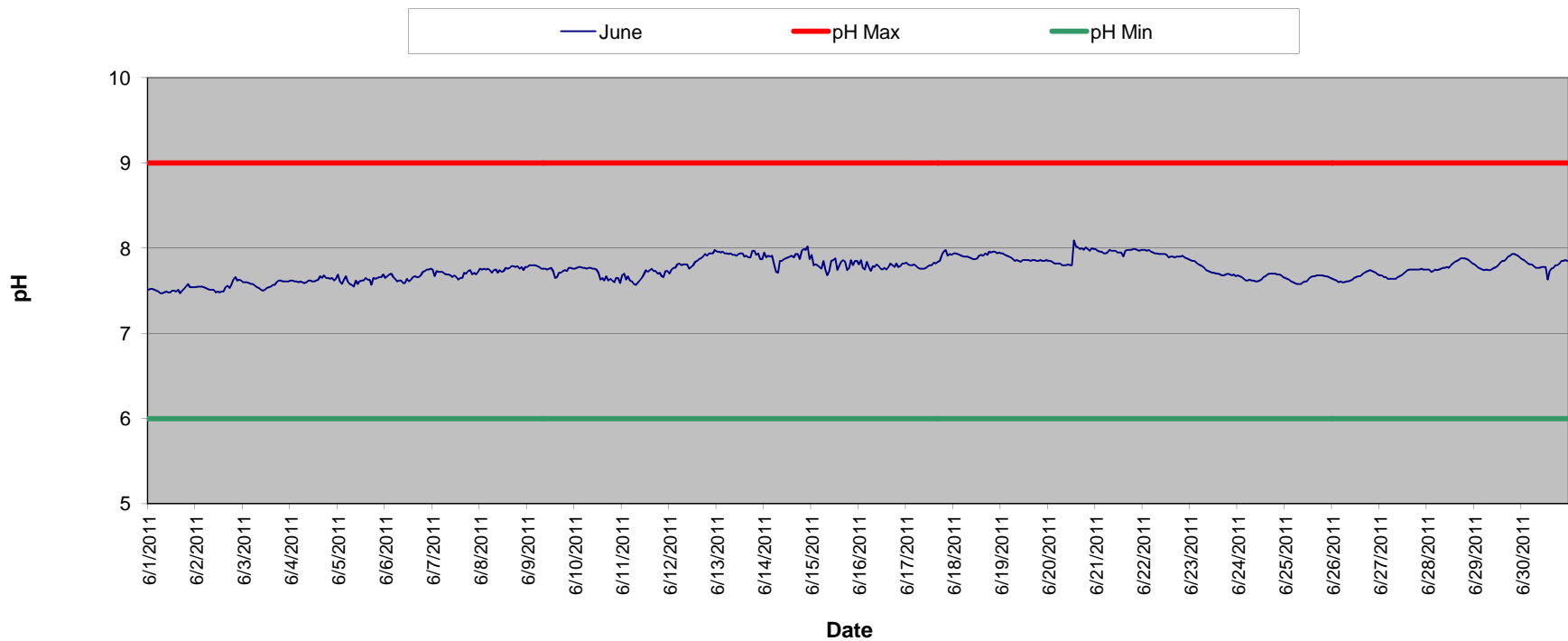
License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Headwater Dissolved Oxygen Summary - September 2011

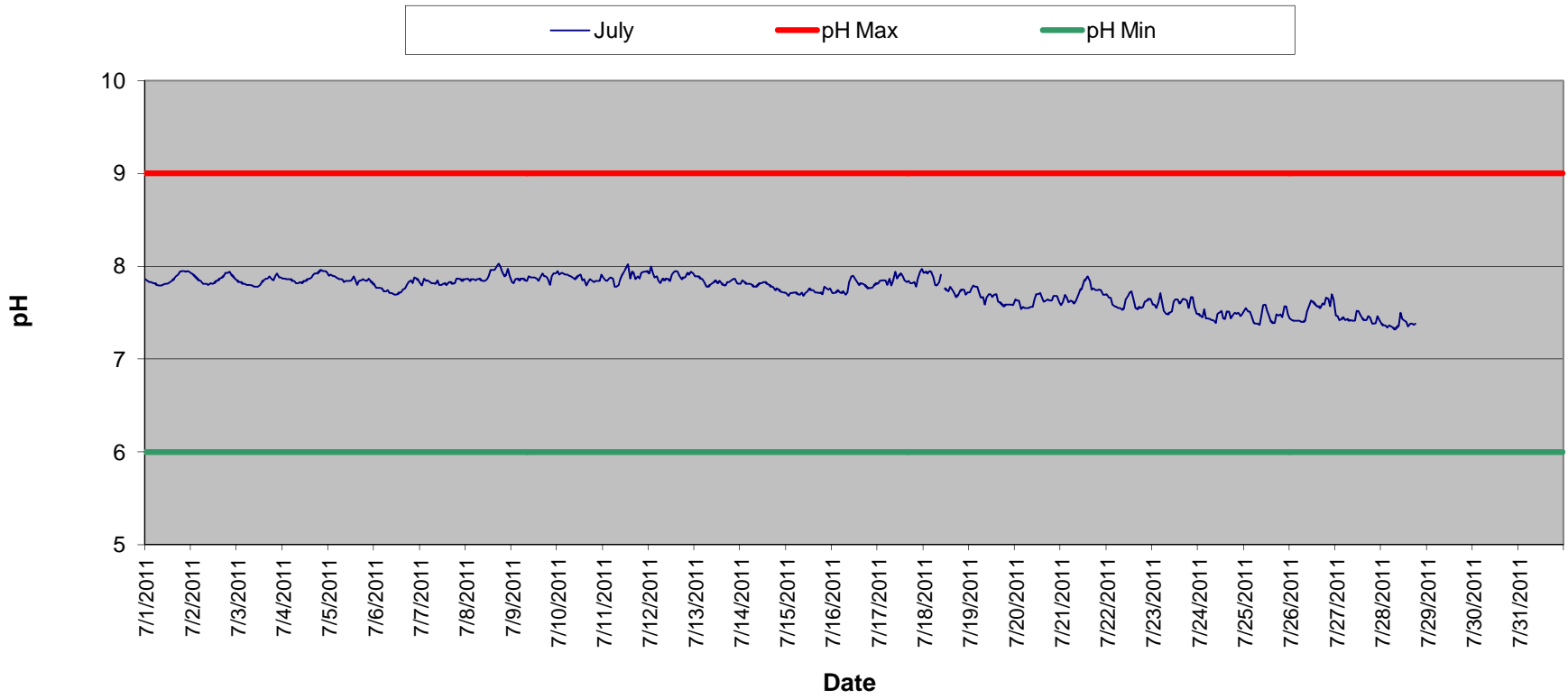
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	8.0	8.5	8.7	9.3	8.6	7.4	8.3	7.9	8.1	7.7	8.4	7.8	8.5	8.7
10000	8.1	8.4	8.3	9.1	8.5	8.0	8.1	8.0	7.7	7.5	8.5	8.0	8.6	8.6
20000	8.4	8.1	7.6	8.4	8.5	6.7	8.2	7.8	8.0	7.7	8.2	8.0	8.6	8.6
30000	7.8	8.7	8.1	8.3	7.9	8.2	8.1	7.9	7.9	7.9	8.3	8.0	8.6	8.6
40000	7.4	9.0	8.1	8.0	7.0	7.9	8.0	8.0	7.6	8.2	8.3	7.8	8.6	8.6
50000	7.2	8.6	7.6	7.9	6.9	7.8	8.0	8.0	8.1	7.9	8.3	7.9	8.6	8.4
60000	6.7	9.0	8.2	7.5	7.1	6.6	8.0	7.4	8.0	7.6	8.4	7.9	8.6	8.5
70000	6.6	8.2	7.6	7.5	7.4	6.5	7.8	7.8	8.2	7.6	8.3	8.0	8.6	8.2
80000	6.6	8.4	7.0	7.7	7.4	7.0	7.9	7.5	8.2	7.7	8.3	8.1	8.4	8.4
90000	8.3	8.5	8.7	8.9	7.9	8.5	7.3	7.4	8.0	7.6	8.2	8.1	8.5	8.2
100000	8.4	8.7	8.6	9.2	8.4	8.7	7.8	7.9	7.6	8.2	8.3	8.2	8.6	8.5
110000	8.1	9.2	8.7	9.3	8.6		7.9	7.9	7.5	8.0	8.2	8.3	8.5	8.5
120000	8.5	9.1	8.9	9.3	8.5	9.1	8.2	8.0	7.5	8.3	8.3	8.4	8.5	8.4
130000	8.4	9.2	9.2	9.4	8.7	9.2	8.0	8.0	7.0	8.4	8.3	8.3	8.5	8.6
140000	8.4	9.3	9.3	9.4	7.8	9.0	8.1	8.0	7.7	8.5	8.2	8.4	8.4	8.7
150000	8.4	8.7	9.3	8.8	8.5	8.9	8.1	7.8	7.6	8.5	8.3	8.4	8.4	8.7
160000	8.3	9.5	9.2	8.9	8.5	9.1	7.7	7.5	7.8	8.5	8.2	8.3	8.2	8.7
170000	8.3	9.2	9.5	8.8	8.7	8.8	7.7	7.1	7.3	8.6	8.2	8.2	8.6	8.9
180000	8.2	9.7	9.8	8.2	8.4	8.7	8.0	8.1	7.8	8.5	8.0	8.1	8.5	9.0
190000	9.1	9.4	9.4	8.8	7.9	8.6	7.9	7.9	7.9	8.4	8.1	8.2	8.4	9.0
200000	9.1	9.0	9.2	8.8	8.3	8.4	8.0	7.3	7.7	8.6	8.1	8.4	8.6	8.9
210000	8.6	9.1	8.9	8.4	8.6	8.4	8.0	7.7	7.4	8.7	8.1	8.4	8.8	9.0
220000	7.9	8.7	9.3	8.0	8.6	8.4	7.8	8.2	7.3	8.5	8.1	8.3	8.8	8.9
230000	8.5	8.7	9.3	8.6	8.0	8.3	7.8	8.0	7.7	8.4	7.9	8.5	8.8	8.4
Daily Max	9.1	9.7	9.8	9.4	8.7	9.2	8.3	8.2	8.2	8.7	8.5	8.5	8.8	9.0
Daily Min	6.6	8.1	7.0	7.5	6.9	6.5	7.3	7.1	7.0	7.5	7.9	7.8	8.2	8.2
Average	8.0	8.9	8.7	8.6	8.1	8.2	7.9	7.8	7.7	8.1	8.2	8.2	8.5	8.6

Missing data due to equipment maintenance

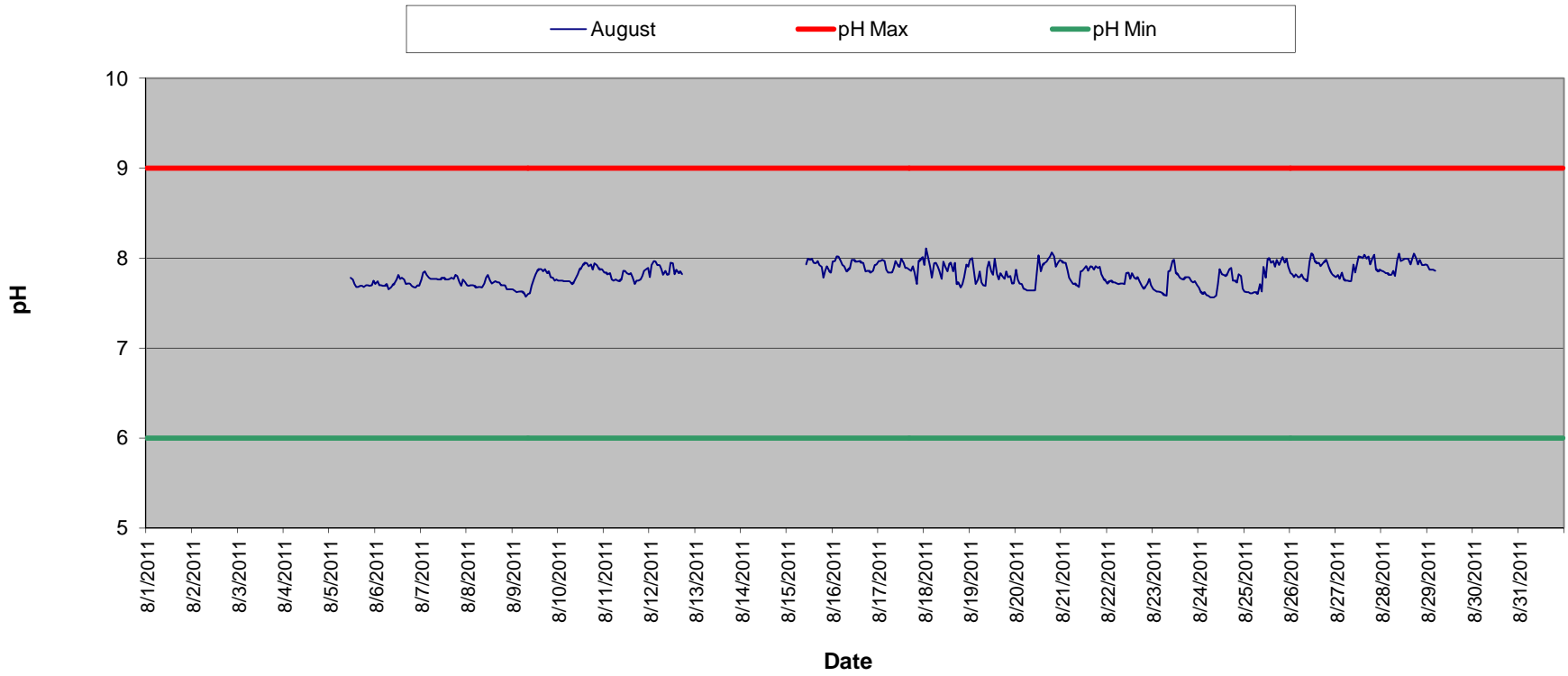
### Potato Rapids Headwater pH Summary - June 2011



### Potato Rapids Headwater pH Summary - July 2011

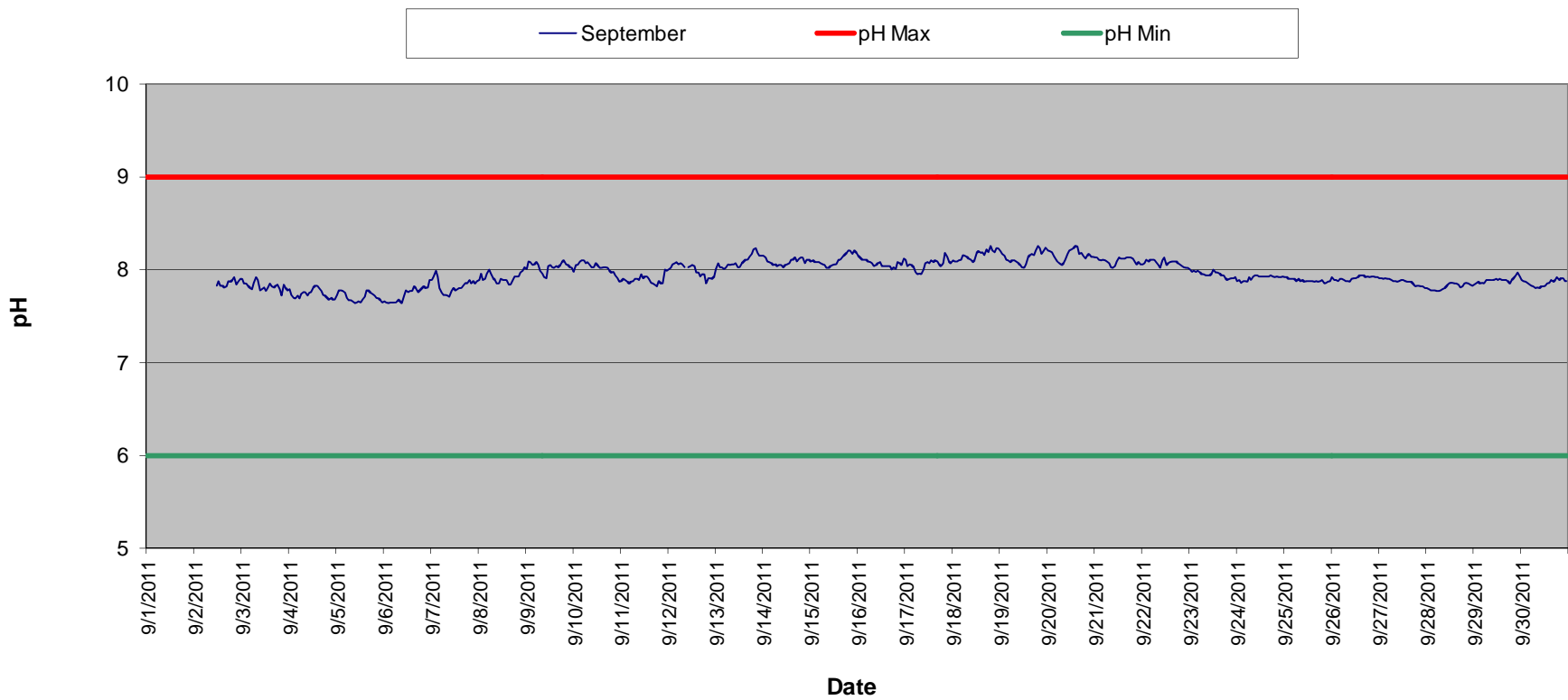


### Potato Rapids Headwater pH Summary - August 2011





### Potato Rapids Headwater pH Summary - September 2011



Potato Rapids Headwater pH Summary - June 2011

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

License maximum pH: 9

License Minimum pH: 6

Potato Rapids Headwater pH Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.8	7.9	7.9	7.9	8.0	8.0	7.9	7.7	7.7	7.6	7.7	7.8	7.8	7.9
10000	7.8	7.9	7.9	7.9	8.0	8.0	7.9	7.7	7.6	7.6	7.7	7.8	7.8	7.9
20000	7.8	7.9	7.9	7.8	8.0	8.0	7.9	7.7	7.6	7.6	7.7	7.7	7.8	7.8
30000	7.8	7.9	7.9	7.8	8.0	8.0	7.8	7.6	7.6	7.6	7.7	7.7	7.8	7.8
40000	7.8	7.9	7.9	7.8	7.9	8.0	7.8	7.6	7.6	7.6	7.6	7.8	7.8	7.8
50000	7.8	7.9	7.9	7.8	7.9	8.0	7.8	7.6	7.6	7.6	7.6	7.7	7.7	7.8
60000	7.8	7.9	7.9	7.8	8.0	7.9	7.8	7.6	7.6	7.6	7.6	7.8	7.8	7.8
70000	7.8	7.9	7.9	7.8	8.0	7.9	7.8	7.6	7.6	7.6	7.6	7.8	7.7	7.8
80000	7.8	7.9	7.9	7.8	8.0	7.9	7.7	7.6	7.6	7.6	7.6	7.8	7.7	7.8
90000	7.8	7.9	7.9	7.8	8.0	7.9	7.7	7.6	7.6	7.6	7.7	7.8	7.8	7.8
100000	7.8	7.9	7.8	7.8	8.0	7.9	7.7	7.6	7.6	7.6	7.7	7.8	7.8	7.8
110000	7.8	7.9	7.9	7.8	8.0	7.9	7.7	7.6	7.6	7.7	7.7	7.8	7.8	7.8
120000	7.8	7.9	7.9	7.8	8.0	7.9	7.7	7.6	7.6	7.7	7.7	7.8	7.8	7.8
130000	7.8	7.9	7.9	8.1	8.0	7.9	7.7	7.7	7.7	7.7	7.7	7.8	7.8	7.6
140000	7.8	7.9	7.9	8.0	7.9	7.9	7.7	7.7	7.7	7.7	7.7	7.8	7.9	7.7
150000	7.8	7.9	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.7	7.9	7.9	7.8
160000	7.8	7.9	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.7	7.8	7.9	7.8
170000	7.9	7.9	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.7	7.8	7.9	7.8
180000	7.9	8.0	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.8	7.9	7.9	7.8
190000	8.0	8.0	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.8	7.9	7.9	7.8
200000	8.0	8.0	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.8	7.9	7.9	7.9
210000	7.9	8.0	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.8	7.9	7.9	7.9
220000	7.9	7.9	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.8	7.8	7.9	7.9
230000	7.9	8.0	7.9	8.0	8.0	7.9	7.7	7.7	7.7	7.7	7.8	7.8	7.9	7.9
Daily Max	8.0	8.0	7.9	8.1	8.0	8.0	7.9	7.7	7.7	7.7	7.8	7.9	7.9	7.9
Daily Min	7.8	7.9	7.8	7.8	7.9	7.9	7.7	7.6	7.6	7.6	7.6	7.7	7.7	7.6
Average	7.8	7.9	7.9	7.9	8.0	7.9	7.7	7.7	7.6	7.7	7.7	7.8	7.8	7.8

Potato Rapids Headwater pH Summary - July 2011

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

License maximum pH: 9  
License Minimum pH: 6

Potato Rapids Headwater pH Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.8	7.9	7.7	7.6	7.6	7.7	7.6	7.5	7.5	7.4	7.5	7.4			
10000	7.8	7.9	7.8	7.6	7.6	7.7	7.6	7.5	7.6	7.4	7.5	7.4			
20000	7.9	7.9	7.8	7.6	7.7	7.7	7.6	7.5	7.5	7.4	7.4	7.4			
30000	7.9	8.0	7.8	7.5	7.7	7.6	7.6	7.5	7.5	7.4	7.4	7.3			
40000	7.9	7.9	7.8	7.6	7.6	7.6	7.7	7.4	7.5	7.4	7.5	7.4			
50000	7.8	7.9	7.7	7.6	7.6	7.6	7.6	7.4	7.4	7.4	7.4	7.4			
60000	7.9	7.8	7.7	7.6	7.6	7.6	7.5	7.4	7.4	7.4	7.4	7.3			
70000	7.8	7.8	7.7	7.6	7.6	7.6	7.5	7.4	7.4	7.4	7.4	7.3			
80000	7.8	7.8	7.6	7.6	7.6	7.5	7.5	7.4	7.4	7.4	7.4	7.3			
90000	7.9	7.9	7.7	7.6	7.7	7.6	7.5	7.4	7.5	7.5	7.4	7.4			
100000	7.9		7.7	7.6	7.7	7.6	7.5	7.5	7.6	7.6	7.4	7.5			
110000	7.9	7.8	7.7	7.7	7.8	7.7	7.6	7.5	7.6	7.6	7.5	7.4			
120000	7.9	7.7	7.7	7.7	7.8	7.7	7.6	7.5	7.5	7.6	7.5	7.4			
130000	7.9	7.7	7.7	7.7	7.9	7.7	7.6	7.4	7.5	7.6	7.5	7.4			
140000	7.9	7.8	7.7	7.7	7.9	7.6	7.6	7.4	7.4	7.6	7.4	7.4			
150000	7.8	7.7	7.6	7.6	7.8	7.6	7.6	7.5	7.4	7.6	7.4	7.4			
160000	7.8	7.7	7.6	7.6	7.8	7.5	7.7	7.5	7.4	7.6	7.4	7.4			
170000	7.8	7.7	7.6	7.6	7.8	7.6	7.6	7.4	7.5	7.6	7.5	7.4			
180000	7.8	7.7	7.6	7.6	7.7	7.6	7.6	7.5	7.5	7.6	7.5	7.4			
190000	7.8	7.7	7.6	7.6	7.7	7.6	7.6	7.5	7.5	7.7	7.4				
200000	7.8	7.8	7.6	7.7	7.8	7.6	7.7	7.5	7.5	7.7	7.4				
210000	7.9	7.8	7.6	7.7	7.7	7.6	7.7	7.5	7.6	7.6	7.4				
220000	7.9	7.7	7.6	7.7	7.7	7.7	7.6	7.5	7.6	7.7	7.5				
230000	8.0	7.7	7.6	7.6	7.7	7.7	7.5	7.5	7.5	7.6	7.4				
Daily Max	8.0	8.0	7.8	7.7	7.9	7.7	7.7	7.5	7.6	7.7	7.5	7.5	0.0	0.0	0.0
Daily Min	7.8	7.7	7.6	7.5	7.6	7.5	7.5	7.4	7.4	7.4	7.4	7.3	0.0	0.0	0.0
Average	7.9	7.8	7.7	7.6	7.7	7.6	7.6	7.5	7.5	7.5	7.4	7.4	#DIV/0!	#DIV/0!	#DIV/0!

Missing data due to equipment maintenance

Potato Rapids Headwater pH Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						7.7	7.8	7.7	7.7	7.8	7.8	7.8				8.0
10000						7.7	7.8	7.7	7.6	7.8	7.8	7.9				8.0
20000						7.7	7.9	7.7	7.6	7.8	7.8	8.0				8.0
30000						7.7	7.8	7.7	7.6	7.7	7.8	8.0				8.0
40000						7.7	7.8	7.7	7.6	7.7	7.8	7.9				8.0
50000						7.7	7.8	7.7	7.6	7.7	7.8	7.9				7.9
60000						7.7	7.8	7.7	7.6	7.7	7.8	7.9				7.9
70000						7.7	7.8	7.7	7.6	7.7	7.8	7.8				7.9
80000						7.7	7.8	7.7	7.6	7.7	7.7	7.9				7.9
90000						7.7	7.8	7.7	7.6	7.8	7.8	7.8				7.9
100000						7.7	7.8	7.8	7.7	7.8	7.9	7.8			7.9	8.0
110000					7.8	7.8	7.8	7.8	7.8	7.9	7.9	8.0			8.0	8.0
120000					7.8	7.8	7.8	7.8	7.8	7.9	7.8	7.9			8.0	8.0
130000					7.7	7.8	7.8	7.7	7.9	7.9	7.8	7.8			8.0	8.0
140000					7.7	7.8	7.8	7.7	7.9	8.0	7.8	7.9			8.0	8.0
150000					7.7	7.8	7.8	7.7	7.9	7.9	7.8	7.8			7.9	8.0
160000					7.7	7.7	7.8	7.7	7.9	7.9	7.7	7.9			8.0	8.0
170000					7.7	7.7	7.8	7.7	7.9	7.9	7.8	7.8			7.9	7.9
180000					7.7	7.7	7.8	7.7	7.8	7.9	7.8				7.9	7.9
190000					7.7	7.7	7.8	7.7	7.9	7.9	7.8				7.8	7.9
200000					7.7	7.7	7.7	7.7	7.8	7.9	7.8				7.9	7.8
210000					7.7	7.7	7.7	7.7	7.8	7.9	7.9				7.9	7.9
220000					7.7	7.7	7.8	7.7	7.8	7.9	7.9				7.9	7.9
230000					7.8	7.7	7.7	7.7	7.8	7.9	7.9				7.8	7.9
Daily Max	0.0	0.0	0.0	0.0	7.8	7.8	7.9	7.8	7.9	8.0	7.9	8.0	0.0	0.0	8.0	8.0
Daily Min	0.0	0.0	0.0	0.0	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.8	0.0	0.0	7.8	7.8
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.7	7.7	7.8	7.7	7.7	7.8	7.8	7.9	#DIV/0!	#DIV/0!	7.9	7.9

Missing data due to equipment power failure

Missing data due to equipment setup error

License maximum pH: 9

License Minimum pH: 6

Potato Rapids Headwater pH Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	8.0	7.9	8.0	7.9	8.0	7.7	7.7	7.7	7.6	7.8	7.8	7.9	7.9		
10000	8.0	8.1	8.0	7.8	8.0	7.7	7.6	7.6	7.6	7.8	7.8	7.9	7.9		
20000	8.0	8.0	7.9	7.7	8.0	7.8	7.6	7.6	7.6	7.8	7.8	7.8	7.9		
30000	8.0	7.9	7.7	7.7	7.9	7.7	7.6	7.6	7.6	7.8	7.8	7.8	7.9		
40000	7.9	7.8	7.8	7.7	7.8	7.7	7.6	7.6	7.6	7.8	7.8	7.8	7.9		
50000	7.8	7.9	7.9	7.7	7.8	7.7	7.6	7.6	7.6	7.8	7.8	7.8			
60000	7.8	8.0	7.7	7.6	7.7	7.7	7.6	7.6	7.6	7.8	7.8	7.9			
70000	7.8	7.9	7.7	7.6	7.7	7.7	7.6	7.6	7.6	7.8	7.7	7.8			
80000	7.9	7.9	7.7	7.6	7.7	7.7	7.9	7.6	7.7	7.8	7.7	8.0			
90000	8.0	7.8	7.9	7.6	7.7	7.7	7.9	7.6	7.6	7.7	7.9	8.1			
100000	7.9	8.0	8.0	7.6	7.9	7.8	8.0	7.7	7.9	8.0	7.8	8.0			
110000	7.9	7.9	7.9	7.8	7.9	7.8	8.0	7.9	7.8	8.1	7.9	8.0			
120000	8.0	7.9	7.8	8.0	7.9	7.8	7.8	7.8	8.0	8.0	8.0	8.0			
130000	8.0	7.9	8.0	7.9	7.9	7.8	7.8	7.8	8.0	8.0	8.0	8.0			
140000	7.9	8.0	7.8	7.9	7.9	7.8	7.8	7.8	8.0	7.9	8.0	8.0			
150000	7.9	7.9	7.8	7.9	7.9	7.8	7.8	7.8	8.0	8.0	8.0	7.9			
160000	7.9	8.0	7.8	8.0	7.9	7.8	7.8	7.9	7.9	7.9	8.0	8.0			
170000	7.9	7.7	7.8	8.0	7.9	7.7	7.8	7.9	8.0	7.9	8.0	8.1			
180000	7.9	7.7	7.8	8.0	7.9	7.7	7.8	7.8	7.9	8.0	7.9	8.0			
190000	7.8	7.7	7.9	8.1	7.9	7.7	7.8	7.8	8.0	8.0	8.0	7.9			
200000	7.7	7.7	7.8	8.0	7.9	7.7	7.7	7.7	8.0	7.9	8.0	8.0			
210000	8.0	7.8	7.8	7.9	7.8	7.7	7.7	7.8	8.0	7.9	7.9	7.9			
220000	8.0	7.9	7.7	7.9	7.8	7.8	7.7	7.8	8.0	7.8	7.9	7.9			
230000	8.0	7.9	7.7	8.0	7.8	7.7	7.7	7.7	7.9	7.8	7.9	7.9			
Daily Max	8.0	8.1	8.0	8.1	8.0	7.8	8.0	7.9	8.0	8.1	8.0	8.1	7.9	0.0	0.0
Daily Min	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.6	7.6	7.7	7.7	7.8	7.9	0.0	0.0
Average	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.8	7.9	7.9	7.9	7.9	#DIV/0!	#DIV/0!

Missing data due to power failure

Potato Rapids pH Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0			7.9	7.8	7.7	7.7	7.9	7.9	8.0	8.0	7.9	8.0	8.0	8.2	8.1	8.2
10000			7.9	7.7	7.8	7.7	7.9	8.0	8.1	8.1	7.9	8.0	8.1	8.1	8.1	8.1
20000			7.9	7.7	7.8	7.6	8.0	7.9	8.1	8.1	7.9	8.1	8.0	8.1	8.1	8.1
30000			7.8	7.7	7.8	7.7	7.9	7.9	8.1	8.1	7.9	8.1	8.0	8.1	8.1	8.1
40000			7.8	7.7	7.8	7.7	7.8	8.0	8.1	8.1	7.9	8.1	8.0	8.1	8.1	8.1
50000			7.8	7.7	7.7	7.7	7.8	8.0	8.1	8.1	7.9	8.1	8.0	8.1	8.1	8.1
60000			7.9	7.7	7.7	7.7	7.7	8.0	8.1	8.1	7.9	8.1	8.1	8.1	8.1	8.1
70000			7.9	7.8	7.7	7.7	7.7	7.9	8.0	8.1	7.9	8.1	8.1	8.0	8.1	8.1
80000			7.9	7.8	7.7	7.7	7.7	7.9	8.0	8.1	7.9	8.0	8.1	8.1	8.0	8.0
90000			7.8	7.7	7.6	7.6	7.7	7.9	7.9	8.0	7.9		8.1	8.1	8.0	8.1
100000			7.8	7.8	7.7	7.7	7.8	7.9	7.9	8.0	8.0	8.0	8.1	8.0	8.0	8.1
110000			7.8	7.8	7.7	7.8	7.8	7.9	8.0	8.1	7.9	8.0	8.0	8.1	8.1	8.1
120000		7.9	7.8	7.8	7.7	7.8	7.8	7.9	8.1	8.1	7.9	8.1	8.0	8.1	8.1	8.0
130000		7.8	7.8	7.8	7.7	7.8	7.8	7.9	8.0	8.0	7.9	8.0	8.1	8.1	8.1	8.0
140000		7.8	7.9	7.8	7.7	7.8	7.8	7.9	8.0	8.0	7.9	8.0	8.1	8.1	8.1	8.0
150000		7.8	7.8	7.8	7.8	7.8	7.8	7.8	8.0	8.0	7.9	8.0	8.1	8.1	8.1	8.0
160000		7.8	7.8	7.8	7.8	7.8	7.8	7.8	8.0	8.0	7.9	7.9	8.1	8.1	8.1	8.0
170000		7.9	7.8	7.7	7.8	7.8	7.9	7.9	8.1	8.0	7.8	8.0	8.1	8.1	8.2	8.0
180000		7.9	7.8	7.7	7.7	7.8	7.9	7.9	8.1	8.0	7.8	8.0	8.2	8.1	8.2	8.0
190000		7.9	7.8	7.7	7.7	7.8	7.9	7.9	8.1	8.0	7.9	7.9	8.2	8.1	8.2	8.0
200000		7.9	7.7	7.7	7.7	7.8	7.9	7.9	8.1	8.0	7.9	7.9	8.2	8.1	8.2	8.1
210000		7.8	7.8	7.7	7.7	7.8	7.9	8.0	8.1	7.9	7.9	7.9	8.2	8.1	8.2	8.1
220000		7.9	7.8	7.7	7.7	7.8	7.9	8.0	8.0	7.9	8.0	7.9	8.2	8.1	8.2	8.1
230000		7.9	7.8	7.7	7.7	7.9	7.9	8.0	8.0	7.9	8.0	7.9	8.2	8.1	8.2	8.1
Daily Max	0.00	7.9	7.9	7.8	7.8	7.9	8.0	8.0	8.1	8.1	8.0	8.1	8.2	8.2	8.2	8.2
Daily Min	0.00	7.8	7.7	7.7	7.6	7.6	7.7	7.8	7.9	7.9	7.8	7.9	8.0	8.0	8.0	8.0
Average	#DIV/0!	7.9	7.8	7.7	7.7	7.7	7.8	7.9	8.0	8.0	7.9	8.0	8.1	8.1	8.1	8.1

License maximum pH: 9  
License Minimum pH: 6

Missing data due to power failure

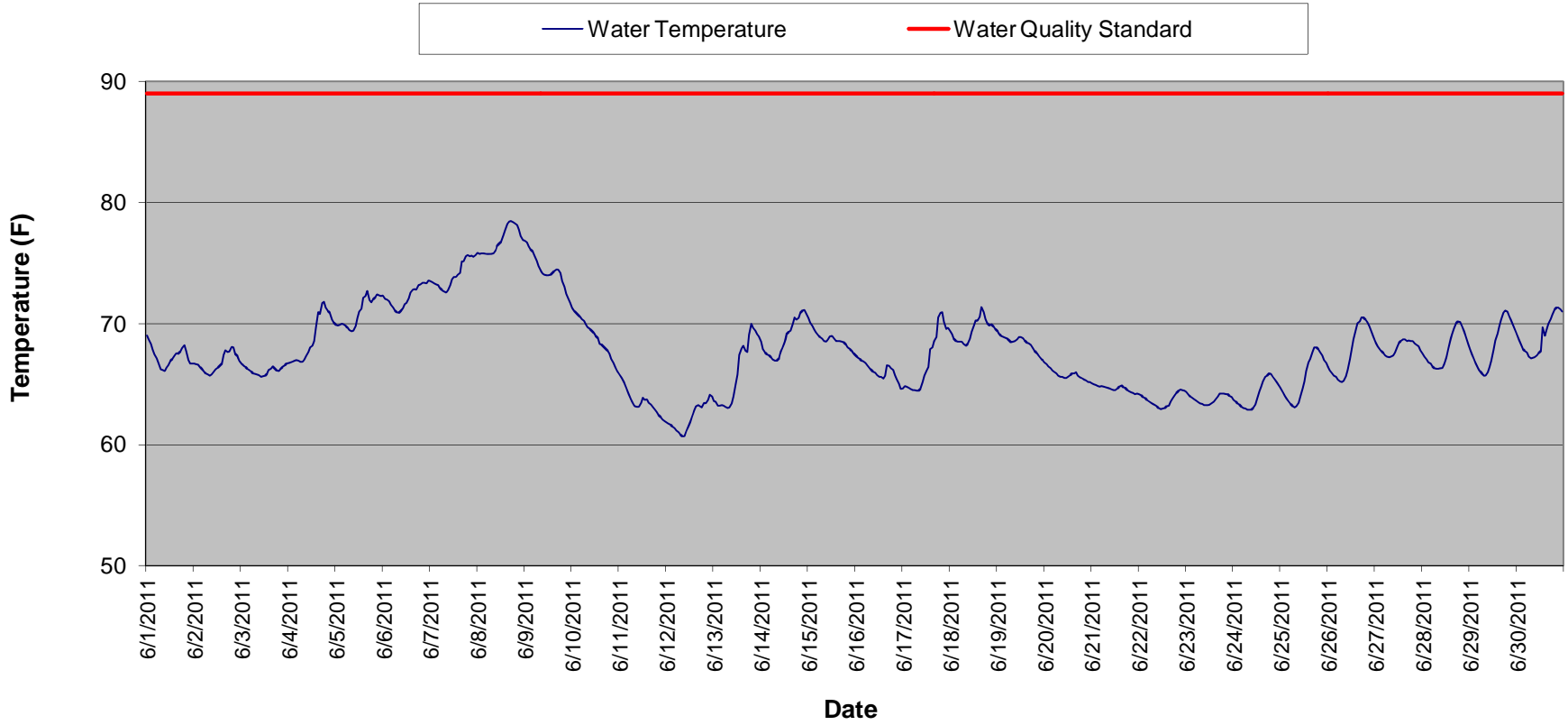
Missing data due to equipment maintenance



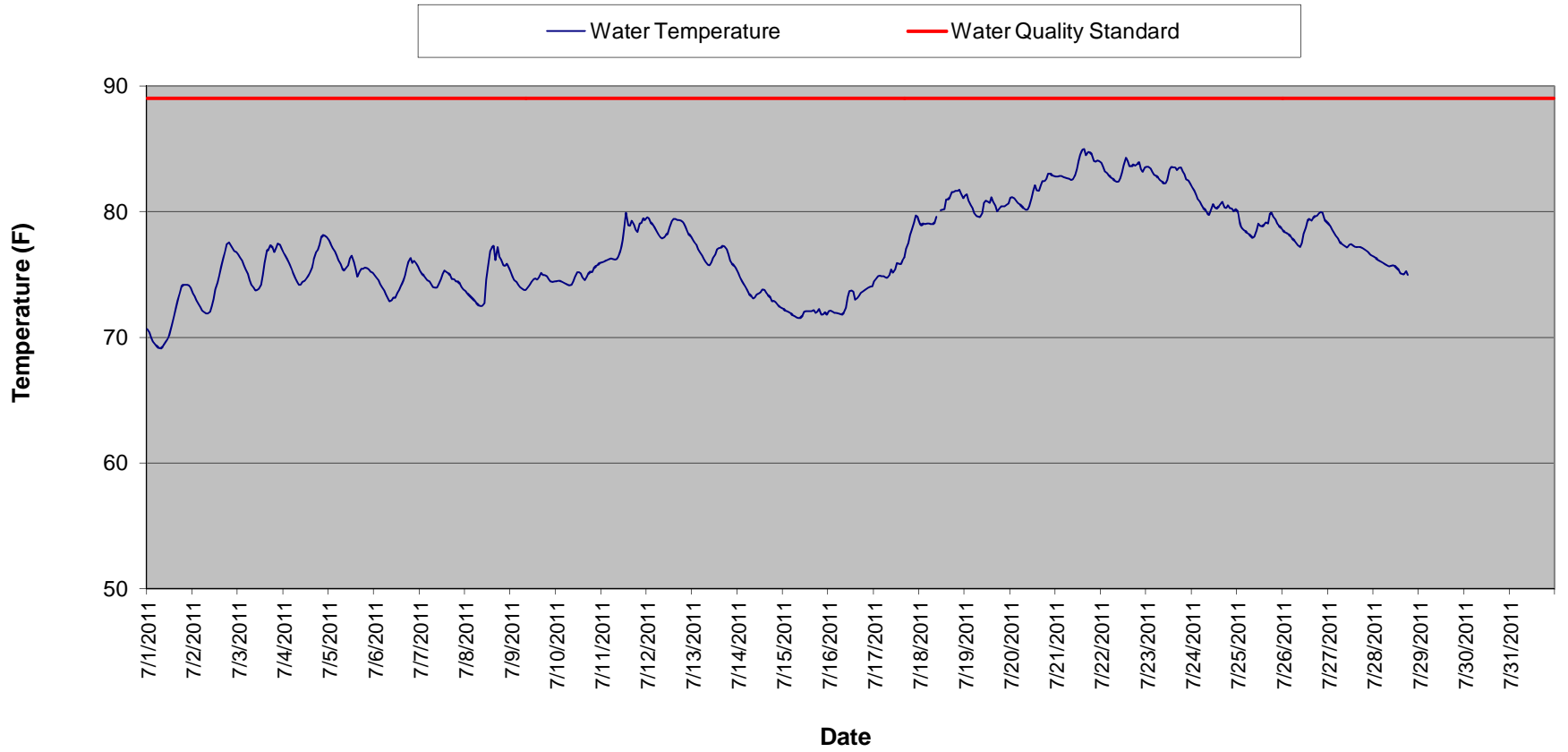
Potato Rapids pH Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	8.1	8.1	8.2	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.8	7.9
10000	8.0	8.1	8.2	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.9
20000	8.1	8.1	8.2	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.9
30000	8.1	8.1	8.1	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.9
40000	8.0	8.1	8.1	8.1	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.8
50000	8.0	8.2	8.1	8.1	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.8
60000	8.0	8.2	8.1	8.1	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.8
70000	8.0	8.1	8.1	8.1	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.8
80000	8.0	8.1	8.1	8.1	8.0	8.1	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.8
90000	8.0	8.1	8.1	8.1	8.0	8.0	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.8
100000	8.1	8.1	8.1	8.2	8.0	8.1	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.8
110000	8.1	8.1	8.0	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.8
120000	8.1	8.2	8.0	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.8
130000	8.1	8.2	8.1	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9
140000	8.1	8.2	8.1	8.3	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9
150000	8.1	8.2	8.2	8.3	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9
160000	8.1	8.2	8.2	8.2	8.1	8.1	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9
170000	8.1	8.2	8.2	8.2	8.1	8.1	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9
180000	8.0	8.2	8.2	8.2	8.1	8.1	7.9	7.9	7.9	7.9	7.8	7.8	7.9	7.9
190000	8.1	8.3	8.3	8.1	8.1	8.1	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.9
200000	8.2	8.2	8.2	8.2	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.9
210000	8.1	8.2	8.2	8.2	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.9
220000	8.1	8.2	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.8	8.0	7.9
230000	8.1	8.2	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.8	7.9	7.9
Daily Max	8.2	8.3	8.3	8.3	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9	8.0	7.9
Daily Min	8.0	8.1	8.0	8.1	8.0	8.0	7.9	7.9	7.9	7.9	7.8	7.8	7.8	7.8
Average	8.1	8.2	8.1	8.2	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.9

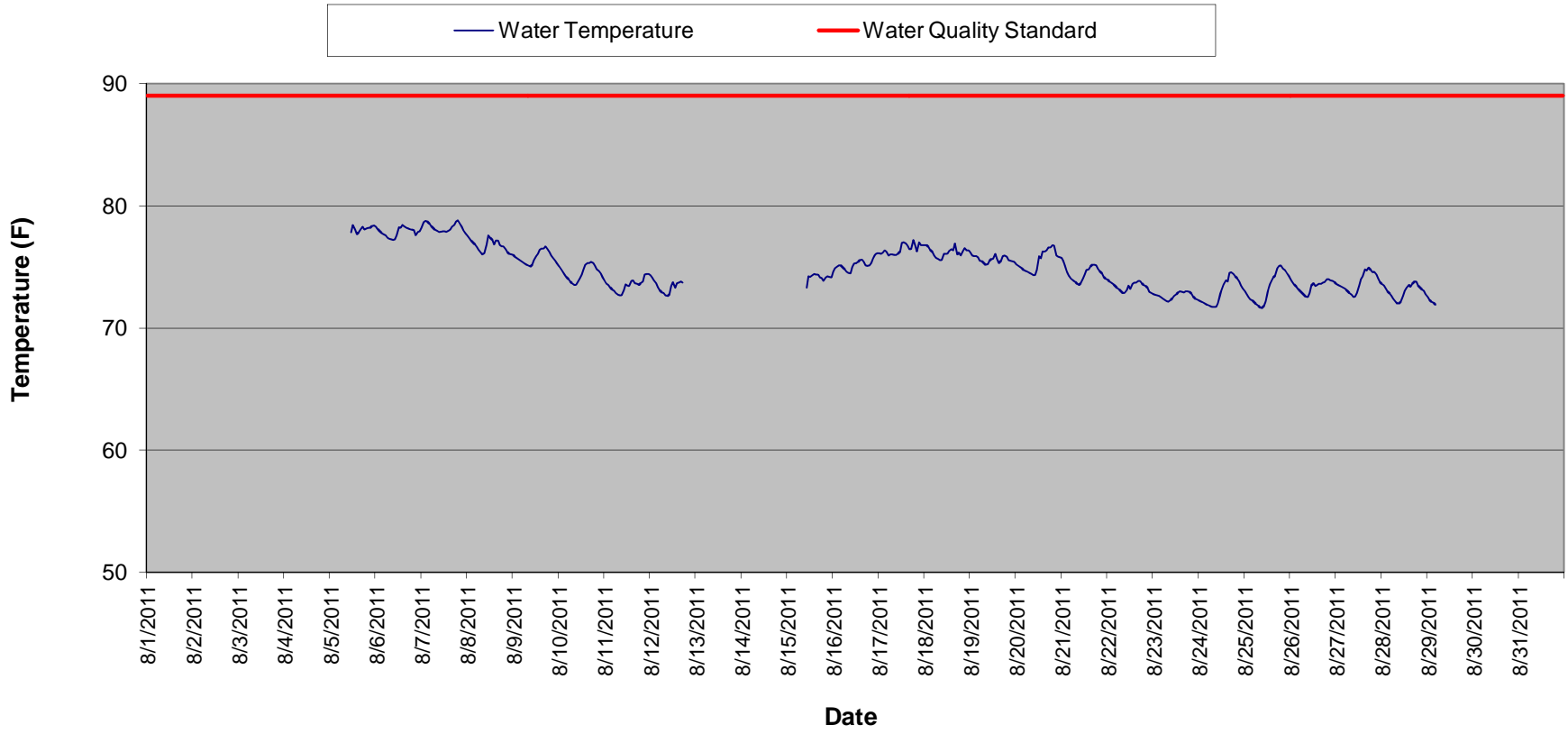
### Potato Rapids Headwater Temperature - June 2011



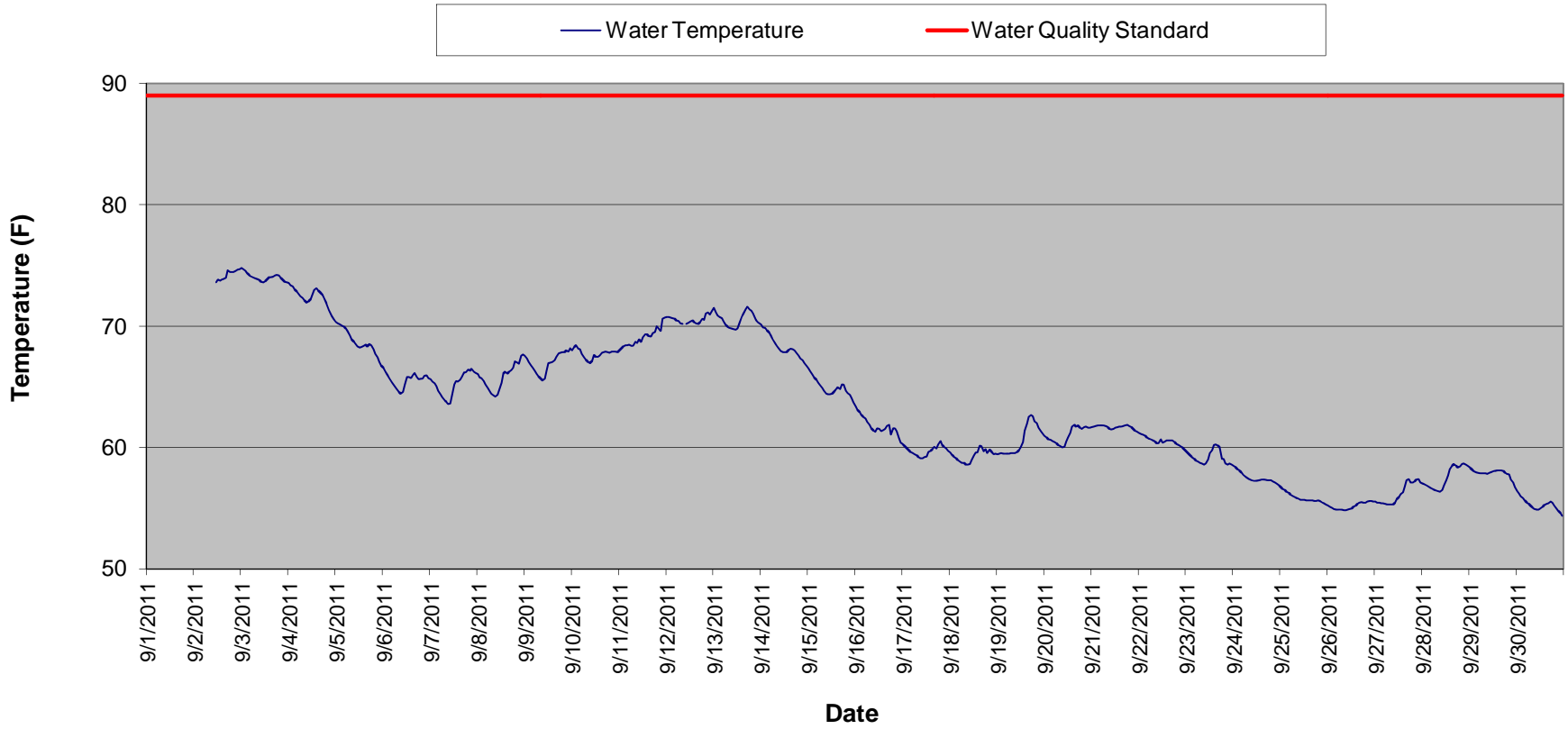
### Potato Rapids Headwater Temperature - July 2011



### Potato Rapids Headwater Temperature - August 2011



### Potato Rapids Headwater Temperature - September 2011



Potato Rapids Headwater Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	69.0	66.7	66.7	66.8	69.9	72.3	73.5	75.8	76.8	71.3	65.8	61.8	63.6	68.5	70.4	67.4
10000	68.7	66.6	66.5	66.8	69.8	72.1	73.4	75.8	76.7	71.1	65.6	61.7	63.6	67.9	70.1	67.2
20000	68.3	66.6	66.4	66.9	69.9	72.0	73.3	75.8	76.4	70.9	65.3	61.6	63.2	67.6	69.8	67.1
30000	67.8	66.4	66.3	67.0	70.0	71.8	73.2	75.8	76.2	70.7	65.0	61.5	63.2	67.5	69.5	67.0
40000	67.5	66.3	66.2	67.0	69.9	71.5	73.2	75.8	75.9	70.6	64.5	61.3	63.3	67.4	69.3	66.9
50000	67.1	66.1	66.0	66.9	69.8	71.3	73.0	75.8	75.6	70.4	64.1	61.2	63.2	67.2	69.0	66.8
60000	66.7	65.9	65.9	66.8	69.7	71.1	72.8	75.8	75.2	70.2	63.7	61.0	63.1	67.0	68.9	66.6
70000	66.2	65.8	65.8	66.8	69.5	70.9	72.6	75.8	74.8	69.9	63.4	60.9	63.0	67.0	68.7	66.3
80000	66.2	65.7	65.8	67.0	69.4	70.9	72.6	75.8	74.4	69.7	63.2	60.7	63.1	66.9	68.5	66.2
90000	66.1	65.8	65.8	67.3	69.4	71.1	72.8	76.0	74.2	69.5	63.1	60.7	63.4	67.1	68.5	66.1
100000	66.4	66.0	65.6	67.7	69.8	71.3	73.2	76.4	74.1	69.4	63.1	61.1	64.0	67.7	68.7	65.9
110000	66.6	66.2	65.6	68.1	70.4	71.6	73.7	76.6	74.0	69.2	63.5	61.5	65.0	68.0	69.0	65.8
120000	67.0	66.4	65.7	68.2	71.0	71.7	73.9	76.8	74.0	69.0	63.9	61.8	65.8	68.5	69.0	65.6
130000	67.1	66.5	65.8	68.6	71.2	72.1	73.9	77.3	74.1	68.8	63.7	62.3	67.4	69.1	68.8	65.6
140000	67.4	66.7	66.2	69.7	72.1	72.6	74.0	77.7	74.2	68.3	63.7	62.8	67.9	69.3	68.6	65.5
150000	67.6	67.4	66.3	71.0	72.3	72.8	74.2	78.2	74.4	68.3	63.5	63.2	68.2	69.4	68.6	65.7
160000	67.5	67.8	66.5	70.8	72.7	72.9	75.1	78.4	74.5	68.1	63.3	63.3	67.7	70.0	68.6	66.6
170000	67.7	67.6	66.3	71.7	71.9	72.8	75.1	78.5	74.5	68.0	63.1	63.2	67.7	70.5	68.5	66.5
180000	68.0	67.7	66.1	71.8	71.7	73.2	75.6	78.4	74.2	67.7	62.9	63.1	69.1	70.3	68.5	66.3
190000	68.2	68.1	66.1	71.3	72.0	73.2	75.7	78.3	73.5	67.5	62.7	63.4	70.0	70.4	68.3	66.2
200000	67.8	68.1	66.3	71.0	72.2	73.4	75.6	78.1	73.0	67.1	62.5	63.4	69.7	70.9	68.0	65.8
210000	67.0	67.5	66.4	70.9	72.4	73.4	75.6	77.8	72.5	66.8	62.3	63.7	69.4	71.1	67.9	65.4
220000	66.7	67.3	66.6	70.3	72.3	73.3	75.5	77.3	72.1	66.4	62.1	64.1	69.2	71.1	67.7	65.0
230000	66.7	66.9	66.7	70.1	72.3	73.6	75.7	76.9	71.7	66.1	62.0	64.0	68.9	70.9	67.6	64.6
Daily Max	69.0	68.1	66.7	71.8	72.7	73.6	75.7	78.5	76.8	71.3	65.8	64.1	70.0	71.1	70.4	67.4
Daily Min	66.1	65.7	65.6	66.8	69.4	70.9	72.6	75.8	71.7	66.1	62.0	60.7	63.0	66.9	67.6	64.6
Average	67.3	66.8	66.1	68.8	70.9	72.2	74.0	76.9	74.5	69.0	63.6	62.2	65.9	68.8	68.8	66.2
Monthly average:					68.2											
License Maximum:					89 F											

Potato Rapids Headwater Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	64.6	69.4	69.4	66.8	65.1	64.2	64.3	63.7	64.6	66.4	68.5	67.5	67.9	69.1
10000	64.9	69.1	69.1	66.6	65.0	64.1	64.1	63.5	64.3	66.1	68.2	67.3	67.5	68.7
20000	64.8	68.8	69.0	66.5	64.9	64.0	64.0	63.4	64.0	65.9	68.0	67.0	67.1	68.3
30000	64.7	68.6	68.9	66.3	64.8	63.8	63.9	63.3	63.8	65.7	67.8	66.8	66.7	67.9
40000	64.6	68.5	68.8	66.1	64.8	63.7	63.8	63.1	63.6	65.6	67.6	66.7	66.4	67.7
50000	64.5	68.5	68.7	66.0	64.8	63.6	63.6	63.0	63.4	65.4	67.4	66.5	66.1	67.6
60000	64.5	68.5	68.6	65.9	64.8	63.5	63.5	63.0	63.2	65.2	67.3	66.3	65.9	67.3
70000	64.5	68.3	68.5	65.7	64.7	63.4	63.4	62.9	63.1	65.2	67.2	66.3	65.7	67.1
80000	64.5	68.2	68.5	65.6	64.7	63.3	63.4	62.9	63.2	65.3	67.3	66.3	65.7	67.2
90000	64.6	68.3	68.5	65.6	64.6	63.2	63.3	62.9	63.5	65.6	67.4	66.3	66.0	67.2
100000	65.2	68.8	68.7	65.5	64.6	63.1	63.2	63.0	64.0	66.2	67.6	66.3	66.4	67.4
110000	65.7	69.3	68.9	65.5	64.5	62.9	63.3	63.3	64.7	67.1	68.1	66.6	67.0	67.6
120000	66.1	69.9	68.9	65.6	64.5	63.0	63.3	63.8	65.2	67.9	68.4	67.2	67.8	67.7
130000	66.4	70.3	68.8	65.7	64.7	63.1	63.5	64.4	66.1	68.7	68.6	67.8	68.6	69.7
140000	67.9	70.2	68.6	65.9	64.8	63.2	63.5	64.8	66.8	69.5	68.7	68.6	69.2	69.0
150000	68.0	70.6	68.4	65.9	64.9	63.2	63.8	65.2	67.1	70.0	68.7	69.1	69.8	69.5
160000	68.6	71.4	68.4	66.0	64.7	63.6	64.0	65.6	67.7	70.2	68.6	69.5	70.3	70.0
170000	68.9	70.9	68.2	65.7	64.7	63.8	64.2	65.7	68.0	70.5	68.6	70.1	70.9	70.4
180000	70.5	70.4	68.0	65.6	64.5	64.1	64.2	65.9	68.1	70.5	68.6	70.2	71.1	70.8
190000	70.9	70.0	67.8	65.5	64.4	64.3	64.2	65.9	67.9	70.3	68.6	70.1	71.0	71.2
200000	70.9	69.9	67.6	65.4	64.3	64.5	64.2	65.6	67.7	70.1	68.4	69.8	70.6	71.3
210000	70.1	69.9	67.4	65.3	64.3	64.5	64.2	65.4	67.4	69.8	68.3	69.4	70.3	71.3
220000	69.5	69.7	67.2	65.2	64.2	64.5	64.0	65.2	67.0	69.3	68.1	68.9	69.8	71.2
230000	69.6	69.6	67.0	65.2	64.2	64.5	64.0	64.9	66.7	68.9	67.8	68.5	69.5	71.0
Daily Max	70.9	71.4	69.4	66.8	65.1	64.5	64.3	65.9	68.1	70.5	68.7	70.2	71.1	71.3
Daily Min	64.5	68.2	67.0	65.2	64.2	62.9	63.2	62.9	63.1	65.2	67.2	66.3	65.7	67.1
Average	66.9	69.5	68.4	65.8	64.6	63.7	63.8	64.2	65.5	67.7	68.1	67.9	68.2	69.0

Potato Rapids Headwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	70.7	73.5	76.6	76.7	77.7	74.9	75.3	73.7	75.2	74.5	76.0	79.5	77.8	75.2	72.3	72.1
10000	70.4	73.2	76.4	76.5	77.4	74.8	75.1	73.5	74.8	74.5	76.0	79.5	77.6	74.8	72.1	72.1
20000	70.0	72.9	76.1	76.2	77.1	74.5	74.9	73.3	74.6	74.5	76.1	79.1	77.3	74.6	72.1	72.1
30000	69.6	72.6	75.7	75.8	76.8	74.2	74.7	73.2	74.4	74.4	76.2	79.0	77.0	74.2	72.0	72.0
40000	69.4	72.4	75.4	75.5	76.5	74.0	74.5	73.0	74.2	74.3	76.2	78.7	76.7	74.0	71.9	71.9
50000	69.3	72.1	75.0	75.1	76.1	73.7	74.4	72.9	74.0	74.3	76.3	78.4	76.5	73.7	71.8	71.9
60000	69.2	72.0	74.5	74.8	75.8	73.4	74.2	72.7	73.8	74.2	76.2	78.2	76.2	73.4	71.7	71.9
70000	69.1	71.9	74.2	74.4	75.4	73.1	74.0	72.5	73.8	74.1	76.2	78.0	76.0	73.2	71.6	71.8
80000	69.3	71.9	73.9	74.2	75.3	72.8	73.9	72.5	73.8	74.2	76.2	77.9	75.8	73.1	71.5	71.9
90000	69.5	72.1	73.7	74.2	75.5	73.0	73.9	72.5	74.0	74.4	76.5	78.0	75.7	73.2	71.5	72.4
100000	69.7	72.5	73.8	74.4	75.7	73.2	74.2	72.7	74.2	74.8	77.0	78.1	76.0	73.4	71.7	73.2
110000	69.9	73.0	73.9	74.5	76.3	73.1	74.6	74.6	74.4	75.2	77.7	78.3	76.3	73.5	72.0	73.7
120000	70.4	73.8	74.2	74.7	76.5	73.5	75.0	75.6	74.6	75.2	78.7	78.7	76.6	73.6	72.1	73.7
130000	70.9	74.4	74.9	74.9	76.0	73.8	75.3	76.9	74.7	75.1	79.9	79.2	77.0	73.8	72.1	73.6
140000	71.7	74.9	75.9	75.2	75.4	74.1	75.2	77.1	74.6	74.8	78.9	79.4	77.1	73.8	72.1	73.0
150000	72.3	75.6	76.9	75.6	74.8	74.5	75.1	77.3	74.8	74.5	78.9	79.4	77.1	73.5	72.1	73.1
160000	72.9	76.3	77.0	76.2	75.2	74.9	74.9	76.1	75.1	74.8	79.3	79.3	77.3	73.4	72.2	73.3
170000	73.5	76.8	77.3	76.8	75.4	75.4	74.6	77.2	75.0	75.1	79.0	79.3	77.2	73.1	71.9	73.5
180000	74.0	77.4	77.1	77.0	75.5	76.0	74.6	76.4	74.9	75.2	78.5	79.3	77.0	72.9	72.0	73.6
190000	74.2	77.5	76.7	77.3	75.5	76.3	74.4	76.2	74.8	75.2	78.4	79.1	76.6	72.9	72.2	73.7
200000	74.2	77.3	77.1	78.0	75.5	75.9	74.4	75.7	74.6	75.5	79.0	78.9	76.1	72.8	71.8	73.8
210000	74.2	77.1	77.5	78.1	75.4	76.1	74.3	75.7	74.4	75.7	79.1	78.5	75.8	72.6	71.8	74.0
220000	74.1	76.9	77.4	78.0	75.2	75.8	74.0	75.8	74.4	75.8	79.5	78.2	75.7	72.4	72.0	74.0
230000	73.9	76.7	77.0	78.0	75.1	75.6	73.8	75.5	74.4	75.9	79.3	78.1	75.5	72.3	71.8	74.0
Daily Max	74.2	77.5	77.5	78.1	77.7	76.3	75.3	77.3	75.2	75.9	79.9	79.5	77.8	75.2	72.3	74.0
Daily Min	69.1	71.9	73.7	74.2	74.8	72.8	73.8	72.5	73.8	74.1	76.0	77.9	75.5	72.3	71.5	71.8
Average	71.3	74.4	75.8	75.9	75.9	74.4	74.6	74.7	74.5	74.8	77.7	78.8	76.6	73.5	71.9	72.9
Monthly average:					77.0											
License Maximum:					89 F											



Potato Rapids Headwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	74.4	79.1	81.3	81.1	82.8	83.9	83.6	82.0	80.0	78.5	79.1	76.4			
10000	74.7	78.9	81.4	81.2	82.8	83.6	83.6	81.7	79.3	78.4	78.8	76.3			
20000	74.9	79.1	80.9	81.0	82.8	83.2	83.4	81.4	78.8	78.3	78.6	76.2			
30000	74.9	79.0	80.5	80.9	82.8	83.0	83.2	81.0	78.6	78.2	78.3	76.1			
40000	74.9	79.0	80.3	80.7	82.8	82.9	82.9	80.8	78.5	78.0	78.1	76.0			
50000	74.8	79.1	79.9	80.6	82.7	82.7	82.8	80.5	78.3	77.9	77.8	75.9			
60000	74.8	79.0	79.7	80.4	82.7	82.6	82.7	80.3	78.2	77.7	77.6	75.8			
70000	74.7	79.0	79.6	80.3	82.6	82.5	82.5	80.1	78.0	77.5	77.5	75.7			
80000	74.9	79.1	79.5	80.1	82.5	82.4	82.4	79.9	77.9	77.3	77.3	75.6			
90000	75.4	79.6	79.9	80.2	82.6	82.4	82.3	79.8	78.0	77.2	77.2	75.7			
100000	75.1		80.7	80.4	82.9	82.7	82.2	80.1	78.5	77.5	77.1	75.7			
110000	75.4	80.1	80.9	81.1	83.4	83.1	82.5	80.6	79.1	78.2	77.4	75.7			
120000	75.9	80.1	80.8	81.6	84.0	83.7	83.3	80.3	78.9	78.7	77.4	75.5			
130000	75.9	80.2	80.7	82.1	84.5	84.3	83.6	80.2	78.8	79.3	77.3	75.3			
140000	75.8	81.0	81.1	81.7	84.9	84.0	83.5	80.4	79.0	79.4	77.2	75.1			
150000	76.1	81.0	80.8	81.7	85.0	83.6	83.5	80.6	79.2	79.3	77.2	75.1			
160000	76.4	81.1	80.5	82.1	84.5	83.6	83.3	80.8	79.0	79.5	77.2	75.0			
170000	77.0	81.5	80.0	82.4	84.7	83.7	83.5	80.3	79.8	79.6	77.2	75.3			
180000	77.5	81.6	80.2	82.4	84.7	83.7	83.5	80.3	79.9	79.6	77.1	75.0			
190000	78.2	81.6	80.4	82.6	84.6	83.8	83.2	80.5	79.6	79.9	77.0				
200000	78.6	81.7	80.4	83.0	84.0	83.9	83.0	80.3	79.4	80.0	76.9				
210000	79.1	81.7	80.4	83.0	84.0	83.4	82.6	80.2	79.1	79.9	76.8				
220000	79.7	81.4	80.6	82.9	84.1	83.2	82.5	80.0	78.9	79.3	76.6				
230000	79.6	81.1	80.6	82.8	84.0	83.5	82.2	80.2	78.7	79.2	76.5				
Daily Max	79.7	81.7	81.4	83.0	85.0	84.3	83.6	82.0	80.0	80.0	79.1	76.4	0.0	0.0	0.0
Daily Min	74.4	78.9	79.5	80.1	82.5	82.4	82.2	79.8	77.9	77.2	76.5	75.0	0.0	0.0	0.0
Average	76.2	80.2	80.5	81.5	83.6	83.3	83.0	80.5	78.9	78.7	77.5	75.7	#DIV/0!	#DIV/0!	#DIV/0!

Missing data due to equipment maintenance

Potato Rapids Headwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						78.3	78.2	77.6	76.0	75.1	73.9	74.3				74.6
10000						78.1	78.7	77.4	75.8	74.8	73.6	74.2				74.9
20000						77.9	78.8	77.2	75.7	74.6	73.5	73.9				75.0
30000						77.8	78.7	77.0	75.6	74.4	73.3	73.7				75.1
40000						77.7	78.5	76.8	75.5	74.2	73.2	73.3				75.1
50000						77.6	78.4	76.6	75.4	74.0	73.0	73.1				75.0
60000						77.4	78.2	76.4	75.3	73.8	72.9	72.9				74.8
70000						77.3	78.1	76.2	75.2	73.7	72.7	72.8				74.6
80000						77.3	78.0	76.0	75.1	73.5	72.7	72.7				74.5
90000						77.2	77.9	76.1	75.1	73.5	72.7	72.6				74.5
100000						77.3	77.9	76.9	75.2	73.7	73.1	72.8				75.0
110000					77.8	77.6	77.9	77.6	75.6	74.1	73.6	73.5			73.3	75.3
120000					78.4	78.2	77.9	77.4	75.9	74.4	73.5	73.8			74.2	75.3
130000					78.1	78.2	77.9	77.2	76.1	74.8	73.4	73.3			74.3	75.4
140000					77.7	78.4	78.0	76.8	76.4	75.2	73.9	73.7			74.4	75.5
150000					77.8	78.3	78.0	77.2	76.5	75.3	73.9	73.7			74.4	75.6
160000					78.1	78.2	78.3	77.2	76.5	75.3	73.7	73.8			74.4	75.4
170000					78.3	78.2	78.4	76.8	76.7	75.4	73.6	73.7			74.2	75.1
180000					78.0	78.1	78.7	76.7	76.5	75.3	73.5				74.1	75.1
190000					78.1	78.1	78.8	76.7	76.2	75.1	73.7				73.9	75.1
200000					78.2	78.0	78.6	76.4	76.0	74.8	73.8				74.2	75.3
210000					78.2	77.6	78.3	76.2	75.7	74.7	74.4				74.2	75.7
220000					78.4	77.9	78.0	76.1	75.5	74.5	74.4				74.2	76.0
230000					78.4	77.9	77.8	76.0	75.3	74.1	74.4				74.2	76.1
Daily Max	0.0	0.0	0.0	0.0	78.4	78.4	78.8	77.6	76.7	75.4	74.4	74.3	0.0	0.0	74.4	76.1
Daily Min	0.0	0.0	0.0	0.0	77.7	77.2	77.8	76.0	75.1	73.5	72.7	72.6	0.0	0.0	73.3	74.5
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	78.1	77.9	78.2	76.8	75.8	74.5	73.5	73.4	#DIV/0!	#DIV/0!	74.1	75.2
Missing data due to power failure													Missing data due to equipment setup error			
Monthly average:					74.9											
License Maximum:					89 F											

Potato Rapids Headwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	76.1	76.8	76.2	75.2	75.8	74.0	72.8	72.3	73.0	74.0	73.6	73.6	72.5		
10000	76.1	76.8	75.9	75.1	75.4	73.8	72.7	72.2	72.8	73.8	73.5	73.5	72.3		
20000	76.2	76.6	75.9	75.0	74.9	73.7	72.7	72.1	72.5	73.6	73.4	73.2	72.2		
30000	76.4	76.4	75.9	74.9	74.5	73.6	72.6	72.0	72.4	73.4	73.4	73.0	72.1		
40000	76.2	76.2	75.8	74.8	74.2	73.4	72.6	71.9	72.2	73.2	73.3	72.8	71.9		
50000	76.0	76.0	75.5	74.7	74.0	73.3	72.4	71.9	72.1	73.0	73.2	72.6			
60000	76.0	75.8	75.5	74.6	73.9	73.2	72.3	71.8	72.0	72.9	73.0	72.4			
70000	76.0	75.7	75.3	74.5	73.8	73.0	72.2	71.7	71.8	72.7	72.9	72.2			
80000	76.0	75.5	75.2	74.4	73.6	72.9	72.2	71.7	71.7	72.6	72.7	72.0			
90000	76.0	75.6	75.2	74.3	73.5	72.8	72.3	71.7	71.6	72.6	72.6	72.0			
100000	76.1	76.1	75.5	74.3	73.7	73.1	72.4	72.0	71.8	72.9	72.6	72.2			
110000	76.3	76.1	75.6	74.8	74.0	73.5	72.6	72.8	72.2	73.5	72.9	72.6			
120000	77.0	76.1	75.7	75.9	74.4	73.2	72.8	73.2	72.9	73.7	73.5	73.1			
130000	77.0	76.3	76.1	75.7	74.7	73.6	72.9	73.6	73.6	73.4	74.0	73.3			
140000	76.9	76.4	75.7	76.3	74.8	73.7	73.0	73.9	73.9	73.5	74.2	73.5			
150000	76.7	76.4	75.3	76.3	75.0	73.7	73.0	73.8	74.2	73.6	74.8	73.4			
160000	76.5	76.9	75.5	76.4	75.2	73.9	72.9	74.5	74.3	73.6	74.7	73.6			
170000	76.5	76.0	75.9	76.6	75.2	73.9	73.0	74.6	74.9	73.7	74.9	73.8			
180000	77.2	76.2	75.9	76.6	75.1	73.7	73.0	74.4	75.1	73.8	74.8	73.8			
190000	76.8	75.9	75.8	76.8	74.9	73.5	73.0	74.2	75.1	74.0	74.6	73.5			
200000	76.2	76.3	75.6	76.7	74.7	73.4	72.8	74.1	74.9	74.0	74.6	73.3			
210000	77.0	76.6	75.5	75.9	74.5	73.3	72.6	73.8	74.8	73.9	74.4	73.1			
220000	76.8	76.4	75.5	75.8	74.2	73.0	72.4	73.5	74.5	73.9	74.0	73.1			
230000	76.8	76.4	75.4	75.8	74.0	72.9	72.3	73.2	74.3	73.8	73.8	72.8			
Daily Max	77.2	76.9	76.2	76.8	75.8	74.0	73.0	74.6	75.1	74.0	74.9	73.8	72.5	0.0	0.0
Daily Min	76.0	75.5	75.2	74.3	73.5	72.8	72.2	71.7	71.6	72.6	72.6	72.0	71.9	0.0	0.0
Average	76.4	76.2	75.6	75.5	74.5	73.4	72.6	73.0	73.3	73.5	73.7	73.0	72.2	#DIV/0!	#DIV/0!

Missing data due to power failure

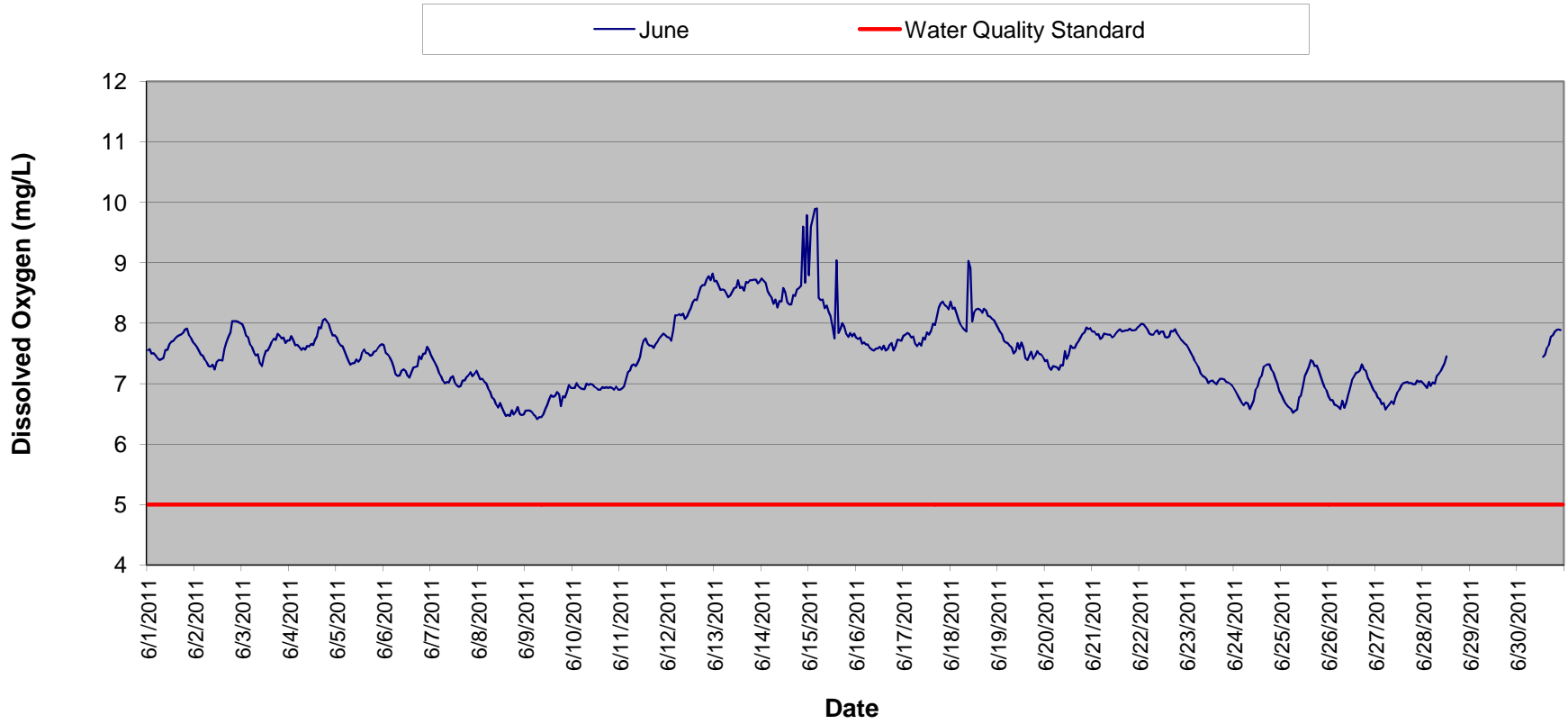


Potato Rapids Headwater Temperature Summary - September 2011

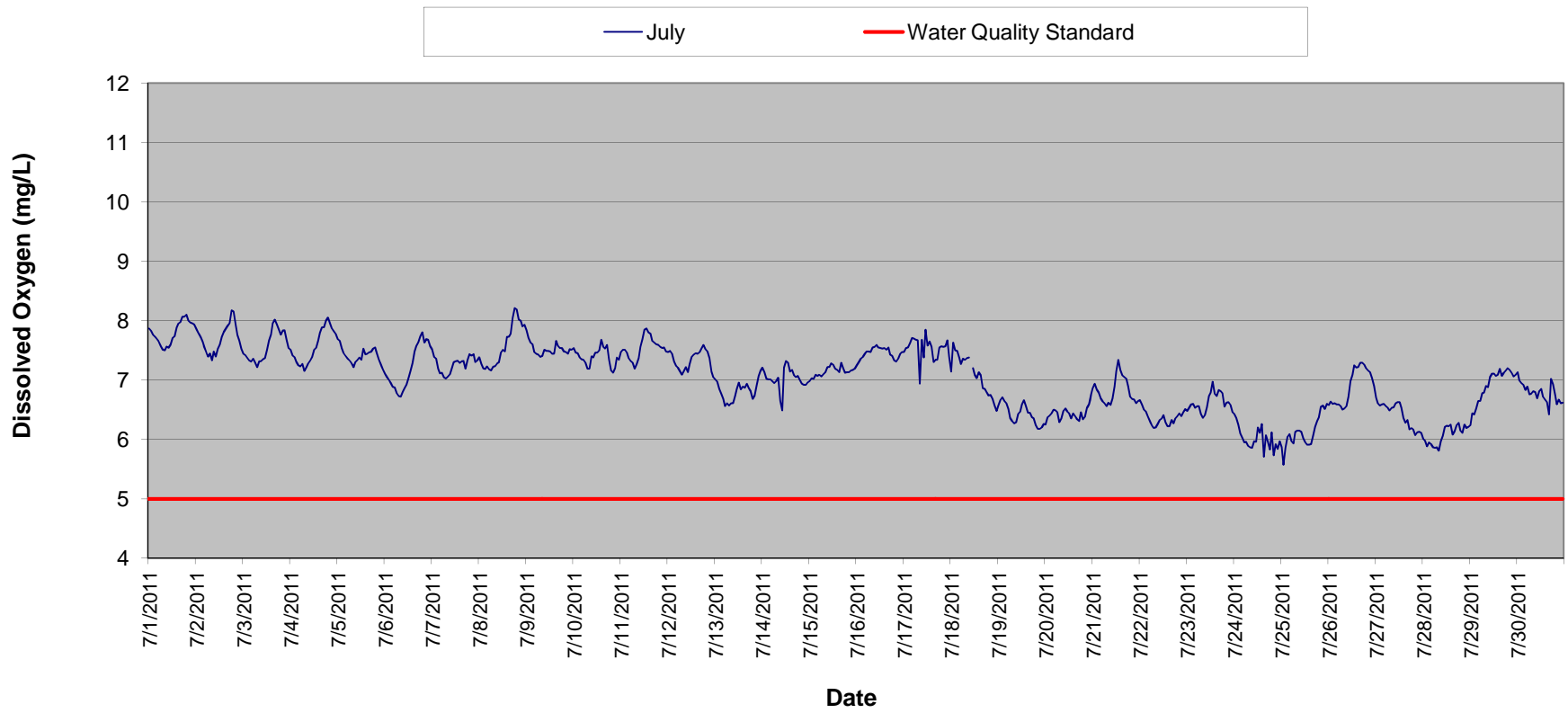
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	60.3	59.6	59.5	61.0	61.7	61.2	59.7	58.5	56.7	55.2	55.5	57.0	58.4	56.4
10000	60.1	59.4	59.5	60.8	61.7	61.1	59.5	58.4	56.6	55.1	55.5	57.0	58.2	56.2
20000	59.9	59.2	59.5	60.7	61.8	61.0	59.3	58.2	56.5	55.0	55.4	56.9	58.1	56.0
30000	59.8	59.1	59.5	60.6	61.8	60.9	59.2	58.1	56.4	55.0	55.4	56.8	58.0	55.8
40000	59.6	58.9	59.5	60.5	61.8	60.8	59.1	57.9	56.2	54.9	55.4	56.7	57.9	55.6
50000	59.6	58.8	59.5	60.4	61.8	60.7	58.9	57.7	56.1	54.9	55.3	56.6	57.9	55.5
60000	59.4	58.7	59.5	60.3	61.8	60.7	58.8	57.6	56.0	54.9	55.3	56.5	57.9	55.3
70000	59.3	58.7	59.5	60.2	61.8	60.6	58.7	57.5	55.9	54.9	55.3	56.5	57.9	55.2
80000	59.2	58.6	59.6	60.1	61.7	60.5	58.7	57.4	55.8	54.8	55.3	56.4	57.9	55.0
90000	59.1	58.6	59.6	60.0	61.5	60.4	58.6	57.3	55.8	54.8	55.3	56.4	57.8	55.0
100000	59.1	58.6	59.6	60.0	61.5	60.4	58.7	57.2	55.7	54.9	55.5	56.5	57.9	54.9
110000	59.2	59.0	59.8	60.5	61.5	60.7	59.0	57.2	55.7	54.9	55.7	56.9	58.0	54.9
120000	59.2	59.3	60.0	60.8	61.6	60.4	59.6	57.3	55.7	55.0	55.9	57.3	58.0	55.0
130000	59.6	59.6	60.4	61.2	61.7	60.5	59.8	57.3	55.7	55.1	56.2	57.7	58.1	55.1
140000	59.7	59.6	61.4	61.7	61.7	60.6	60.2	57.4	55.6	55.2	56.3	58.2	58.1	55.2
150000	59.8	60.2	62.0	61.8	61.7	60.6	60.2	57.4	55.6	55.3	56.8	58.5	58.1	55.4
160000	60.1	60.1	62.5	61.7	61.8	60.6	60.2	57.4	55.6	55.5	57.3	58.6	58.1	55.4
170000	59.9	59.7	62.7	61.8	61.8	60.6	60.0	57.3	55.6	55.5	57.4	58.5	58.0	55.5
180000	60.2	59.9	62.6	61.6	61.8	60.4	59.1	57.3	55.6	55.5	57.1	58.3	57.9	55.5
190000	60.5	59.5	62.2	61.6	61.8	60.3	59.1	57.3	55.7	55.5	57.1	58.5	57.8	55.2
200000	60.2	59.8	62.0	61.7	61.7	60.2	58.7	57.2	55.6	55.6	57.2	58.6	57.8	55.0
210000	60.0	59.7	61.6	61.7	61.6	60.1	58.6	57.1	55.5	55.6	57.4	58.7	57.4	54.8
220000	59.9	59.5	61.3	61.6	61.4	60.0	58.7	57.0	55.4	55.6	57.4	58.6	57.1	54.6
230000	59.7	59.5	61.1	61.6	61.3	59.8	58.6	56.9	55.3	55.6	57.1	58.5	56.8	54.4
Daily Max	60.5	60.2	62.7	61.8	61.8	61.2	60.2	58.5	56.7	55.6	57.4	58.7	58.4	56.4
Daily Min	59.1	58.6	59.5	60.0	61.3	59.8	58.6	56.9	55.3	54.8	55.3	56.4	56.8	54.4
Average	59.7	59.3	60.6	61.0	61.7	60.5	59.2	57.5	55.9	55.2	56.2	57.5	57.9	55.3

## **Potato Rapids Tail Water Monitoring Location**

### Potato Rapids Tailwater Dissolved Oxygen Summary - June 2011

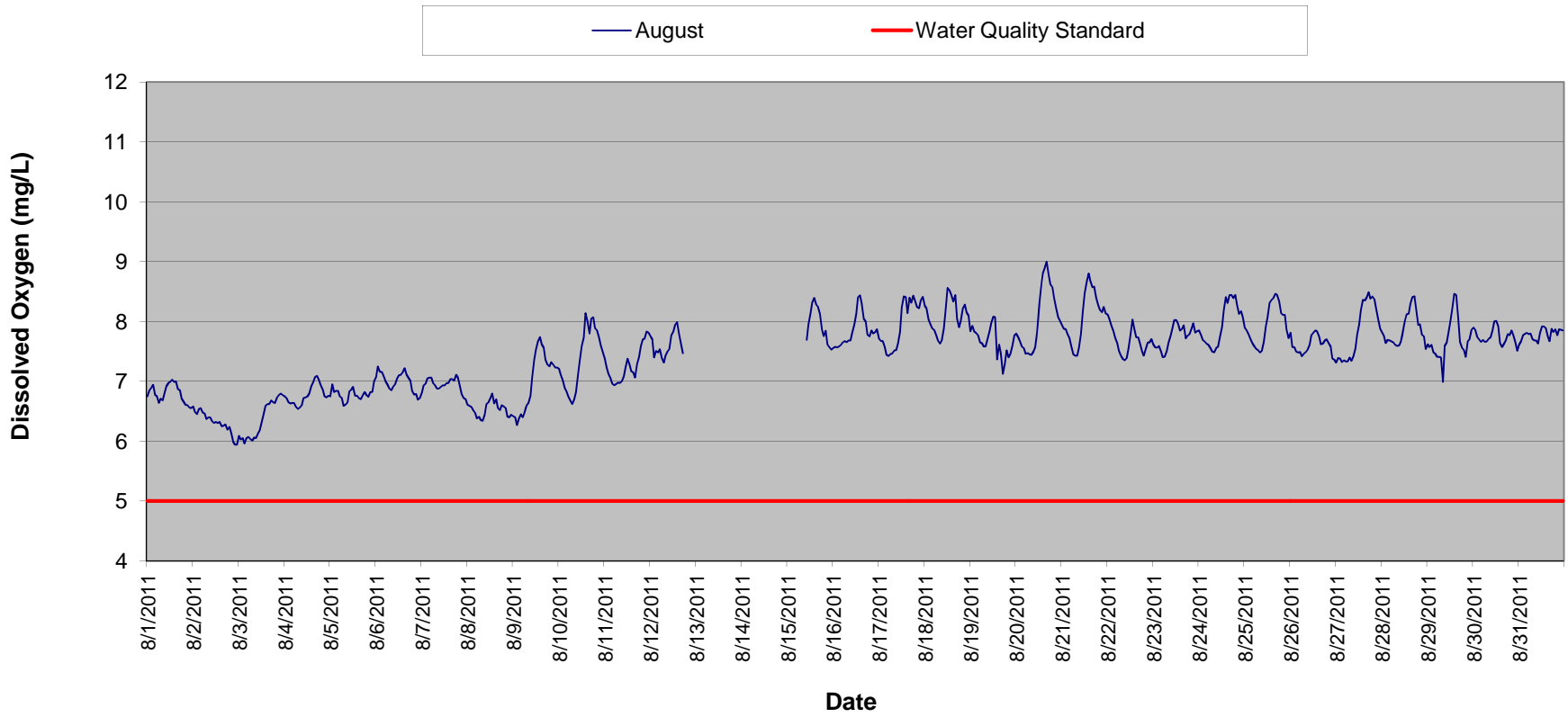


### Potato Rapids Tailwater Dissolved Oxygen Summary - July 2011

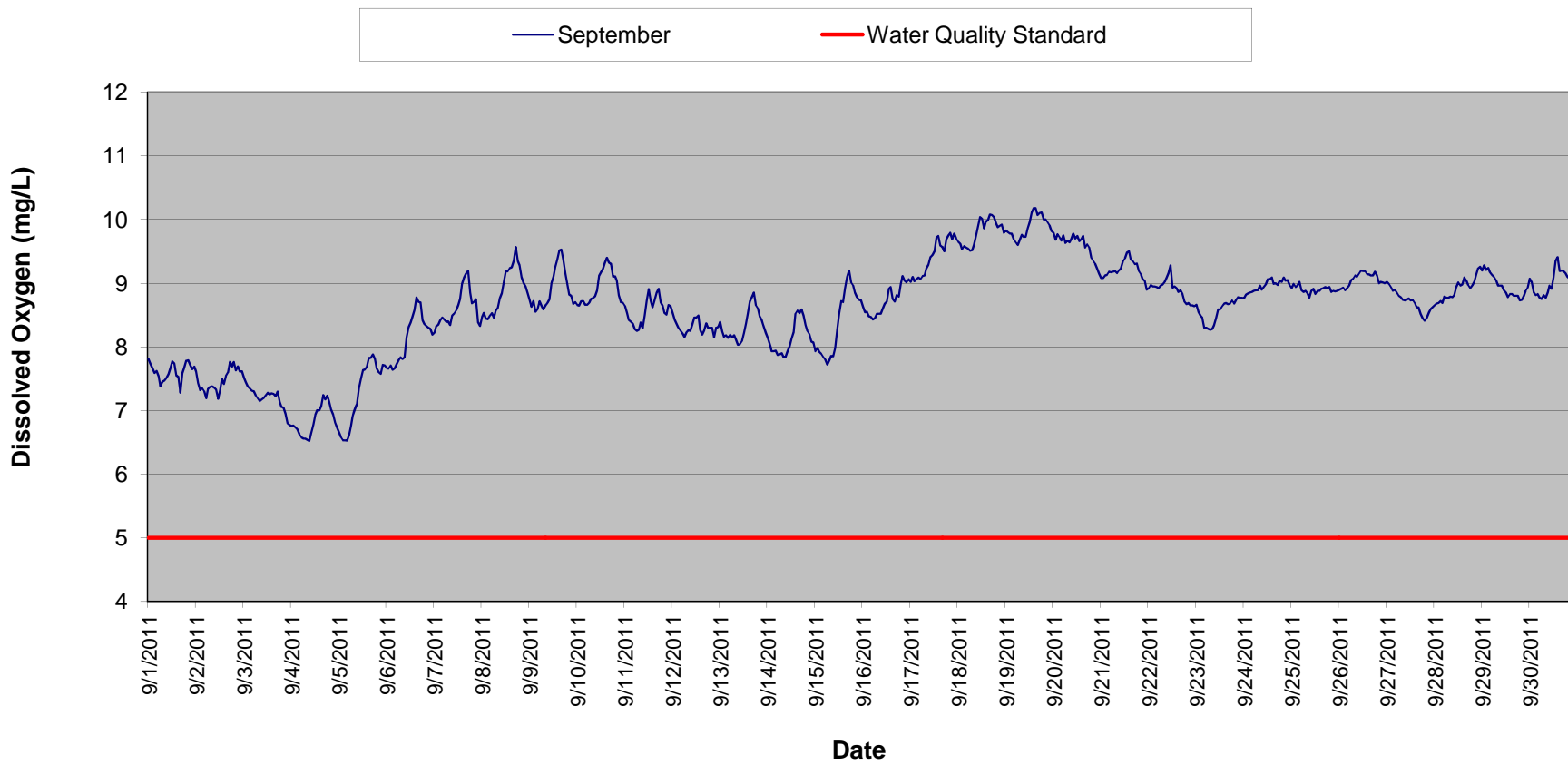




### Potato Rapids Tailwater Dissolved Oxygen Summary - August 2011



### Potato Rapids Tailwater Dissolved Oxygen Summary - September 2011



Potato Rapids Tailwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	7.6	7.6	8.0	7.7	7.8	7.6	7.5	7.1	6.6	6.9	6.9	7.8	8.7	8.7	8.8	7.8
10000	7.6	7.6	7.9	7.8	7.7	7.5	7.4	7.1	6.6	6.9	6.9	7.8	8.7	8.7	9.6	7.7
20000	7.5	7.5	7.8	7.7	7.6	7.5	7.3	7.1	6.6	7.0	7.0	7.7	8.6	8.7	9.7	7.8
30000	7.5	7.5	7.8	7.6	7.6	7.4	7.3	7.0	6.5	7.0	7.1	7.9	8.6	8.5	9.9	7.7
40000	7.5	7.5	7.6	7.6	7.5	7.4	7.2	7.0	6.5	6.9	7.2	8.1	8.6	8.5	9.9	7.7
50000	7.4	7.4	7.6	7.6	7.5	7.3	7.1	6.9	6.5	6.9	7.2	8.1	8.6	8.4	8.4	7.7
60000	7.4	7.3	7.5	7.6	7.4	7.2	7.1	6.9	6.4	6.9	7.3	8.2	8.5	8.3	8.4	7.7
70000	7.4	7.3	7.5	7.6	7.3	7.1	7.0	6.8	6.4	7.0	7.3	8.1	8.4	8.4	8.4	7.6
80000	7.4	7.3	7.5	7.6	7.3	7.1	7.0	6.7	6.4	7.0	7.3	8.2	8.5	8.3	8.3	7.6
90000	7.6	7.3	7.3	7.6	7.3	7.2	7.0	6.7	6.5	7.0	7.4	8.1	8.5	8.4	8.3	7.6
100000	7.6	7.2	7.3	7.6	7.4	7.2	7.1	6.6	6.6	7.0	7.4	8.1	8.6	8.4	8.2	7.6
110000	7.7	7.4	7.4	7.7	7.4	7.2	7.1	6.7	6.7	6.9	7.6	8.2	8.6	8.6	8.1	7.6
120000	7.7	7.4	7.5	7.6	7.4	7.1	7.0	6.6	6.7	6.9	7.7	8.3	8.7	8.5	8.0	7.6
130000	7.7	7.4	7.5	7.7	7.5	7.1	7.0	6.5	6.8	6.9	7.8	8.4	8.6	8.4	7.8	7.6
140000	7.7	7.4	7.6	7.8	7.6	7.2	6.9	6.5	6.8	6.9	7.7	8.4	8.6	8.3	9.0	7.6
150000	7.8	7.6	7.7	7.9	7.5	7.3	7.0	6.5	6.8	6.9	7.6	8.4	8.5	8.3	7.8	7.6
160000	7.8	7.7	7.7	7.9	7.5	7.3	7.1	6.5	6.9	6.9	7.6	8.5	8.7	8.5	7.9	7.6
170000	7.8	7.8	7.7	8.0	7.5	7.3	7.1	6.6	6.8	6.9	7.6	8.6	8.7	8.5	8.0	7.6
180000	7.8	7.8	7.8	8.1	7.5	7.5	7.1	6.5	6.6	6.9	7.7	8.6	8.7	8.6	7.9	7.7
190000	7.9	8.0	7.8	8.0	7.5	7.4	7.1	6.5	6.8	6.9	7.7	8.6	8.7	8.6	7.8	7.6
200000	7.9	8.0	7.7	8.0	7.5	7.5	7.2	6.6	6.8	6.9	7.8	8.7	8.7	8.6	7.8	7.6
210000	7.8	8.0	7.8	7.9	7.6	7.5	7.1	6.5	6.9	6.9	7.8	8.8	8.7	9.6	7.8	7.7
220000	7.8	8.0	7.7	7.8	7.6	7.6	7.2	6.5	7.0	7.0	7.8	8.7	8.7	8.7	7.8	7.7
230000	7.7	8.0	7.7	7.8	7.7	7.5	7.2	6.5	6.9	6.9	7.8	8.8	8.7	9.8	7.8	7.7
Daily Max	7.9	8.0	8.0	8.1	7.8	7.6	7.5	7.1	7.0	7.0	7.8	8.8	8.7	9.8	9.9	7.8
Daily Min	7.4	7.2	7.3	7.6	7.3	7.1	6.9	6.5	6.4	6.9	6.9	7.7	8.4	8.3	7.8	7.6
Average	7.6	7.6	7.7	7.8	7.5	7.3	7.1	6.7	6.7	6.9	7.5	8.3	8.6	8.6	8.4	7.6

License Minimum: 5.0 mg/l

Potato Rapids Tailwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.8	8.4	7.9	7.4	7.9	8.0	7.6	6.9	6.8	6.8	6.9	7.0		
10000	7.8	8.2	7.9	7.4	7.9	8.0	7.6	6.9	6.7	6.7	6.8	7.0		
20000	7.8	8.3	7.8	7.3	7.8	8.0	7.5	6.8	6.7	6.7	6.7	6.9		
30000	7.8	8.2	7.7	7.2	7.8	7.9	7.5	6.7	6.6	6.7	6.7	7.0		
40000	7.8	8.1	7.7	7.3	7.7	7.9	7.4	6.7	6.6	6.6	6.7	7.0		
50000	7.8	8.0	7.7	7.3	7.8	7.8	7.3	6.6	6.6	6.6	6.6	7.0		
60000	7.7	7.9	7.6	7.3	7.8	7.8	7.3	6.7	6.5	6.6	6.6	7.0		
70000	7.6	7.9	7.6	7.2	7.8	7.8	7.2	6.7	6.6	6.7	6.7	7.1		
80000	7.7	7.9	7.5	7.3	7.8	7.9	7.1	6.6	6.6	6.6	6.7	7.2		
90000	7.6	9.0	7.5	7.3	7.8	7.9	7.1	6.7	6.8	6.7	6.7	7.2		
100000	7.8	8.9	7.7	7.5	7.8	7.8	7.1	6.7	6.8	6.8	6.8	7.3		
110000	7.7	8.0	7.6	7.4	7.8	7.9	7.0	6.9	7.0	6.9	6.9	7.3		
120000	7.9	8.2	7.7	7.5	7.8	7.9	7.0	7.0	7.1	7.1	6.9	7.5		
130000	7.8	8.2	7.6	7.6	7.9	7.8	7.1	7.1	7.2	7.1	7.0			7.4
140000	7.9	8.2	7.4	7.6	7.9	7.8	7.0	7.1	7.3	7.2	7.0			7.5
150000	8.0	8.2	7.4	7.6	7.9	7.8	7.0	7.3	7.4	7.2	7.0			7.6
160000	8.0	8.2	7.5	7.7	7.9	7.9	7.0	7.3	7.4	7.2	7.0			7.6
170000	8.1	8.2	7.5	7.7	7.9	7.9	7.1	7.3	7.3	7.3	7.0			7.8
180000	8.3	8.2	7.4	7.8	7.9	7.9	7.1	7.3	7.3	7.2	7.0			7.8
190000	8.3	8.1	7.5	7.8	7.9	7.8	7.1	7.2	7.2	7.2	7.0			7.9
200000	8.4	8.1	7.5	7.9	7.9	7.8	7.0	7.2	7.1	7.1	7.0			7.9
210000	8.3	8.1	7.5	7.9	7.9	7.7	7.0	7.1	7.0	7.0	7.1			7.9
220000	8.3	8.1	7.5	7.9	7.9	7.7	7.0	7.0	6.9	7.0	7.0			7.9
230000	8.2	8.0	7.4	7.9	7.9	7.7	7.0	6.9	6.9	6.9	7.0			7.9
Daily Max	8.4	9.0	7.9	7.9	7.9	8.0	7.6	7.3	7.4	7.3	7.1	7.5	0.0	7.9
Daily Min	7.6	7.9	7.4	7.2	7.7	7.7	7.0	6.6	6.5	6.6	6.6	6.9	0.0	7.4
Average	7.9	8.2	7.6	7.5	7.8	7.8	7.2	6.9	6.9	6.9	6.9	7.1	#DIV/0!	7.7
Missing data - equipment pulled out of water during deployment period by an unknown party.														

Potato Rapids Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.9	7.9	7.4	7.5	7.7	7.1	7.5	7.4	7.8	7.5	7.5	7.5	7.0	7.2	7.0	7.3
10000	7.8	7.8	7.4	7.4	7.7	7.0	7.4	7.3	7.7	7.5	7.5	7.5	7.0	7.1	7.0	7.3
20000	7.8	7.7	7.4	7.4	7.5	7.0	7.4	7.2	7.6	7.5	7.5	7.4	6.9	7.0	7.0	7.4
30000	7.7	7.7	7.3	7.3	7.5	6.9	7.2	7.2	7.6	7.4	7.5	7.3	6.8	7.0	7.1	7.4
40000	7.7	7.6	7.3	7.2	7.4	6.9	7.1	7.2	7.5	7.4	7.4	7.2	6.7	7.0	7.1	7.4
50000	7.6	7.5	7.4	7.2	7.4	6.9	7.1	7.2	7.4	7.3	7.3	7.2	6.6	7.0	7.1	7.5
60000	7.6	7.4	7.3	7.3	7.3	6.8	7.0	7.2	7.4	7.3	7.3	7.2	6.6	7.0	7.1	7.5
70000	7.5	7.4	7.2	7.2	7.3	6.7	7.0	7.2	7.4	7.2	7.2	7.1	6.6	7.0	7.1	7.5
80000	7.5	7.3	7.3	7.2	7.2	6.7	7.1	7.2	7.4	7.2	7.3	7.2	6.6	7.0	7.1	7.6
90000	7.6	7.5	7.3	7.3	7.3	6.8	7.1	7.3	7.5	7.4	7.4	7.2	6.6	6.7	7.2	7.6
100000	7.5	7.4	7.3	7.3	7.3	6.9	7.2	7.3	7.5	7.4	7.6	7.1	6.7	6.5	7.2	7.6
110000	7.6	7.5	7.4	7.4	7.4	6.9	7.3	7.5	7.5	7.5	7.7	7.3	6.9	7.2	7.3	7.6
120000	7.7	7.6	7.5	7.5	7.3	7.0	7.3	7.5	7.5	7.5	7.9	7.4	7.0	7.3	7.3	7.5
130000	7.7	7.7	7.7	7.5	7.5	7.2	7.3	7.5	7.4	7.5	7.9	7.4	6.8	7.3	7.2	7.5
140000	7.9	7.8	7.8	7.7	7.4	7.3	7.3	7.7	7.4	7.7	7.8	7.5	6.9	7.1	7.2	7.5
150000	8.0	7.9	8.0	7.8	7.4	7.5	7.3	7.7	7.7	7.6	7.8	7.4	6.9	7.2	7.1	7.5
160000	8.0	7.9	8.0	7.9	7.5	7.6	7.3	7.8	7.6	7.5	7.7	7.5	6.9	7.1	7.3	7.6
170000	8.1	8.0	7.9	7.9	7.5	7.6	7.2	8.1	7.5	7.6	7.6	7.5	6.9	7.1	7.2	7.4
180000	8.1	8.2	7.9	8.0	7.5	7.7	7.3	8.2	7.5	7.3	7.6	7.6	6.8	7.1	7.1	7.4
190000	8.1	8.2	7.8	8.1	7.5	7.8	7.4	8.2	7.5	7.2	7.6	7.5	6.7	7.0	7.1	7.3
200000	8.0	7.9	7.8	8.0	7.4	7.6	7.4	8.0	7.5	7.1	7.6	7.5	6.7	6.9	7.1	7.3
210000	8.0	7.8	7.8	7.9	7.3	7.7	7.4	8.0	7.4	7.2	7.5	7.4	6.9	6.9	7.2	7.4
220000	8.0	7.7	7.7	7.8	7.3	7.7	7.3	7.9	7.5	7.4	7.6	7.1	7.1	6.9	7.2	7.4
230000	7.9	7.5	7.5	7.8	7.2	7.6	7.3	7.9	7.5	7.3	7.5	7.1	7.2	7.0	7.2	7.5
Daily Max	8.1	8.2	8.0	8.1	7.7	7.8	7.5	8.2	7.8	7.7	7.9	7.6	7.2	7.3	7.3	7.6
Daily Min	7.5	7.3	7.2	7.2	7.2	6.7	7.0	7.2	7.4	7.1	7.2	7.1	6.6	6.5	7.0	7.3
Average	7.8	7.7	7.6	7.6	7.4	7.2	7.3	7.6	7.5	7.4	7.5	7.3	6.8	7.0	7.1	7.5

License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.5	7.1	6.6	6.3	6.9	6.7	6.5	6.4	5.9	6.6	6.7	6.0	6.2	7.1	6.6
10000	7.5	7.6	6.7	6.4	6.9	6.6	6.5	6.4	5.6	6.6	6.6	6.0	6.4	7.0	6.6
20000	7.6	7.5	6.7	6.4	6.8	6.5	6.6	6.3	5.9	6.6	6.6	5.9	6.4	7.0	6.6
30000	7.6	7.5	6.7	6.4	6.8	6.5	6.6	6.1	6.0	6.6	6.6	6.0	6.5	6.9	6.6
40000	7.7	7.4	6.6	6.5	6.7	6.4	6.5	6.0	6.1	6.6	6.6	5.9	6.7	6.8	6.6
50000	7.7	7.3	6.5	6.5	6.6	6.3	6.6	6.0	6.0	6.6	6.6	5.9	6.7	6.9	6.5
60000	7.7	7.4	6.4	6.5	6.6	6.2	6.6	6.0	5.9	6.6	6.5	5.9	6.8	6.8	6.4
70000	7.7	7.3	6.3	6.3	6.6	6.2	6.4	5.9	6.1	6.5	6.5	5.9	6.8	6.8	6.4
80000	6.9	7.4	6.3	6.4	6.6	6.2	6.4	5.9	6.2	6.5	6.5	5.8	6.9	6.8	6.4
90000	7.7	7.4	6.3	6.5	6.6	6.3	6.4	5.9	6.2	6.6	6.5	6.0	6.9	6.8	6.4
100000	7.4		6.4	6.5	6.7	6.3	6.5	6.0	6.1	6.7	6.6	6.1	7.1	6.7	6.5
110000	7.9	7.2	6.5	6.5	6.9	6.4	6.7	6.0	6.0	7.0	6.6	6.2	7.1	6.8	6.7
120000	7.6	7.1	6.6	6.4	7.2	6.4	6.8	6.2	6.0	7.1	6.6	6.2	7.1	6.9	6.7
130000	7.7	7.0	6.7	6.4	7.3	6.3	7.0	6.1	5.9	7.3	6.5	6.2	7.1	6.7	6.7
140000	7.6	7.1	6.6	6.4	7.2	6.2	6.8	6.3	5.9	7.2	6.4	6.3	7.1	6.7	6.7
150000	7.3	7.1	6.5	6.4	7.1	6.2	6.7	5.7	5.9	7.2	6.3	6.1	7.2	6.6	6.7
160000	7.3	6.9	6.5	6.3	7.1	6.3	6.8	6.1	6.1	7.3	6.3	6.1	7.1	6.4	6.7
170000	7.3	6.9	6.4	6.3	7.0	6.3	6.8	6.0	6.2	7.3	6.2	6.2	7.1	7.0	6.6
180000	7.6	6.8	6.4	6.5	6.9	6.4	6.8	5.8	6.3	7.3	6.2	6.3	7.2	6.9	6.5
190000	7.6	6.7	6.2	6.3	6.7	6.4	6.6	6.1	6.4	7.2	6.2	6.2	7.2	6.8	6.6
200000	7.6	6.8	6.2	6.4	6.7	6.4	6.6	5.7	6.6	7.2	6.1	6.1	7.2	6.6	6.7
210000	7.6	6.7	6.2	6.5	6.7	6.4	6.6	5.9	6.6	7.1	6.1	6.3	7.1	6.7	6.7
220000	7.7	6.6	6.2	6.6	6.6	6.5	6.6	5.8	6.5	7.0	6.1	6.2	7.1	6.6	6.8
230000	7.4	6.5	6.3	6.8	6.7	6.5	6.5	6.0	6.6	6.9	6.1	6.2	7.1	6.6	6.8
Daily Max	7.9	7.6	6.7	6.8	7.3	6.7	7.0	6.4	6.6	7.3	6.7	6.3	7.2	7.1	6.8
Daily Min	6.9	6.5	6.2	6.3	6.6	6.2	6.4	5.7	5.6	6.5	6.1	5.8	6.2	6.4	6.4
Average	7.5	7.1	6.4	6.4	6.8	6.4	6.6	6.0	6.1	6.9	6.4	6.1	6.9	6.8	6.6
			Missing data due to equipment maintenance												

Potato Rapids Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	6.8	6.6	6.1	6.8	6.8	7.1	6.8	6.6	6.4	7.2	7.4	7.8				7.6
10000	6.9	6.5	6.0	6.7	7.0	7.3	6.9	6.6	6.4	7.1	7.2	7.7				7.6
20000	6.9	6.5	6.1	6.7	6.8	7.2	7.0	6.6	6.3	7.0	7.1	7.4				7.6
30000	6.9	6.5	6.0	6.6	6.8	7.2	7.1	6.5	6.4	6.9	7.1	7.5				7.6
40000	6.8	6.6	6.1	6.6	6.8	7.1	7.1	6.5	6.5	6.8	7.0	7.5				7.6
50000	6.8	6.5	6.1	6.6	6.8	7.0	7.1	6.4	6.4	6.7	6.9	7.5				7.7
60000	6.6	6.5	6.0	6.6	6.7	6.9	7.0	6.4	6.5	6.7	7.0	7.4				7.7
70000	6.7	6.4	6.0	6.5	6.6	6.9	6.9	6.4	6.6	6.6	7.0	7.3				7.7
80000	6.7	6.4	6.1	6.6	6.6	6.9	6.9	6.3	6.6	6.7	7.0	7.4				7.7
90000	6.8	6.4	6.1	6.6	6.7	6.9	6.9	6.4	6.8	6.8	7.0	7.5				7.7
100000	6.9	6.3	6.1	6.7	6.8	7.0	6.9	6.6	7.1	7.1	7.1	7.5			7.7	7.8
110000	7.0	6.3	6.2	6.7	6.9	7.1	6.9	6.7	7.4	7.4	7.2	7.8			8.0	7.9
120000	7.0	6.3	6.3	6.8	6.9	7.1	6.9	6.7	7.5	7.6	7.4	7.8			8.1	8.1
130000	7.0	6.3	6.5	6.8	6.8	7.1	7.0	6.8	7.7	7.7	7.3	7.9			8.3	8.4
140000	7.0	6.3	6.6	6.9	6.8	7.2	7.0	6.6	7.7	8.1	7.2	8.0			8.4	8.4
150000	7.0	6.3	6.6	7.0	6.7	7.2	7.0	6.7	7.6	8.0	7.2	7.8			8.3	8.3
160000	6.9	6.3	6.6	7.1	6.7	7.1	7.0	6.6	7.6	7.8	7.1	7.6			8.2	8.0
170000	6.9	6.3	6.7	7.1	6.8	7.1	7.0	6.5	7.4	8.1	7.3	7.5			8.1	8.0
180000	6.7	6.2	6.7	7.0	6.8	7.0	7.1	6.6	7.3	8.1	7.4				7.9	7.8
190000	6.7	6.2	6.6	6.9	6.8	6.8	7.1	6.6	7.3	7.9	7.6				7.8	7.7
200000	6.6	6.1	6.7	6.9	6.7	6.8	6.9	6.6	7.3	7.9	7.7				7.8	7.8
210000	6.6	6.0	6.8	6.8	6.8	6.8	6.8	6.4	7.3	7.7	7.7				7.6	7.8
220000	6.6	5.9	6.8	6.7	6.8	6.7	6.7	6.4	7.2	7.6	7.8				7.6	7.8
230000	6.6	5.9	6.8	6.8	7.0	6.7	6.7	6.4	7.2	7.5	7.8				7.5	7.9
Daily Max	7.0	6.6	6.8	7.1	7.0	7.3	7.1	6.8	7.7	8.1	7.8	8.0	0.0	0.0	8.4	8.4
Daily Min	6.6	5.9	6.0	6.5	6.6	6.7	6.7	6.3	6.3	6.6	6.9	7.3	0.0	0.0	7.5	7.6
Average	6.8	6.3	6.3	6.8	6.8	7.0	6.9	6.5	7.0	7.4	7.3	7.6	#DIV/0!	#DIV/0!	8.0	7.8

Missing data due to equipment setup error

License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.7	8.3	7.8	7.8	7.9	8.1	7.6	7.9	7.9	7.8	7.3	7.8	7.6	7.9	7.6
10000	7.7	8.2	7.9	7.7	7.9	8.0	7.6	7.8	7.8	7.6	7.4	7.8	7.6	7.9	7.7
20000	7.7	8.0	7.8	7.7	7.9	7.9	7.6	7.7	7.8	7.6	7.4	7.6	7.6	7.7	7.8
30000	7.6	7.9	7.8	7.6	7.8	7.8	7.6	7.7	7.7	7.5	7.3	7.7	7.5	7.7	7.8
40000	7.4	7.9	7.8	7.6	7.7	7.7	7.5	7.6	7.6	7.5	7.4	7.7	7.5	7.7	7.8
50000	7.4	7.9	7.6	7.5	7.6	7.6	7.4	7.6	7.6	7.5	7.3	7.7	7.4	7.7	7.8
60000	7.5	7.8	7.6	7.5	7.4	7.5	7.4	7.6	7.5	7.4	7.3	7.7	7.4	7.7	7.8
70000	7.5	7.7	7.6	7.5	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.6	7.4	7.7	7.7
80000	7.5	7.6	7.6	7.4	7.4	7.4	7.6	7.5	7.5	7.5	7.3	7.6	7.0	7.7	7.7
90000	7.5	7.7	7.7	7.5	7.6	7.4	7.8	7.6	7.5	7.5	7.4	7.6	7.6	7.7	7.7
100000	7.6	7.9	7.8	7.6	7.8	7.4	7.9	7.6	7.7	7.6	7.6	7.7	7.7	7.9	7.6
110000	7.8	8.2	8.0	7.8	8.2	7.5	8.0	7.7	7.9	7.8	7.8	7.8	7.8	8.0	7.8
120000	8.2	8.6	8.1	8.3	8.5	7.8	8.0	7.9	8.1	7.8	8.0	8.0	8.0	8.0	7.9
130000	8.4	8.5	8.1	8.5	8.7	8.0	8.0	8.2	8.3	7.9	8.2	8.1	8.2	7.9	7.9
140000	8.4	8.4	7.4	8.8	8.8	7.9	7.8	8.4	8.4	7.8	8.4	8.1	8.5	7.6	7.9
150000	8.1	8.3	7.6	8.9	8.7	7.7	7.9	8.3	8.4	7.8	8.4	8.3	8.4	7.6	7.8
160000	8.4	8.4	7.5	9.0	8.6	7.7	7.9	8.4	8.5	7.6	8.4	8.4	8.1	7.6	7.7
170000	8.3	8.0	7.1	8.8	8.6	7.6	7.7	8.4	8.4	7.6	8.5	8.4	7.7	7.7	7.9
180000	8.4	7.9	7.3	8.6	8.4	7.5	7.8	8.4	8.3	7.7	8.4	8.2	7.6	7.8	7.8
190000	8.3	8.0	7.5	8.6	8.3	7.4	7.8	8.4	8.1	7.7	8.4	7.9	7.5	7.8	7.9
200000	8.2	8.2	7.4	8.4	8.2	7.5	7.9	8.3	8.1	7.6	8.4	8.0	7.4	7.9	7.8
210000	8.2	8.3	7.5	8.2	8.2	7.6	8.0	8.1	8.1	7.6	8.2	7.8	7.7	7.8	7.9
220000	8.4	8.2	7.6	8.1	8.2	7.6	7.8	8.2	7.9	7.4	8.0	7.8	7.7	7.7	7.9
230000	8.4	8.1	7.8	8.0	8.1	7.7	7.8	8.1	7.7	7.4	7.9	7.5	7.9	7.5	7.9
Daily Max	8.4	8.6	8.1	9.0	8.8	8.1	8.0	8.4	8.5	7.9	8.5	8.4	8.5	8.0	7.9
Daily Min	7.4	7.6	7.1	7.4	7.4	7.4	7.4	7.5	7.5	7.4	7.3	7.5	7.0	7.5	7.6
Average	8.0	8.1	7.7	8.1	8.1	7.7	7.7	7.9	7.9	7.6	7.8	7.9	7.7	7.7	7.8



Potato Rapids Tailwater Dissolved Oxygen Summary - September 2011

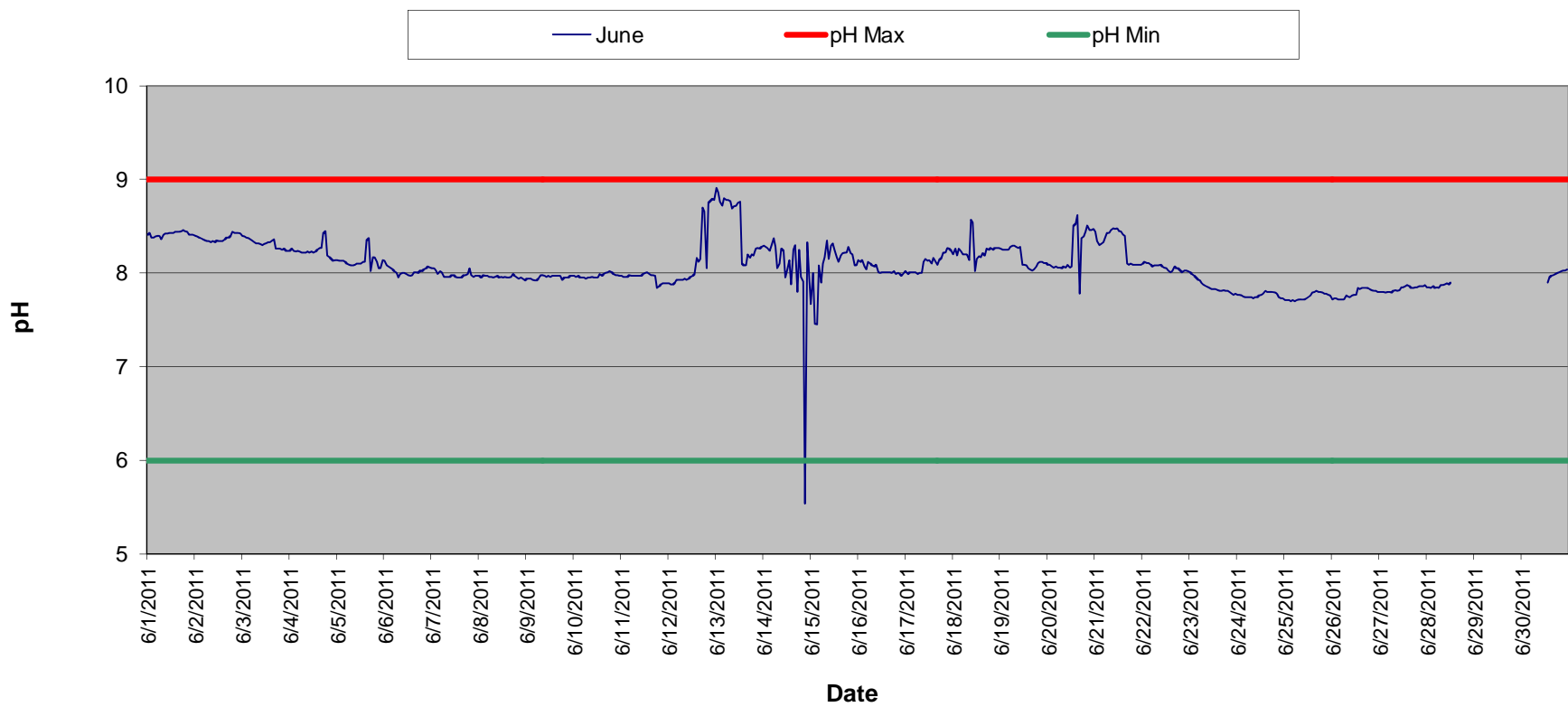
Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	7.8	7.6	7.5	6.8	6.6	7.7	8.2	8.5	8.7	8.7	8.6	8.5	8.4	8.1	7.9	8.6
10000	7.7	7.4	7.4	6.8	6.6	7.7	8.3	8.5	8.6	8.6	8.5	8.4	8.2	8.0	8.0	8.5
20000	7.7	7.3	7.4	6.7	6.5	7.7	8.3	8.4	8.7	8.7	8.4	8.4	8.2	7.9	7.9	8.6
30000	7.6	7.4	7.3	6.7	6.5	7.6	8.4	8.4	8.6	8.7	8.4	8.3	8.2	7.9	7.9	8.5
40000	7.6	7.3	7.3	6.6	6.5	7.7	8.5	8.5	8.6	8.7	8.4	8.3	8.1	7.9	7.8	8.5
50000	7.5	7.2	7.3	6.6	6.6	7.7	8.4	8.5	8.7	8.7	8.3	8.2	8.2	7.9	7.8	8.4
60000	7.4	7.3	7.2	6.6	6.8	7.8	8.4	8.5	8.6	8.7	8.2	8.2	8.2	7.9	7.7	8.5
70000	7.5	7.4	7.2	6.6	6.9	7.8	8.4	8.6	8.6	8.8	8.3	8.2	8.2	7.9	7.8	8.5
80000	7.5	7.4	7.1	6.5	7.0	7.8	8.3	8.6	8.6	8.8	8.4	8.3	8.1	7.8	7.9	8.5
90000	7.5	7.4	7.2	6.5	7.1	7.8	8.5	8.8	8.7	8.8	8.3	8.2	8.0	7.8	7.9	8.5
100000	7.6	7.3	7.2	6.7	7.4	8.1	8.5	8.8	8.7	8.9	8.5	8.4	8.0	7.9	8.0	8.6
110000	7.7	7.2	7.2	6.8	7.5	8.3	8.6	9.0	9.0	9.1	8.7	8.5	8.1	8.0	8.3	8.7
120000	7.8	7.3	7.3	6.9	7.6	8.4	8.7	9.2	9.1	9.2	8.9	8.5	8.2	8.1	8.5	8.7
130000	7.7	7.5	7.3	7.0	7.6	8.5	8.7	9.2	9.3	9.2	8.7	8.5	8.4	8.2	8.7	8.9
140000	7.6	7.4	7.3	7.0	7.7	8.6	9.0	9.2	9.4	9.3	8.6	8.3	8.5	8.5	8.7	8.9
150000	7.5	7.5	7.3	7.1	7.8	8.8	9.1	9.2	9.5	9.4	8.7	8.2	8.7	8.6	8.9	8.8
160000	7.3	7.6	7.2	7.2	7.8	8.7	9.2	9.3	9.5	9.3	8.8	8.3	8.8	8.5	9.1	8.7
170000	7.6	7.8	7.3	7.2	7.9	8.7	9.2	9.6	9.4	9.3	8.9	8.4	8.9	8.6	9.2	8.8
180000	7.7	7.7	7.1	7.2	7.8	8.4	8.9	9.4	9.1	9.1	8.7	8.3	8.7	8.5	9.0	8.8
190000	7.8	7.8	7.1	7.1	7.7	8.4	8.7	9.3	9.0	9.1	8.6	8.3	8.6	8.3	9.0	9.0
200000	7.8	7.6	7.0	7.0	7.6	8.3	8.7	9.1	8.8	9.0	8.5	8.3	8.5	8.3	8.9	9.1
210000	7.7	7.7	6.9	6.9	7.6	8.3	8.7	9.0	8.8	8.8	8.5	8.2	8.4	8.2	8.8	9.0
220000	7.7	7.6	6.8	6.8	7.7	8.3	8.4	8.9	8.7	8.7	8.7	8.3	8.3	8.1	8.7	9.0
230000	7.7	7.6	6.8	6.7	7.7	8.2	8.3	8.8	8.7	8.7	8.6	8.3	8.2	8.1	8.7	9.1
Daily Max	7.8	7.8	7.5	7.2	7.9	8.8	9.2	9.6	9.5	9.4	8.9	8.5	8.9	8.6	9.2	9.1
Daily Min	7.3	7.2	6.8	6.5	6.5	7.6	8.2	8.4	8.6	8.6	8.2	8.2	8.0	7.8	7.7	8.4
Average	7.6	7.5	7.2	6.8	7.3	8.1	8.6	8.9	8.9	8.9	8.6	8.3	8.3	8.1	8.4	8.7

License Minimum Dissolved Oxygen: 5.0 mg/l

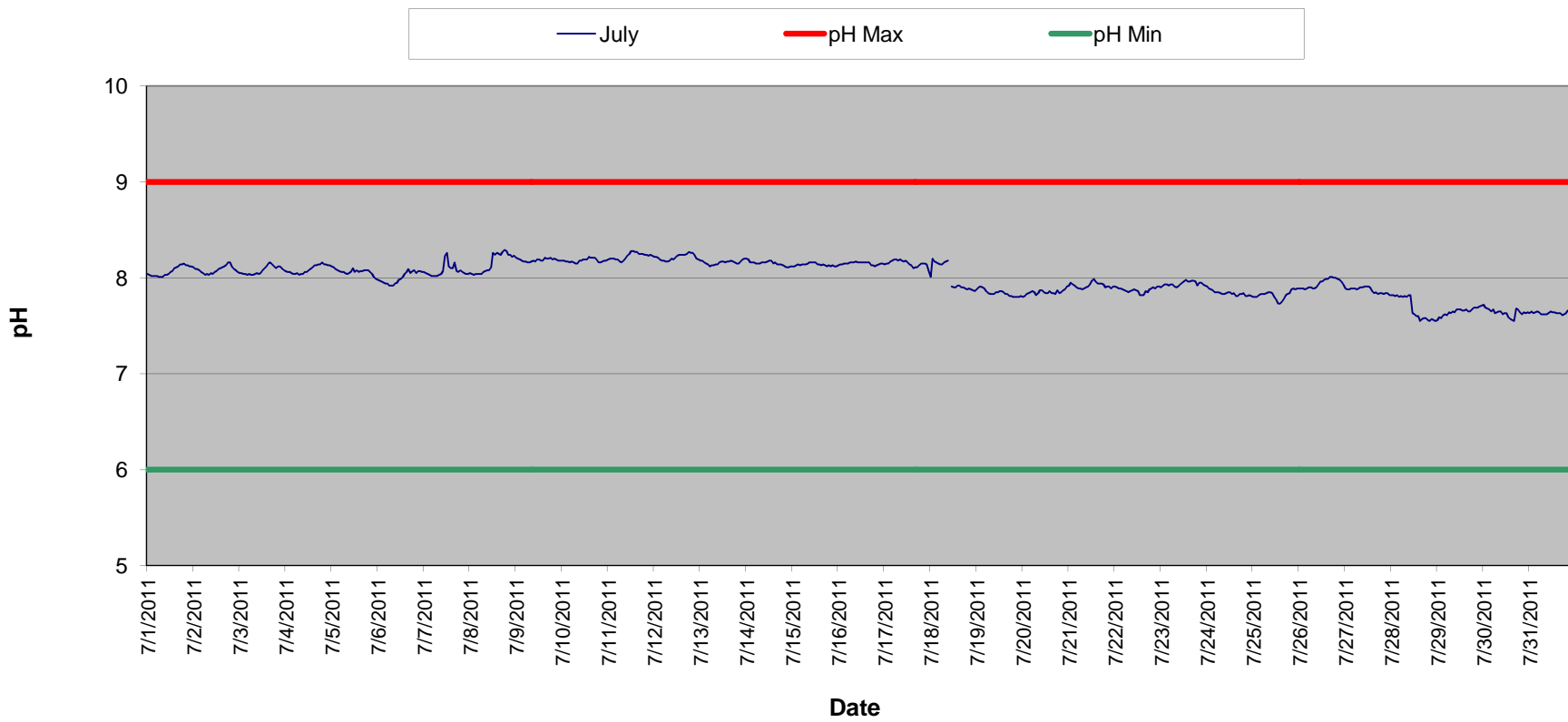
Potato Rapids Tailwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	9.0	9.7	9.8	9.8	9.1	8.9	8.7	8.8	8.9	8.9	9.0	8.7	9.2	9.1
10000	9.1	9.6	9.8	9.7	9.1	9.0	8.6	8.8	9.0	8.9	9.0	8.7	9.3	9.0
20000	9.0	9.5	9.8	9.8	9.1	9.0	8.5	8.8	8.9	8.9	8.9	8.7	9.2	8.9
30000	9.1	9.6	9.8	9.7	9.1	9.0	8.5	8.9	9.0	8.9	8.9	8.7	9.2	8.8
40000	9.1	9.6	9.7	9.7	9.2	8.9	8.3	8.9	9.0	8.9	8.9	8.7	9.2	8.8
50000	9.1	9.5	9.6	9.8	9.2	8.9	8.3	8.9	8.9	9.0	8.9	8.8	9.1	8.8
60000	9.1	9.5	9.6	9.6	9.2	9.0	8.3	8.9	8.9	9.1	8.8	8.8	9.1	8.8
70000	9.1	9.5	9.7	9.7	9.2	9.0	8.3	8.9	8.9	9.1	8.8	8.8	9.1	8.8
80000	9.2	9.6	9.8	9.6	9.2	9.0	8.3	9.0	8.8	9.1	8.7	8.8	9.0	8.8
90000	9.3	9.7	9.7	9.7	9.2	9.1	8.3	8.9	8.8	9.1	8.7	8.8	9.0	8.9
100000	9.4	9.9	9.7	9.8	9.2	9.2	8.5	8.9	8.9	9.2	8.7	8.8	9.0	9.0
110000	9.4	10.0	9.9	9.7	9.3	9.3	8.6	9.0	8.9	9.2	8.8	8.9	8.9	8.9
120000	9.5	10.0	10.0	9.7	9.4	8.9	8.6	9.1	8.8	9.2	8.7	9.0	8.9	9.1
130000	9.7	9.9	10.1	9.7	9.5	9.0	8.6	9.1	8.9	9.2	8.7	9.0	8.8	9.4
140000	9.7	10.0	10.2	9.7	9.5	8.9	8.7	9.1	8.9	9.1	8.7	9.0	8.8	9.4
150000	9.6	10.0	10.2	9.7	9.4	8.9	8.7	9.0	8.9	9.1	8.6	9.1	8.8	9.2
160000	9.6	10.1	10.1	9.6	9.4	8.9	8.7	9.0	8.9	9.1	8.6	9.1	8.8	9.2
170000	9.5	10.1	10.1	9.6	9.3	8.8	8.7	9.0	8.9	9.1	8.5	9.0	8.8	9.2
180000	9.7	10.0	10.1	9.6	9.3	8.7	8.7	9.0	8.9	9.2	8.5	8.9	8.8	9.2
190000	9.8	9.9	10.0	9.4	9.2	8.7	8.7	9.0	8.9	9.1	8.4	9.0	8.7	9.1
200000	9.8	9.9	10.0	9.4	9.1	8.7	8.7	9.1	8.9	9.0	8.5	9.0	8.7	9.1
210000	9.7	9.9	10.0	9.3	9.1	8.7	8.8	9.0	8.9	9.0	8.5	9.1	8.8	9.1
220000	9.8	9.9	9.9	9.2	9.0	8.7	8.8	9.1	8.9	9.0	8.6	9.2	8.9	9.1
230000	9.7	9.8	9.8	9.2	8.9	8.6	8.8	9.0	8.9	9.0	8.6	9.3	8.9	9.1
Daily Max	9.8	10.1	10.2	9.8	9.5	9.3	8.8	9.1	9.0	9.2	9.0	9.3	9.3	9.4
Daily Min	9.0	9.5	9.6	9.2	8.9	8.6	8.3	8.8	8.8	8.9	8.4	8.7	8.7	8.8
Average	9.4	9.8	9.9	9.6	9.2	8.9	8.6	9.0	8.9	9.1	8.7	8.9	9.0	9.0

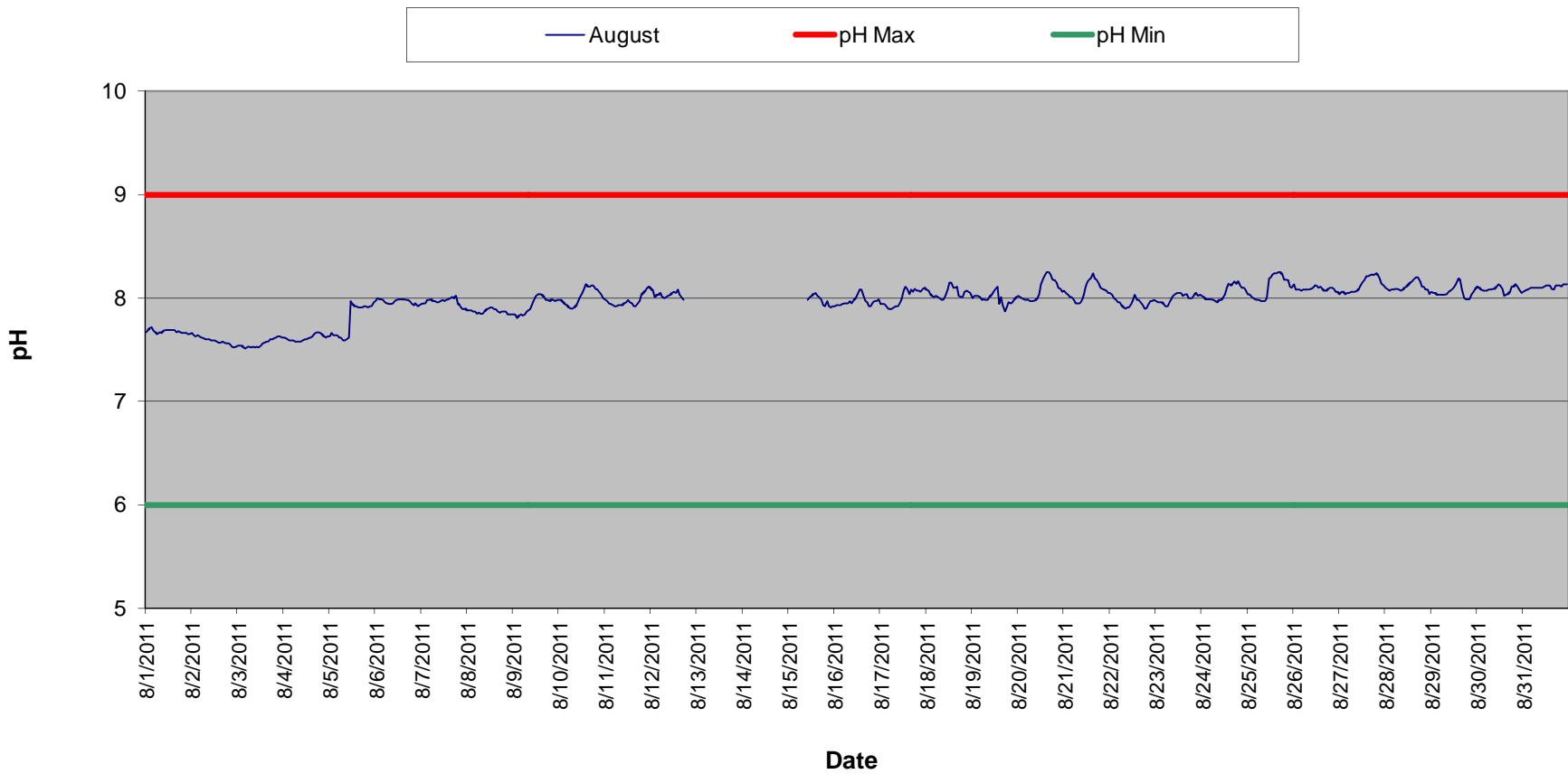
### Potato Rapids Tailwater pH Summary - June 2011



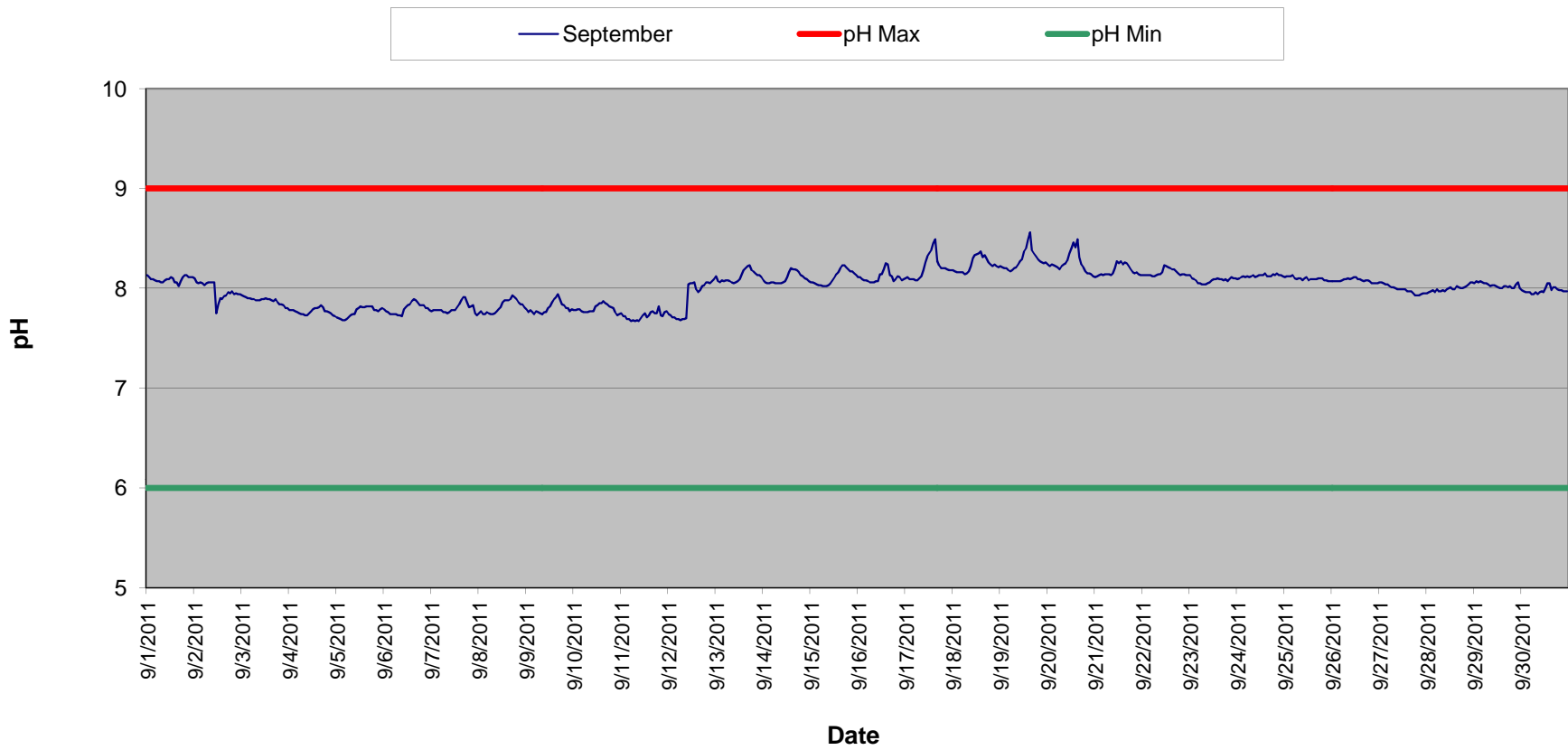
### Potato Rapids Tailwater pH Summary - July 2011



### Potato Rapids Tailwater pH Summary - August 2011



### Potato Rapids Tailwater pH Summary - September 2011



Potato Rapids Tailwater pH Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	8.4	8.4	8.4	8.2	8.1	8.1	8.1	8.0	7.9	8.0	8.0	7.9	8.9	8.3	7.7	8.1
10000	8.4	8.4	8.4	8.3	8.1	8.1	8.1	8.0	7.9	8.0	8.0	7.9	8.9	8.3	8.0	8.1
20000	8.4	8.4	8.4	8.2	8.1	8.1	8.0	8.0	7.9	8.0	8.0	7.9	8.8	8.3	7.5	8.1
30000	8.4	8.4	8.4	8.2	8.1	8.1	8.0	8.0	7.9	8.0	8.0	7.9	8.7	8.2	7.5	8.1
40000	8.4	8.4	8.4	8.2	8.1	8.0	8.0	8.0	7.9	8.0	8.0	7.9	8.8	8.3	8.1	8.0
50000	8.4	8.4	8.4	8.2	8.1	8.0	8.0	8.0	7.9	8.0	8.0	7.9	8.8	8.4	7.9	8.1
60000	8.4	8.3	8.3	8.2	8.1	8.0	8.0	8.0	7.9	7.9	8.0	7.9	8.8	8.3	8.1	8.1
70000	8.4	8.3	8.3	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.8	8.1	8.2	8.1
80000	8.4	8.3	8.3	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.7	8.1	8.4	8.1
90000	8.4	8.3	8.3	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.7	8.3	8.2	8.1
100000	8.4	8.3	8.3	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.7	8.2	8.3	8.0
110000	8.4	8.4	8.3	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.8	8.0	8.3	8.0
120000	8.4	8.3	8.3	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.8	8.1	8.3	8.0
130000	8.4	8.3	8.3	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.2	8.0
140000	8.4	8.3	8.3	8.3	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.2	8.1	7.9	8.1	8.0
150000	8.4	8.4	8.4	8.3	8.4	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.3	8.2	8.0
160000	8.4	8.4	8.4	8.3	8.4	8.0	8.0	8.0	8.0	8.0	8.0	8.2	8.2	8.3	8.2	8.0
170000	8.5	8.4	8.3	8.4	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.7	8.2	7.8	8.2	8.0
180000	8.5	8.4	8.3	8.5	8.2	8.0	8.0	8.0	7.9	8.0	7.8	8.7	8.2	8.3	8.2	8.0
190000	8.5	8.4	8.3	8.2	8.2	8.0	8.1	8.0	8.0	8.0	7.9	8.1	8.2	8.0	8.3	8.0
200000	8.4	8.4	8.3	8.2	8.1	8.0	8.0	7.9	8.0	8.0	7.9	8.8	8.3	7.9	8.2	8.0
210000	8.4	8.4	8.3	8.2	8.1	8.1	8.0	8.0	8.0	8.0	7.9	8.8	8.3	5.5	8.2	8.0
220000	8.4	8.4	8.2	8.1	8.1	8.1	8.0	7.9	8.0	8.0	7.9	8.8	8.3	8.3	8.1	8.0
230000	8.4	8.4	8.2	8.1	8.1	8.1	8.0	7.9	8.0	8.0	7.9	8.8	8.3	8.0	8.1	8.0
Daily Max	8.5	8.4	8.4	8.5	8.4	8.1	8.1	8.0	8.0	8.0	8.0	8.8	8.9	8.4	8.4	8.1
Daily Min	8.4	8.3	8.2	8.1	8.0	8.0	8.0	7.9	7.9	7.9	7.8	7.9	8.1	5.5	7.5	8.0
Average	8.4	8.4	8.3	8.2	8.1	8.0	8.0	8.0	8.0	8.0	8.0	8.2	8.5	8.0	8.1	8.0

License maximum pH: 9  
License minimum pH: 6

Anomalie - instrument malfunction

Potato Rapids Tailwater pH Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	8.0	8.2	8.3	8.1	8.4	8.1	8.0	7.8	7.7	7.7	7.8	7.9		
10000	8.0	8.3	8.3	8.1	8.3	8.1	8.0	7.8	7.7	7.7	7.8	7.9		
20000	8.0	8.2	8.3	8.1	8.3	8.1	8.0	7.8	7.7	7.7	7.8	7.8		
30000	8.0	8.3	8.3	8.1	8.3	8.1	8.0	7.8	7.7	7.7	7.8	7.9		
40000	8.0	8.2	8.3	8.1	8.3	8.1	7.9	7.7	7.7	7.7	7.8	7.8		
50000	8.0	8.2	8.3	8.1	8.4	8.1	7.9	7.7	7.7	7.7	7.8	7.9		
60000	8.0	8.2	8.3	8.1	8.4	8.1	7.9	7.7	7.7	7.7	7.8	7.8		
70000	8.0	8.2	8.3	8.1	8.4	8.1	7.9	7.7	7.7	7.8	7.8	7.9		
80000	8.0	8.1	8.3	8.1	8.5	8.1	7.9	7.7	7.7	7.8	7.8	7.9		
90000	8.1	8.6	8.3	8.1	8.5	8.1	7.9	7.7	7.7	7.7	7.8	7.9		
100000	8.2	8.5	8.3	8.1	8.5	8.1	7.8	7.7	7.7	7.8	7.8	7.9		
110000	8.1	8.0	8.1	8.1	8.5	8.1	7.8	7.8	7.7	7.8	7.9	7.9		
120000	8.1	8.2	8.1	8.1	8.5	8.1	7.8	7.8	7.8	7.8	7.9	7.9		
130000	8.1	8.2	8.1	8.5	8.5	8.0	7.8	7.8	7.8	7.8	7.9			7.9
140000	8.2	8.2	8.1	8.5	8.4	8.0	7.8	7.8	7.8	7.8	7.9			8.0
150000	8.1	8.2	8.0	8.6	8.4	8.0	7.8	7.8	7.8	7.8	7.9			8.0
160000	8.1	8.2	8.0	7.8	8.1	8.1	7.8	7.8	7.8	7.8	7.8			8.0
170000	8.1	8.3	8.0	8.4	8.1	8.1	7.8	7.8	7.8	7.8	7.8			8.0
180000	8.2	8.3	8.1	8.4	8.1	8.1	7.8	7.8	7.8	7.8	7.9			8.0
190000	8.2	8.3	8.1	8.4	8.1	8.0	7.8	7.8	7.8	7.8	7.9			8.0
200000	8.2	8.3	8.1	8.5	8.1	8.0	7.8	7.8	7.8	7.8	7.9			8.0
210000	8.3	8.3	8.1	8.5	8.1	8.0	7.8	7.7	7.8	7.8	7.9			8.0
220000	8.3	8.3	8.1	8.5	8.1	8.0	7.8	7.7	7.8	7.8	7.9			8.0
230000	8.2	8.3	8.1	8.5	8.1	8.0	7.8	7.7	7.8	7.8	7.9			8.0
Daily Max	8.3	8.6	8.3	8.6	8.5	8.1	8.0	7.8	7.8	7.8	7.9	7.9	0.0	8.0
Daily Min	8.0	8.0	8.0	7.8	8.1	8.0	7.8	7.7	7.7	7.7	7.8	7.8	0.0	7.9
Average	8.1	8.2	8.2	8.2	8.3	8.1	7.9	7.8	7.7	7.8	7.8	7.9	#DIV/0!	8.0
Missing data - equipment pulled out of water during deployment period by an unknown party.														



Potato Rapids Tailwater pH Summary - July 2011

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

License maximum pH: 9  
License minimum pH: 6

Potato Rapids Tailwater pH Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	8.1	8.0	7.9	7.8	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.6	7.7	7.6
10000	8.2	8.2	7.9	7.8	8.0	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.6	7.7	7.7
20000	8.2	8.2	7.9	7.8	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.6	7.7	7.6
30000	8.2	8.2	7.9	7.8	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.6	7.7	7.6
40000	8.2	8.2	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.6	7.7	7.7
50000	8.2	8.1	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.6	7.7	7.6
60000	8.2	8.1	7.8	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.6	7.6	7.6
70000	8.2	8.2	7.8	7.8	7.9	7.9	7.9	7.8	7.8	7.9	7.9	7.8	7.6	7.6	7.6
80000	8.2	8.2	7.8	7.8	7.9	7.9	7.9	7.8	7.9	7.9	7.9	7.8	7.7	7.7	7.6
90000	8.2	8.2	7.8	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.9	7.8	7.6	7.7	7.6
100000	8.2		7.9	7.9	7.9	7.9	7.9	7.8	7.8	7.9	7.9	7.8	7.7	7.6	7.6
110000	8.2	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.8	8.0	7.9	7.6	7.7	7.6	7.7
120000	8.2	7.9	7.9	7.8	8.0	7.9	8.0	7.9	7.8	8.0	7.9	7.6	7.7	7.6	7.6
130000	8.1	7.9	7.9	7.8	8.0	7.8	8.0	7.8	7.7	8.0	7.9	7.6	7.7	7.6	7.6
140000	8.1	7.9	7.9	7.9	8.0	7.8	8.0	7.8	7.7	8.0	7.9	7.6	7.7	7.6	7.6
150000	8.1	7.9	7.8	7.8	7.9	7.8	8.0	7.8	7.8	8.0	7.8	7.6	7.7	7.6	7.6
160000	8.1	7.9	7.8	7.8	7.9	7.9	8.0	7.8	7.8	8.0	7.9	7.6	7.7	7.6	7.6
170000	8.1	7.9	7.8	7.8	7.9	7.9	8.0	7.8	7.8	8.0	7.8	7.6	7.7	7.7	7.6
180000	8.1	7.9	7.8	7.9	7.9	7.9	8.0	7.8	7.8	8.0	7.8	7.6	7.7	7.7	7.6
190000	8.2	7.9	7.8	7.8	7.9	7.9	7.9	7.8	7.8	8.0	7.8	7.6	7.7	7.6	7.6
200000	8.2	7.9	7.8	7.9	7.9	7.9	8.0	7.8	7.9	8.0	7.8	7.6	7.7	7.6	7.7
210000	8.2	7.9	7.8	7.9	7.9	7.9	8.0	7.8	7.9	8.0	7.8	7.6	7.7	7.6	7.7
220000	8.1	7.9	7.8	7.9	7.9	7.9	7.9	7.8	7.9	8.0	7.8	7.6	7.7	7.6	7.7
230000	8.1	7.9	7.8	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.6	7.7	7.6	7.7
Daily Max	8.2	8.2	7.9	7.9	8.0	7.9	8.0	7.9	7.9	8.0	7.9	7.8	7.7	7.7	7.7
Daily Min	8.1	7.9	7.8	7.8	7.9	7.8	7.9	7.8	7.7	7.9	7.8	7.6	7.6	7.6	7.6
Average	8.2	8.0	7.8	7.8	7.9	7.9	7.9	7.8	7.8	7.9	7.9	7.7	7.6	7.6	7.6
			Missing data due to equipment maintenance												

Potato Rapids pH Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	7.7	7.7	7.5	7.6	7.6	8.0	7.9	7.9	7.8	8.0	8.0	8.1				7.9
10000	7.7	7.6	7.5	7.6	7.7	8.0	8.0	7.9	7.8	8.0	8.0	8.1				7.9
20000	7.7	7.6	7.5	7.6	7.6	8.0	8.0	7.9	7.8	8.0	8.0	8.0				7.9
30000	7.7	7.6	7.5	7.6	7.6	8.0	8.0	7.9	7.8	7.9	7.9	8.0				7.9
40000	7.7	7.6	7.5	7.6	7.6	8.0	8.0	7.9	7.8	7.9	7.9	8.0				7.9
50000	7.7	7.6	7.5	7.6	7.6	8.0	8.0	7.9	7.8	7.9	7.9	8.1				8.0
60000	7.7	7.6	7.5	7.6	7.6	8.0	8.0	7.9	7.8	7.9	7.9	8.0				8.0
70000	7.7	7.6	7.5	7.6	7.6	7.9	8.0	7.9	7.9	7.9	7.9	8.0				8.0
80000	7.7	7.6	7.5	7.6	7.6	7.9	8.0	7.9	7.9	7.9	7.9	8.0				8.0
90000	7.7	7.6	7.5	7.6	7.6	8.0	8.0	7.9	7.9	7.9	7.9	8.0				8.0
100000	7.7	7.6	7.5	7.6	7.6	8.0	8.0	7.9	8.0	8.0	8.0	8.0			8.0	8.0
110000	7.7	7.6	7.5	7.6	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.1			8.0	8.0
120000	7.7	7.6	7.5	7.6	7.9	8.0	8.0	7.9	8.0	8.1	8.0	8.1			8.0	8.0
130000	7.7	7.6	7.6	7.6	7.9	8.0	8.0	7.9	8.0	8.1	8.0	8.1			8.0	8.1
140000	7.7	7.6	7.6	7.6	7.9	8.0	8.0	7.9	8.0	8.1	8.0	8.1			8.1	8.1
150000	7.7	7.6	7.6	7.6	7.9	8.0	8.0	7.9	8.0	8.1	7.9	8.0			8.0	8.0
160000	7.7	7.6	7.6	7.6	7.7	7.9	8.0	8.0	7.9	8.0	8.1	7.9			8.0	8.0
170000	7.7	7.6	7.6	7.7	7.9	8.0	8.0	7.9	8.0	8.1	7.9	8.0			8.0	8.0
180000	7.7	7.6	7.6	7.7	7.9	8.0	8.0	7.9	8.0	8.1	8.0				7.9	7.9
190000	7.7	7.6	7.6	7.7	7.9	7.9	8.0	7.9	8.0	8.1	8.0				7.9	7.9
200000	7.7	7.6	7.6	7.7	7.9	7.9	7.9	7.9	8.0	8.1	8.1				8.0	8.0
210000	7.7	7.5	7.6	7.6	7.9	8.0	7.9	7.8	8.0	8.1	8.1				7.9	8.0
220000	7.7	7.5	7.6	7.6	7.9	7.9	7.9	7.8	8.0	8.0	8.1				7.9	8.0
230000	7.7	7.5	7.6	7.6	8.0	7.9	7.9	7.8	8.0	8.0	8.1				7.9	8.0
Daily Max	7.7	7.7	7.6	7.7	8.0	8.0	8.0	7.9	8.0	8.1	8.1	8.1	0.0	0.0	8.1	8.1
Daily Min	7.7	7.5	7.5	7.6	7.6	7.9	7.9	7.8	7.8	7.9	7.9	8.0	0.0	0.0	7.9	7.9
Average	7.7	7.6	7.6	7.6	7.8	8.0	8.0	7.9	7.9	8.0	8.0	8.0	#DIV/0!	#DIV/0!	8.0	8.0

License maximum pH: 9  
License minimum pH: 6

Missing data due to equipment set

Potato Rapids pH Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.9	8.1	8.0	8.0	8.1	8.1	8.0	8.0	8.0	8.1	8.0	8.1	8.1	8.1	8.1
10000	7.9	8.1	8.0	8.0	8.1	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
20000	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
30000	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.1	8.0	8.1	8.1
40000	7.9	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.1
50000	7.9	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.1
60000	7.9	8.0	8.0	8.0	8.0	7.9	7.9	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.1
70000	7.9	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.1
80000	7.9	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.0	8.1	8.1
90000	7.9	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
100000	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
110000	8.0	8.1	8.1	8.0	8.1	7.9	8.1	8.0	8.2	8.1	8.1	8.1	8.1	8.1	8.1
120000	8.1	8.2	8.1	8.1	8.2	8.0	8.1	8.0	8.2	8.1	8.2	8.1	8.1	8.1	8.1
130000	8.1	8.2	8.1	8.2	8.2	8.0	8.1	8.1	8.2	8.1	8.2	8.2	8.1	8.1	8.1
140000	8.1	8.1	7.9	8.2	8.2	8.0	8.0	8.1	8.2	8.1	8.2	8.2	8.2	8.0	8.1
150000	8.0	8.1	8.0	8.3	8.2	8.0	8.0	8.1	8.2	8.1	8.2	8.2	8.2	8.0	8.1
160000	8.1	8.1	7.9	8.3	8.2	8.0	8.0	8.1	8.3	8.1	8.2	8.2	8.1	8.0	8.1
170000	8.1	8.0	7.9	8.2	8.2	7.9	8.0	8.2	8.3	8.1	8.2	8.2	8.0	8.1	8.1
180000	8.1	8.0	7.9	8.2	8.1	7.9	8.0	8.1	8.2	8.1	8.2	8.2	8.0	8.1	8.1
190000	8.1	8.0	8.0	8.2	8.1	7.9	8.0	8.2	8.2	8.1	8.2	8.1	8.0	8.1	8.1
200000	8.1	8.1	8.0	8.2	8.1	7.9	8.0	8.1	8.2	8.1	8.2	8.1	8.0	8.1	8.1
210000	8.1	8.1	8.0	8.1	8.1	8.0	8.1	8.1	8.2	8.1	8.2	8.1	8.0	8.1	8.1
220000	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
230000	8.1	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.1	8.1	8.1
Daily Max	8.1	8.2	8.1	8.3	8.2	8.1	8.1	8.2	8.3	8.1	8.2	8.2	8.2	8.1	8.1
Daily Min	7.9	8.0	7.9	8.0	8.0	7.9	7.9	8.0	8.0	8.1	8.0	8.0	8.0	8.0	8.1
Average	8.0	8.1	8.0	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1

cup error

Potato Rapids Tailwater pH Summary - September 2011

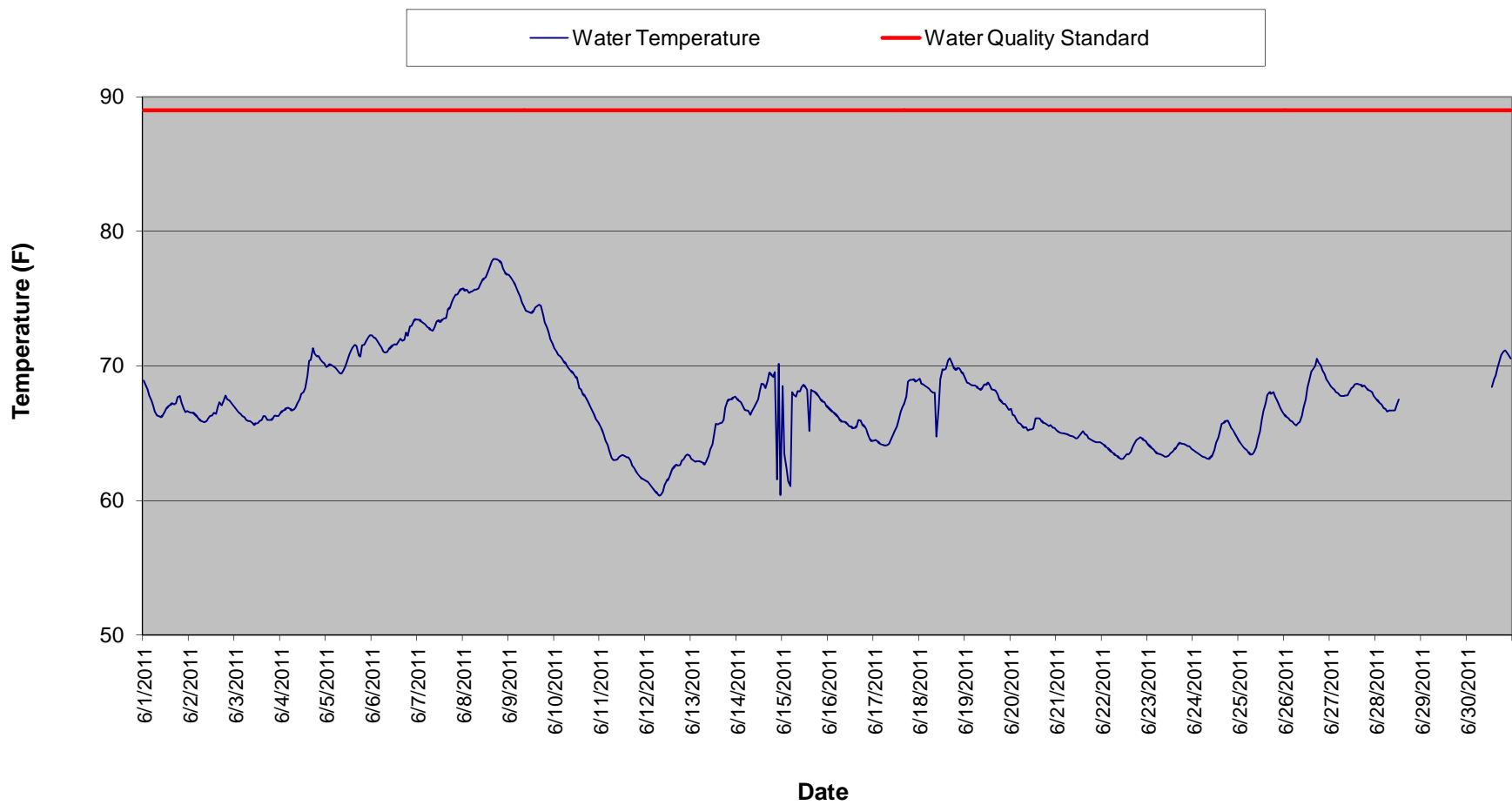
Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	8.1	8.1	7.9	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7	8.1	8.1	8.1	8.1
10000	8.1	8.1	7.9	7.8	7.7	7.8	7.8	7.8	7.8	7.8	7.7	7.7	8.1	8.1	8.1	8.1
20000	8.1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

License maximum pH: 9  
License minimum pH: 6

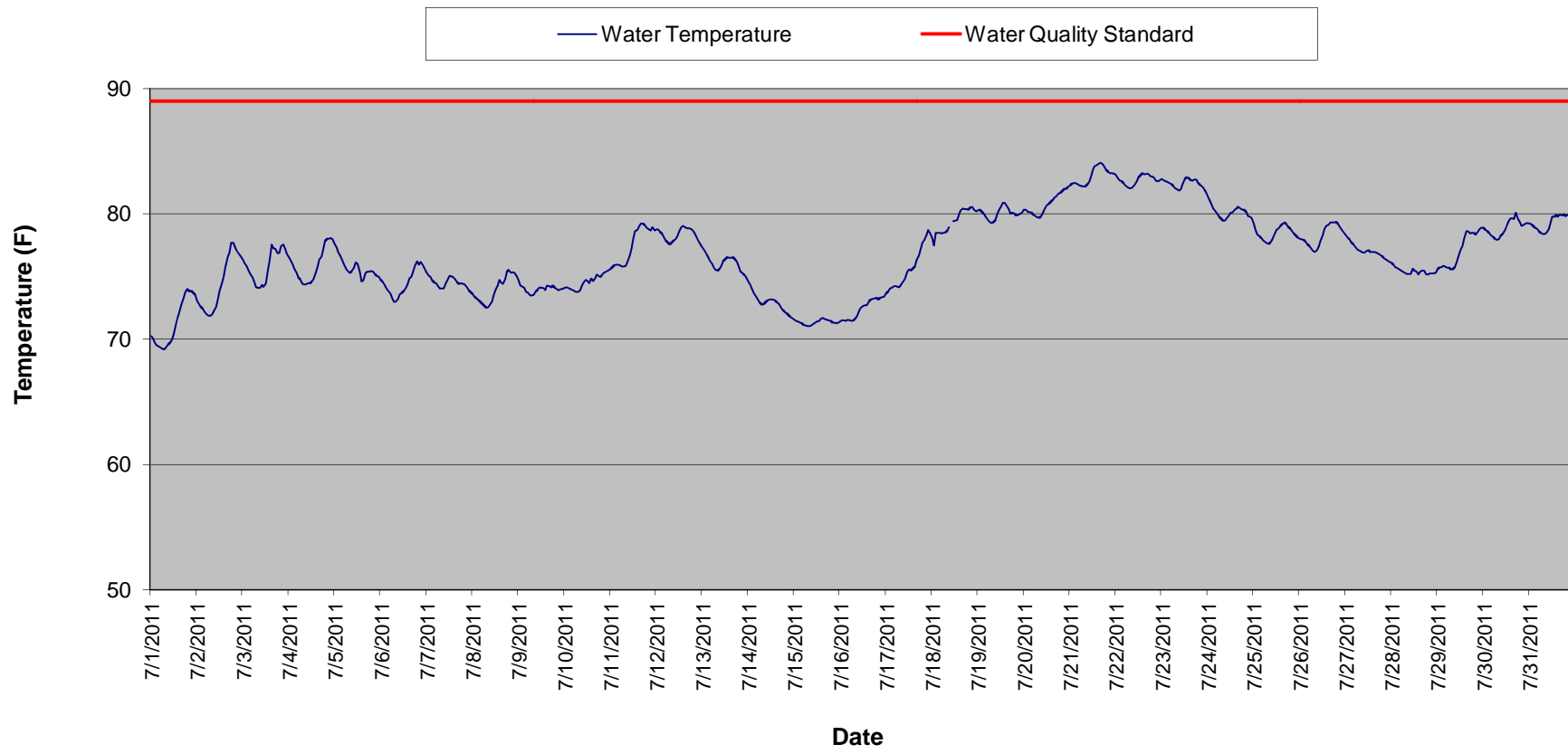
Potato Rapids Tailwater pH Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	8.1	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.0
10000	8.1	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.0
20000	8.1	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.0
30000	8.1	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.0
40000	8.1	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1	8.0
50000	8.1	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.1	7.9
60000	8.1	8.1	8.2	8.2	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0	8.1	7.9
70000	8.1	8.2	8.2	8.2	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0	8.0	8.0
80000	8.1	8.2	8.2	8.2	8.1	8.1	8.0	8.1	8.1	8.1	8.0	8.0	8.0	7.9
90000	8.2	8.2	8.2	8.3	8.2	8.1	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
100000	8.3	8.3	8.3	8.3	8.2	8.2	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
110000	8.3	8.3	8.3	8.4	8.3	8.2	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
120000	8.4	8.3	8.4	8.4	8.3	8.2	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
130000	8.4	8.4	8.4	8.5	8.3	8.2	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.1
140000	8.5	8.4	8.5	8.4	8.2	8.2	8.1	8.2	8.1	8.1	8.0	8.0	8.0	8.1
150000	8.5	8.3	8.6	8.5	8.3	8.2	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
160000	8.3	8.3	8.4	8.3	8.3	8.2	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
170000	8.2	8.3	8.4	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0
180000	8.2	8.3	8.3	8.2	8.2	8.2	8.1	8.1	8.1	8.1	7.9	8.0	8.0	8.0
190000	8.2	8.2	8.3	8.2	8.2	8.1	8.1	8.1	8.1	8.1	7.9	8.0	8.0	8.0
200000	8.2	8.2	8.3	8.2	8.2	8.1	8.1	8.2	8.1	8.1	7.9	8.0	8.0	8.0
210000	8.2	8.2	8.3	8.2	8.2	8.1	8.1	8.1	8.1	8.1	7.9	8.0	8.0	8.0
220000	8.2	8.2	8.3	8.1	8.1	8.1	8.1	8.1	8.1	8.1	7.9	8.0	8.1	8.0
230000	8.2	8.2	8.3	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.0
Daily Max	8.5	8.4	8.6	8.5	8.3	8.2	8.1	8.2	8.1	8.1	8.1	8.1	8.1	8.1
Daily Min	8.1	8.1	8.2	8.1	8.1	8.1	8.0	8.1	8.1	8.1	7.9	8.0	8.0	7.9
Average	8.2	8.2	8.3	8.3	8.2	8.2	8.1	8.1	8.1	8.1	8.0	8.0	8.0	8.0

### Potato Rapids Tailwater Temperature - June 2011

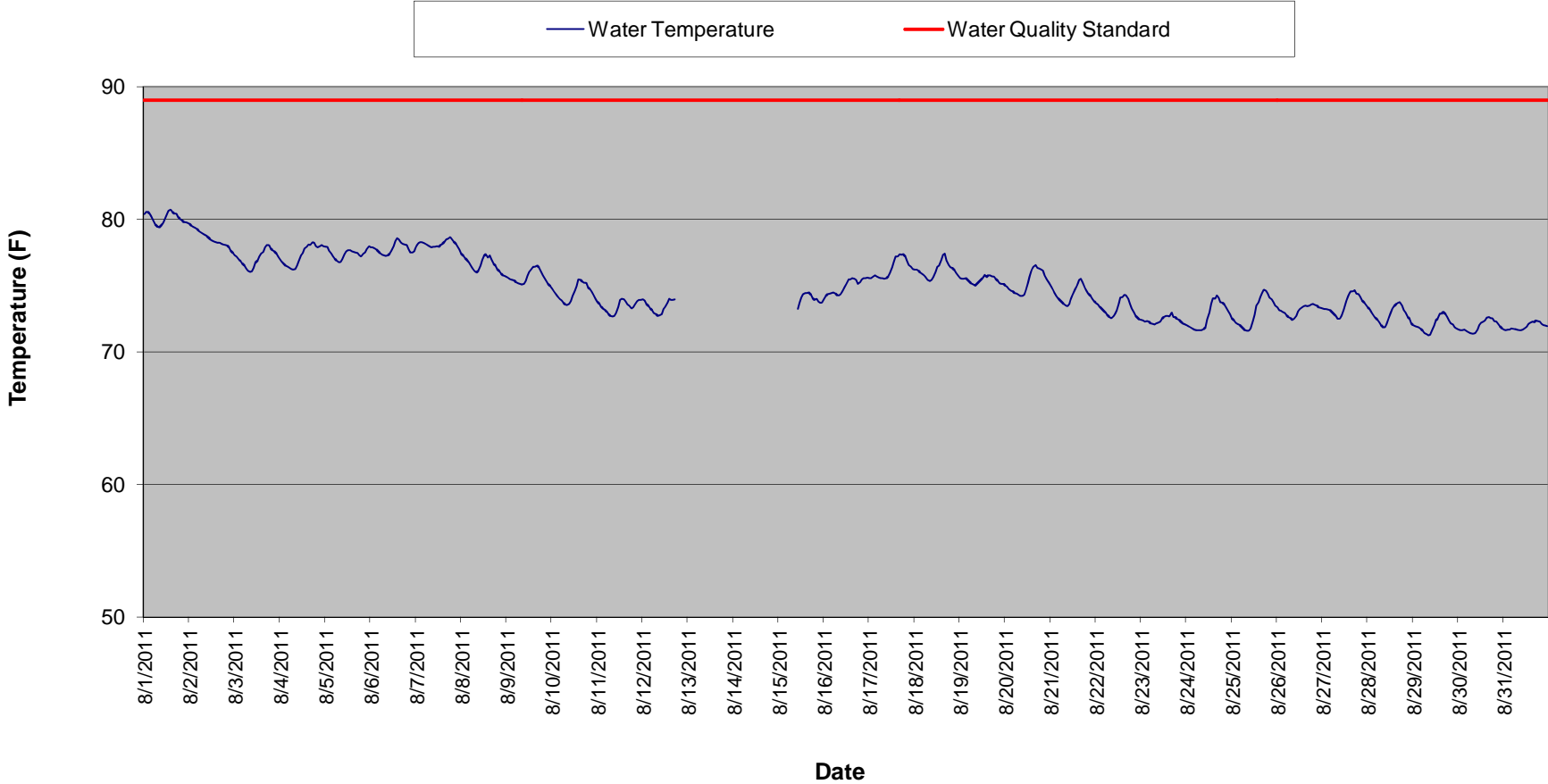


### Potato Rapids Tailwater Temperature - July 2011

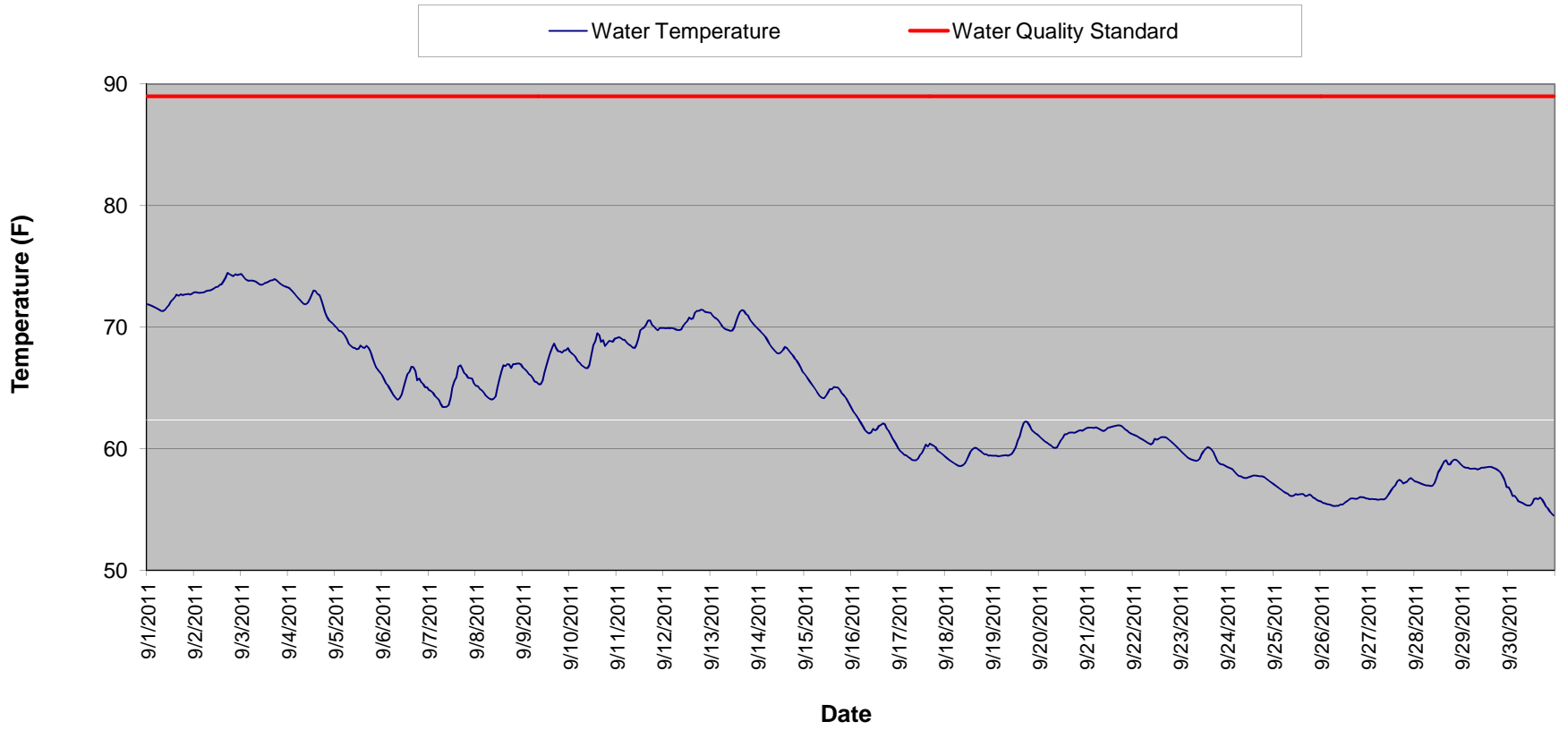




### Potato Rapids Tailwater Temperature - August 2011



### Potato Rapids Tailwater Temperature - September 2011



Potato Rapids Tailwater Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	68.9	66.6	66.9	66.5	69.9	72.3	73.4	75.7	76.8	71.3	65.6	61.5	63.1	67.6	68.5	66.9
10000	68.6	66.5	66.7	66.7	70.0	72.1	73.4	75.6	76.6	71.1	65.2	61.4	63.0	67.4	63.4	66.8
20000	68.3	66.5	66.5	66.7	70.1	72.1	73.3	75.7	76.4	70.8	64.9	61.2	62.9	67.3	62.4	66.6
30000	67.8	66.4	66.5	66.9	70.0	71.8	73.2	75.4	76.1	70.7	64.5	61.1	62.9	67.0	61.4	66.5
40000	67.4	66.2	66.3	66.9	69.9	71.6	73.1	75.5	75.8	70.5	64.1	60.9	62.9	66.7	61.1	66.4
50000	67.0	66.1	66.2	66.8	69.8	71.3	72.9	75.5	75.5	70.3	63.7	60.7	62.9	66.7	68.0	66.2
60000	66.6	65.9	66.0	66.7	69.7	71.1	72.8	75.7	75.1	70.2	63.2	60.5	62.8	66.7	67.8	66.0
70000	66.3	65.9	65.9	66.8	69.5	71.0	72.7	75.7	74.7	69.9	63.0	60.4	62.7	66.4	67.7	65.9
80000	66.3	65.8	65.9	67.0	69.4	71.0	72.6	75.8	74.4	69.7	63.0	60.4	62.9	66.7	68.1	65.9
90000	66.2	65.9	65.8	67.2	69.6	71.2	72.8	76.0	74.1	69.6	63.1	60.7	63.3	66.9	68.1	65.8
100000	66.3	66.1	65.6	67.5	70.0	71.4	73.3	76.4	74.0	69.5	63.2	61.1	63.8	67.2	68.4	65.7
110000	66.5	66.3	65.7	67.9	70.3	71.5	73.4	76.5	74.0	69.2	63.4	61.5	64.2	67.5	68.6	65.5
120000	66.9	66.3	65.8	68.1	70.8	71.6	73.3	76.6	73.9	69.1	63.4	61.6	64.9	68.1	68.4	65.5
130000	67.0	66.5	65.9	68.3	71.1	71.6	73.4	77.0	74.1	68.3	63.3	61.9	65.7	68.7	68.2	65.4
140000	67.1	66.4	66.0	69.2	71.3	71.8	73.5	77.3	74.3	68.3	63.2	62.3	65.7	68.6	65.1	65.4
150000	67.2	67.0	66.3	70.4	71.6	72.0	73.5	77.8	74.5	67.9	63.2	62.5	65.8	68.3	68.2	65.5
160000	67.2	67.3	66.3	70.4	71.5	71.9	74.2	78.0	74.5	67.8	63.0	62.7	65.8	68.9	68.1	66.0
170000	67.2	67.0	66.0	71.3	70.8	72.0	74.3	78.0	74.5	67.6	62.6	62.6	66.0	69.5	68.0	65.9
180000	67.7	67.3	66.0	70.9	70.7	72.5	74.7	77.9	73.8	67.2	62.4	62.6	66.9	69.4	67.9	65.6
190000	67.8	67.8	66.0	70.7	71.5	72.2	75.0	77.8	73.2	66.9	62.2	63.0	67.4	69.2	67.7	65.5
200000	67.3	67.5	66.1	70.7	71.6	72.9	75.3	77.7	72.9	66.6	62.0	63.0	67.5	69.5	67.5	65.3
210000	66.8	67.4	66.3	70.5	71.8	73.0	75.3	77.2	72.5	66.4	61.8	63.3	67.5	61.5	67.3	64.9
220000	66.6	67.3	66.3	70.3	72.1	73.3	75.6	76.9	72.0	66.0	61.6	63.4	67.6	70.2	67.3	64.5
230000	66.7	67.1	66.3	70.2	72.3	73.5	75.7	76.8	71.7	65.8	61.6	63.3	67.7	60.4	67.0	64.4
Daily Max	68.9	67.8	66.9	71.3	72.3	73.5	75.7	78.0	76.8	71.3	65.6	63.4	67.7	70.2	68.6	66.9
Daily Min	66.2	65.8	65.6	66.5	69.4	71.0	72.6	75.4	71.7	65.8	61.6	60.4	62.7	60.4	61.1	64.4
Average	67.2	66.6	66.1	68.5	70.6	71.9	73.8	76.6	74.4	68.8	63.2	61.8	64.8	67.4	66.9	65.8

Monthly average: 68.1  
 License Maximum Temp: 89 F

Potato Rapids Tailwater Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	64.5	69.0	69.0	66.8	65.2	64.3	64.2	63.7	64.4	66.3	68.5	67.6		
10000	64.5	68.7	68.8	66.3	65.1	64.1	64.0	63.6	64.2	66.2	68.4	67.4		
20000	64.4	68.6	68.7	66.3	65.0	64.0	63.9	63.6	64.0	66.1	68.3	67.2		
30000	64.2	68.5	68.6	66.0	65.0	63.9	63.8	63.4	63.9	65.9	68.1	67.2		
40000	64.2	68.4	68.6	65.8	65.0	63.8	63.6	63.3	63.8	65.9	68.0	66.9		
50000	64.1	68.3	68.6	65.7	65.0	63.6	63.5	63.2	63.6	65.7	67.8	66.8		
60000	64.1	68.1	68.5	65.5	64.9	63.5	63.5	63.2	63.4	65.6	67.8	66.6		
70000	64.1	68.0	68.3	65.4	64.8	63.4	63.4	63.1	63.4	65.7	67.7	66.7		
80000	64.2	68.0	68.2	65.4	64.8	63.3	63.3	63.1	63.6	65.8	67.8	66.7		
90000	64.5	64.8	68.3	65.2	64.7	63.2	63.3	63.2	64.0	66.3	67.8	66.7		
100000	64.9	66.8	68.6	65.3	64.6	63.1	63.3	63.8	65.2	67.5	68.3	67.1		
110000	65.2	69.0	68.6	65.3	64.6	63.1	63.3	63.8	65.2	67.5	68.3	67.1		
120000	65.5	69.8	68.8	65.4	64.8	63.2	63.5	64.3	66.0	68.4	68.4	67.5		
130000	65.9	69.7	68.5	66.1	65.0	63.4	63.6	64.7	66.6	68.9	68.6			68.4
140000	66.6	69.8	68.3	66.1	65.1	63.4	63.8	65.2	67.2	69.6	68.7			69.0
150000	66.9	70.4	68.2	66.1	64.9	63.6	63.9	65.7	67.8	69.7	68.6			69.3
160000	67.2	70.6	68.2	65.9	64.9	64.0	64.1	65.8	68.0	70.0	68.6			69.8
170000	67.7	70.2	67.9	65.8	64.6	64.2	64.3	65.9	67.9	70.5	68.5			70.4
180000	68.8	69.9	67.5	65.8	64.5	64.5	64.2	65.9	68.0	70.2	68.5			70.8
190000	69.0	69.7	67.4	65.7	64.5	64.6	64.2	65.7	67.7	70.0	68.4			71.1
200000	69.0	69.8	67.2	65.5	64.4	64.7	64.1	65.4	67.5	69.7	68.2			71.2
210000	69.0	69.8	67.2	65.6	64.3	64.6	64.1	65.2	67.1	69.4	68.1			71.0
220000	68.8	69.5	66.9	65.4	64.3	64.5	64.0	65.0	66.8	69.0	68.0			70.8
230000	68.9	69.4	66.7	65.4	64.3	64.4	63.8	64.7	66.5	68.8	67.8			70.5
Daily Max	69.0	70.6	69.0	66.8	65.2	64.7	64.3	65.9	68.0	70.5	68.7	67.6	0.0	71.2
Daily Min	64.1	64.8	66.7	65.2	64.3	63.1	63.2	63.1	63.4	65.6	67.7	66.6	0.0	68.4
Average	66.1	69.0	68.1	65.7	64.8	63.8	63.8	64.3	65.6	67.8	68.2	67.0	#DIV/0!	70.2

Missing data - equipment pulled out of water during deployment period by an unknown party.

Potato Rapids Tailwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	70.3	73.1	76.3	76.6	77.6	74.8	75.3	73.6	74.7	74.1	75.6	78.8	77.3	74.6	71.5	71.4
10000	70.1	72.9	76.1	76.3	77.3	74.6	75.1	73.4	74.3	74.1	75.7	78.8	77.1	74.3	71.5	71.5
20000	69.7	72.6	75.8	76.0	76.9	74.3	75.0	73.3	74.2	74.1	75.9	78.6	76.8	74.0	71.4	71.5
30000	69.5	72.4	75.5	75.6	76.6	74.0	74.7	73.1	74.1	74.0	75.9	78.4	76.6	73.7	71.3	71.5
40000	69.4	72.2	75.2	75.3	76.2	73.9	74.5	73.0	73.8	73.9	75.9	78.1	76.3	73.4	71.3	71.5
50000	69.3	72.0	74.9	74.9	75.9	73.6	74.4	72.8	73.7	73.9	75.9	77.9	76.0	73.1	71.2	71.5
60000	69.2	71.9	74.5	74.8	75.6	73.3	74.2	72.7	73.5	73.8	75.8	77.7	75.7	73.0	71.1	71.5
70000	69.2	71.9	74.1	74.4	75.4	73.0	74.0	72.5	73.5	73.8	75.8	77.6	75.5	72.8	71.1	71.5
80000	69.4	72.0	74.1	74.4	75.3	73.0	74.0	72.5	73.5	73.9	75.9	77.7	75.5	72.8	71.0	71.6
90000	69.5	72.3	74.1	74.4	75.4	73.2	74.0	72.7	73.8	74.2	76.2	77.9	75.6	73.0	71.1	71.9
100000	69.8	72.6	74.3	74.5	75.7	73.6	74.4	73.0	74.0	74.5	76.7	78.0	75.9	73.1	71.2	72.3
110000	70.0	73.1	74.2	74.4	76.1	73.7	74.8	73.5	74.1	74.7	77.2	78.2	76.2	73.1	71.3	72.5
120000	70.4	73.9	74.5	74.6	76.0	73.9	75.1	73.9	74.1	74.6	78.0	78.6	76.4	73.1	71.4	72.6
130000	71.0	74.4	75.4	74.8	75.4	74.0	75.0	74.3	74.1	74.4	78.6	78.9	76.5	73.1	71.5	72.7
140000	71.8	75.0	76.2	75.3	74.6	74.3	74.9	74.8	73.9	74.8	78.7	79.0	76.5	73.1	71.6	72.7
150000	72.2	75.7	77.6	75.7	74.7	74.9	74.7	74.5	74.3	74.7	79.0	78.9	76.5	72.9	71.7	73.0
160000	72.7	76.5	77.3	76.4	75.3	75.0	74.6	74.4	74.2	74.8	79.2	78.9	76.5	72.8	71.6	73.2
170000	73.3	76.9	77.3	76.6	75.4	75.4	74.4	74.8	74.1	75.2	79.2	78.9	76.4	72.5	71.5	73.2
180000	73.8	77.7	76.9	77.2	75.4	75.8	74.4	75.4	74.3	75.0	79.1	78.8	76.2	72.3	71.5	73.3
190000	74.0	77.7	76.9	77.8	75.4	76.2	74.4	75.5	74.1	75.0	78.9	78.7	75.8	72.2	71.5	73.3
200000	73.8	77.3	77.4	78.0	75.4	75.9	74.4	75.3	74.0	75.2	78.7	78.5	75.4	72.1	71.3	73.2
210000	73.9	77.0	77.6	78.0	75.2	76.2	74.1	75.3	73.9	75.3	78.7	78.2	75.2	71.9	71.3	73.3
220000	73.7	76.8	77.2	78.0	75.1	75.9	73.9	75.3	74.0	75.4	78.9	77.8	75.1	71.8	71.3	73.4
230000	73.5	76.6	76.8	78.0	74.9	75.6	73.8	75.0	74.0	75.5	78.7	77.6	74.9	71.7	71.3	73.4
Daily Max	74.0	77.7	77.6	78.0	77.6	76.2	75.3	75.5	74.7	75.5	79.2	79.0	77.3	74.6	71.7	73.4
Daily Min	69.2	71.9	74.1	74.4	74.6	73.0	73.8	72.5	73.5	73.8	75.6	77.6	74.9	71.7	71.0	71.4
Average	71.2	74.4	75.8	75.9	75.7	74.5	74.5	73.9	74.0	74.5	77.4	78.3	76.1	72.9	71.4	72.4

Monthly average: 76.8  
 License Maximum Temp: 89 F

Potato Rapids Tailwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	73.6	78.1	80.3	80.3	82.3	83.1	82.8	81.4	79.2	78.0	78.3	76.1	75.6	78.9	79.2
10000	73.8	77.5	80.3	80.3	82.4	82.9	82.7	81.1	78.7	78.0	78.1	75.9	75.7	78.7	79.2
20000	74.0	78.5	80.2	80.2	82.5	82.7	82.6	80.7	78.3	77.9	78.0	75.8	75.8	78.6	79.0
30000	74.1	78.5	80.0	80.2	82.4	82.6	82.5	80.4	78.2	77.8	77.8	75.7	75.8	78.5	78.9
40000	74.2	78.5	79.8	80.1	82.4	82.4	82.5	80.2	78.1	77.6	77.6	75.6	75.8	78.3	78.8
50000	74.2	78.5	79.6	79.9	82.3	82.3	82.3	80.0	77.9	77.4	77.4	75.5	75.7	78.2	78.6
60000	74.2	78.5	79.4	79.8	82.2	82.1	82.2	79.8	77.8	77.2	77.2	75.4	75.7	78.0	78.5
70000	74.2	78.5	79.3	79.7	82.2	82.0	82.0	79.6	77.6	77.0	77.1	75.3	75.6	77.9	78.4
80000	74.4	78.7	79.3	79.7	82.2	82.0	81.9	79.4	77.6	77.0	77.0	75.2	75.6	78.0	78.4
90000	74.6	78.9	79.5	79.8	82.3	82.2	81.8	79.4	77.8	77.1	76.9	75.2	75.7	78.2	78.5
100000	74.8		80.0	80.1	82.6	82.4	82.0	79.6	78.1	77.4	76.9	75.2	76.1	78.4	78.8
110000	75.4	79.4	80.3	80.5	83.0	82.6	82.3	79.9	78.4	77.8	77.1	75.6	76.6	78.7	79.3
120000	75.6	79.4	80.6	80.7	83.5	82.9	82.8	80.1	78.7	78.3	77.1	75.5	77.2	78.9	79.8
130000	75.5	79.5	80.9	80.8	83.8	83.1	82.9	80.1	78.9	78.8	77.0	75.4	77.4	79.3	79.8
140000	75.7	79.9	80.9	81.0	83.9	83.2	82.9	80.3	79.1	79.0	76.9	75.1	78.0	79.6	79.9
150000	75.8	80.3	80.6	81.1	84.0	83.1	82.7	80.4	79.2	79.1	76.9	75.4	78.6	79.6	79.8
160000	76.3	80.4	80.4	81.3	84.1	83.2	82.7	80.6	79.3	79.3	76.9	75.5	78.6	79.6	80.0
170000	76.7	80.4	80.0	81.4	84.0	83.2	82.7	80.4	79.2	79.3	76.8	75.5	78.5	80.1	79.9
180000	77.2	80.4	80.1	81.6	83.8	83.0	82.7	80.3	79.0	79.3	76.7	75.2	78.5	79.6	80.0
190000	77.7	80.3	80.0	81.7	83.5	83.0	82.5	80.3	78.8	79.4	76.6	75.1	78.5	79.3	79.8
200000	77.9	80.5	79.9	81.8	83.4	82.9	82.3	80.1	78.6	79.2	76.5	75.2	78.4	79.0	79.9
210000	78.3	80.5	79.9	82.0	83.3	82.6	82.2	79.8	78.4	79.0	76.4	75.3	78.5	79.1	79.9
220000	78.7	80.3	80.0	82.0	83.2	82.6	82.0	79.8	78.3	78.7	76.2	75.3	78.8	79.2	80.1
230000	78.5	80.2	80.1	82.1	83.2	82.7	81.8	79.7	78.1	78.5	76.2	75.3	78.9	79.3	80.2
Daily Max	78.7	80.5	80.9	82.1	84.1	83.2	82.9	81.4	79.3	79.4	78.3	76.1	78.9	80.1	80.2
Daily Min	73.6	77.5	79.3	79.7	82.2	82.0	81.8	79.4	77.6	77.0	76.2	75.1	75.6	77.9	78.4
Average	75.6	79.4	80.0	80.8	83.0	82.7	82.4	80.2	78.5	78.3	77.1	75.4	77.1	78.9	79.4

Missing data due to equipment maintenance

Potato Rapids Tailwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	80.4	79.7	77.3	77.0	77.9	77.9	77.9	77.4	75.7	74.8	73.8	74.0				74.0
10000	80.6	79.5	77.2	76.8	77.9	77.9	78.2	77.3	75.6	74.6	73.6	73.9				74.2
20000	80.6	79.4	77.0	76.6	77.6	77.8	78.3	77.1	75.5	74.3	73.4	73.6				74.3
30000	80.4	79.4	76.9	76.5	77.4	77.7	78.3	76.9	75.4	74.2	73.3	73.5				74.4
40000	80.1	79.3	76.7	76.4	77.2	77.6	78.2	76.7	75.4	74.0	73.2	73.3				74.5
50000	79.9	79.1	76.5	76.4	77.0	77.5	78.2	76.5	75.3	73.9	73.0	73.1				74.5
60000	79.6	79.0	76.3	76.3	76.9	77.3	78.1	76.3	75.2	73.7	72.8	72.9				74.4
70000	79.4	78.9	76.1	76.2	76.8	77.3	78.0	76.1	75.1	73.6	72.7	72.8				74.3
80000	79.4	78.9	76.0	76.3	76.8	77.3	77.9	76.0	75.1	73.5	72.7	72.7				74.3
90000	79.5	78.7	76.1	76.5	77.0	77.3	77.9	76.1	75.1	73.6	72.7	72.8				74.4
100000	79.7	78.6	76.4	76.9	77.4	77.4	78.0	76.5	75.4	73.9	73.0	72.9				74.7
110000	80.0	78.5	76.7	77.3	77.6	77.6	78.0	76.9	75.7	74.2	73.4	73.2		73.2		74.9
120000	80.3	78.4	76.9	77.5	77.7	78.0	78.0	77.2	76.0	74.6	73.9	73.4		74.1		75.1
130000	80.7	78.3	77.2	77.8	77.7	78.4	78.0	77.4	76.2	75.0	74.0	73.7		74.4		75.5
140000	80.7	78.3	77.4	77.9	77.6	78.6	78.1	77.1	76.4	75.5	74.0	74.0		74.4		75.5
150000	80.6	78.2	77.6	78.1	77.6	78.5	78.3	77.3	76.4	75.5	73.8	73.9		74.4		75.6
160000	80.4	78.2	77.9	78.1	77.5	78.2	78.5	77.0	76.5	75.3	73.6	73.9		74.5		75.5
170000	80.4	78.2	78.1	78.3	77.5	78.1	78.5	76.6	76.4	75.2	73.5	74.0		74.3		75.4
180000	80.2	78.1	78.1	78.2	77.3	78.1	78.7	76.5	76.1	75.2	73.3			74.1		75.1
190000	80.0	78.1	77.8	78.0	77.2	78.1	78.5	76.2	75.8	74.9	73.4			73.9		75.3
200000	79.9	78.0	77.7	77.9	77.4	77.8	78.3	76.1	75.6	74.7	73.6			74.0		75.5
210000	79.8	77.9	77.6	78.0	77.5	77.5	78.1	75.9	75.3	74.6	73.8			73.8		75.6
220000	79.8	77.6	77.4	78.1	77.8	77.5	77.9	75.8	75.1	74.3	73.9			73.7		75.6
230000	79.8	77.5	77.2	78.0	78.0	77.6	77.7	75.7	74.9	74.0	73.9			73.7		75.6
Daily Max	80.7	79.7	78.1	78.3	78.0	78.6	78.7	77.4	76.5	75.5	74.0	74.0	0.0	0.0	74.5	75.6
Daily Min	79.4	77.5	76.0	76.2	76.8	77.3	77.7	75.7	74.9	73.5	72.7	72.7	0.0	0.0	73.2	74.0
Average	80.1	78.6	77.1	77.3	77.4	77.8	78.2	76.6	75.6	74.5	73.4	73.4	#DIV/0!	#DIV/0!	74.0	74.9

Missing data due to equipment setup error

Monthly average: 75.0  
License Maximum Temp: 89 F

Potato Rapids Tailwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	75.5	76.2	75.6	75.0	75.1	73.7	72.4	72.0	72.5	73.3	73.3	73.4	72.0	71.7	71.7
10000	75.5	76.2	75.5	74.9	74.8	73.6	72.4	71.9	72.4	73.2	73.2	73.2	71.9	71.7	71.7
20000	75.7	76.1	75.5	74.8	74.5	73.4	72.3	71.9	72.2	73.1	73.2	73.0	71.9	71.7	71.7
30000	75.8	76.0	75.5	74.6	74.2	73.3	72.3	71.8	72.1	73.0	73.2	72.8	71.8	71.7	71.7
40000	75.7	75.9	75.4	74.6	74.0	73.1	72.3	71.7	72.0	72.9	73.1	72.6	71.7	71.6	71.8
50000	75.6	75.8	75.3	74.5	73.9	73.0	72.2	71.7	71.9	72.8	73.0	72.4	71.6	71.5	71.7
60000	75.6	75.6	75.2	74.4	73.7	72.8	72.1	71.6	71.8	72.6	72.9	72.2	71.4	71.4	71.7
70000	75.5	75.5	75.1	74.3	73.6	72.6	72.1	71.6	71.7	72.5	72.7	72.0	71.3	71.4	71.7
80000	75.5	75.3	75.0	74.2	73.5	72.5	72.1	71.6	71.6	72.4	72.5	71.9	71.2	71.4	71.6
90000	75.6	75.4	75.1	74.2	73.5	72.6	72.2	71.7	71.6	72.5	72.5	71.9	71.3	71.4	71.7
100000	75.7	75.7	75.3	74.3	73.6	72.8	72.3	71.9	71.8	72.7	72.7	72.1	71.6	71.7	71.7
110000	75.9	76.0	75.4	74.7	74.0	73.2	72.5	72.5	72.3	73.1	73.1	72.5	72.0	72.0	71.8
120000	76.4	76.4	75.6	75.3	74.5	73.6	72.6	73.0	72.8	73.2	73.5	72.9	72.4	72.2	71.9
130000	76.8	76.5	75.8	75.8	74.7	74.1	72.7	73.6	73.5	73.4	74.0	73.3	72.5	72.3	72.1
140000	77.2	76.9	75.6	76.2	74.9	74.1	72.7	74.0	73.8	73.5	74.3	73.5	72.9	72.4	72.2
150000	77.2	77.3	75.8	76.4	75.4	74.3	72.7	74.0	74.1	73.5	74.6	73.6	72.9	72.6	72.3
160000	77.4	77.4	75.8	76.6	75.5	74.3	73.0	74.3	74.4	73.4	74.6	73.7	73.0	72.6	72.2
170000	77.3	76.9	75.7	76.4	75.3	74.0	72.6	74.1	74.7	73.5	74.6	73.7	72.8	72.6	72.4
180000	77.4	76.6	75.7	76.3	74.8	73.6	72.6	73.7	74.6	73.6	74.4	73.5	72.6	72.6	72.3
190000	77.2	76.4	75.5	76.2	74.6	73.3	72.5	73.7	74.4	73.6	74.3	73.2	72.4	72.3	72.3
200000	76.9	76.3	75.3	76.1	74.4	73.0	72.4	73.6	74.1	73.5	74.1	73.0	72.1	72.3	72.1
210000	76.6	76.2	75.2	75.7	74.2	72.7	72.3	73.3	74.0	73.5	73.9	72.6	72.1	72.1	72.0
220000	76.4	76.0	75.1	75.4	74.0	72.6	72.2	73.1	73.8	73.4	73.7	72.5	71.9	71.9	72.0
230000	76.3	75.8	75.1	75.2	73.9	72.5	72.1	72.8	73.5	73.3	73.5	72.2	71.8	71.8	71.9
Daily Max	77.4	77.4	75.8	76.6	75.5	74.3	73.0	73.0	74.7	73.6	74.6	73.7	73.0	72.6	72.4
Daily Min	75.5	75.3	75.0	74.2	73.5	72.5	72.1	72.1	71.6	72.4	72.5	71.9	71.2	71.4	71.6
Average	76.3	76.2	75.4	75.3	74.4	73.3	72.4	72.4	73.0	73.2	73.5	72.8	72.0	71.9	71.9



Potato Rapids Tailwater Temperature Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	71.9	72.9	74.4	73.3	70.1	66.1	64.9	65.2	66.7	68.0	69.1	69.9	71.2	69.9	66.2	63.3
10000	71.8	72.9	74.2	73.1	69.9	65.7	64.7	65.2	66.5	67.8	69.2	69.9	70.9	69.7	65.9	63.1
20000	71.8	72.8	74.0	73.0	69.7	65.4	64.6	64.9	66.4	67.7	69.1	69.9	70.8	69.5	65.7	62.8
30000	71.7	72.8	73.9	72.8	69.7	65.2	64.3	64.8	66.1	67.5	69.0	69.9	70.7	69.4	65.5	62.6
40000	71.6	72.8	73.8	72.6	69.5	64.9	64.2	64.6	66.0	67.2	69.0	69.9	70.5	69.2	65.2	62.3
50000	71.5	72.9	73.8	72.4	69.3	64.6	64.0	64.4	65.8	67.1	68.7	69.9	70.3	68.9	65.0	62.1
60000	71.4	73.0	73.8	72.2	69.0	64.4	63.7	64.2	65.5	66.9	68.6	69.8	70.1	68.6	64.8	61.8
70000	71.3	73.0	73.8	72.1	68.6	64.2	63.4	64.1	65.5	66.7	68.5	69.8	69.9	68.4	64.5	61.5
80000	71.3	73.0	73.7	71.9	68.5	64.0	63.4	64.0	65.3	66.6	68.3	69.8	69.8	68.2	64.3	61.4
90000	71.4	73.1	73.5	71.9	68.3	64.2	63.4	64.1	65.3	66.6	68.3	69.8	69.8	68.0	64.2	61.3
100000	71.6	73.2	73.5	72.0	68.3	64.5	63.6	64.3	65.6	66.9	68.5	70.1	69.7	67.9	64.2	61.3
110000	71.8	73.3	73.5	72.3	68.2	65.1	64.2	65.0	66.2	67.7	69.0	70.3	69.7	67.8	64.4	61.6
120000	72.1	73.3	73.6	72.7	68.2	65.6	65.0	65.7	66.8	68.5	69.7	70.5	70.0	67.9	64.7	61.5
130000	72.3	73.5	73.7	73.0	68.5	66.1	65.6	66.3	67.4	68.8	69.9	70.8	70.5	68.1	64.9	61.6
140000	72.5	73.5	73.7	73.0	68.3	66.3	65.9	66.9	67.9	69.5	70.0	70.7	70.9	68.4	64.9	61.9
150000	72.7	73.8	73.8	72.7	68.3	66.8	66.8	66.8	68.3	69.3	70.2	70.7	71.3	68.3	65.1	62.0
160000	72.6	74.1	73.9	72.6	68.5	66.7	66.9	67.0	68.7	68.8	70.5	71.2	71.4	68.1	65.0	62.1
170000	72.7	74.5	74.0	72.2	68.3	66.4	66.6	66.9	68.3	68.9	70.6	71.3	71.3	67.9	65.0	62.0
180000	72.6	74.4	73.9	71.6	68.0	65.6	66.2	66.6	68.0	68.5	70.2	71.3	71.1	67.7	64.9	61.6
190000	72.7	74.3	73.7	71.2	67.5	65.8	66.1	67.0	68.0	68.6	70.0	71.4	71.0	67.4	64.6	61.5
200000	72.7	74.2	73.6	70.8	67.1	65.5	65.8	67.0	67.9	68.9	69.9	71.4	70.7	67.2	64.4	61.2
210000	72.7	74.4	73.5	70.5	66.7	65.3	65.8	67.0	68.1	68.8	69.7	71.3	70.4	67.0	64.2	60.8
220000	72.7	74.3	73.4	70.4	66.4	65.0	65.8	67.0	68.1	68.8	69.9	71.2	70.2	66.7	63.9	60.6
230000	72.8	74.3	73.3	70.3	66.3	65.0	65.4	66.9	68.3	69.1	69.9	71.2	70.1	66.3	63.6	60.3
Daily Max	72.8	74.5	74.4	73.3	70.1	66.8	66.9	67.0	68.7	69.5	70.6	71.4	71.4	69.9	66.2	63.3
Daily Min	71.3	72.8	73.3	70.3	66.3	64.0	63.4	64.0	65.3	66.6	68.3	69.8	69.7	66.3	63.6	60.3
Average	72.1	73.5	73.7	72.1	68.4	65.3	65.0	65.7	66.9	68.1	69.4	70.5	70.5	68.2	64.8	61.8

Monthly average: 63.9  
 License Maximum Temp: 89 F

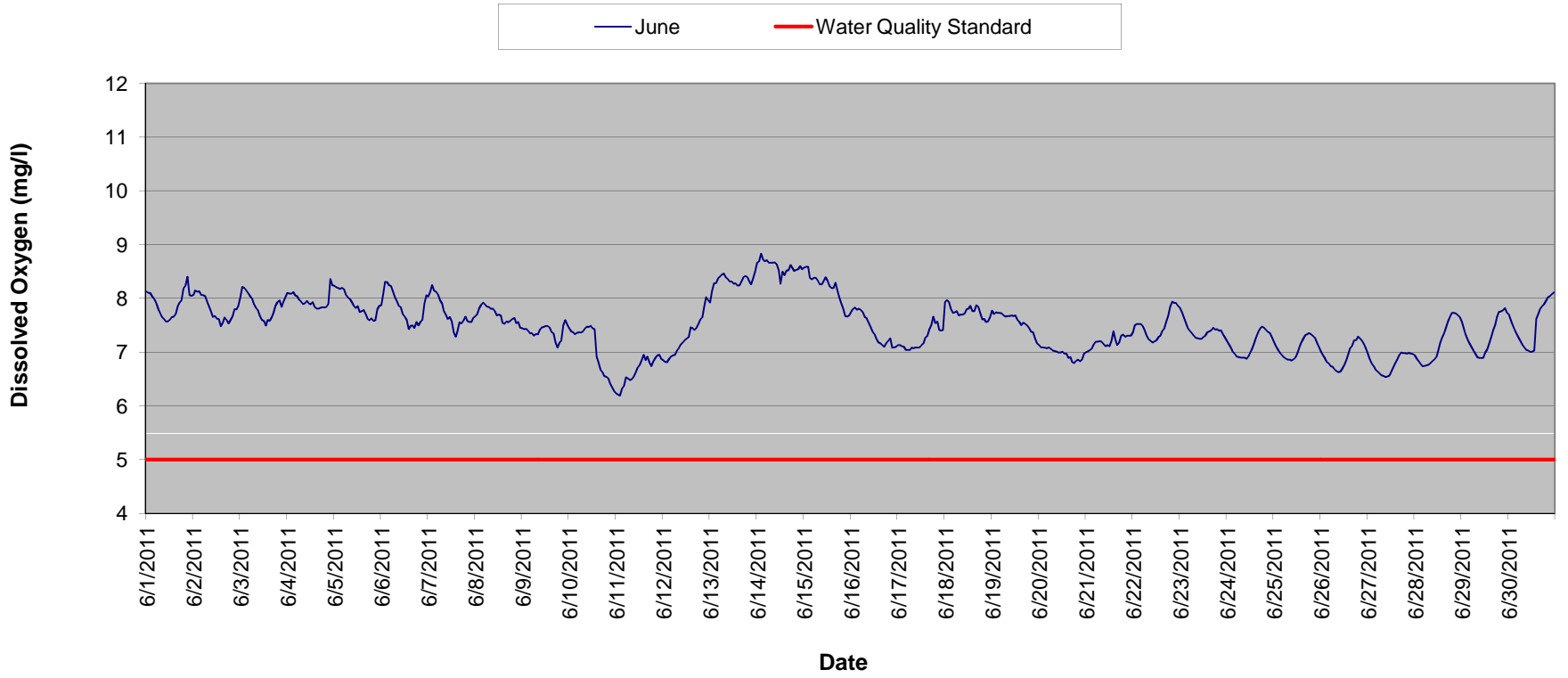
Potato Rapids Tailwater Temperature Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	60.0	59.3	59.4	61.0	61.7	61.2	59.9	58.5	57.1	55.7	55.9	57.3	58.7	56.8
10000	59.8	59.2	59.4	60.9	61.7	61.1	59.7	58.4	56.9	55.5	55.9	57.3	58.5	56.5
20000	59.6	59.1	59.4	60.7	61.7	61.0	59.5	58.4	56.8	55.5	55.9	57.2	58.4	56.1
30000	59.5	58.9	59.4	60.6	61.7	60.9	59.4	58.3	56.7	55.5	55.8	57.1	58.4	56.1
40000	59.5	58.9	59.4	60.5	61.7	60.8	59.3	58.1	56.6	55.4	55.8	57.1	58.4	55.9
50000	59.3	58.7	59.4	60.4	61.8	60.7	59.2	57.9	56.5	55.4	55.8	57.0	58.3	55.7
60000	59.2	58.7	59.5	60.3	61.7	60.6	59.1	57.8	56.4	55.3	55.8	57.0	58.4	55.6
70000	59.1	58.6	59.5	60.1	61.6	60.5	59.1	57.7	56.3	55.3	55.8	57.0	58.4	55.5
80000	59.0	58.6	59.4	60.1	61.5	60.4	59.0	57.6	56.2	55.3	55.8	56.9	58.3	55.5
90000	59.0	58.7	59.5	60.1	61.4	60.4	59.0	57.6	56.1	55.3	55.9	56.9	58.3	55.3
100000	59.2	58.8	59.6	60.4	61.5	60.4	59.2	57.6	56.1	55.4	56.1	57.2	58.4	55.3
110000	59.5	59.1	59.8	60.7	61.7	60.8	59.5	57.7	56.3	55.4	56.4	57.6	58.4	55.3
120000	59.6	59.4	60.1	60.9	61.8	60.7	59.8	57.7	56.2	55.5	56.6	58.1	58.5	55.5
130000	60.0	59.8	60.7	61.2	61.8	60.8	60.0	57.8	56.2	55.6	56.8	58.3	58.5	55.9
140000	60.4	60.0	61.0	61.2	61.8	60.9	60.1	57.8	56.3	55.8	57.0	58.7	58.5	55.9
150000	60.2	60.1	61.7	61.3	61.9	60.9	60.1	57.8	56.3	55.9	57.3	59.0	58.5	55.9
160000	60.4	60.0	62.1	61.3	61.9	61.0	59.9	57.7	56.1	55.9	57.4	59.1	58.4	56.0
170000	60.3	59.9	62.2	61.3	61.9	60.9	59.7	57.7	56.1	55.9	57.4	58.7	58.4	55.8
180000	60.2	59.8	62.2	61.3	61.9	60.8	59.3	57.7	56.2	55.9	57.1	58.7	58.3	55.6
190000	60.1	59.6	61.9	61.4	61.7	60.6	59.0	57.7	56.2	55.9	57.2	59.0	58.2	55.3
200000	59.8	59.5	61.6	61.5	61.6	60.5	58.8	57.5	56.0	56.0	57.3	59.1	58.0	55.1
210000	59.7	59.5	61.4	61.5	61.5	60.4	58.7	57.4	55.9	56.0	57.5	59.1	57.7	54.8
220000	59.6	59.4	61.3	61.5	61.3	60.2	58.7	57.3	55.8	56.0	57.6	59.0	57.3	54.6
230000	59.5	59.5	61.2	61.6	61.2	60.0	58.6	57.2	55.7	55.9	57.4	58.8	56.8	54.5
Daily Max	60.4	60.1	62.2	61.6	61.9	61.2	60.1	60.1	57.1	56.0	57.6	59.1	58.7	56.8
Daily Min	59.0	58.6	59.4	60.1	61.2	60.0	58.6	58.6	55.7	55.3	55.8	56.9	56.8	54.5
Average	59.7	59.3	60.5	60.9	61.7	60.7	59.4	59.4	56.3	55.6	56.6	58.0	58.2	55.6

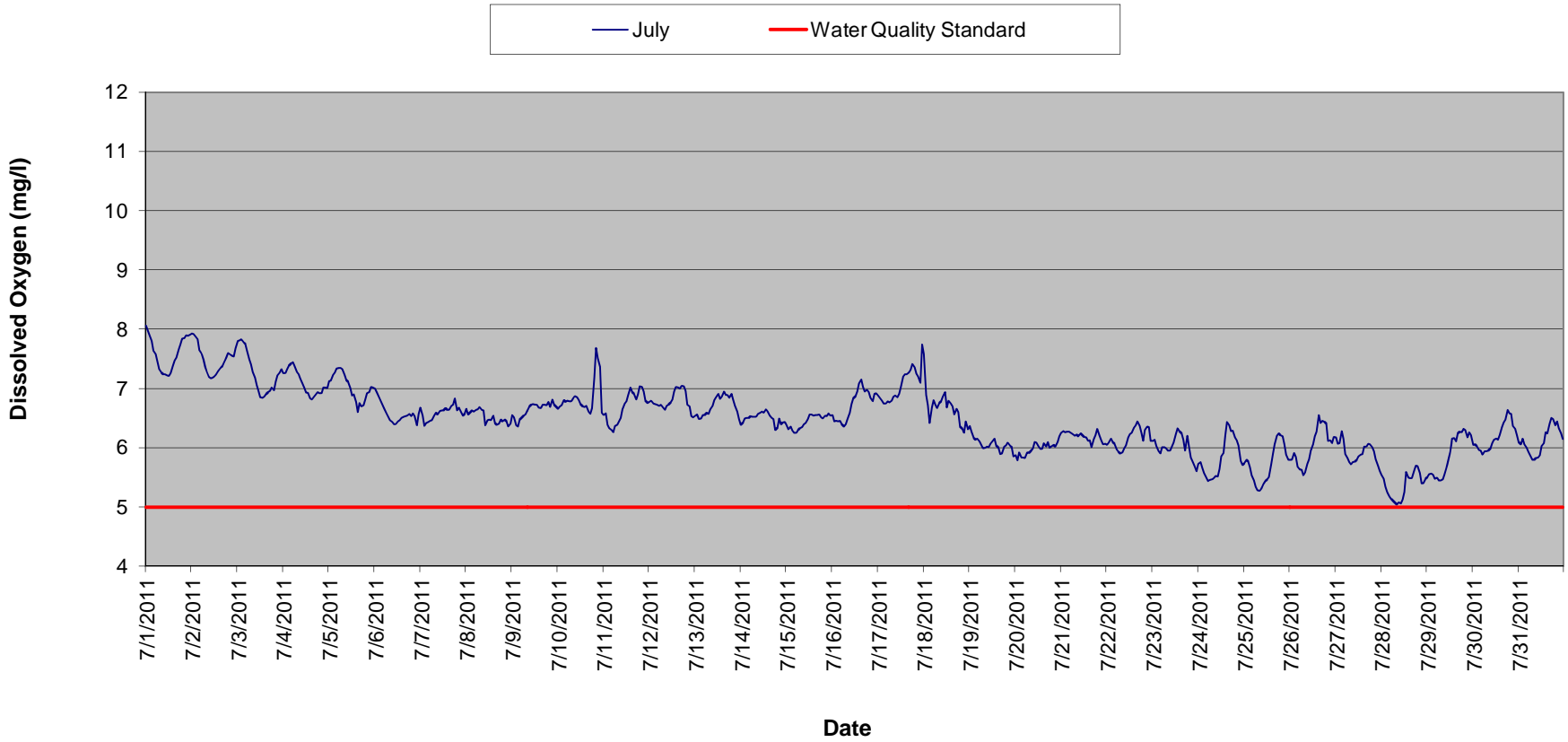
**Peshtigo River Hydroelectric Project**

**FERC Project No. 2581**

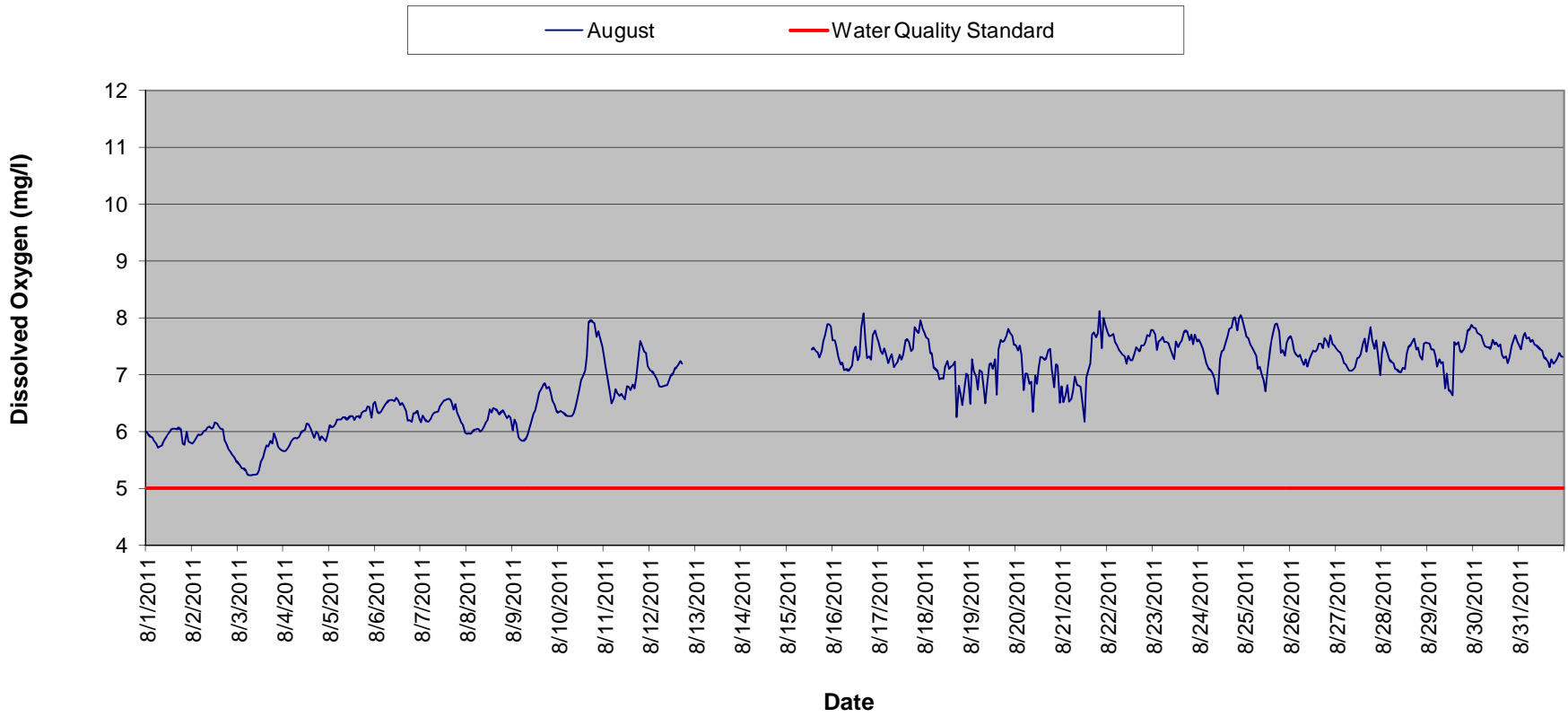
### Peshtigo Tailwater Dissolved Oxygen - June 2011



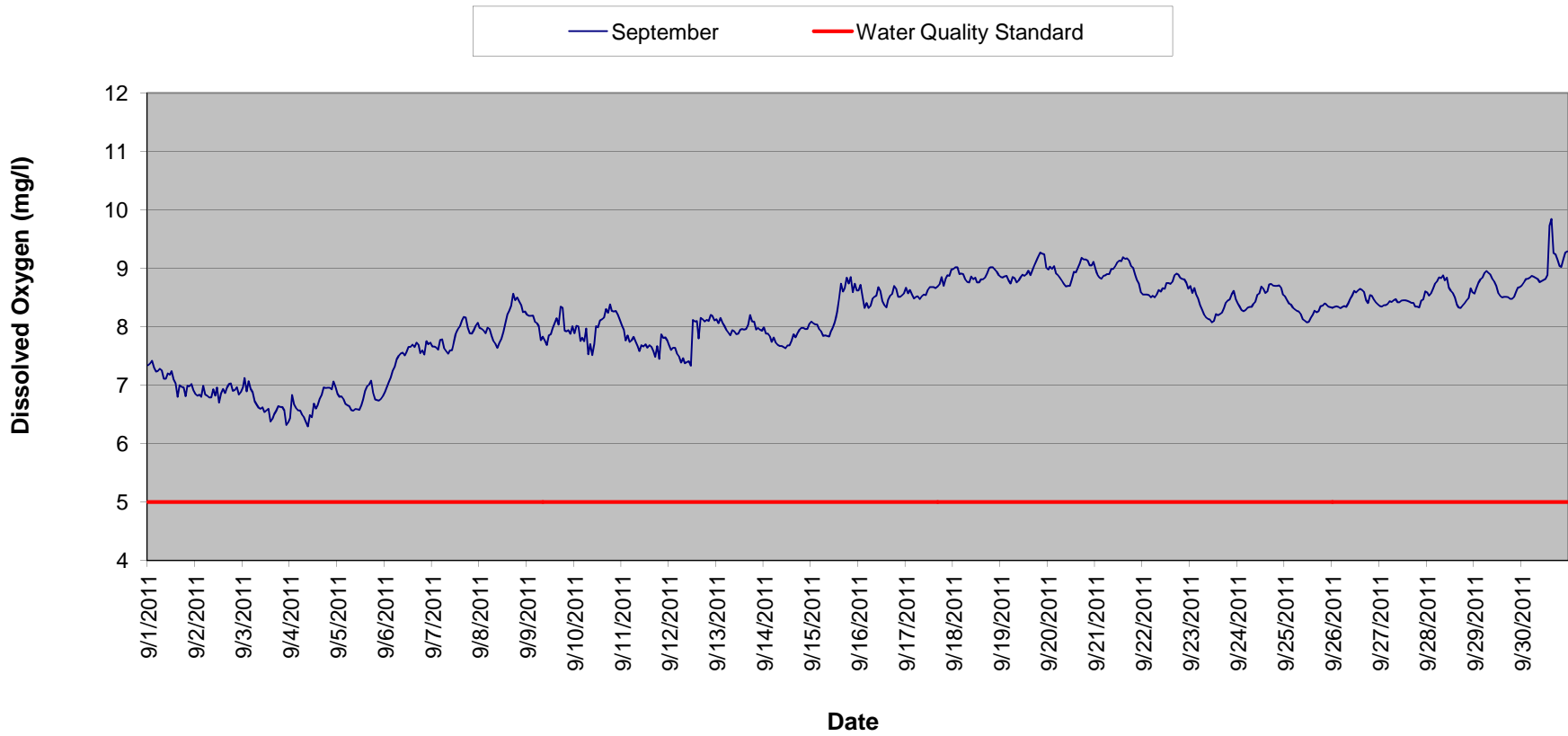
### Peshtigo Tailwater Dissolved Oxygen - July 2011



### Peshtigo Tailwater Dissolved Oxygen - August 2011



### Peshtigo Tailwater Dissolved Oxygen - September 2011



Peshtigo Tailwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	8.1	8.1	8.0	8.1	8.2	7.9	8.0	7.7	7.4	7.4	6.2	6.9	7.9	8.7	8.6	7.8
10000	8.1	8.1	8.2	8.1	8.2	8.1	8.1	7.7	7.4	7.4	6.2	6.8	8.1	8.7	8.6	7.8
20000	8.1	8.1	8.2	8.1	8.2	8.3	8.2	7.8	7.4	7.4	6.2	6.8	8.3	8.8	8.6	7.8
30000	8.0	8.1	8.2	8.1	8.2	8.3	8.1	7.9	7.4	7.3	6.3	6.9	8.3	8.7	8.4	7.8
40000	8.0	8.1	8.1	8.1	8.2	8.2	8.1	7.9	7.3	7.4	6.4	6.9	8.4	8.7	8.4	7.8
50000	7.9	8.1	8.0	8.0	8.2	8.2	8.1	7.9	7.4	7.4	6.5	6.9	8.4	8.7	8.4	7.8
60000	7.8	8.0	8.0	8.0	8.1	8.1	8.0	7.8	7.3	7.4	6.5	7.0	8.4	8.7	8.4	7.7
70000	7.7	7.9	7.9	7.9	8.0	8.0	7.9	7.8	7.3	7.4	6.5	7.0	8.5	8.7	8.3	7.7
80000	7.7	7.9	7.8	7.9	8.0	7.9	7.8	7.8	7.3	7.4	6.5	7.1	8.4	8.7	8.3	7.6
90000	7.6	7.8	7.8	7.9	7.9	7.9	7.7	7.8	7.4	7.5	6.5	7.1	8.4	8.7	8.3	7.6
100000	7.6	7.7	7.7	8.0	7.9	7.8	7.6	7.8	7.5	7.5	6.6	7.2	8.3	8.6	8.3	7.5
110000	7.6	7.7	7.6	7.9	7.8	7.7	7.7	7.7	7.5	7.5	6.7	7.2	8.3	8.5	8.4	7.4
120000	7.6	7.6	7.6	7.9	7.9	7.7	7.6	7.7	7.5	7.4	6.8	7.3	8.3	8.3	8.3	7.3
130000	7.6	7.6	7.5	7.9	7.7	7.6	7.4	7.7	7.5	7.4	6.9	7.3	8.3	8.5	8.2	7.2
140000	7.7	7.5	7.6	7.8	7.8	7.4	7.3	7.5	7.5	6.9	7.0	7.5	8.2	8.4	8.2	7.2
150000	7.7	7.6	7.6	7.8	7.8	7.5	7.4	7.5	7.4	6.8	6.9	7.5	8.2	8.5	8.2	7.2
160000	7.9	7.6	7.6	7.8	7.7	7.5	7.6	7.6	7.3	6.7	6.9	7.4	8.3	8.5	8.3	7.1
170000	7.9	7.6	7.7	7.8	7.6	7.4	7.5	7.6	7.2	6.6	6.8	7.5	8.4	8.6	8.2	7.1
180000	8.0	7.5	7.9	7.8	7.6	7.6	7.6	7.6	7.1	6.6	6.7	7.5	8.4	8.6	8.0	7.2
190000	8.2	7.6	7.9	7.8	7.6	7.5	7.7	7.6	7.2	6.5	6.8	7.6	8.4	8.5	7.9	7.2
200000	8.2	7.7	8.0	7.8	7.6	7.6	7.6	7.6	7.2	6.5	6.9	7.7	8.3	8.5	7.8	7.3
210000	8.4	7.8	7.8	7.9	7.6	7.6	7.6	7.5	7.5	6.4	6.9	7.9	8.3	8.5	7.7	7.1
220000	8.1	7.8	7.9	8.4	7.8	7.9	7.6	7.6	7.6	6.3	7.0	8.0	8.4	8.6	7.7	7.1
230000	8.0	7.9	8.0	8.2	7.9	8.1	7.6	7.5	7.5	6.3	6.9	8.0	8.5	8.5	7.7	7.1
Daily Max	8.4	8.1	8.2	8.4	8.2	8.3	8.2	7.9	7.6	7.5	7.0	8.0	8.5	8.8	8.6	7.8
Daily Min	7.6	7.5	7.5	7.8	7.6	7.4	7.3	7.5	7.1	6.3	6.2	6.8	7.9	8.3	7.7	7.1
Average	7.9	7.8	7.9	8.0	7.9	7.8	7.7	7.7	7.4	7.1	6.6	7.3	8.3	8.6	8.2	7.4

License Minimum DO: 5.0 mg/l



Peshtigo Tailwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.1	7.9	7.8	7.1	7.0	7.4	7.8	7.2	7.2	7.0	7.0	6.9	7.6	7.7
10000	7.1	8.0	7.7	7.1	7.0	7.5	7.7	7.1	7.1	6.9	6.9	6.9	7.4	7.6
20000	7.1	7.9	7.7	7.1	7.0	7.5	7.6	7.1	7.1	6.9	6.8	6.8	7.3	7.5
30000	7.1	7.8	7.7	7.1	7.1	7.5	7.5	7.0	7.0	6.8	6.7	6.8	7.2	7.4
40000	7.0	7.7	7.7	7.1	7.1	7.5	7.4	7.0	6.9	6.8	6.7	6.7	7.2	7.3
50000	7.0	7.7	7.7	7.1	7.2	7.5	7.4	6.9	6.9	6.7	6.6	6.7	7.1	7.3
60000	7.0	7.8	7.7	7.1	7.2	7.4	7.4	6.9	6.9	6.7	6.6	6.8	7.0	7.2
70000	7.1	7.7	7.7	7.0	7.2	7.3	7.3	6.9	6.9	6.7	6.6	6.8	7.0	7.1
80000	7.1	7.7	7.7	7.0	7.2	7.2	7.3	6.9	6.9	6.6	6.6	6.8	6.9	7.1
90000	7.1	7.7	7.7	7.0	7.2	7.2	7.3	6.9	6.8	6.6	6.5	6.8	6.9	7.0
100000	7.1	7.7	7.7	7.0	7.1	7.2	7.2	6.9	6.9	6.6	6.5	6.9	6.9	7.0
110000	7.1	7.8	7.7	7.0	7.1	7.2	7.2	6.9	6.9	6.7	6.6	6.9	6.9	7.0
120000	7.1	7.8	7.7	7.0	7.1	7.2	7.3	7.0	7.0	6.8	6.6	7.0	7.0	7.0
130000	7.2	7.9	7.6	7.0	7.2	7.3	7.3	7.1	7.1	6.9	6.7	7.2	7.1	7.0
140000	7.3	7.8	7.6	7.0	7.4	7.3	7.4	7.2	7.2	7.0	6.8	7.3	7.2	7.6
150000	7.3	7.8	7.5	6.9	7.2	7.4	7.4	7.3	7.2	7.1	6.9	7.4	7.3	7.7
160000	7.4	7.9	7.6	6.9	7.1	7.4	7.4	7.4	7.3	7.1	6.9	7.5	7.4	7.8
170000	7.5	7.8	7.5	6.8	7.2	7.6	7.5	7.4	7.3	7.2	7.0	7.6	7.5	7.9
180000	7.7	7.7	7.5	6.8	7.3	7.7	7.4	7.5	7.4	7.2	7.0	7.7	7.6	7.9
190000	7.5	7.6	7.5	6.8	7.3	7.8	7.4	7.5	7.3	7.3	7.0	7.7	7.7	8.0
200000	7.6	7.6	7.4	6.9	7.3	7.9	7.4	7.4	7.3	7.3	7.0	7.7	7.8	8.0
210000	7.4	7.6	7.4	6.8	7.3	7.9	7.4	7.4	7.3	7.2	7.0	7.7	7.8	8.0
220000	7.4	7.6	7.3	6.9	7.3	7.9	7.3	7.4	7.2	7.1	7.0	7.7	7.8	8.1
230000	7.4	7.7	7.2	7.0	7.3	7.9	7.3	7.3	7.1	7.1	7.0	7.6	7.7	8.1
Daily Max	7.7	8.0	7.8	7.1	7.4	7.9	7.8	7.5	7.4	7.3	7.0	7.7	7.8	8.1
Daily Min	7.0	7.6	7.2	6.8	7.0	7.2	7.2	6.9	6.8	6.6	6.5	6.7	6.9	7.0
Average	7.2	7.8	7.6	7.0	7.2	7.5	7.4	7.1	7.1	6.9	6.8	7.2	7.3	7.5

Peshtigo Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	8.1	7.9	7.8	7.3	7.1	7.0	6.7	6.7	6.5	6.7	6.6	6.8	6.5	6.4	6.4	6.6
10000	8.0	7.9	7.8	7.3	7.1	6.9	6.5	6.6	6.5	6.7	6.6	6.8	6.6	6.4	6.3	6.4
20000	7.9	7.9	7.8	7.3	7.2	6.9	6.4	6.6	6.4	6.7	6.4	6.7	6.5	6.5	6.4	6.5
30000	7.8	7.8	7.8	7.4	7.3	6.8	6.4	6.6	6.4	6.8	6.3	6.7	6.5	6.5	6.3	6.4
40000	7.6	7.7	7.8	7.4	7.3	6.7	6.4	6.6	6.5	6.8	6.3	6.7	6.5	6.5	6.3	6.5
50000	7.6	7.6	7.6	7.4	7.4	6.7	6.5	6.6	6.5	6.8	6.3	6.7	6.6	6.5	6.3	6.4
60000	7.5	7.5	7.5	7.4	7.4	6.6	6.5	6.7	6.5	6.8	6.4	6.7	6.6	6.5	6.3	6.4
70000	7.3	7.4	7.4	7.3	7.3	6.5	6.5	6.7	6.6	6.8	6.4	6.7	6.6	6.5	6.3	6.4
80000	7.3	7.3	7.3	7.2	7.2	6.5	6.6	6.6	6.6	6.8	6.4	6.6	6.6	6.5	6.4	6.5
90000	7.2	7.2	7.2	7.2	7.1	6.4	6.6	6.6	6.7	6.9	6.5	6.7	6.7	6.6	6.4	6.6
100000	7.2	7.2	7.1	7.1	7.1	6.4	6.6	6.4	6.7	6.8	6.6	6.7	6.8	6.6	6.4	6.7
110000	7.2	7.2	7.0	7.0	7.0	6.4	6.6	6.5	6.7	6.8	6.7	6.8	6.9	6.6	6.5	6.8
120000	7.2	7.2	6.9	6.9	6.9	6.4	6.6	6.5	6.7	6.7	6.8	6.8	6.9	6.6	6.6	6.9
130000	7.3	7.3	6.8	6.9	6.9	6.5	6.7	6.5	6.7	6.7	6.9	6.9	6.8	6.6	6.6	6.9
140000	7.4	7.3	6.9	6.8	6.8	6.5	6.6	6.5	6.7	6.7	7.0	7.0	6.9	6.6	6.5	7.1
150000	7.5	7.4	6.9	6.8	6.6	6.5	6.6	6.4	6.7	6.7	6.9	7.0	6.9	6.5	6.6	7.2
160000	7.5	7.4	6.9	6.9	6.8	6.5	6.7	6.4	6.7	6.6	6.9	7.0	6.9	6.5	6.5	7.0
170000	7.7	7.4	7.0	6.9	6.7	6.5	6.7	6.4	6.7	6.6	6.8	7.0	6.9	6.5	6.6	6.9
180000	7.7	7.5	7.0	6.9	6.7	6.6	6.8	6.5	6.7	6.7	6.9	7.0	6.8	6.3	6.5	7.0
190000	7.8	7.6	7.0	6.9	6.8	6.5	6.6	6.4	6.8	7.2	7.0	7.0	6.9	6.3	6.5	6.9
200000	7.9	7.6	7.1	6.9	6.9	6.6	6.7	6.5	6.7	7.7	7.0	6.7	6.8	6.5	6.5	6.8
210000	7.9	7.6	7.2	7.0	6.9	6.5	6.6	6.4	6.8	7.5	6.9	6.7	6.7	6.4	6.5	6.8
220000	7.9	7.5	7.3	7.0	7.0	6.4	6.5	6.4	6.7	7.4	6.8	6.5	6.6	6.4	6.6	6.9
230000	7.9	7.7	7.3	7.0	7.0	6.6	6.6	6.4	6.7	6.6	6.8	6.5	6.5	6.4	6.5	6.9
Daily Max	8.1	7.9	7.8	7.4	7.4	7.0	6.8	6.7	6.8	7.7	7.0	7.0	6.9	6.6	6.6	7.2
Daily Min	7.2	7.2	6.8	6.8	6.6	6.4	6.4	6.4	6.4	6.6	6.3	6.5	6.5	6.3	6.3	6.4
Average	7.6	7.5	7.3	7.1	7.0	6.6	6.6	6.5	6.6	6.8	6.7	6.8	6.7	6.5	6.4	6.7

License Minimum Dissolved Oxygen: 5.0 mg/l

Peshtigo Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	6.9	7.6	6.4	5.9	6.3	6.0	6.1	5.7	5.7	5.8	6.2	5.5	5.5	6.1	6.1
10000	6.8	6.9	6.3	5.8	6.3	6.1	6.1	5.8	5.8	5.8	6.1	5.5	5.5	6.1	6.1
20000	6.8	6.7	6.2	5.9	6.3	6.2	6.0	5.7	5.8	5.9	6.1	5.3	5.6	6.0	6.2
30000	6.7	6.4	6.1	5.8	6.3	6.1	5.9	5.6	5.7	5.8	6.3	5.2	5.5	6.0	6.1
40000	6.7	6.7	6.2	5.8	6.3	6.1	5.9	5.5	5.5	5.7	6.1	5.2	5.5	5.9	6.0
50000	6.8	6.8	6.1	5.8	6.2	6.0	6.0	5.4	5.4	5.6	5.9	5.1	5.5	5.9	5.9
60000	6.8	6.7	6.0	5.9	6.2	5.9	6.0	5.5	5.3	5.6	5.8	5.1	5.4	5.9	5.9
70000	6.8	6.7	6.0	5.9	6.2	5.9	6.0	5.5	5.3	5.5	5.8	5.1	5.4	5.9	5.8
80000	6.9	6.8	6.0	5.9	6.2	5.9	6.0	5.5	5.3	5.6	5.7	5.0	5.5	5.9	5.8
90000	6.9	6.8	6.0	6.0	6.2	6.0	6.0	5.5	5.3	5.7	5.8	5.1	5.6	6.0	5.8
100000	6.9	6.9	6.0	6.1	6.2	6.0	6.0	5.5	5.4	5.8	5.8	5.1	5.7	6.1	5.8
110000	6.9	6.9	6.1	6.1	6.2	6.2	6.1	5.6	5.4	6.0	5.8	5.1	5.8	6.1	5.9
120000	7.0	6.7	6.1	6.0	6.2	6.2	6.2	5.9	5.5	6.1	5.9	5.3	5.9	6.2	6.0
130000	7.2	6.8	6.2	6.0	6.2	6.3	6.3	5.9	5.5	6.2	5.9	5.6	6.2	6.1	6.1
140000	7.2	6.7	6.0	6.0	6.1	6.3	6.3	6.2	5.7	6.3	5.9	5.5	6.2	6.2	6.3
150000	7.2	6.7	6.0	6.1	6.1	6.4	6.2	6.4	5.9	6.5	6.0	5.5	6.1	6.4	6.2
160000	7.3	6.6	5.9	6.0	6.0	6.4	6.1	6.4	6.1	6.4	6.0	5.5	6.2	6.4	6.4
170000	7.3	6.7	5.9	6.1	6.1	6.4	6.0	6.3	6.2	6.5	6.1	5.6	6.3	6.5	6.5
180000	7.4	6.6	6.0	6.0	6.2	6.2	6.2	6.3	6.2	6.4	6.1	5.7	6.3	6.6	6.5
190000	7.4	6.4	6.0	6.0	6.3	6.1	6.0	6.2	6.2	6.4	6.0	5.7	6.3	6.6	6.4
200000	7.3	6.3	6.1	6.0	6.2	6.3	5.8	6.1	6.2	6.1	5.9	5.6	6.3	6.6	6.4
210000	7.2	6.2	6.0	6.0	6.1	6.4	5.7	6.0	6.1	6.1	5.8	5.4	6.2	6.4	6.3
220000	7.1	6.4	6.0	6.1	6.1	6.3	5.7	5.8	5.9	6.1	5.7	5.4	6.3	6.3	6.2
230000	7.7	6.3	5.9	6.2	6.1	6.1	5.6	5.7	5.8	6.2	5.6	5.5	6.2	6.2	6.1
Daily Max	7.7	7.6	6.4	6.2	6.3	6.4	6.3	6.4	6.2	6.5	6.3	5.7	6.3	6.6	6.5
Daily Min	6.7	6.2	5.9	5.8	6.0	5.9	5.6	5.4	5.3	5.5	5.6	5.0	5.4	5.9	5.8
Average	7.0	6.7	6.1	6.0	6.2	6.2	6.0	5.8	5.7	6.0	5.9	5.4	5.9	6.2	6.1

Peshtigo Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	6.0	5.8	5.5	5.7	6.1	6.5	6.2	6.0	6.0	6.3	7.3	7.1				7.6
10000	6.0	5.8	5.4	5.7	6.1	6.4	6.3	6.0	6.2	6.4	7.1	7.1				7.6
20000	5.9	5.9	5.4	5.7	6.1	6.3	6.2	6.0	6.1	6.3	6.9	7.0				7.5
30000	5.9	6.0	5.4	5.8	6.1	6.3	6.2	6.0	5.9	6.3	6.7	7.0				7.3
40000	5.8	5.9	5.3	5.8	6.2	6.4	6.2	6.0	5.9	6.3	6.5	6.9				7.2
50000	5.8	6.0	5.2	5.9	6.2	6.5	6.2	6.0	5.8	6.3	6.6	6.8				7.2
60000	5.7	6.0	5.2	5.9	6.2	6.5	6.3	6.1	5.8	6.3	6.6	6.8				7.1
70000	5.7	6.0	5.2	5.9	6.3	6.5	6.3	6.0	5.9	6.3	6.7	6.8				7.1
80000	5.8	6.1	5.2	5.9	6.3	6.6	6.3	6.0	6.0	6.3	6.6	6.8				7.1
90000	5.8	6.1	5.2	6.0	6.2	6.6	6.4	6.1	6.1	6.4	6.7	6.8				7.1
100000	5.9	6.0	5.2	6.0	6.2	6.5	6.4	6.2	6.2	6.6	6.6	6.9				7.2
110000	5.9	6.1	5.3	6.0	6.3	6.6	6.5	6.2	6.3	6.8	6.6	7.0				7.4
120000	6.0	6.2	5.5	6.1	6.3	6.6	6.5	6.4	6.4	6.9	6.8	7.0				7.5
130000	6.0	6.1	5.5	6.1	6.2	6.5	6.6	6.3	6.5	7.0	6.8	7.1		7.4		7.3
140000	6.1	6.1	5.7	6.0	6.3	6.5	6.6	6.4	6.7	7.1	6.7	7.1		7.5		7.3
150000	6.1	6.1	5.8	6.0	6.3	6.5	6.6	6.4	6.7	7.3	6.8	7.2		7.4		7.8
160000	6.0	6.0	5.7	5.9	6.2	6.4	6.5	6.4	6.8	7.9	6.8	7.2		7.4		8.1
170000	6.1	5.9	5.8	6.0	6.3	6.2	6.4	6.3	6.9	8.0	7.0	7.2		7.3		7.6
180000	6.0	5.8	5.8	6.0	6.4	6.2	6.5	6.3	6.8	7.9	7.3			7.4		7.3
190000	5.8	5.7	6.0	5.8	6.4	6.2	6.3	6.4	6.8	7.9	7.6			7.6		7.3
200000	5.8	5.7	5.9	5.9	6.4	6.3	6.2	6.3	6.7	7.7	7.5			7.7		7.3
210000	6.0	5.6	5.7	5.9	6.4	6.3	6.2	6.2	6.5	7.8	7.4			7.9		7.7
220000	5.8	5.5	5.7	5.8	6.2	6.4	6.1	6.3	6.5	7.7	7.4			7.9		7.8
230000	5.8	5.5	5.7	5.9	6.5	6.2	6.0	6.2	6.4	7.5	7.2			7.9		7.7
Daily Max	6.1	6.2	6.0	6.1	6.5	6.6	6.6	6.4	6.9	8.0	7.6	7.2	0.0	0.0	7.9	8.1
Daily Min	5.7	5.5	5.2	5.7	6.1	6.2	6.0	6.0	5.8	6.3	6.5	6.8	0.0	0.0	7.3	7.1
Average	5.9	5.9	5.5	5.9	6.3	6.4	6.3	6.2	6.3	7.0	6.9	7.0	#DIV/0!	#DIV/0!	7.6	7.4

License Minimum Dissolved Oxygen: 5.0 mg/l

Missing data due to equipment setup error

Peshtigo Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.6	7.7	6.5	7.5	6.8	7.8	7.8	7.6	7.8	7.7	7.5	7.4	7.6	7.8	7.5
10000	7.4	7.7	7.3	7.4	6.5	7.7	7.7	7.6	7.7	7.6	7.4	7.6	7.5	7.8	7.4
20000	7.4	7.6	7.1	7.5	6.7	7.7	7.4	7.5	7.7	7.4	7.4	7.5	7.4	7.7	7.7
30000	7.5	7.4	7.0	7.4	6.8	7.7	7.6	7.3	7.5	7.4	7.3	7.4	7.4	7.7	7.7
40000	7.4	7.4	6.7	6.7	6.5	7.6	7.6	7.2	7.5	7.3	7.2	7.3	7.3	7.7	7.6
50000	7.2	7.1	7.1	7.0	6.6	7.5	7.7	7.1	7.4	7.4	7.2	7.2	7.1	7.6	7.7
60000	7.3	7.1	7.1	7.0	6.7	7.4	7.6	7.1	7.3	7.3	7.1	7.2	7.3	7.5	7.6
70000	7.4	7.1	6.8	6.8	7.0	7.4	7.6	7.0	7.1	7.2	7.1	7.1	7.2	7.5	7.6
80000	7.1	6.9	6.5	6.9	6.8	7.4	7.6	6.9	7.1	7.3	7.1	7.1	7.2	7.5	7.5
90000	7.2	6.9	6.8	6.3	6.8	7.3	7.5	6.8	7.0	7.1	7.1	7.1	6.8	7.5	7.5
100000	7.2	6.9	7.2	7.0	6.8	7.2	7.4	6.7	6.9	7.3	7.1	7.0	7.0	7.6	7.5
110000	7.4	7.1	7.2	6.8	6.4	7.3	7.3	7.3	6.7	7.4	7.3	7.1	6.7	7.5	7.4
120000	7.3	7.2	7.1	7.1	6.2	7.3	7.6	7.4	7.1	7.4	7.3	7.1	6.7	7.6	7.4
130000	7.4	7.1	7.3	7.3	7.0	7.3	7.5	7.4	7.3	7.4	7.4	7.4	6.6	7.5	7.3
140000	7.6	7.1	6.7	7.3	7.1	7.3	7.6	7.6	7.6	7.4	7.6	7.5	7.6	7.5	7.3
150000	7.6	7.2	7.4	7.3	7.2	7.5	7.6	7.7	7.8	7.5	7.6	7.5	7.5	7.4	7.2
160000	7.6	7.2	7.6	7.3	7.7	7.4	7.8	7.8	7.9	7.5	7.4	7.6	7.6	7.3	7.1
170000	7.4	6.3	7.6	7.4	7.8	7.4	7.8	7.8	7.9	7.5	7.7	7.6	7.4	7.3	7.3
180000	7.5	6.8	7.6	7.5	7.7	7.5	7.8	8.0	7.8	7.7	7.8	7.4	7.4	7.2	7.2
190000	7.8	6.7	7.7	7.1	7.7	7.5	7.6	8.0	7.4	7.6	7.6	7.5	7.5	7.3	7.2
200000	7.8	6.5	7.8	6.8	8.1	7.6	7.7	7.8	7.4	7.5	7.5	7.3	7.6	7.5	7.3
210000	7.7	6.8	7.7	7.2	7.5	7.7	7.5	8.0	7.3	7.7	7.6	7.3	7.8	7.6	7.4
220000	8.0	7.0	7.7	7.2	8.0	7.7	7.7	8.1	7.6	7.5	7.4	7.5	7.8	7.7	7.3
230000	7.8	7.0	7.5	6.5	7.9	7.8	7.6	8.0	7.6	7.5	7.0	7.6	7.9	7.6	7.3
Daily Max	8.0	7.7	7.8	7.5	8.1	7.8	7.8	8.1	7.9	7.7	7.8	7.6	7.9	7.8	7.7
Daily Min	7.1	6.3	6.5	6.3	6.2	7.2	7.3	6.7	6.7	7.1	7.0	7.0	6.6	7.2	7.1
Average	7.5	7.1	7.2	7.1	7.1	7.5	7.6	7.5	7.4	7.4	7.4	7.3	7.3	7.5	7.4

Peshtigo Tailwater Dissolved Oxygen Summary - September 2011

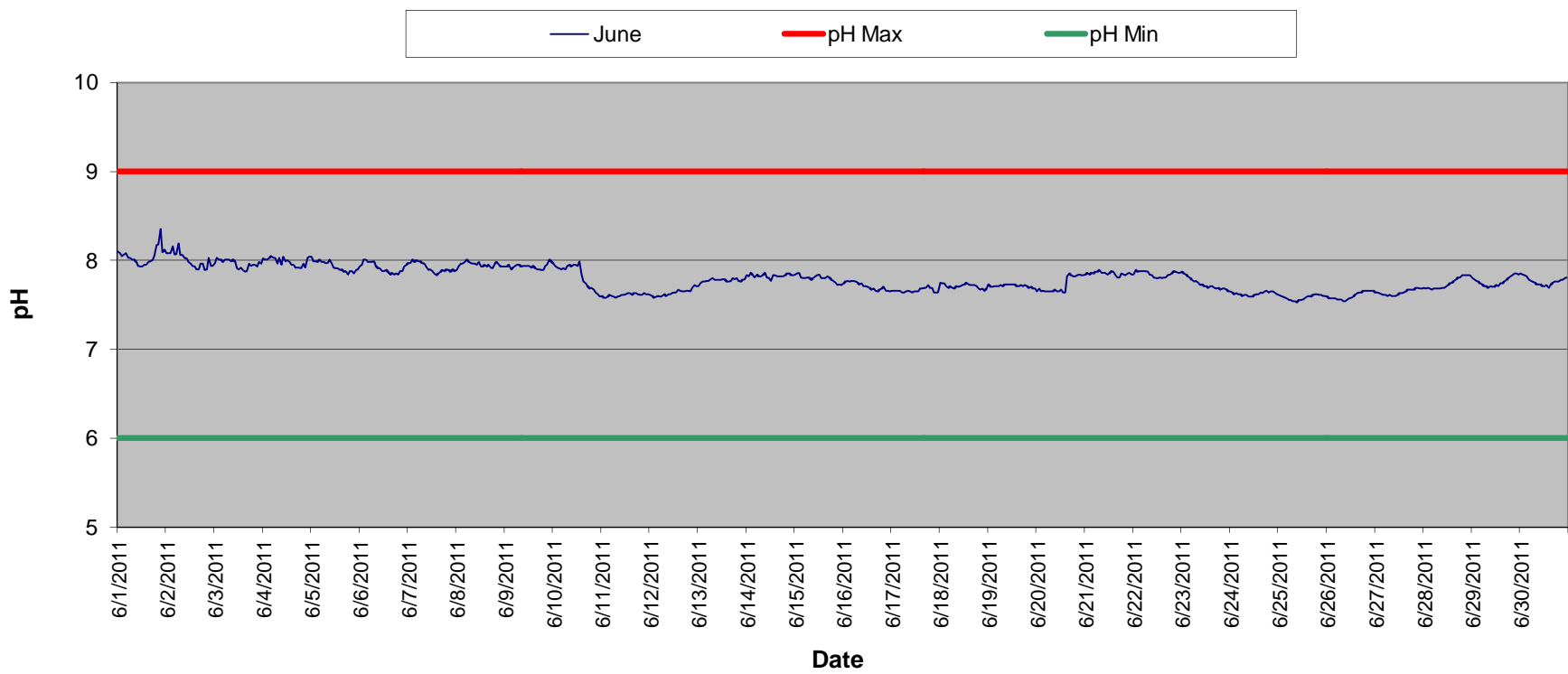
Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	7.3	6.9	7.0	6.4	6.9	6.9	7.7	8.0	8.2	7.9	8.0	7.7	8.1	8.0	8.1	8.6
10000	7.4	6.8	7.1	6.8	6.8	7.0	7.7	8.0	8.2	8.0	7.9	7.6	8.1	7.9	8.1	8.7
20000	7.4	6.8	6.9	6.7	6.8	7.1	7.6	7.9	8.2	8.0	7.8	7.6	8.2	7.9	8.0	8.5
30000	7.3	6.8	7.1	6.6	6.8	7.1	7.6	7.9	8.2	7.8	7.9	7.6	8.1	7.8	8.0	8.3
40000	7.2	7.0	6.9	6.6	6.7	7.2	7.8	8.0	8.1	7.8	7.7	7.5	8.0	7.7	8.0	8.4
50000	7.2	6.8	6.9	6.6	6.7	7.3	7.8	8.0	8.1	7.7	7.8	7.5	7.9	7.8	7.9	8.3
60000	7.3	6.8	6.7	6.5	6.6	7.4	7.6	7.8	8.0	8.0	7.8	7.4	7.9	7.7	7.8	8.4
70000	7.3	6.8	6.7	6.5	6.6	7.5	7.6	7.8	7.8	7.5	7.7	7.5	7.9	7.7	7.9	8.5
80000	7.1	6.8	6.6	6.4	6.6	7.5	7.5	7.7	7.8	7.7	7.7	7.4	7.9	7.7	7.8	8.5
90000	7.1	6.9	6.6	6.3	6.6	7.6	7.6	7.6	7.8	7.5	7.6	7.4	7.9	7.7	7.8	8.5
100000	7.2	6.8	6.6	6.5	6.6	7.5	7.6	7.7	7.7	7.7	7.7	7.4	7.9	7.7	7.9	8.7
110000	7.2	7.0	6.5	6.4	6.6	7.6	7.7	7.8	7.9	8.0	7.7	7.3	7.9	7.6	8.0	8.6
120000	7.2	6.7	6.6	6.7	6.7	7.7	7.9	7.9	7.9	8.0	7.7	8.1	8.0	7.7	8.1	8.4
130000	7.1	6.9	6.6	6.6	6.8	7.7	8.0	8.1	8.0	8.1	7.6	8.1	8.0	7.7	8.2	8.4
140000	7.0	6.9	6.4	6.7	6.9	7.7	8.0	8.2	8.1	8.1	7.7	8.1	8.0	7.8	8.5	8.3
150000	6.8	6.9	6.4	6.8	7.0	7.7	8.1	8.3	8.1	8.2	7.7	7.8	8.0	7.9	8.7	8.5
160000	7.0	7.0	6.5	6.8	7.0	7.7	8.2	8.4	8.0	8.3	7.6	8.2	8.0	7.8	8.6	8.5
170000	7.0	7.0	6.6	7.0	7.1	7.7	8.2	8.6	8.3	8.2	7.5	8.1	8.2	7.9	8.7	8.6
180000	7.0	7.0	6.6	6.9	6.9	7.5	8.0	8.5	8.3	8.4	7.7	8.1	8.1	8.0	8.8	8.7
190000	6.8	6.9	6.6	7.0	6.8	7.6	7.9	8.5	7.9	8.3	7.5	8.1	8.1	8.0	8.7	8.7
200000	7.0	6.9	6.6	7.0	6.7	7.5	7.9	8.4	7.9	8.3	7.9	8.1	8.0	8.0	8.9	8.5
210000	7.0	7.0	6.6	6.9	6.7	7.8	7.9	8.4	7.9	8.3	7.8	8.2	8.0	8.0	8.6	8.5
220000	7.0	6.8	6.3	7.1	6.8	7.7	8.0	8.2	7.9	8.2	7.8	8.2	8.0	8.0	8.7	8.5
230000	6.9	6.9	6.4	7.0	6.8	7.7	8.1	8.3	8.0	8.1	7.8	8.1	7.9	8.1	8.6	8.6
Daily Max	7.4	7.0	7.1	7.1	7.1	7.8	8.2	8.6	8.3	8.4	8.0	8.2	8.2	8.1	8.9	8.7
Daily Min	6.8	6.7	6.3	6.3	6.6	6.9	7.5	7.6	7.7	7.5	7.5	7.3	7.9	7.6	7.8	8.3
Average	7.1	6.9	6.7	6.7	6.8	7.5	7.8	8.1	8.0	8.0	7.7	7.8	8.0	7.8	8.3	8.5

License Minimum Dissolved Oxygen: 5.0 mg/l

Peshtigo Tailwater Dissolved Oxygen Summary - September 2011

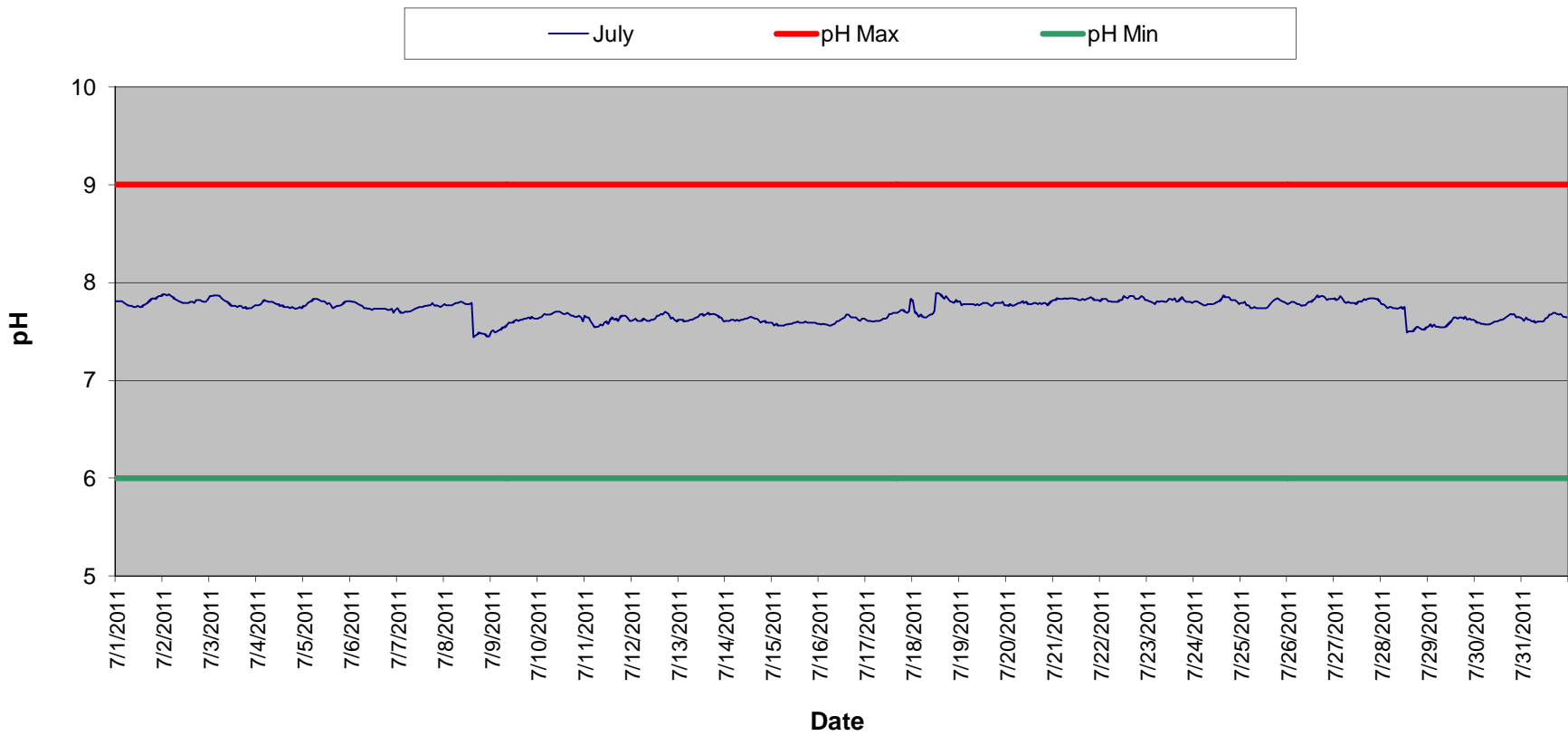
Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	8.7	9.0	8.9	9.0	9.0	8.6	8.7	8.4	8.5	8.3	8.4	8.6	8.6	8.7
10000	8.6	9.0	8.8	9.0	8.9	8.6	8.6	8.3	8.5	8.3	8.3	8.5	8.7	8.8
20000	8.6	9.0	8.9	9.0	8.8	8.6	8.7	8.3	8.4	8.3	8.4	8.6	8.8	8.8
30000	8.6	8.9	8.9	9.0	8.8	8.5	8.6	8.3	8.4	8.3	8.4	8.7	8.8	8.8
40000	8.5	8.9	8.8	8.9	8.9	8.5	8.5	8.3	8.3	8.3	8.4	8.7	8.8	8.8
50000	8.5	8.9	8.7	8.9	8.9	8.5	8.4	8.3	8.3	8.3	8.4	8.8	8.9	8.9
60000	8.5	8.8	8.9	8.8	8.9	8.5	8.3	8.3	8.3	8.4	8.4	8.8	9.0	8.9
70000	8.5	8.8	8.8	8.8	8.9	8.6	8.2	8.3	8.3	8.3	8.5	8.8	8.9	8.8
80000	8.5	8.8	8.8	8.7	9.0	8.6	8.2	8.4	8.2	8.4	8.5	8.9	8.9	8.8
90000	8.6	8.9	8.8	8.7	9.0	8.6	8.1	8.4	8.1	8.5	8.4	8.8	8.8	8.8
100000	8.5	8.8	8.8	8.7	9.0	8.7	8.1	8.5	8.1	8.5	8.4	8.8	8.8	8.8
110000	8.6	8.8	8.9	8.7	9.1	8.7	8.1	8.6	8.1	8.6	8.4	8.7	8.7	8.8
120000	8.7	8.8	8.9	8.8	9.1	8.7	8.1	8.7	8.1	8.6	8.5	8.6	8.6	8.8
130000	8.7	8.8	8.9	8.9	9.1	8.7	8.2	8.6	8.2	8.6	8.5	8.6	8.5	8.9
140000	8.7	8.8	9.0	8.9	9.2	8.7	8.2	8.6	8.2	8.7	8.4	8.5	8.5	9.7
150000	8.7	8.8	8.9	9.0	9.2	8.8	8.2	8.6	8.3	8.6	8.4	8.4	8.5	9.8
160000	8.7	8.8	9.0	9.1	9.2	8.9	8.2	8.7	8.2	8.6	8.4	8.3	8.5	9.3
170000	8.7	8.9	9.1	9.2	9.1	8.9	8.3	8.7	8.3	8.5	8.4	8.3	8.5	9.2
180000	8.9	9.0	9.1	9.2	9.0	8.9	8.4	8.7	8.4	8.4	8.3	8.4	8.5	9.1
190000	8.7	9.0	9.2	9.2	9.0	8.8	8.4	8.7	8.4	8.5	8.3	8.4	8.5	9.0
200000	8.8	9.0	9.3	9.1	8.9	8.8	8.5	8.7	8.4	8.5	8.3	8.5	8.5	9.0
210000	8.9	9.0	9.3	9.1	8.8	8.8	8.6	8.7	8.4	8.5	8.4	8.5	8.6	9.2
220000	8.9	8.9	9.2	9.1	8.7	8.8	8.6	8.7	8.3	8.4	8.5	8.7	8.7	9.3
230000	9.0	8.9	9.0	9.1	8.6	8.7	8.5	8.6	8.3	8.4	8.6	8.6	8.7	9.3
Daily Max	9.0	9.0	9.3	9.2	9.2	8.9	8.7	8.7	8.5	8.7	8.6	8.9	9.0	9.8
Daily Min	8.5	8.8	8.7	8.7	8.6	8.5	8.1	8.3	8.1	8.3	8.3	8.3	8.5	8.7
Average	8.7	8.9	8.9	9.0	9.0	8.7	8.4	8.5	8.3	8.5	8.4	8.6	8.7	9.0

### Peshtigo Tailwater pH Summary - June 2011

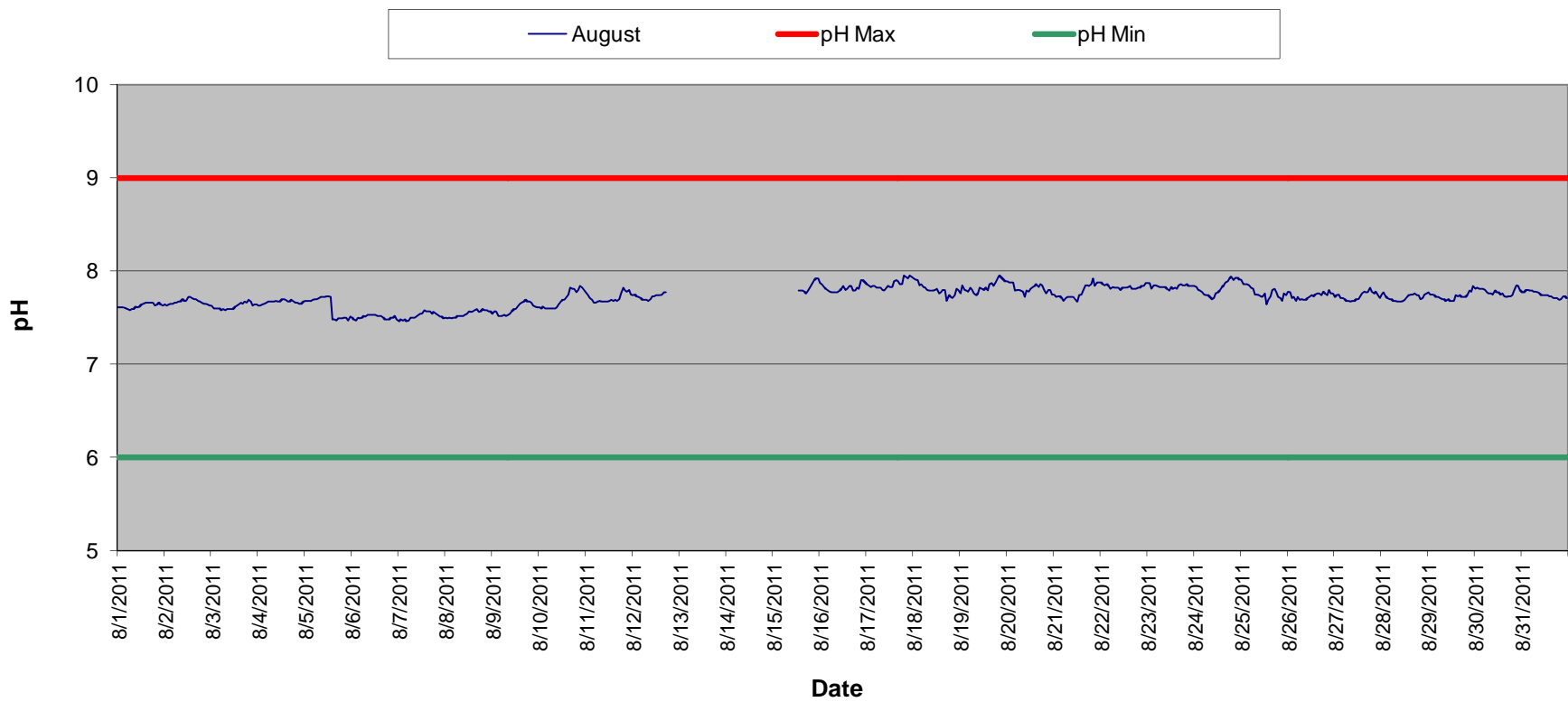




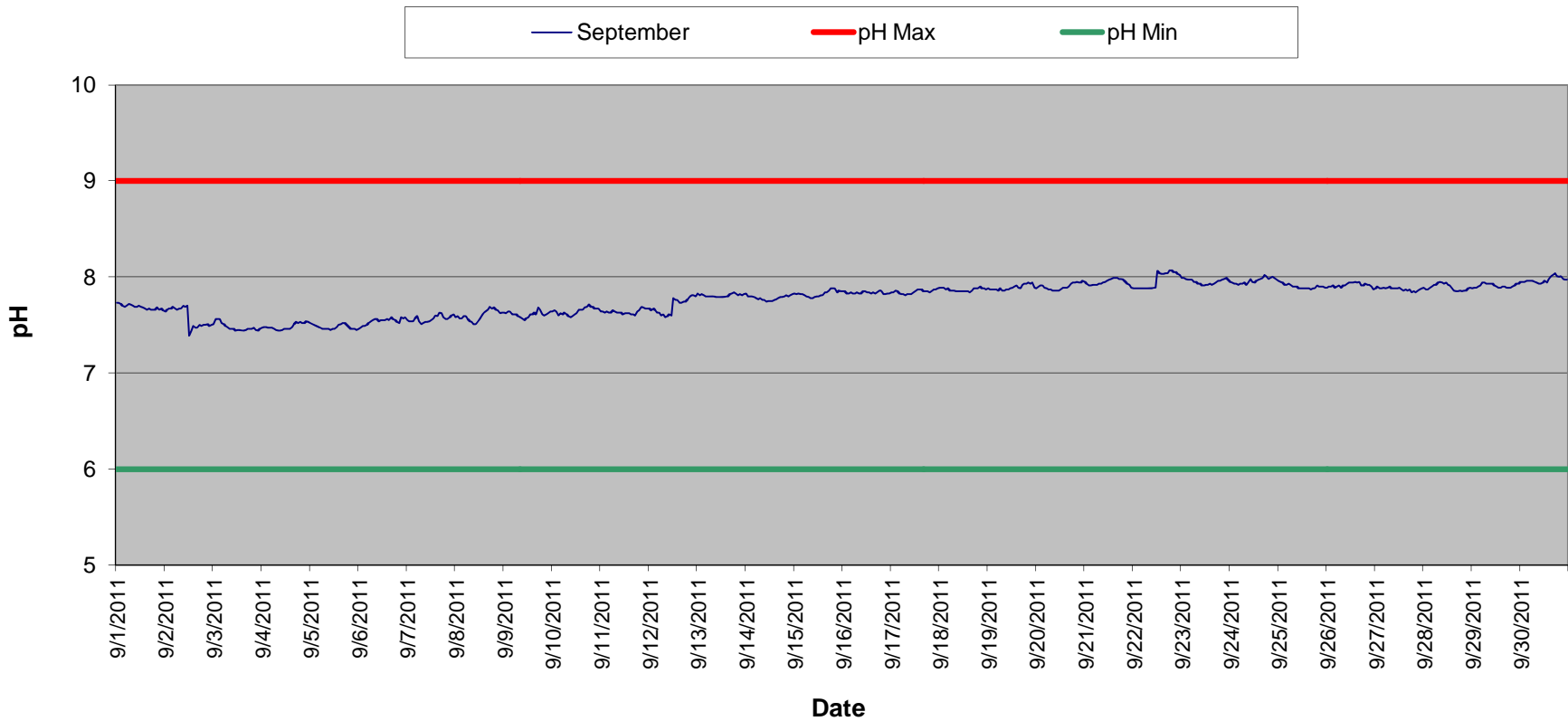
### Peshtigo Tailwater pH Summary - July 2011



### Peshtigo Tailwater pH Summary - August 2011



### Peshtigo Tailwater pH Summary - September 2011



Peshtigo Tailwater pH Summary - June 2011

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

License maximum pH: 9  
 License minimum pH: 6

Peshtigo Tailwater pH Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.7	7.8	7.7	7.7	7.8	7.8	7.9	7.7	7.6	7.6	7.6	7.7	7.8	7.9
10000	7.7	7.7	7.7	7.7	7.9	7.9	7.9	7.6	7.6	7.6	7.6	7.7	7.8	7.8
20000	7.7	7.7	7.7	7.7	7.8	7.9	7.8	7.6	7.6	7.6	7.6	7.7	7.8	7.8
30000	7.7	7.7	7.7	7.7	7.9	7.9	7.8	7.6	7.6	7.6	7.6	7.7	7.8	7.8
40000	7.7	7.7	7.7	7.7	7.9	7.9	7.8	7.6	7.6	7.6	7.6	7.7	7.7	7.8
50000	7.6	7.7	7.7	7.7	7.9	7.9	7.8	7.6	7.6	7.6	7.6	7.7	7.7	7.8
60000	7.6	7.7	7.7	7.7	7.9	7.9	7.8	7.6	7.6	7.6	7.6	7.7	7.7	7.8
70000	7.7	7.7	7.7	7.7	7.9	7.9	7.8	7.6	7.5	7.6	7.6	7.7	7.7	7.8
80000	7.7	7.7	7.7	7.7	7.9	7.8	7.8	7.6	7.5	7.5	7.6	7.7	7.7	7.7
90000	7.7	7.7	7.7	7.7	7.9	7.8	7.7	7.6	7.5	7.5	7.6	7.7	7.7	7.7
100000	7.6	7.7	7.7	7.7	7.9	7.8	7.7	7.6	7.6	7.6	7.6	7.7	7.7	7.7
110000	7.7	7.7	7.7	7.7	7.8	7.8	7.7	7.6	7.6	7.6	7.6	7.7	7.7	7.7
120000	7.7	7.7	7.7	7.7	7.9	7.8	7.7	7.6	7.6	7.6	7.6	7.7	7.7	7.7
130000	7.7	7.8	7.7	7.6	7.9	7.8	7.7	7.6	7.6	7.6	7.6	7.7	7.7	7.7
140000	7.7	7.7	7.7	7.6	7.9	7.8	7.7	7.6	7.6	7.6	7.6	7.8	7.7	7.7
150000	7.7	7.7	7.7	7.8	7.8	7.8	7.7	7.6	7.6	7.6	7.7	7.8	7.7	7.7
160000	7.7	7.7	7.7	7.9	7.8	7.8	7.7	7.6	7.6	7.6	7.7	7.8	7.8	7.8
170000	7.7	7.7	7.7	7.8	7.8	7.8	7.7	7.7	7.6	7.6	7.7	7.8	7.8	7.8
180000	7.7	7.7	7.7	7.8	7.9	7.8	7.7	7.7	7.6	7.6	7.7	7.8	7.8	7.8
190000	7.7	7.7	7.7	7.8	7.8	7.9	7.7	7.6	7.6	7.7	7.7	7.8	7.8	7.8
200000	7.7	7.7	7.7	7.8	7.8	7.9	7.7	7.7	7.6	7.7	7.7	7.8	7.8	7.8
210000	7.6	7.7	7.7	7.8	7.9	7.9	7.7	7.7	7.6	7.7	7.7	7.8	7.9	7.8
220000	7.6	7.7	7.7	7.8	7.9	7.9	7.7	7.6	7.6	7.7	7.7	7.8	7.9	7.8
230000	7.6	7.7	7.7	7.8	7.8	7.9	7.7	7.6	7.6	7.7	7.7	7.8	7.8	7.8
Daily Max	7.7	7.8	7.7	7.9	7.9	7.9	7.9	7.7	7.6	7.7	7.7	7.8	7.9	7.9
Daily Min	7.6	7.7	7.7	7.6	7.8	7.8	7.7	7.6	7.5	7.5	7.6	7.7	7.7	7.7
Average	7.7	7.7	7.7	7.7	7.9	7.8	7.7	7.6	7.6	7.6	7.6	7.7	7.8	7.8

Peshtigo Tailwater pH Summary - July 2011

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

License maximum pH: 9

License minimum pH: 6

Peshtigo Tailwater pH Summary - July 2011

Time	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.6	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.6	7.6	7.6
10000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.6	7.6	7.6
20000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.6	7.6	7.6
30000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.7	7.6	7.6	7.6
40000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.6	7.6	7.6
50000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.8	7.6	7.6	7.6
60000	7.6	7.6	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.5	7.6	7.6
70000	7.6	7.6	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.5	7.6	7.6
80000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.5	7.6	7.6
90000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.6	7.6	7.6
100000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.8	7.6	7.6	7.6
110000	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.6	7.6	7.6
120000	7.7	7.9	7.8	7.8	7.8	7.9	7.8	7.8	7.7	7.8	7.8	7.8	7.6	7.6	7.6
130000	7.7	7.9	7.8	7.8	7.8	7.9	7.8	7.8	7.7	7.8	7.8	7.5	7.6	7.6	7.6
140000	7.7	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.5	7.6	7.6	7.7
150000	7.7	7.9	7.8	7.8	7.8	7.9	7.8	7.9	7.8	7.9	7.8	7.5	7.6	7.6	7.7
160000	7.7	7.8	7.8	7.8	7.8	7.9	7.8	7.9	7.8	7.9	7.8	7.5	7.6	7.7	7.7
170000	7.7	7.9	7.8	7.8	7.8	7.9	7.8	7.9	7.8	7.9	7.8	7.5	7.6	7.7	7.7
180000	7.7	7.8	7.8	7.8	7.8	7.8	7.9	7.9	7.8	7.9	7.8	7.6	7.6	7.7	7.7
190000	7.7	7.8	7.8	7.8	7.9	7.8	7.8	7.8	7.8	7.9	7.8	7.5	7.7	7.7	7.7
200000	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.5	7.6	7.7	7.7
210000	7.7	7.8	7.8	7.8	7.8	7.9	7.8	7.8	7.8	7.8	7.8	7.5	7.6	7.6	7.7
220000	7.7	7.8	7.8	7.8	7.8	7.9	7.8	7.8	7.8	7.8	7.8	7.5	7.6	7.7	7.7
230000	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.5	7.6	7.6	7.6
Daily Max	7.8	7.9	7.8	7.8	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.8	7.7	7.7	7.7
Daily Min	7.6	7.6	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.5	7.5	7.6	7.6
Average	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.6	7.6	7.6	7.6

Peshtigo Tailwater pH Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	7.6	7.6	7.6	7.6	7.7	7.5	7.5	7.5	7.5	7.6	7.8	7.7				7.9
10000	7.6	7.6	7.6	7.6	7.7	7.5	7.5	7.5	7.6	7.6	7.7	7.8				7.9
20000	7.6	7.6	7.6	7.6	7.7	7.5	7.5	7.5	7.6	7.6	7.7	7.7				7.8
30000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.5	7.6	7.7	7.7				7.8
40000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.5	7.6	7.7	7.7				7.8
50000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.5	7.6	7.7	7.7				7.8
60000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.5	7.6	7.7	7.7				7.8
70000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.5	7.6	7.7	7.7				7.8
80000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.5	7.6	7.7	7.7				7.8
90000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.5	7.6	7.7	7.7				7.8
100000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.6	7.6	7.7	7.7				7.8
110000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.5	7.6	7.7	7.7	7.7				7.8
120000	7.6	7.7	7.6	7.7	7.7	7.5	7.5	7.6	7.6	7.7	7.7	7.7				7.8
130000	7.7	7.7	7.6	7.7	7.7	7.5	7.6	7.6	7.6	7.7	7.7	7.7			7.8	7.8
140000	7.7	7.7	7.6	7.7	7.5	7.5	7.6	7.6	7.7	7.7	7.7	7.7			7.8	7.8
150000	7.7	7.7	7.7	7.7	7.5	7.5	7.6	7.6	7.7	7.8	7.7	7.8			7.8	7.8
160000	7.7	7.7	7.7	7.7	7.5	7.5	7.6	7.6	7.7	7.8	7.7	7.8			7.8	7.8
170000	7.7	7.7	7.7	7.7	7.5	7.5	7.5	7.6	7.7	7.8	7.7	7.8			7.8	7.8
180000	7.7	7.7	7.7	7.7	7.5	7.5	7.6	7.6	7.7	7.8	7.8				7.8	7.8
190000	7.6	7.7	7.7	7.7	7.5	7.5	7.5	7.6	7.7	7.8	7.8				7.8	7.8
200000	7.6	7.7	7.7	7.7	7.5	7.5	7.5	7.6	7.7	7.8	7.8				7.9	7.8
210000	7.7	7.7	7.6	7.7	7.5	7.5	7.5	7.6	7.6	7.8	7.8				7.9	7.9
220000	7.6	7.6	7.6	7.7	7.5	7.5	7.5	7.6	7.6	7.8	7.8				7.9	7.9
230000	7.6	7.6	7.6	7.7	7.5	7.5	7.5	7.6	7.6	7.8	7.8				7.9	7.9
Daily Max	7.7	7.7	7.7	7.7	7.7	7.5	7.6	7.6	7.7	7.8	7.8	7.8	0.0	0.0	7.9	7.9
Daily Min	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.6	7.7	7.7	0.0	0.0	7.8	7.8
Average	7.6	7.7	7.6	7.7	7.6	7.5	7.5	7.5	7.6	7.7	7.7	7.7	#DIV/0!	#DIV/0!	7.8	7.8

License maximum pH: 9  
License minimum pH: 6

Missing data due to equipment setup error



Peshtigo Tailwater pH Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.9	7.9	7.8	7.9	7.8	7.9	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.8	7.8
10000	7.9	7.9	7.9	7.9	7.7	7.9	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.8	7.8
20000	7.8	7.9	7.8	7.9	7.7	7.9	7.8	7.8	7.9	7.7	7.8	7.7	7.8	7.8	7.8
30000	7.8	7.9	7.8	7.9	7.7	7.9	7.9	7.8	7.9	7.7	7.7	7.7	7.7	7.8	7.8
40000	7.8	7.9	7.8	7.8	7.7	7.8	7.9	7.8	7.9	7.7	7.7	7.7	7.7	7.8	7.8
50000	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.8	7.8
60000	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.8	7.7	7.7	7.7	7.7	7.8	7.8
70000	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.8	7.7	7.7	7.7	7.7	7.8	7.8
80000	7.8	7.8	7.7	7.8	7.7	7.8	7.8	7.7	7.8	7.7	7.7	7.7	7.7	7.8	7.8
90000	7.8	7.8	7.8	7.7	7.7	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.8	7.8
100000	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.8	7.7
110000	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.8	7.7
120000	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.8	7.7
130000	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.8	7.6	7.7	7.7	7.7	7.7	7.8	7.7
140000	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.7	7.8	7.7
150000	7.9	7.8	7.9	7.9	7.8	7.8	7.8	7.9	7.7	7.8	7.8	7.8	7.7	7.7	7.7
160000	7.9	7.8	7.9	7.8	7.9	7.8	7.9	7.9	7.8	7.8	7.8	7.8	7.7	7.7	7.7
170000	7.9	7.7	7.8	7.9	7.9	7.8	7.9	7.9	7.8	7.7	7.8	7.8	7.7	7.7	7.7
180000	7.9	7.7	7.9	7.9	7.8	7.8	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.7	7.7
190000	8.0	7.7	7.9	7.8	7.9	7.8	7.9	7.9	7.7	7.8	7.8	7.7	7.7	7.7	7.7
200000	7.9	7.7	8.0	7.8	7.9	7.8	7.9	7.9	7.7	7.7	7.8	7.7	7.7	7.8	7.7
210000	7.9	7.7	7.9	7.8	7.8	7.8	7.8	7.9	7.7	7.8	7.8	7.7	7.8	7.9	7.7
220000	8.0	7.8	7.9	7.8	7.9	7.8	7.8	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.7
230000	7.9	7.8	7.9	7.8	7.9	7.9	7.8	7.9	7.7	7.8	7.7	7.8	7.8	7.8	7.7
Daily Max	8.0	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.8	7.8	7.8	7.9	7.8
Daily Min	7.8	7.7	7.7	7.7	7.7	7.8	7.8	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7
Average	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7	7.7	7.7	7.8	7.7

Peshtigo Tailwater pH Summary - September 2011

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

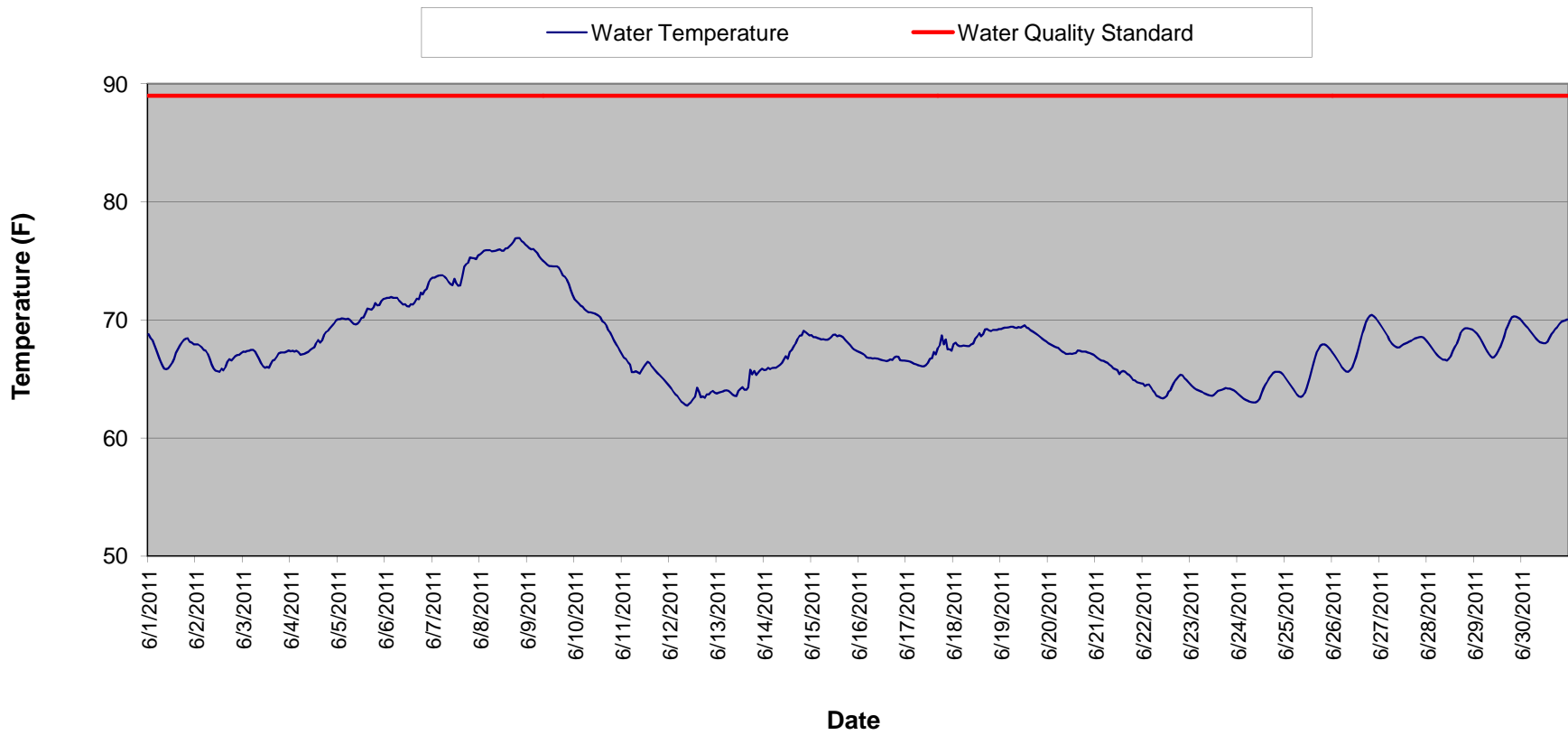
License maximum pH: 9

License minimum pH: 6

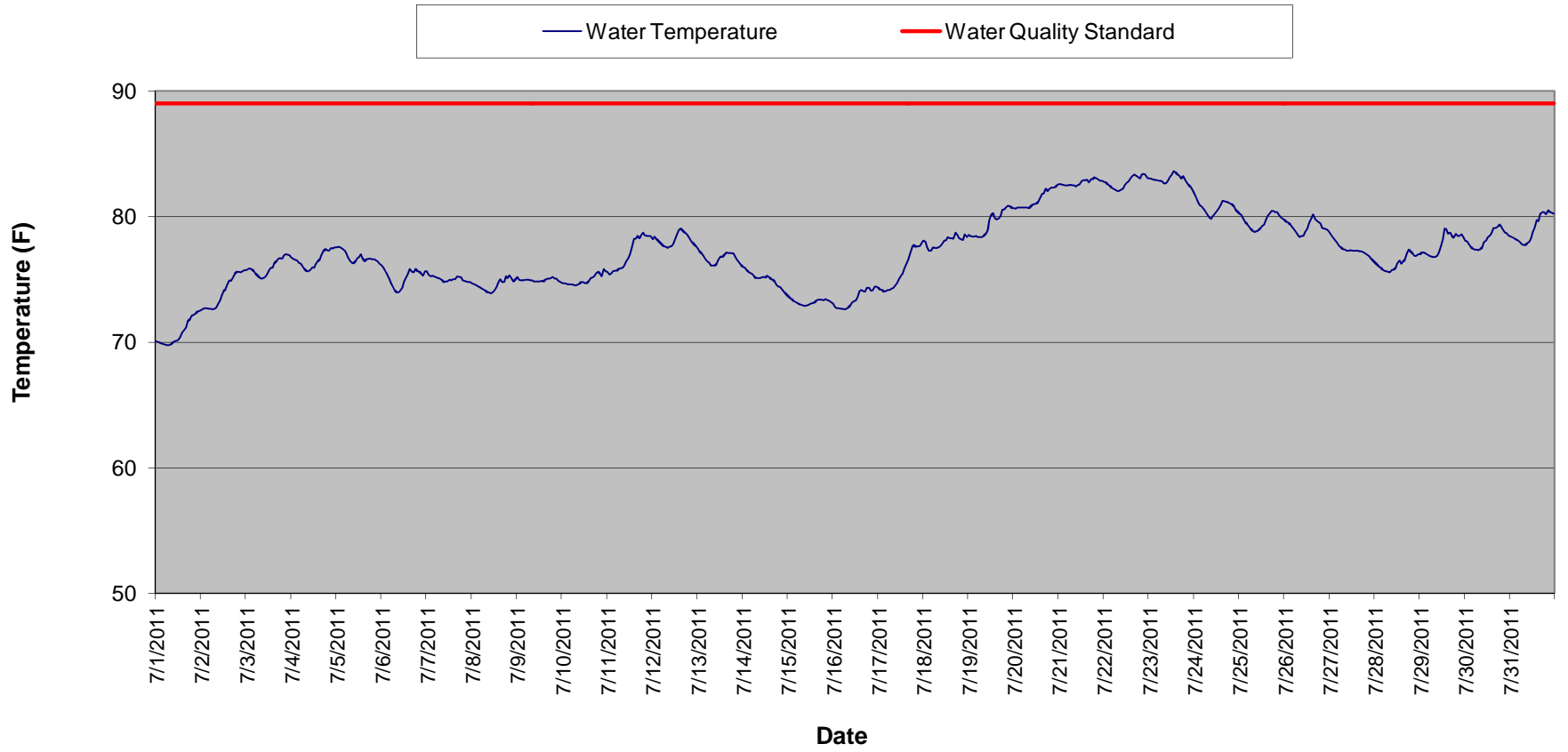
Peshtigo Tailwater pH Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	7.8	7.9	7.9	7.9	8.0	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.9	8.0
10000	7.8	7.9	7.9	7.9	7.9	7.9	8.0	7.9	8.0	7.9	7.9	7.9	7.9	8.0
20000	7.9	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	8.0
30000	7.9	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	8.0
40000	7.8	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	8.0
50000	7.8	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	8.0
60000	7.8	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	8.0
70000	7.8	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9	8.0
80000	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9
90000	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
100000	7.8	7.9	7.9	7.9	8.0	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9
110000	7.8	7.9	7.9	7.9	8.0	7.9	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9
120000	7.9	7.9	7.9	7.9	8.0	8.1	7.9	7.9	7.9	7.9	7.9	7.9	7.9	8.0
130000	7.9	7.9	7.9	7.9	8.0	8.0	7.9	8.0	7.9	7.9	7.9	7.9	7.9	7.9
140000	7.9	7.9	7.9	7.9	8.0	8.0	7.9	8.0	7.9	8.0	7.9	7.9	7.9	8.0
150000	7.9	7.8	7.9	7.9	8.0	8.0	7.9	8.0	7.9	7.9	7.9	7.9	7.9	8.0
160000	7.9	7.9	7.9	7.9	8.0	8.0	7.9	8.0	7.9	8.0	7.9	7.9	7.9	8.0
170000	7.9	7.9	7.9	7.9	8.0	8.0	7.9	8.0	7.9	7.9	7.9	7.9	7.9	8.0
180000	7.9	7.9	7.9	7.9	8.0	8.1	8.0	8.0	7.9	7.9	7.8	7.9	7.9	8.0
190000	7.8	7.9	7.9	7.9	8.0	8.1	8.0	8.0	7.9	7.9	7.9	7.9	7.9	8.0
200000	7.9	7.9	7.9	8.0	8.0	8.1	8.0	8.0	7.9	7.9	7.8	7.9	7.9	8.0
210000	7.9	7.9	7.9	7.9	7.9	8.1	8.0	8.0	7.9	7.9	7.9	7.9	7.9	8.0
220000	7.9	7.9	7.9	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.9	8.0
230000	7.9	7.9	7.9	8.0	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.9	8.0
Daily Max	7.9	7.9	7.9	8.0	8.0	8.1	8.0	8.0	8.0	8.0	7.9	8.0	7.9	8.0
Daily Min	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.9
Average	7.8	7.9	7.9	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.9	8.0

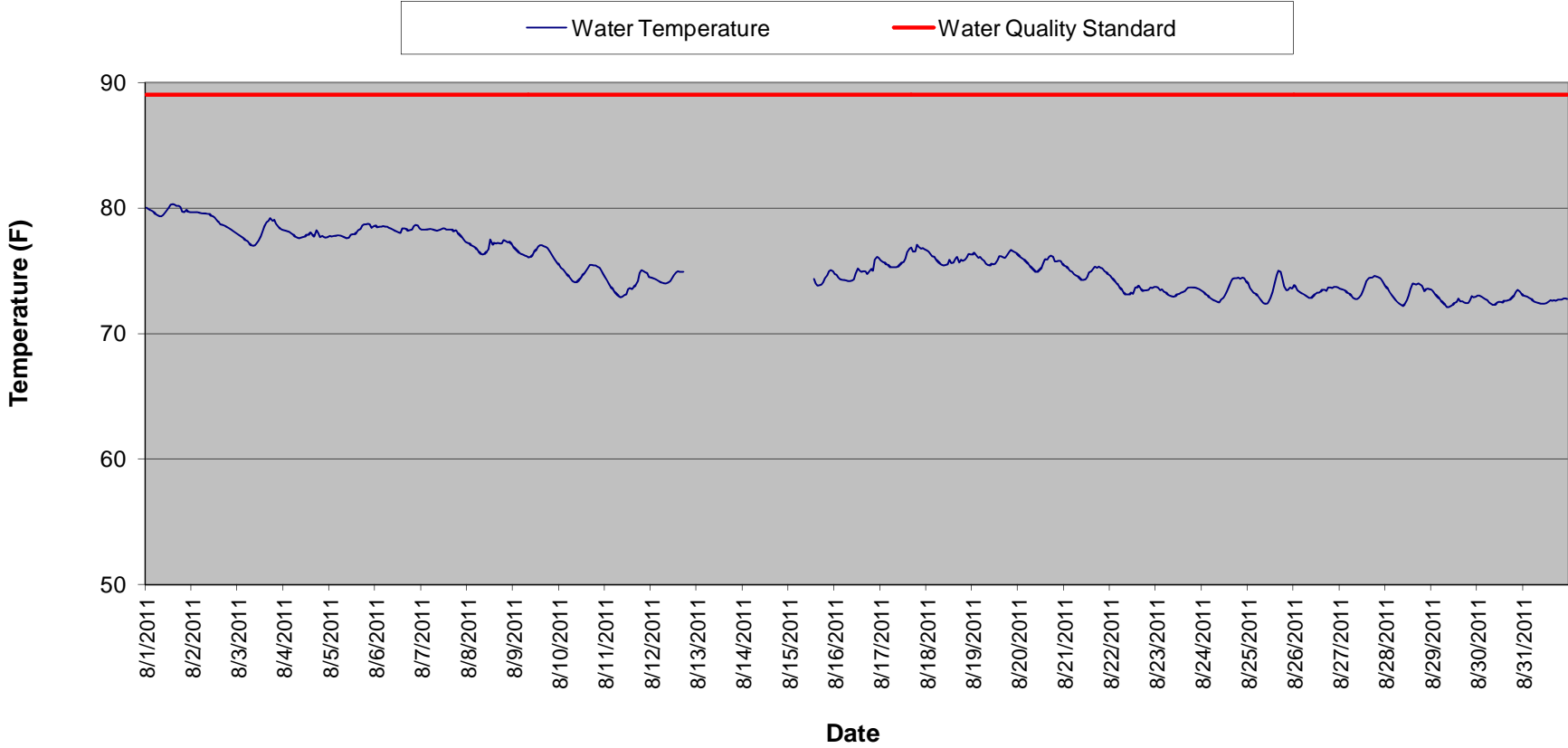
### Peshtigo Tailwater Temperature - June 2011



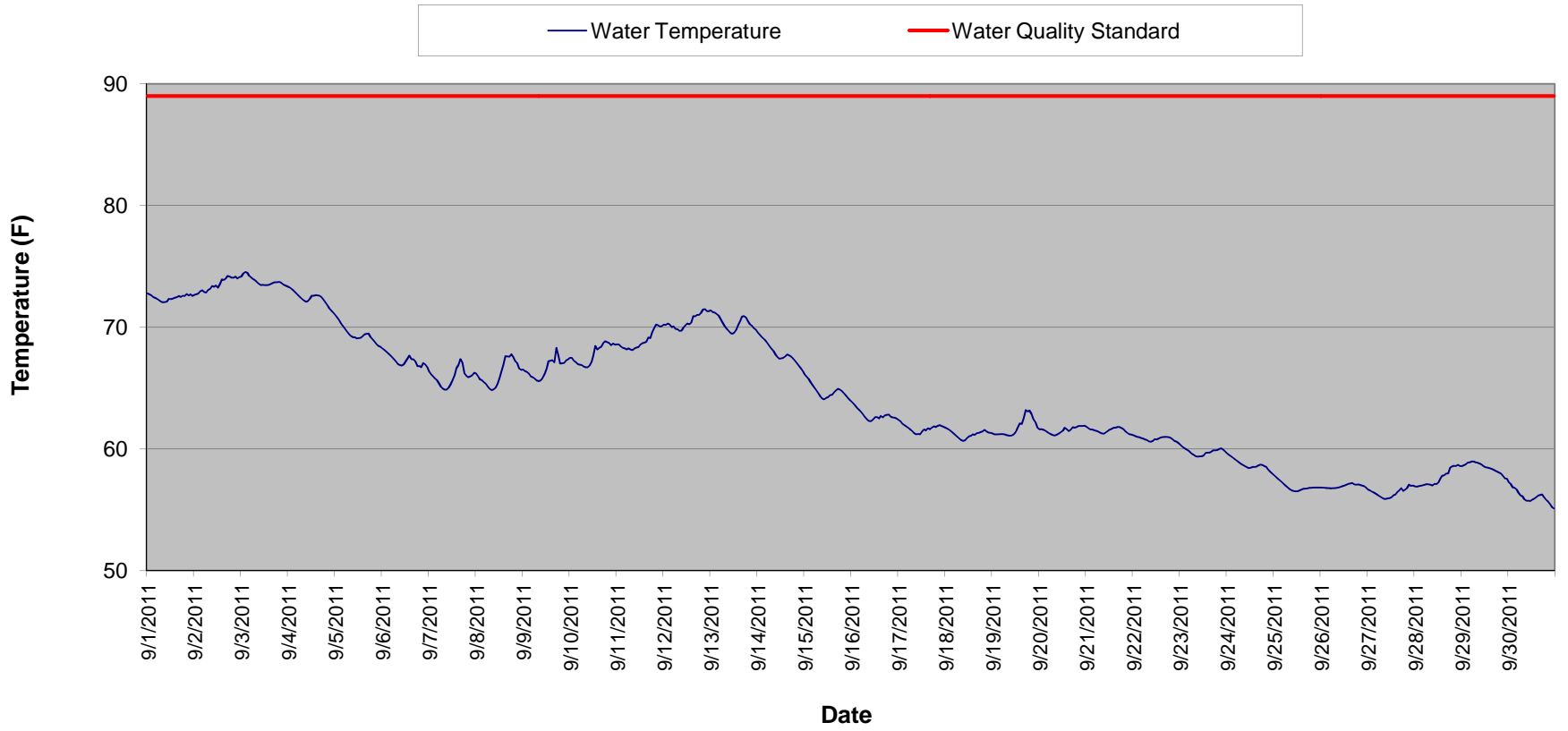
### Peshtigo Tailwater Temperature - July 2011



### Peshtigo Tailwater Temperature- August 2011



### Peshtigo Tailwater Temperature - September 2011



Peshtigo Tailwater Temperature Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	68.8	67.9	67.3	67.4	70.1	71.8	73.6	75.5	76.2	71.8	67.1	64.4	63.8	65.8	68.7	67.3
10000	68.5	67.9	67.3	67.4	70.1	71.9	73.6	75.7	76.1	71.6	66.8	64.2	63.8	65.8	68.6	67.2
20000	68.3	67.8	67.4	67.3	70.1	71.9	73.7	75.9	76.0	71.4	66.7	63.9	63.9	66.0	68.6	67.1
30000	67.9	67.7	67.4	67.4	70.1	71.9	73.8	75.9	76.0	71.2	66.4	63.7	64.0	65.8	68.5	67.0
40000	67.4	67.5	67.5	67.3	70.1	71.9	73.8	75.9	75.8	71.1	66.2	63.6	64.0	65.9	68.4	66.8
50000	67.0	67.4	67.5	67.1	70.1	71.9	73.8	75.9	75.7	70.9	65.6	63.3	64.1	65.9	68.3	66.8
60000	66.5	67.1	67.3	67.1	70.0	71.9	73.7	75.8	75.4	70.8	65.6	63.1	64.0	66.0	68.4	66.8
70000	66.1	66.7	67.0	67.1	69.8	71.7	73.5	75.8	75.2	70.7	65.7	63.0	63.9	66.1	68.3	66.7
80000	65.9	66.3	66.7	67.2	69.7	71.5	73.2	75.9	75.0	70.6	65.6	62.8	63.7	66.2	68.3	66.8
90000	65.8	65.9	66.4	67.3	69.6	71.3	73.0	75.9	74.9	70.6	65.5	62.8	63.6	66.4	68.4	66.7
100000	65.9	65.7	66.1	67.5	69.7	71.3	73.0	76.0	74.7	70.6	65.8	62.9	63.6	66.6	68.5	66.7
110000	66.1	65.7	65.9	67.6	69.9	71.2	73.5	75.9	74.6	70.5	66.0	63.0	64.0	66.9	68.8	66.6
120000	66.4	65.6	66.0	67.7	70.2	71.2	73.1	75.9	74.6	70.4	66.3	63.3	64.2	66.7	68.8	66.6
130000	66.7	65.9	66.0	68.0	70.2	71.3	72.9	76.1	74.6	70.2	66.5	63.5	64.3	67.3	68.6	66.6
140000	67.2	65.7	66.3	68.3	70.6	71.3	72.9	76.1	74.6	69.9	66.3	64.3	64.1	67.5	68.7	66.5
150000	67.6	66.0	66.6	68.1	71.0	71.5	73.7	76.3	74.5	69.8	66.1	63.9	64.1	67.8	68.6	66.6
160000	67.9	66.5	66.7	68.3	70.9	71.8	74.5	76.4	74.4	69.5	65.9	63.5	64.3	68.0	68.5	66.7
170000	68.1	66.7	66.9	68.7	70.9	71.8	74.7	76.6	74.2	69.2	65.7	63.5	65.8	68.4	68.3	66.6
180000	68.3	66.6	67.2	69.0	71.1	72.3	74.8	76.9	73.8	68.9	65.5	63.4	65.4	68.7	68.2	66.8
190000	68.4	66.8	67.3	69.1	71.4	72.2	75.3	76.9	73.7	68.6	65.4	63.7	65.7	68.7	68.0	66.9
200000	68.5	66.9	67.3	69.3	71.2	72.5	75.3	76.9	73.4	68.2	65.2	63.7	65.4	69.1	67.8	66.9
210000	68.2	67.0	67.3	69.5	71.3	72.6	75.2	76.7	73.1	67.9	65.0	63.9	65.6	69.0	67.6	66.6
220000	68.1	67.0	67.3	69.7	71.6	73.2	75.2	76.6	72.5	67.7	64.8	64.0	65.7	68.8	67.5	66.6
230000	67.9	67.2	67.4	70.0	71.8	73.5	75.5	76.4	72.1	67.4	64.6	63.8	65.9	68.7	67.4	66.6
Daily Max	68.8	67.9	67.5	70.0	71.8	73.5	75.5	76.9	76.2	71.8	67.1	64.4	65.9	69.1	68.8	67.3
Daily Min	65.8	65.6	65.9	67.1	69.6	71.2	72.9	75.5	72.1	67.4	64.6	62.8	63.6	65.8	67.4	66.5
Average	67.4	66.7	66.9	68.1	70.5	71.9	74.0	76.2	74.6	70.0	65.8	63.5	64.4	67.2	68.3	66.8

Monthly average: 68.3  
 License Maximum: 89 F



Peshtigo Tailwater Temperature Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	66.5	68.0	69.2	68.0	66.9	64.6	64.5	63.8	65.1	67.2	69.7	68.2	69.0	69.9
10000	66.5	68.1	69.3	67.9	66.8	64.4	64.4	63.6	64.9	67.0	69.4	68.0	68.9	69.7
20000	66.5	67.9	69.4	67.9	66.7	64.5	64.2	63.5	64.7	66.8	69.2	67.7	68.7	69.5
30000	66.4	67.8	69.4	67.8	66.6	64.5	64.1	63.3	64.4	66.5	68.9	67.5	68.4	69.3
40000	66.3	67.8	69.4	67.7	66.5	64.3	64.1	63.2	64.2	66.2	68.6	67.2	68.1	69.1
50000	66.3	67.8	69.4	67.6	66.4	64.0	64.0	63.2	63.9	66.0	68.3	67.1	67.8	68.9
60000	66.2	67.8	69.4	67.5	66.4	63.8	63.9	63.1	63.7	65.8	68.0	66.9	67.5	68.7
70000	66.1	67.8	69.4	67.3	66.2	63.6	63.8	63.0	63.5	65.6	67.9	66.8	67.2	68.5
80000	66.1	67.8	69.3	67.3	66.1	63.5	63.7	63.0	63.5	65.6	67.7	66.7	67.0	68.3
90000	66.1	67.9	69.4	67.1	65.9	63.4	63.7	63.0	63.6	65.8	67.7	66.6	66.8	68.1
100000	66.2	68.0	69.4	67.1	65.8	63.4	63.6	63.1	63.8	66.0	67.7	66.6	66.9	68.1
110000	66.4	68.4	69.5	67.2	65.8	63.4	63.6	63.3	64.3	66.4	67.8	66.7	67.0	68.0
120000	66.7	68.6	69.5	67.1	65.4	63.6	63.6	63.7	64.8	66.8	67.9	66.9	67.4	68.0
130000	66.8	68.9	69.4	67.2	65.6	63.9	63.8	64.2	65.4	67.4	68.0	67.4	67.7	68.2
140000	67.3	68.6	69.3	67.2	65.7	64.1	64.0	64.5	66.1	68.1	68.1	67.7	68.1	68.5
150000	67.1	68.8	69.1	67.4	65.6	64.5	64.1	64.8	66.7	68.8	68.2	68.0	68.6	68.8
160000	67.6	69.2	69.0	67.4	65.4	64.8	64.1	65.1	67.2	69.3	68.3	68.4	69.2	69.0
170000	67.9	69.2	68.9	67.3	65.3	65.0	64.2	65.3	67.6	69.8	68.3	68.9	69.5	69.2
180000	68.7	69.1	68.8	67.3	65.1	65.2	64.2	65.5	67.8	70.1	68.5	69.1	69.9	69.4
190000	67.9	69.1	68.7	67.3	64.9	65.4	64.2	65.6	67.9	70.4	68.5	69.3	70.2	69.7
200000	68.3	69.2	68.6	67.3	64.9	65.3	64.2	65.6	67.9	70.4	68.6	69.3	70.3	69.8
210000	67.5	69.2	68.4	67.2	64.7	65.1	64.1	65.6	67.8	70.3	68.6	69.3	70.3	69.9
220000	67.5	69.2	68.3	67.1	64.7	64.9	64.1	65.5	67.7	70.1	68.5	69.2	70.2	70.0
230000	67.4	69.2	68.2	67.0	64.6	64.7	63.9	65.4	67.5	69.9	68.4	69.2	70.1	70.0
Daily Max	68.7	69.2	69.5	68.0	66.9	65.4	64.5	65.6	67.9	70.4	69.7	69.3	70.3	70.0
Daily Min	66.1	67.8	68.2	67.0	64.6	63.4	63.6	63.0	63.5	65.6	67.7	66.6	66.8	68.0
Average	66.9	68.5	69.1	67.4	65.8	64.3	64.0	64.2	65.6	67.8	68.4	67.9	68.5	69.0

Peshtigo Tailwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	70.1	72.6	75.8	76.7	77.6	76.1	75.6	74.7	75.2	74.7	75.6	78.2	77.5	76.0	73.7	73.1
10000	70.0	72.7	75.8	76.6	77.6	75.9	75.4	74.6	75.0	74.7	75.4	78.4	77.2	75.9	73.5	72.8
20000	70.0	72.7	75.9	76.6	77.6	75.7	75.3	74.6	74.9	74.7	75.5	78.2	77.0	75.7	73.4	72.7
30000	69.9	72.7	75.8	76.5	77.5	75.4	75.3	74.5	74.9	74.6	75.7	78.1	76.9	75.6	73.3	72.7
40000	69.8	72.7	75.7	76.4	77.3	75.0	75.3	74.4	75.0	74.6	75.7	77.9	76.6	75.5	73.2	72.7
50000	69.8	72.7	75.5	76.2	77.1	74.7	75.1	74.3	75.0	74.6	75.7	77.8	76.5	75.4	73.1	72.6
60000	69.8	72.6	75.3	76.0	76.8	74.4	75.1	74.2	75.0	74.6	75.8	77.7	76.3	75.3	73.0	72.6
70000	69.8	72.6	75.1	75.8	76.5	74.1	75.1	74.1	74.9	74.5	75.9	77.6	76.1	75.1	73.0	72.7
80000	69.9	72.7	75.1	75.7	76.3	74.0	74.9	74.0	74.9	74.6	75.9	77.5	76.1	75.1	72.9	72.7
90000	70.0	73.0	75.1	75.6	76.3	74.0	74.8	74.0	74.8	74.6	76.1	77.6	76.1	75.1	72.9	72.9
100000	70.1	73.3	75.2	75.8	76.5	74.2	74.8	73.9	74.8	74.8	76.4	77.6	76.2	75.2	72.9	73.1
110000	70.1	73.7	75.4	76.0	76.7	74.4	74.8	74.0	74.9	74.8	76.7	77.8	76.6	75.2	73.0	73.2
120000	70.2	74.0	75.7	75.9	76.8	74.8	75.0	74.2	74.8	74.7	77.0	78.2	76.8	75.2	73.1	73.3
130000	70.4	74.2	75.9	76.3	77.0	75.2	74.9	74.3	74.9	74.7	77.5	78.6	76.8	75.3	73.1	73.6
140000	70.8	74.6	75.9	76.4	76.6	75.5	75.0	74.8	74.8	74.9	78.2	79.0	76.9	75.2	73.2	74.1
150000	71.0	74.9	76.3	76.6	76.5	75.8	75.0	75.0	75.0	75.1	78.2	79.0	77.1	75.0	73.3	74.2
160000	71.2	74.9	76.5	76.9	76.6	75.6	75.3	74.8	75.1	75.1	78.4	78.9	77.1	75.0	73.4	74.1
170000	71.7	75.2	76.6	77.2	76.6	75.6	75.2	74.8	75.1	75.3	78.3	78.7	77.1	74.8	73.4	74.0
180000	71.9	75.5	76.7	77.4	76.6	75.8	75.2	75.2	75.1	75.5	78.5	78.6	77.1	74.5	73.4	74.3
190000	72.1	75.6	76.7	77.3	76.6	75.7	74.9	75.1	75.2	75.6	78.7	78.4	77.1	74.4	73.3	74.4
200000	72.2	75.6	76.9	77.3	76.6	75.6	74.9	75.3	75.1	75.5	78.5	78.2	76.8	74.4	73.4	74.1
210000	72.3	75.5	77.0	77.5	76.5	75.5	74.8	75.1	75.1	75.2	78.4	78.0	76.6	74.2	73.3	74.1
220000	72.4	75.6	77.0	77.5	76.4	75.3	74.8	74.9	74.9	75.8	78.5	77.8	76.4	74.0	73.3	74.4
230000	72.5	75.7	76.9	77.5	76.3	75.6	74.8	75.0	74.8	75.7	78.4	77.6	76.2	73.8	73.2	74.4
Daily Max	72.5	75.7	77.0	77.5	77.6	76.1	75.6	75.3	75.2	75.8	78.7	79.0	77.5	76.0	73.7	74.4
Daily Min	69.8	72.6	75.1	75.6	76.3	74.0	74.8	73.9	74.8	74.5	75.4	77.5	76.1	73.8	72.9	72.6
Average	70.7	74.0	76.0	76.6	76.8	75.2	75.1	74.6	75.0	75.0	77.0	78.1	76.7	75.0	73.2	73.5

Monthly average: 77.2  
 License Maximum: 89 F

Peshtigo Tailwater Temperature Summary - July 2011

Time	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
HHMMSS															
0	74.3	78.1	78.5	80.7	82.6	82.8	83.0	81.9	80.2	79.7	78.7	76.4	77.0	78.1	78.4
10000	74.2	78.0	78.5	80.6	82.6	82.7	83.0	81.5	80.1	79.6	78.5	76.2	77.1	78.0	78.4
20000	74.1	77.6	78.4	80.7	82.5	82.6	83.0	81.1	79.8	79.5	78.3	76.0	77.1	77.8	78.3
30000	74.0	77.3	78.4	80.7	82.5	82.4	82.9	80.9	79.6	79.4	78.1	75.9	77.1	77.6	78.2
40000	74.1	77.3	78.5	80.7	82.5	82.3	82.9	80.8	79.4	79.2	77.9	75.8	76.9	77.5	78.1
50000	74.1	77.5	78.4	80.7	82.5	82.2	82.9	80.6	79.2	79.0	77.6	75.7	76.9	77.4	78.0
60000	74.1	77.5	78.4	80.7	82.5	82.1	82.9	80.4	79.0	78.8	77.5	75.7	76.8	77.4	77.8
70000	74.2	77.5	78.4	80.7	82.5	82.1	82.8	80.2	78.9	78.5	77.4	75.6	76.8	77.3	77.7
80000	74.4	77.6	78.4	80.7	82.5	82.0	82.6	79.9	78.8	78.4	77.4	75.6	76.8	77.4	77.7
90000	74.5	77.7	78.6	80.8	82.4	82.1	82.7	79.8	78.8	78.4	77.3	75.7	76.9	77.6	77.9
100000	74.7	77.9	78.9	80.9	82.5	82.2	82.9	80.1	78.9	78.5	77.3	75.8	77.1	78.0	78.0
110000	75.1	78.1	79.7	81.0	82.6	82.5	83.1	80.3	79.1	78.8	77.3	75.9	77.6	78.1	78.3
120000	75.3	78.1	80.1	81.1	82.8	82.7	83.4	80.5	79.2	79.1	77.3	76.3	78.2	78.4	78.8
130000	75.5	78.4	80.3	81.2	82.9	82.8	83.6	80.6	79.4	79.5	77.3	76.5	79.0	78.4	79.1
140000	75.9	78.3	79.8	81.4	82.9	83.0	83.5	81.0	79.7	79.8	77.3	76.2	79.0	78.6	79.7
150000	76.3	78.3	79.8	81.8	83.0	83.2	83.4	81.3	80.0	80.2	77.3	76.4	78.7	79.1	79.6
160000	76.6	78.2	79.9	81.9	82.7	83.4	83.3	81.2	80.3	79.8	77.3	76.6	78.7	79.1	80.2
170000	77.1	78.7	80.0	82.2	83.0	83.3	83.0	81.2	80.4	79.7	77.2	77.1	78.4	79.1	80.4
180000	77.6	78.5	80.5	82.0	83.0	83.2	83.2	81.1	80.5	79.6	77.2	77.4	78.3	79.4	80.3
190000	77.7	78.3	80.6	82.2	83.1	83.0	82.9	81.1	80.3	79.5	77.1	77.3	78.6	79.2	80.2
200000	77.6	78.2	80.8	82.3	83.0	83.3	82.7	81.0	80.3	79.1	76.9	77.1	78.5	79.0	80.5
210000	77.6	78.2	80.9	82.3	82.9	83.4	82.5	80.8	80.1	79.1	76.8	76.9	78.4	78.7	80.4
220000	77.6	78.6	80.8	82.4	82.9	83.4	82.4	80.5	79.9	79.0	76.7	76.9	78.6	78.7	80.3
230000	77.9	78.4	80.7	82.5	82.9	83.1	82.1	80.4	79.8	78.9	76.5	77.0	78.4	78.5	80.2
Daily Max	77.9	78.7	80.9	82.5	83.1	83.4	83.6	81.9	80.5	80.2	78.7	77.4	79.0	79.4	80.5
Daily Min	74.0	77.3	78.4	80.6	82.4	82.0	82.1	79.8	78.8	78.4	76.5	75.6	76.8	77.3	77.7
Average	75.6	78.0	79.5	81.3	82.7	82.7	82.9	80.8	79.7	79.2	77.4	76.3	77.8	78.3	79.0

Peshtigo Tailwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	80.0	79.7	77.9	78.2	77.8	78.6	78.3	77.2	76.9	75.5	74.5	74.5				74.7
10000	79.9	79.7	77.8	78.2	77.7	78.5	78.3	77.2	76.8	75.3	74.2	74.4				74.7
20000	79.9	79.7	77.7	78.1	77.8	78.5	78.3	77.0	76.6	75.1	74.0	74.4				74.4
30000	79.8	79.6	77.6	78.1	77.8	78.5	78.3	76.9	76.4	74.9	73.7	74.3				74.3
40000	79.6	79.6	77.5	78.0	77.8	78.5	78.3	76.8	76.4	74.7	73.5	74.2				74.3
50000	79.5	79.6	77.3	77.8	77.8	78.5	78.3	76.7	76.3	74.6	73.3	74.1				74.3
60000	79.4	79.6	77.2	77.7	77.8	78.5	78.3	76.6	76.2	74.4	73.1	74.0				74.2
70000	79.3	79.6	77.1	77.6	77.7	78.4	78.2	76.4	76.2	74.2	73.0	74.0				74.2
80000	79.3	79.5	77.0	77.6	77.6	78.4	78.2	76.3	76.1	74.1	72.9	74.0				74.2
90000	79.4	79.5	77.0	77.6	77.6	78.3	78.2	76.4	76.1	74.1	72.9	74.1				74.2
100000	79.6	79.4	77.2	77.7	77.6	78.2	78.3	76.5	76.3	74.2	73.1	74.2				74.3
110000	79.8	79.4	77.4	77.7	77.9	78.1	78.4	76.7	76.5	74.4	73.1	74.4				74.8
120000	80.0	79.3	77.8	77.9	77.9	78.1	78.4	77.5	76.7	74.6	73.5	74.6				75.2
130000	80.2	79.0	78.2	77.8	77.9	78.0	78.3	77.1	76.9	74.8	73.6	74.9			74.4	75.0
140000	80.3	78.9	78.5	78.0	78.0	78.4	78.3	77.2	77.0	75.0	73.5	75.0			74.0	74.9
150000	80.3	78.7	78.9	77.9	78.2	78.4	78.3	77.2	77.0	75.3	73.7	74.9			73.8	74.9
160000	80.2	78.7	79.0	77.7	78.3	78.3	78.3	77.2	76.9	75.5	73.8	74.9			73.9	74.9
170000	80.2	78.6	79.2	78.2	78.6	78.2	78.2	77.2	76.9	75.5	74.2	74.9			73.9	74.8
180000	80.1	78.5	79.0	78.0	78.7	78.2	78.2	77.2	76.8	75.4	74.8				74.1	74.9
190000	79.7	78.4	79.1	77.7	78.7	78.3	78.0	77.4	76.6	75.4	75.1				74.4	75.2
200000	79.7	78.3	78.7	77.8	78.7	78.6	77.8	77.4	76.3	75.3	75.0				74.7	75.0
210000	79.8	78.2	78.5	77.7	78.7	78.6	77.7	77.3	76.1	75.2	74.9				75.0	75.9
220000	79.7	78.1	78.4	77.6	78.4	78.6	77.5	77.3	75.8	75.0	74.8				75.0	76.1
230000	79.7	78.0	78.3	77.7	78.6	78.4	77.3	77.1	75.6	74.7	74.5				75.0	76.0
Daily Max	80.3	79.7	79.2	78.2	78.7	78.6	78.4	77.5	77.0	75.5	75.1	75.0	0.0	0.0	75.0	76.1
Daily Min	79.3	78.0	77.0	77.6	77.6	78.0	77.3	76.3	75.6	74.1	72.9	74.0	0.0	0.0	73.8	74.2
Average	79.8	79.1	78.0	77.9	78.1	78.4	78.1	77.0	76.5	74.9	73.9	74.4	#DIV/0!	#DIV/0!	74.4	74.8

Missing data due to equipment setup error

Monthly average: 75.4  
License Maximum: 89F

Peshtigo Tailwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	75.8	76.6	76.3	76.2	75.4	74.6	73.7	73.4	74.0	73.8	73.6	73.8	73.5	73.0	73.0
10000	75.7	76.5	76.4	76.1	75.3	74.4	73.7	73.3	73.6	73.7	73.5	73.6	73.3	73.0	73.0
20000	75.7	76.4	76.2	76.0	75.2	74.2	73.4	73.1	73.4	73.5	73.5	73.3	73.1	72.9	72.9
30000	75.5	76.2	76.0	75.9	75.0	74.0	73.5	73.0	73.3	73.3	73.4	73.1	72.9	72.9	72.8
40000	75.5	76.1	76.1	75.7	74.9	73.9	73.3	72.9	73.2	73.2	73.3	72.9	72.8	72.7	72.7
50000	75.3	75.9	75.9	75.6	74.8	73.7	73.3	72.8	73.0	73.2	73.1	72.7	72.6	72.6	72.6
60000	75.3	75.7	75.8	75.4	74.7	73.5	73.1	72.7	72.8	73.0	73.0	72.5	72.4	72.5	72.5
70000	75.3	75.5	75.6	75.2	74.6	73.3	73.0	72.6	72.6	72.9	72.8	72.4	72.3	72.4	72.5
80000	75.3	75.5	75.5	75.1	74.4	73.1	73.0	72.5	72.4	72.8	72.7	72.3	72.1	72.3	72.4
90000	75.3	75.4	75.4	74.9	74.3	73.1	73.0	72.5	72.4	72.8	72.8	72.2	72.1	72.3	72.4
100000	75.5	75.5	75.5	74.9	74.3	73.1	73.0	72.7	72.4	73.0	72.8	72.3	72.2	72.4	72.4
110000	75.6	75.5	75.5	75.1	74.3	73.3	73.1	72.8	72.6	73.1	73.1	72.6	72.3	72.5	72.4
120000	75.7	75.9	75.6	75.3	74.5	73.2	73.2	73.1	72.9	73.3	73.4	73.0	72.4	72.5	72.4
130000	76.0	75.6	75.8	75.6	74.9	73.7	73.2	73.3	73.6	73.3	73.8	73.5	72.5	72.5	72.5
140000	76.5	75.7	76.2	75.9	74.9	73.7	73.3	73.8	74.1	73.3	74.2	74.0	72.8	72.6	72.7
150000	76.8	75.9	76.2	75.9	75.2	73.8	73.4	74.1	74.5	73.5	74.4	73.9	72.6	72.6	72.6
160000	76.8	76.1	76.0	76.1	75.3	73.5	73.6	74.4	75.0	73.5	74.4	73.9	72.6	72.7	72.7
170000	76.5	75.6	76.0	76.2	75.3	73.4	73.7	74.4	74.9	73.4	74.4	74.0	72.5	72.7	72.6
180000	76.5	75.9	76.2	76.1	75.3	73.4	73.7	74.4	74.4	73.7	74.6	73.9	72.4	72.9	72.7
190000	77.1	75.8	76.5	75.7	75.2	73.4	73.7	74.5	73.7	73.7	74.6	73.8	72.4	73.0	72.7
200000	76.9	75.9	76.7	75.7	75.2	73.5	73.7	74.4	73.5	73.6	74.5	73.4	72.7	73.3	72.7
210000	76.7	76.0	76.6	75.8	75.0	73.7	73.6	74.4	73.5	73.7	74.4	73.5	73.0	73.5	72.8
220000	76.8	76.3	76.5	75.8	74.9	73.6	73.6	74.4	73.7	73.7	74.2	73.6	72.9	73.4	72.8
230000	76.7	76.3	76.4	75.6	74.8	73.7	73.5	74.2	73.6	73.7	74.0	73.5	73.0	73.2	72.8
Daily Max	77.1	76.6	76.7	76.2	75.4	74.6	73.7	74.5	75.0	73.8	74.6	74.0	73.5	73.5	73.0
Daily Min	75.3	75.4	75.4	74.9	74.3	73.1	73.0	72.5	72.4	72.8	72.7	72.2	72.1	72.3	72.4
Average	76.0	75.9	76.0	75.7	74.9	73.6	73.4	73.5	73.5	73.4	73.7	73.2	72.6	72.8	72.7

Peshtigo Tailwater Temperature Summary - September 2011

Time	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
HHMMSS																
0	72.8	72.7	74.2	73.3	71.0	68.3	66.4	66.2	66.5	67.5	68.6	70.2	71.4	69.6	66.1	63.9
10000	72.7	72.7	74.4	73.2	70.8	68.1	66.1	65.9	66.4	67.5	68.6	70.2	71.3	69.4	65.9	63.7
20000	72.6	72.8	74.5	73.1	70.6	68.0	66.0	65.7	66.3	67.2	68.4	70.3	71.2	69.2	65.8	63.5
30000	72.5	73.0	74.5	72.9	70.3	67.9	65.8	65.7	66.2	67.1	68.3	70.2	71.1	69.0	65.5	63.4
40000	72.4	73.0	74.2	72.8	70.1	67.7	65.6	65.5	66.0	67.0	68.3	70.0	71.0	68.9	65.3	63.2
50000	72.3	72.9	74.1	72.7	69.9	67.6	65.4	65.3	65.9	66.9	68.2	70.1	70.7	68.7	65.0	63.0
60000	72.2	72.9	74.0	72.4	69.7	67.4	65.1	65.1	65.8	66.9	68.3	69.9	70.4	68.5	64.8	62.8
70000	72.1	73.1	73.9	72.3	69.4	67.2	64.9	65.0	65.6	66.8	68.2	69.8	70.1	68.2	64.6	62.6
80000	72.1	73.1	73.7	72.2	69.3	67.0	64.9	64.8	65.6	66.7	68.1	69.7	69.9	68.1	64.3	62.4
90000	72.1	73.4	73.5	72.1	69.2	66.9	64.9	64.9	65.6	66.7	68.3	69.7	69.7	67.8	64.1	62.3
100000	72.1	73.3	73.5	72.1	69.2	66.8	65.0	65.0	65.8	66.8	68.3	70.0	69.5	67.6	64.1	62.3
110000	72.3	73.4	73.5	72.3	69.1	66.9	65.3	65.4	66.2	67.2	68.4	70.1	69.5	67.4	64.2	62.4
120000	72.3	73.2	73.5	72.6	69.1	67.2	65.7	65.9	66.6	67.7	68.6	70.3	69.6	67.4	64.3	62.6
130000	72.4	73.5	73.5	72.6	69.1	67.5	66.1	66.4	67.2	68.5	68.7	70.3	69.8	67.5	64.4	62.6
140000	72.4	73.9	73.5	72.6	69.3	67.7	66.7	66.9	67.3	68.2	68.7	70.4	70.2	67.6	64.5	62.5
150000	72.5	73.9	73.5	72.6	69.4	67.4	66.9	67.6	67.3	68.3	68.8	70.9	70.5	67.8	64.7	62.7
160000	72.6	74.0	73.6	72.6	69.5	67.4	67.4	67.6	67.1	68.4	69.2	70.9	70.9	67.7	64.8	62.6
170000	72.5	74.2	73.7	72.5	69.5	67.2	67.1	67.6	68.3	68.7	69.1	71.0	70.9	67.6	64.9	62.8
180000	72.6	74.2	73.7	72.3	69.2	66.8	66.2	67.8	67.7	68.8	69.6	71.0	70.8	67.4	64.9	62.8
190000	72.6	74.1	73.7	72.0	69.0	66.8	66.0	67.6	67.0	68.8	69.9	71.2	70.5	67.2	64.8	62.8
200000	72.7	74.1	73.7	71.8	68.8	66.7	65.9	67.2	67.0	68.7	70.2	71.5	70.3	67.0	64.6	62.6
210000	72.6	74.2	73.6	71.6	68.6	67.1	66.0	67.1	67.1	68.5	70.2	71.5	70.1	66.8	64.4	62.6
220000	72.7	74.0	73.5	71.4	68.5	66.9	66.1	66.6	67.3	68.7	70.1	71.3	69.9	66.6	64.2	62.6
230000	72.6	74.1	73.4	71.2	68.4	66.7	66.3	66.5	67.4	68.6	70.1	71.3	69.8	66.4	64.0	62.5
Daily Max	72.8	74.2	74.5	73.3	71.0	68.3	67.4	67.8	68.3	68.8	70.2	71.5	71.4	69.6	66.1	63.9
Daily Min	72.1	72.7	73.4	71.2	68.4	66.7	64.9	64.8	65.6	66.7	68.1	69.7	69.5	66.4	64.0	62.3
Average	72.4	73.5	73.8	72.4	69.5	67.3	65.9	66.2	66.6	67.8	68.9	70.5	70.4	67.9	64.8	62.8

Monthly average: 64.3  
 License Maximum: 89 F

Peshtigo Tailwater Temperature Summary - September 2011

Time	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
HHMMSS														
0	62.4	61.8	61.3	61.6	61.8	61.1	60.4	59.6	57.9	56.8	56.7	56.9	58.6	57.3
10000	62.3	61.7	61.2	61.6	61.7	61.1	60.2	59.5	57.7	56.8	56.6	56.9	58.7	57.1
20000	62.1	61.6	61.2	61.6	61.6	61.0	60.1	59.4	57.5	56.8	56.5	56.9	58.7	56.9
30000	62.0	61.4	61.2	61.5	61.6	61.0	60.0	59.3	57.4	56.8	56.4	57.0	58.9	56.8
40000	61.8	61.3	61.2	61.4	61.5	60.9	59.9	59.2	57.3	56.8	56.3	57.0	58.9	56.7
50000	61.7	61.2	61.2	61.3	61.5	60.9	59.8	59.0	57.1	56.8	56.2	57.1	59.0	56.4
60000	61.6	61.0	61.2	61.2	61.4	60.8	59.6	58.9	57.0	56.8	56.1	57.1	59.0	56.2
70000	61.5	60.9	61.2	61.1	61.3	60.7	59.5	58.8	56.8	56.8	56.0	57.1	58.9	56.1
80000	61.3	60.7	61.1	61.1	61.3	60.6	59.4	58.7	56.7	56.8	55.9	57.1	58.9	55.9
90000	61.2	60.7	61.1	61.2	61.3	60.6	59.4	58.6	56.6	56.8	55.9	57.0	58.8	55.8
100000	61.2	60.7	61.1	61.3	61.4	60.7	59.4	58.5	56.6	56.9	55.9	57.1	58.7	55.7
110000	61.2	60.9	61.2	61.4	61.5	60.8	59.4	58.4	56.5	56.9	56.0	57.1	58.6	55.7
120000	61.4	61.0	61.4	61.5	61.6	60.8	59.5	58.5	56.5	57.0	56.0	57.3	58.5	55.9
130000	61.6	61.1	61.8	61.7	61.7	60.9	59.7	58.5	56.6	57.1	56.2	57.6	58.5	55.9
140000	61.5	61.2	62.1	61.6	61.7	60.9	59.7	58.5	56.7	57.1	56.3	57.8	58.4	56.0
150000	61.7	61.2	62.1	61.5	61.8	61.0	59.7	58.6	56.7	57.2	56.4	57.8	58.4	56.2
160000	61.6	61.3	62.5	61.6	61.8	61.0	59.8	58.6	56.7	57.2	56.6	58.0	58.3	56.2
170000	61.7	61.3	63.2	61.8	61.8	61.0	59.9	58.7	56.8	57.1	56.8	58.0	58.2	56.3
180000	61.9	61.4	63.1	61.8	61.7	61.0	59.9	58.7	56.8	57.1	56.6	58.5	58.1	56.0
190000	61.8	61.4	63.2	61.8	61.6	60.9	59.9	58.6	56.8	57.1	56.7	58.6	58.1	55.9
200000	61.9	61.6	62.9	61.9	61.4	60.8	60.0	58.5	56.8	57.0	56.8	58.6	58.0	55.7
210000	62.0	61.4	62.4	61.9	61.3	60.7	60.0	58.3	56.8	57.0	57.1	58.6	57.8	55.5
220000	61.9	61.4	62.2	61.9	61.2	60.6	59.9	58.1	56.8	56.9	57.0	58.7	57.6	55.2
230000	61.8	61.3	61.7	61.9	61.2	60.5	59.8	58.0	56.8	56.8	57.0	58.6	57.6	55.1
Daily Max	62.4	61.8	63.2	61.9	61.8	61.1	60.4	59.6	57.9	57.2	57.1	58.7	59.0	57.3
Daily Min	61.2	60.7	61.1	61.1	61.2	60.5	59.4	58.0	56.5	56.8	55.9	56.9	57.6	55.1
Average	61.7	61.2	61.8	61.5	61.5	60.8	59.8	58.7	56.9	56.9	56.4	57.6	58.5	56.1

**Wisconsin Public Service Corporation**

**Peshtigo River Hydroelectric Projects**

**2011 Water Quality Monitoring Data**

**Documentation of Agency Consultation**



Wisconsin Public Service Corporation – Peshtigo River Hydroelectric Projects

The following table is a list of the dates of letters or correspondence regarding potential deviations from Water Quality Standards

Date of Notice to WDNR and US Fish and Wildlife	Date of Notice to FERC
June 29, 2011	June 30, 2011
July 22, 2011	July 25, 2011
July 27, 2011	August 2, 2011
August 3, 2011	August 8, 2011
August 9, 2011	August 16, 2011
August 19, 2011	August 23, 2011
August 24, 2011	August 25, 2011
August 31, 2011	August 31, 2011
September 6, 2011	September 9, 2011
September 16, 2011	September 19, 2011
September 23, 2011	Not submitted

## Metcalfe, Mark W

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**From:** Metcalfe, Mark W  
**Sent:** Wednesday, June 29, 2011 11:53 AM  
**To:** Donofrio, Michael C; Utrup, Nick  
**Cc:** Puzen, Shawn C; Crocker, Bruce E; Brandt, Edward S  
**Subject:** Water Quality monitoring - Peshtigo River Hydroelectric Projects  
**Attachments:** 20110629 Peshtigo WQM report to agencies.pdf

Good afternoon Mike and Nick,

Per the water quality monitoring plans for the WPSC hydroelectric facilities along the Peshtigo River, attached for your information is a report on dissolved oxygen data from certain monitoring locations where the readings have been below the water quality standard. To sum up the report, the low dissolved oxygen readings have been due to either an equipment malfunction or a natural stratification of a reservoir. If you have any questions, please feel free to contact me.

Thanks,  
Mark

### Mark Metcalf

**Environmental Consultant - Air & Water | Integrys Business Support, LLC**

920-433-1833

920-606-8432 *cell*

920-433-4916 *fax*

[mwmetcalf@integrysgroup.com](mailto:mwmetcalf@integrysgroup.com)

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*Providing support for Integrys Energy Group, Integrys Energy Services, Michigan Gas Utilities, Minnesota Energy Resources, North Shore Gas, Peoples Gas, Upper Peninsula Power Company and Wisconsin Public Service.*



**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

June 29, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards - Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for the Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations. Per the monitoring plans, monitoring for dissolved oxygen, temperature, and pH is being conducted from June 1 through September 30, 2011 at the following projects: Caldron Falls (FERC No. 2525), High Falls (FERC No. 2595), Johnson Falls (FERC No. 2522), Sandstone Rapids (FERC No. 2546), Potato Rapids (FERC No. 2560), and Peshtigo River (FERC No. 2581). The dissolved oxygen water quality standard at all of the developments except Johnson Falls is 5.0 mg/l. The water quality standard downstream of Johnson Falls is 6 mg/l. Monitoring is being conducted at the following locations:

- Upstream of the Caldron Falls Dam in the Caldron Falls reservoir,
- In the tailrace of the Caldron Falls Powerhouse below the confluence of the spillway and powerhouse release;
- Upstream of the High Falls Reservoir at the Parkway Road bridge crossing the Peshtigo River,
- Downstream of the High Falls Powerhouse,
- Downstream of the Johnson Falls Powerhouse,
- In the tailrace of the Sandstone Rapids Powerhouse,
- Upstream of the Potato Rapids Powerhouse in the Potato Rapids reservoir,
- In the tailrace of the Potato Rapids Powerhouse,
- In the tailrace of the Peshtigo River Powerhouse.

At the Caldron Falls project, the upstream monitoring location is in the reservoir near the powerhouse intake, approximately 1 meter from the bottom of the reservoir. At this location, dissolved oxygen readings below the water quality standard were recorded between June 14<sup>th</sup> and June 23<sup>rd</sup>. The cause of the low readings is due to a natural stratification of the reservoir. Please note that no deviations from the dissolved oxygen water quality standard have been observed at the Caldron Falls tailrace monitoring location. On June 23<sup>rd</sup>, dissolved oxygen levels increased to above the water quality standard due to significant rainfall and increased water flow in the Peshtigo River which removed the stratification in the reservoir. It is expected that the reservoir will stratify again this summer and that dissolved oxygen readings at this location will drop below the water quality standard.

June 29, 2011

Mr. Donofrio & Mr. Utrup

Page 2 of 2

At the Parkway Road Bridge monitoring location, readings below the dissolved oxygen water quality standard were recorded on June 1<sup>st</sup>. Erratic dissolved oxygen readings were observed between 03:00 and 10:00. These readings are anomalies and are due to an equipment malfunction. Monitoring data collected in the Caldron Falls tailrace (approximately ½ mile upstream) did not show any deviations from water quality standards during the same time period.

Downstream of the High Falls Powerhouse, one hourly reading was recorded below the water quality standard on June 18<sup>th</sup>. At the time of the low reading, the facility was releasing approximately 30 cfs of aeration flow through the spillway. Dissolved oxygen readings the hour before and after the low reading were 7.5 mg/l and 6.6 mg/l, respectively. Therefore; this reading is an anomaly and is likely due to an equipment malfunction.

At the Potato Rapids facility, readings below the water quality standard have been observed upstream of the powerhouse. The upstream monitoring location is in the reservoir near the powerhouse intake, approximately 1 meter from the bottom of the reservoir. Dissolved oxygen readings upstream of the powerhouse were intermittently below the water quality standard between June 10<sup>th</sup> and June 15<sup>th</sup>. No deviations from the water quality standard have been observed at the monitoring location downstream of the Potato Rapids facility. The likely cause of the low dissolved oxygen readings in the reservoir is due to a natural stratification of the water body. It is expected that the reservoir will stratify again this summer and that dissolved oxygen readings at this location will drop below the water quality standard.

There are no other potential deviations from the dissolved oxygen standard to report. Attached for your review is water quality monitoring data collected at the locations where readings below the water quality standard have been observed. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf  
Environmental Consultant – Air & Water  
Telephone: (920) 433-1833

Attach.

cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS - WM

**Attachments**

**Peshtigo River Hydroelectric Projects**

**Dissolved Oxygen Monitoring Data**

Caldron Falls Headwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11
0	8.3	8.3	7.8	7.4	7.2	7.1	6.5	6.4	6.4	6.1	5.7	6.1	5.7	4.8
10000	8.3	8.3	7.7	7.5	7.2	6.9	6.6	6.5	6.4	6.1	5.7	6.2	6.0	5.0
20000	8.4	8.3	7.8	7.5	7.2	7.0	6.7	6.5	6.4	6.1	5.7	6.4	5.8	4.8
30000	8.4	8.3	7.7	7.4	7.2	7.1	6.8	6.6	6.5	6.1	5.8	7.0	5.9	5.0
40000	8.3	8.2	7.7	7.5	7.2	6.9	6.7	6.4	6.4	6.2	5.8	6.9	5.8	5.0
50000	8.3	8.2	7.7	7.4	7.3	6.9	6.7	6.5	6.4	6.0	5.9	6.1	6.0	5.0
60000	8.3	8.2	7.8	7.4	7.4	6.9	6.6	6.4	6.4	6.0	5.8	6.7	5.7	5.0
70000	8.3	8.2	7.7	7.4	7.3	6.8	6.7	6.5	6.4	6.0	5.8	6.8	5.5	5.0
80000	8.3	8.2	7.8	7.5	7.2	6.8	6.6	6.5	6.2	5.9	6.0	5.8	5.5	4.7
90000	8.4	8.1	7.7	7.7	7.4	6.8	6.7	6.5	6.4	5.8	6.5	5.9	5.4	4.7
100000	8.4	8.1	7.6	8.3	7.3	7.0	6.6	6.6	6.2	5.8	5.9	5.6	5.4	4.7
110000	8.4	8.1	7.5	7.7	7.2	6.9	6.5	6.6	6.3	5.8	5.6	5.7	5.2	4.8
120000	8.4	8.0	7.5	7.5	7.2	6.9	6.5	6.6	6.2	5.8	5.6	5.5	5.3	4.7
130000	8.4	7.9	7.4	7.8	7.2	6.9	6.5	6.6	6.2	5.8	5.8	5.5	5.2	4.9
140000	8.4	7.8	7.5	7.9	7.2	6.9	6.6	6.8	6.1	5.7	6.6	5.4	5.2	4.8
150000	8.4	7.9	7.5	8.1	7.3	6.8	6.7	6.6	6.2	5.7	5.9	5.3	5.1	4.5
160000	8.4	8.0	7.5	8.5	7.1	6.8	6.6	7.7	6.1	5.7	5.9	5.5	5.0	4.6
170000	8.4	7.9	7.5	8.5	7.1	6.7	6.6	7.7	6.2	5.7	6.0	5.5	5.1	4.7
180000	8.4	7.9	7.5	8.3	7.0	6.5	6.6	7.6	6.2	5.6	5.9	6.0	5.1	4.5
190000	8.4	7.9	7.6	8.2	7.0	6.7	6.4	6.8	6.2	5.7	5.8	5.4	5.2	4.7
200000	8.3	7.9	7.6	8.5	7.0	6.7	6.4	6.4	6.2	5.7	5.9	5.6	5.3	4.8
210000	8.3	7.8	7.7	7.6	7.1	6.6	6.3	6.0	6.1	5.7	5.8	5.4	5.2	4.8
220000	8.3	7.8	7.5	7.2	7.1	6.7	6.3	6.2	6.1	5.7	5.7	5.6	5.2	4.4
230000	8.3	7.8	7.4	7.0	7.1	6.6	6.3	6.3	6.1	5.7	5.5	5.6	5.0	4.4
Daily Max	8.4	8.3	7.8	8.5	7.4	7.1	6.8	7.7	6.5	6.2	6.6	7.0	6.0	5.0
Daily Min	8.3	7.8	7.4	7.0	7.0	6.5	6.3	6.0	6.1	5.6	5.5	5.3	5.0	4.4
Average	8.3	8.0	7.6	7.7	7.2	6.8	6.5	6.6	6.3	5.8	5.8	5.9	5.4	4.8

Missing data due to equipment maintenance

Low readings due to reservoir stratification

Water Quality Standard - 5.0 mg/l

Caldron Falls Headwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/15/11	06/16/11	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11
0	4.5	4.9	5.0	4.8	5.2	4.8	4.5	4.1	4.0	6.3	6.6	7.0	6.6
10000	4.7	5.0	4.8	4.7	5.1	4.5	4.4	3.9	3.9	6.1	6.9	7.5	6.0
20000	4.7	4.8	4.8	4.4	4.4	4.5	4.1	4.0	4.1	6.4	7.1	7.2	6.0
30000	4.7	4.9	4.9	4.4	4.6	4.6	4.2	4.5	4.8	7.0	7.4	7.7	6.2
40000	4.8	4.7	4.7	5.1	4.4	4.7	4.0	4.3	5.2	6.6	7.1	7.7	6.7
50000	4.7	4.6	4.9	5.0	4.4	4.8	4.0	4.8	5.3	6.9	6.8	8.2	7.2
60000	4.7	4.6	4.9	4.9	4.4	4.9	3.9	5.0	4.7	6.7	6.9	8.0	7.4
70000	4.8	4.6	4.7	4.9	4.4	4.7	4.0	5.1	4.4	6.3	6.7	7.4	7.7
80000	4.6	4.6	4.5	4.9	4.6	4.5	4.4	5.1	5.1	5.7	7.2	7.4	7.4
90000	4.3	4.8	4.4	4.5	4.7	4.4	5.3	4.5	4.6	5.4	7.3	6.9	6.2
100000	4.4	4.9	4.5	4.4	4.6	6.3	4.5	4.1	5.0	6.1	7.1	7.2	6.7
110000	4.8	4.9	4.4	4.5	4.4	5.7	4.5	4.1	5.0	6.8	7.2	7.5	0.0
120000	4.6	5.1	4.7	4.5	4.2	5.9	4.5	4.4	4.8	7.6	7.1	7.4	0.0
130000	4.7	5.1	4.7	4.9	4.3	5.1	3.8	4.3	5.0	7.1	7.1	7.6	0.0
140000	5.9	4.7	4.7	4.6	4.4	5.4	4.3	4.6	5.2	7.7	7.2	8.0	0.0
150000	4.9	5.1	4.6	5.0	4.7	4.3	3.9	5.3	5.8	6.3	7.1	7.7	0.0
160000	4.8	4.9	4.7	4.9	4.7	4.6	4.0	5.9	5.9	7.0	7.2	7.1	0.0
170000	4.4	4.7	4.8	4.4	4.6	4.7	4.3	5.5	6.2	6.6	7.2	7.2	0.0
180000	4.4	4.8	5.1	4.5	4.2	4.4	4.5	3.9	6.5	5.6	7.0	6.8	0.0
190000	4.4	5.1	4.6	4.5	4.3	4.2	4.2	3.6	6.8	5.9	7.0	6.6	0.0
200000	4.5	4.8	4.5	4.6	4.4	4.5	4.1	3.7	6.6	5.9	7.0	5.9	0.0
210000	4.5	5.1	4.6	4.8	4.5	4.1	4.0	3.8	6.4	6.9	6.3	6.5	0.0
220000	4.7	5.3	4.9	4.6	4.6	4.2	3.9	3.9	6.5	6.5	6.6	6.8	0.0
230000	5.8	4.9	4.6	4.8	4.9	4.6	4.0	3.9	6.7	7.0	7.0	6.9	0.0
Daily Max	5.9	5.3	5.1	5.1	5.2	6.3	5.3	5.9	6.8	7.7	7.4	8.2	7.7
Daily Min	4.3	4.6	4.4	4.4	4.2	4.1	3.8	3.6	3.9	5.4	6.3	5.9	0.0
Average	4.7	4.9	4.7	4.7	4.5	4.8	4.2	4.4	5.4	6.5	7.0	7.2	3.1

Parkway Road Bridge Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11
0	8.5	8.7	8.5	8.7	8.8	8.7	8.7	8.6	8.6	6.9	6.9	7.2	7.2	7.3
10000	8.5	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.6	6.9	6.9	7.3	7.3	7.2
20000	8.5	8.7	8.5	8.7	8.7	8.7	8.7	8.6	8.5	6.9	6.9	7.3	7.3	7.2
30000	10.1	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.5	6.9	7.0	7.3	7.3	7.1
40000	8.7	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.5	6.9	7.1	7.4	7.4	7.1
50000	6.5	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.5	6.9	7.0	7.3	7.4	7.1
60000	1.1	8.7	8.5	8.7	8.7	8.7	8.6	8.6	8.5	6.9	7.1	7.3	7.4	7.2
70000	8.7	8.7	8.6	8.8	8.8	8.6	8.7	8.6	8.5	6.9	7.1	7.4	7.4	7.2
80000	7.9	8.8	8.6	8.9	8.8	8.8	8.7	8.7	8.5	7.0	7.2	7.5	7.5	7.3
90000	8.7	8.9	8.7	9.0	8.8	8.9	8.8	8.8	8.6	7.0	7.3	7.5	7.5	7.3
100000	11.1	8.9	8.7	9.1	8.9	8.9	8.8	8.8	8.7	7.0	7.3	7.6	7.6	7.3
110000	8.9	8.9	8.8	9.2	8.9	9.0	8.9	8.8	8.7	7.0	7.3	7.6	7.6	7.3
120000	8.9	8.9	8.7	9.2	8.8	9.0	8.9	8.9	8.8	7.1	7.3	7.6	7.6	7.2
130000	9.0	8.9	8.8	9.2	8.9	9.0	8.8	8.9	7.3	7.1	7.3	7.6	7.6	7.1
140000	9.0	8.8	8.8	9.3	8.9	9.1	8.8	8.9	7.3	7.0	7.3	7.5	7.6	7.1
150000	9.0	8.8	8.8	9.3	8.9	9.1	8.9	8.9	7.2	7.1	7.4	7.5	7.6	7.0
160000	8.9	8.8	8.6	9.3	9.0	9.0	8.9	9.0	7.2	7.1	7.3	7.4	7.5	6.9
170000	8.9	8.7	8.6	9.3	8.9	8.9	8.9	9.0	7.2	7.0	7.4	7.4	7.3	6.9
180000	8.9	8.7	8.6	9.2	8.8	8.9	8.9	8.9	7.1	6.9	7.3	7.5	7.3	6.9
190000	8.8	8.7	8.6	9.2	8.7	8.8	8.8	8.9	7.1	6.8	7.3	7.4	7.3	7.0
200000	8.7	8.6	8.6	9.1	8.7	8.8	8.7	8.7	7.0	6.8	7.2	7.3	7.3	6.9
210000	8.7	8.6	8.6	9.0	8.7	8.8	8.7	8.6	6.9	6.8	7.2	7.3	7.3	6.9
220000	8.7	8.5	8.7	9.0	8.7	8.7	8.6	8.5	6.9	6.8	7.2	7.2	7.2	6.8
230000	8.6	8.6	8.7	9.0	8.7	8.7	8.6	8.5	6.9	6.9	7.2	7.2	7.3	6.8
Daily Max	11.1	8.9	8.8	9.3	9.0	9.1	8.9	9.0	8.8	7.1	7.4	7.6	7.6	7.3
Daily Min	1.1	8.5	8.5	8.7	8.7	8.6	8.6	8.5	6.9	6.8	6.9	7.2	7.2	6.8
Average	8.5	8.7	8.6	9.0	8.8	8.8	8.7	8.7	7.9	6.9	7.2	7.4	7.4	7.1

Monthly Average D.O. 6.9  
License Minimum DO: 5.0 mg/l

Anomalies - equipment malfunction



Parkway Road Bridge Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/15/11	06/16/11	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11
0	6.8	7.1	7.7	7.2	7.0	6.8	7.1	6.1	7.4	8.0	8.0	8.5	8.4
10000	6.9	7.3	7.7	7.2	7.0	6.8	7.1	6.2	7.3	8.0	8.0	8.4	8.3
20000	7.0	7.3	7.6	7.2	7.0	6.8	7.0	6.4	7.4	8.0	8.0	8.4	8.2
30000	7.0	7.3	7.6	7.2	7.0	6.8	7.0	6.7	7.5	8.0	8.0	8.4	8.1
40000	7.0	7.3	7.6	7.2	7.0	6.9	6.9	7.0	7.6	8.0	8.0	8.4	8.2
50000	7.1	7.2	7.6	7.3	6.9	7.0	6.8	7.3	7.6	8.0	8.0	8.4	8.2
60000	7.1	7.2	7.6	7.4	7.0	7.1	6.7	7.6	7.6	8.0	8.0	8.4	8.3
70000	7.1	7.2	7.6	7.5	7.0	7.2	6.7	7.6	7.6	7.9	8.1	8.4	8.3
80000	7.2	7.3	7.6	7.6	7.2	7.2	6.6	7.7	7.6	7.9	8.2	8.4	8.3
90000	7.3	7.4	7.7	7.6	7.2	7.3	6.5	7.2	7.7	8.0	8.3	8.4	8.2
100000	7.3	7.5	7.7	7.6	7.2	7.3	7.0	7.2	7.6	8.1	8.3	8.4	8.2
110000	7.1	7.6	7.7	7.4	7.1	7.3	6.5	7.2	7.6	8.1	8.3	8.5	0.0
120000	6.9	7.6	7.8	7.4	6.9	7.3	6.7	7.3	7.7	8.3	8.4	8.5	0.0
130000	6.8	7.7	7.6	7.2	6.9	7.3	6.3	7.3	7.7	8.2	8.4	8.5	0.0
140000	6.9	7.8	7.6	7.3	7.0	7.4	6.3	7.3	7.7	8.2	8.5	8.6	0.0
150000	7.1	7.8	7.5	7.4	7.1	7.4	6.2	7.4	7.8	8.2	8.2	8.7	0.0
160000	7.2	7.9	7.5	7.1	7.1	7.4	6.2	7.4	7.8	8.2	8.3	8.7	0.0
170000	7.0	7.8	7.5	7.0	7.1	7.3	6.1	7.5	7.9	8.3	8.3	8.7	0.0
180000	6.9	7.7	7.5	6.9	6.8	7.3	6.1	7.5	8.0	8.2	8.4	8.7	0.0
190000	6.8	7.7	7.5	6.8	6.8	7.2	6.0	7.5	8.0	8.2	8.5	8.6	0.0
200000	6.7	7.6	7.2	6.9	6.7	7.2	6.1	7.4	8.0	8.2	8.6	8.3	0.0
210000	6.8	7.6	7.2	6.9	6.7	7.1	6.2	7.3	8.0	8.1	8.5	8.4	0.0
220000	6.8	7.6	7.2	6.9	6.7	7.1	6.2	7.4	8.0	8.1	8.5	8.4	0.0
230000	6.8	7.6	7.3	6.9	6.8	7.1	5.9	7.4	8.0	8.1	8.5	8.4	0.0
Daily Max	7.3	7.9	7.8	7.6	7.2	7.4	7.1	7.7	8.0	8.3	8.6	8.7	8.4
Daily Min	6.7	7.1	7.2	6.8	6.7	6.8	5.9	6.1	7.3	7.9	8.0	8.3	0.0
Average	7.0	7.5	7.5	7.2	7.0	7.2	6.5	7.2	7.7	8.1	8.3	8.5	3.8

High Falls Tailrace Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11
0	7.1	8.4	8.5	8.4	8.5	8.6	8.6	9.0	9.4	6.5	6.6	6.6	6.4	6.8
10000	7.1	8.4	8.4	8.5	8.5	8.6	8.6	8.9	9.6	6.7	6.5	6.5	6.4	6.7
20000	7.3	8.4	8.5	8.6	8.5	8.6	8.6	9.0	9.7	6.7	6.9	6.5	6.3	6.9
30000	7.3	8.3	8.5	8.6	8.6	8.7	8.7	8.9	9.6	6.8	6.6	6.5	6.3	6.9
40000	7.4	8.3	8.5	8.6	8.6	8.7	8.6	8.9	9.7	6.6	6.7	6.5	6.5	7.0
50000	7.4	8.4	8.5	8.7	8.6	8.7	8.6	8.9	9.6	6.6	6.8	6.5	6.7	7.0
60000	7.3	8.4	8.6	8.6	8.6	8.8	8.5	9.0	9.9	6.6	6.8	6.4	6.6	7.0
70000	7.3	8.4	8.6	8.8	8.7	8.8	8.5	9.1	9.9	6.9	6.9	6.5	6.8	7.0
80000	7.5	8.5	8.6	8.8	8.8	8.7	8.6	9.0	10.1	7.0	7.0	6.6	6.9	7.0
90000	7.6	8.5	8.6	8.7	8.7	8.8	8.6	8.9	10.1	6.9	6.9	6.6	6.9	6.8
100000	7.8	8.6	8.6	8.8	8.6	8.6	8.5	9.1		7.1	7.0	6.7	6.9	6.7
110000	8.0	8.6	8.6	8.9	8.7	8.6	8.5	8.9	8.0	6.9	7.0	6.8	6.9	6.6
120000	8.0	8.6	8.5	8.9	8.8	8.4	8.6	9.0	7.7	6.9	6.9	6.9	7.0	6.7
130000	8.0	8.6	8.5	8.8	8.8	8.4	8.6	8.9	7.5	6.8	6.9	6.8	7.1	6.5
140000	8.1	8.5	9.0	9.0	8.7	8.6	8.4	9.1	7.5	6.8	7.0	6.9	7.0	6.3
150000	8.0	8.5	8.5	8.8	8.8	8.5	8.3	9.0	7.4	6.8	7.0	6.8	7.0	6.4
160000	8.2	8.5	8.5	8.8	8.6	8.6	8.2	9.2	7.2	6.7	7.0	7.0	6.9	6.3
170000	8.2	8.5	8.4	8.9	8.6	8.4	7.7	9.3	7.1	6.6	7.1	7.0	7.0	6.3
180000	8.2	8.4	8.4	8.7	8.6	8.4	8.8	9.2	6.9	6.7	7.0	7.0	6.8	6.2
190000	8.3	8.4	8.4	8.7	8.5	8.6	8.8	9.2	6.7	6.6	6.9	6.9	6.8	6.2
200000	8.3	8.4	8.4	8.7	8.5	8.6	8.8	8.9	6.6	6.5	6.8	6.7	6.5	6.3
210000	8.3	8.3	8.3	8.5	8.4	8.6	8.9	9.2	6.6	6.4	6.7	6.7	6.5	6.3
220000	8.3	8.4	8.4	8.5	8.5	8.6	8.8	9.1	6.7	6.6	6.7	6.4	6.5	6.3
230000	8.3	8.4	8.4	8.4	8.5	8.6	9.0	9.4	6.5	6.5	6.6	6.4	6.7	6.6
Daily Max	8.3	8.6	9.0	9.0	8.8	8.8	9.0	9.4	10.1	7.1	7.1	7.0	7.1	7.0
Daily Min	7.1	8.3	8.3	8.4	8.4	8.4	7.7	8.9	6.5	6.4	6.5	6.4	6.3	6.2
Average	7.8	8.4	8.5	8.7	8.6	8.6	8.6	9.0	8.3	6.7	6.8	6.7	6.7	6.6

missing data due to equipment maintenance

License Minimum DO: 5.0 mg/l

High Falls Tailrace Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/15/11	06/16/11	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11
0	6.7	6.4	6.6	4.8	7.0	6.8	6.4	7.0	9.2	9.3	9.3	9.2	7.8
10000	6.8	6.5	6.4	6.6	7.0	6.8	6.4	9.2	9.2	9.3	9.3	9.2	8.6
20000	6.8	6.5	6.5	6.4	7.1	6.8	6.5	9.2	9.2	9.3	9.3	9.2	8.7
30000	6.9	6.4	6.5	6.9	6.8	6.8	6.6	9.2	9.2	9.3	9.3	9.2	8.4
40000	7.0	6.4	6.6	6.7	6.8	6.8	6.5	9.2	9.3	9.3	9.4	9.2	9.0
50000	6.8	6.6	6.5	6.7	6.9	6.9	6.5	9.2	9.2	9.3	9.4	9.2	8.9
60000	6.8	6.8	6.6	6.2	6.7	6.9	6.6	9.2	9.3	9.3	9.4	9.2	8.9
70000	6.7	6.8	6.6	8.9	6.8	6.8	6.7	9.2	9.3	9.3	9.4	9.3	9.0
80000	6.9	6.8	6.7	6.6	6.9	6.9	6.7	9.2	9.3	9.3	9.4	9.2	8.0
90000	6.8	6.9	6.7	7.7	7.2	6.8	7.1	9.1	9.3	9.3	9.3	7.1	8.6
100000	6.8	6.9	7.0	7.0	6.7	7.0	7.2	9.0	9.3	9.3	9.3	7.0	8.8
110000	6.4	7.0	7.0	6.2	6.4	6.7	7.1	8.9	9.2	9.3	9.2	7.0	8.8
120000	6.2	7.1	7.0	7.0	6.7	6.8	7.2	8.9	9.3	9.3	9.2	7.0	0.0
130000	6.2	7.1	7.1	6.8	6.7	6.8	7.2	9.0	9.2	9.3	9.2	6.9	0.0
140000	6.2	7.1	6.9	6.9	7.0	6.8	7.2	8.8	9.3	9.2	9.2	6.8	0.0
150000	6.2	7.1	6.8	6.7	6.7	6.7	7.2	9.0	9.3	9.2	9.2	6.8	0.0
160000	6.2	7.0	6.8	7.0	6.8	6.7	7.2	8.9	9.3	9.2	9.2	6.8	0.0
170000	6.2	7.0	6.9	6.6	6.7	6.6	7.1	8.9	9.3	9.2	9.2	6.7	0.0
180000	6.2	6.9	6.8	7.0	6.9	6.6	7.0	9.1	9.3	9.2	9.2	6.7	0.0
190000	6.2	6.8	6.7	6.6	6.8	6.5	7.0	9.1	9.3	9.2	9.2	6.7	0.0
200000	6.3	6.7	6.7	6.6	6.9	6.4	7.0	9.2	9.3	9.2	9.2	7.7	0.0
210000	6.5	6.7	6.8	7.0	7.0	6.3	7.0	9.2	9.3	9.3	9.2	7.7	0.0
220000	6.4	6.8	6.8	7.0	6.9	6.4	6.9	9.2	9.3	9.3	9.2	7.9	0.0
230000	6.4	6.7	7.5	7.1	6.9	6.4	7.0	9.2	9.3	9.3	9.2	7.8	0.0
Daily Max	7.0	7.1	7.5	8.9	7.2	7.0	7.2	9.2	9.3	9.3	9.4	9.3	9.0
Daily Min	6.2	6.4	6.4	4.8	6.4	6.3	6.4	7.0	9.2	9.2	9.2	6.7	0.0
Average	6.5	6.8	6.8	6.8	6.8	6.7	6.9	9.0	9.3	9.3	9.3	7.9	4.3

Anomaly

Potato Rapids Headwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11
0	7.9	7.8	8.0	7.8	7.9	7.5	7.4	6.8	6.5	6.4	6.0	7.1
10000	7.8	7.9	8.0	7.8	7.2	7.5	7.0	6.9	6.6	6.4	6.3	7.2
20000	7.8	7.9	8.0	7.6	7.1	7.6	7.1	6.9	6.6	6.6	4.4	7.4
30000	7.8	7.9	7.9	7.7	7.5	7.6	7.0	6.8	6.6	6.6	5.7	7.2
40000	7.7	7.7	7.9	7.7	7.8	7.3	7.2	7.0	6.5	6.4	4.3	7.5
50000	7.7	7.6	7.9	7.7	7.4	7.2	7.1	6.8	6.5	6.4	4.4	7.7
60000	7.6	7.5	7.7	7.7	6.9	7.0	7.0	6.5	6.5	6.5	4.2	7.5
70000	7.6	7.5	7.6	7.6	7.0	7.0	6.9	6.7	6.5	6.5	4.0	7.6
80000	7.7	7.5	7.5	7.6	6.7	6.9	7.1	6.6	6.4	6.4	4.1	7.6
90000	7.7	7.5	7.4	7.7	7.4	6.7	6.7	6.2	6.3	6.6	4.6	7.3
100000	7.6	7.2	7.3	7.6	6.8	6.7	6.6	6.3	6.3	6.4	5.0	6.4
110000	7.4	7.3	7.2	7.6	7.1	6.7	6.6	6.3	6.2	6.4	5.9	7.0
120000	7.8	7.2	7.3	7.6	6.7	6.8	6.4	6.0	6.3	6.4	6.5	7.2
130000	7.7	7.3	7.4	7.6	7.2	6.8	6.0	5.9	6.1	5.8	6.4	7.5
140000	7.7	7.2	7.6	7.6	7.0	6.8	6.3	6.1	5.2	5.1	6.6	7.6
150000	7.7	7.5	7.5	7.7	7.3	7.0	6.5	6.4	5.2	4.9	6.8	7.8
160000	7.5	7.7	7.7	7.7	7.3	7.0	6.5	6.0	5.4	5.6	6.5	7.8
170000	7.7	7.6	7.9	7.9	6.6	6.9	6.4	6.5	5.4	4.5	6.8	8.1
180000	7.8	7.5	8.0	7.8	7.4	6.9	6.9	6.5	6.1	4.3	6.7	8.3
190000	7.9	8.1	8.0	7.6	7.1	6.9	6.6	6.7	6.2	4.2	4.9	8.1
200000	8.1	8.3	7.9	7.4	7.0	7.2	6.4	6.2	6.2	4.5	5.0	8.4
210000	7.9	8.2	7.8	7.4	7.4	7.5	6.7	6.5	6.7	6.0	5.3	8.2
220000	7.8	8.2	7.8	7.6	7.3	7.5	6.6	6.4	6.6	4.4	6.6	8.4
230000	7.9	8.2	7.9	7.4	7.6	7.4	6.7	6.6	6.6	4.5	7.0	8.7
Daily Max	8.1	8.3	8.0	7.9	7.9	7.6	7.4	7.0	6.7	6.6	7.0	8.7
Daily Min	7.4	7.2	7.2	7.4	6.6	6.7	6.0	5.9	5.2	4.2	4.0	6.4
Average	7.7	7.7	7.7	7.6	7.2	7.1	6.7	6.5	6.2	5.7	5.6	7.6

Low readings due to stratification of reservoir  
 License Minimum DO: 5.0 mg/l

Potato Rapids Headwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/13/11	06/14/11	06/15/11	06/16/11	06/17/11	06/18/11	06/19/11	06/20/11
0	8.6	8.6	7.8	6.6	7.4	8.1	7.9	7.3
10000	8.6	8.2	6.4	7.4	6.6	8.1	7.8	7.3
20000	8.5	7.8	6.1	5.5	6.8	8.1	7.7	7.2
30000	8.5	7.3	6.4	5.8	7.1	8.0	7.7	7.0
40000	8.3	7.4	6.1	7.0	7.3	7.9	7.6	7.0
50000	8.4	6.3	5.8	6.6	7.0	7.8	7.5	7.1
60000	8.1	6.0	7.5	5.9	6.7	7.8	7.5	7.1
70000	8.3	5.3	5.0	7.0	6.8	7.8	7.3	6.9
80000	8.1	7.5	4.8	6.2	6.7	7.7	7.3	6.9
90000	8.2	7.4	5.2	7.1	6.7	7.6	7.3	7.0
100000	8.2	7.7	7.0	6.4	6.9	7.5	7.1	7.0
110000	8.2	7.6	7.4	6.1	7.0	7.6	7.3	6.9
120000	8.3	7.5	7.1	5.9	7.0	7.7	7.3	6.9
130000	8.2	7.9	5.4	6.2	7.1	7.8	7.3	0.0
140000	8.2	7.9	6.5	6.3	7.3	8.0	7.2	0.0
150000	8.2	7.6	7.1	6.4	7.3	7.9	7.2	0.0
160000	8.0	7.9	7.0	7.0	7.5	7.9	7.3	0.0
170000	7.9	8.1	6.8	6.8	7.7	7.9	7.3	0.0
180000	8.5	6.9	5.7	6.7	8.0	8.1	7.2	0.0
190000	8.5	7.4	6.0	6.8	8.3	8.1	7.2	0.0
200000	7.5	8.3	7.2	7.0	8.4	8.0	7.2	0.0
210000	8.2	8.2	6.2	6.9	7.8	7.9	7.1	0.0
220000	7.9	8.2	7.3	7.3	8.0	8.0	7.3	0.0
230000	7.4	7.0	7.1	7.2	7.7	7.9	7.3	0.0
Daily Max	8.6	8.6	7.8	7.4	8.4	8.1	7.9	7.3
Daily Min	7.4	5.3	4.8	5.5	6.6	7.5	7.1	0.0
Average	8.2	7.5	6.4	6.6	7.3	7.9	7.4	3.8

## Metcalfe, Mark W

---

**From:** Sevener, Gregory A - DNR [Gregory.Sevener@wisconsin.gov]  
**Sent:** Wednesday, July 13, 2011 10:37 AM  
**To:** Donofrio, Michael C - DNR; Long, Christopher C - DNR  
**Cc:** Metcalf, Mark W  
**Subject:** RE: Water Quality monitoring - Peshtigo River Hydroelectric Projects

Hello Mark,

I tend to agree that during the beginning of the mixing could cause a low DO near the bottom from the low DO water beginning to be uplifted from the bottom interface when the process of the thermal turnover begins and stabilized with higher oxygen water circulating down from the surface in Caldron Falls and Potato Rapids.

*Gregory A. Sevener*

WI. DNR Peshtigo Service Center

101 N. Ogden Road Suite A

Peshtigo, WI. 54157

Phone : 715-582-5013

Email: [gregory.sevener@wisconsin.gov](mailto:gregory.sevener@wisconsin.gov)

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**From:** Donofrio, Michael C - DNR  
**Sent:** Thursday, June 30, 2011 08:28 AM  
**To:** Long, Christopher C - DNR; Sevener, Gregory A - DNR  
**Subject:** FW: Water Quality monitoring - Peshtigo River Hydroelectric Projects

FYI

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**From:** Metcalf, Mark W [<mailto:MWMetcalf@integrysgroup.com>]  
**Sent:** Wednesday, June 29, 2011 11:53 AM  
**To:** Donofrio, Michael C - DNR; 'Utrup, Nick'  
**Cc:** Puzen, Shawn C; Crocker, Bruce E; Brandt, Edward S  
**Subject:** Water Quality monitoring - Peshtigo River Hydroelectric Projects

Good afternoon Mike and Nick,

Per the water quality monitoring plans for the WPSC hydroelectric facilities along the Peshtigo River, attached for your information is a report on dissolved oxygen data from certain monitoring locations where the readings have been below the water quality standard. To sum up the report, the low dissolved oxygen readings have been due to either an equipment malfunction or a natural stratification of a reservoir. If you have any questions, please feel free to contact me.

Thanks,  
Mark

**Mark Metcalf**

**Environmental Consultant - Air & Water | Integrys Business Support, LLC**

## Metcalfe, Mark W

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**From:** Metcalfe, Mark W  
**Sent:** Friday, July 22, 2011 2:08 PM  
**To:** 'Donofrio, Michael C'; 'Utrup, Nick'  
**Cc:** Puzen, Shawn C; Crocker, Bruce E; Brandt, Edward S  
**Subject:** Water quality monitoring - Peshtigo River Hydroelectric facilities  
**Attachments:** 20110722 Peshtigo WQM report to agencies.pdf

Good afternoon Mike and Nick,

Per the water quality monitoring plans for the WPSC hydroelectric facilities along the Peshtigo River, attached for your information is a report on dissolved oxygen data from certain monitoring locations where the readings have been below the water quality standard. If you have any questions, please feel free to contact me.

Thank you,  
Mark

### Mark Metcalfe

**Environmental Consultant - Air & Water | Integrys Business Support, LLC**

920-433-1833

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**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

July 22, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards - Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for the Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations. Per the monitoring plans, monitoring for dissolved oxygen, temperature, and pH is being conducted from June 1 through September 30, 2011 at the following projects: Caldron Falls (FERC No. 2525), Johnson Falls (FERC No. 2522), and Potato Rapids (FERC No. 2560). The dissolved oxygen water quality standard at all of the developments except Johnson Falls is 5.0 mg/l. The water quality standard downstream of Johnson Falls is 6 mg/l.

At the Caldron Falls project, deviations from the dissolved oxygen standard have been observed at the upstream monitoring location. The upstream monitoring location is in the reservoir near the powerhouse intake, approximately 1 meter from the bottom of the reservoir. Throughout the month of July, there has been a steady decrease in dissolved oxygen levels in the hypolimnion of the reservoir due to a natural stratification of the impoundment. Dissolved oxygen concentrations below the water quality standard have been recorded since July 4<sup>th</sup>, and will likely continue to be below the water quality standard until the impoundment is no longer stratified.

Downstream of the Caldron Powerhouse, no deviations from water quality standards have been observed. However, there are periods of non-representative monitoring data to note beginning on July 12<sup>th</sup>. Pursuant to the project license, the Caldron Falls Powerhouse can be operated in peaking mode except during the run-of-river period identified in Article 402 of the project license. To conduct peaking operation, the release of water from the reservoir is restricted for a period of time in order to increase the water level within the reservoir. The decrease in flow downstream resulted in a few periods of the water quality monitor being out of the water. This resulted in readings that are not representative of conditions in the Peshtigo River.

During peaking operation, the water quality monitor downstream at the Parkway Road Bridge (approximately 1/2 mile downstream of the Caldron Falls tailrace monitor) was in the water at all times. Water quality readings at this location have not revealed deviations from the project license. Therefore, this information suggests that the water quality standards were being met in the Caldron Falls tailrace while the monitor was out of the water. To address this issue, WPSC has moved the monitor farther out into the river into a deeper portion of the river. However, this was not conducted while flow was restricted, so it is



July 22, 2011  
Mr. Donofrio & Mr. Utrup  
Page 2 of 3

possible the monitor will need to be relocated again. Water quality monitoring data from the Caldron Falls headwater, tailrace, and Parkway Bridge monitoring locations is attached for your review.

Downstream of the Johnson Falls Powerhouse, hourly readings below the water quality standard were recorded between July 11<sup>th</sup> and July 13<sup>th</sup>. The lowest dissolved oxygen level recorded was 5.7 mg/l. The likely cause of the low readings is warm water temperatures. Between July 11<sup>th</sup> and 13<sup>th</sup>, hourly water temperatures ranged between 71°F and 73°F, the highest water temperatures observed during the monitoring season. Dissolved oxygen levels increased to levels above the water quality standard on July 14<sup>th</sup> as water temperatures decreased. Dissolved oxygen and temperature monitoring data from the Johnson Falls monitoring location is attached.

At the Potato Rapids facility, 3 hourly readings below the water quality standard were recorded on July 15<sup>th</sup> upstream of the powerhouse. The upstream monitoring location is in the reservoir near the powerhouse intake, approximately 1 meter from the bottom of the reservoir. The likely cause of the low dissolved oxygen readings in the reservoir is due to a natural stratification of the water body. No deviations from the water quality standard have been observed at the monitoring location downstream of the Potato Rapids facility. Water quality monitoring data for the Potato Rapids facility is attached for your review.

Please note that there is a period of missing data downstream of the Potato Rapids Powerhouse. On June 30, the water quality monitor downstream of the powerhouse was found lying on the bank of the river. A review of monitoring data collected indicates the monitor was removed from the water between 12:00 and 13:00 on June 28<sup>th</sup>. There are no other potential deviations from the dissolved oxygen standard to report. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf  
Environmental Consultant – Air & Water  
Telephone: (920) 433-1833

Attach.

cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

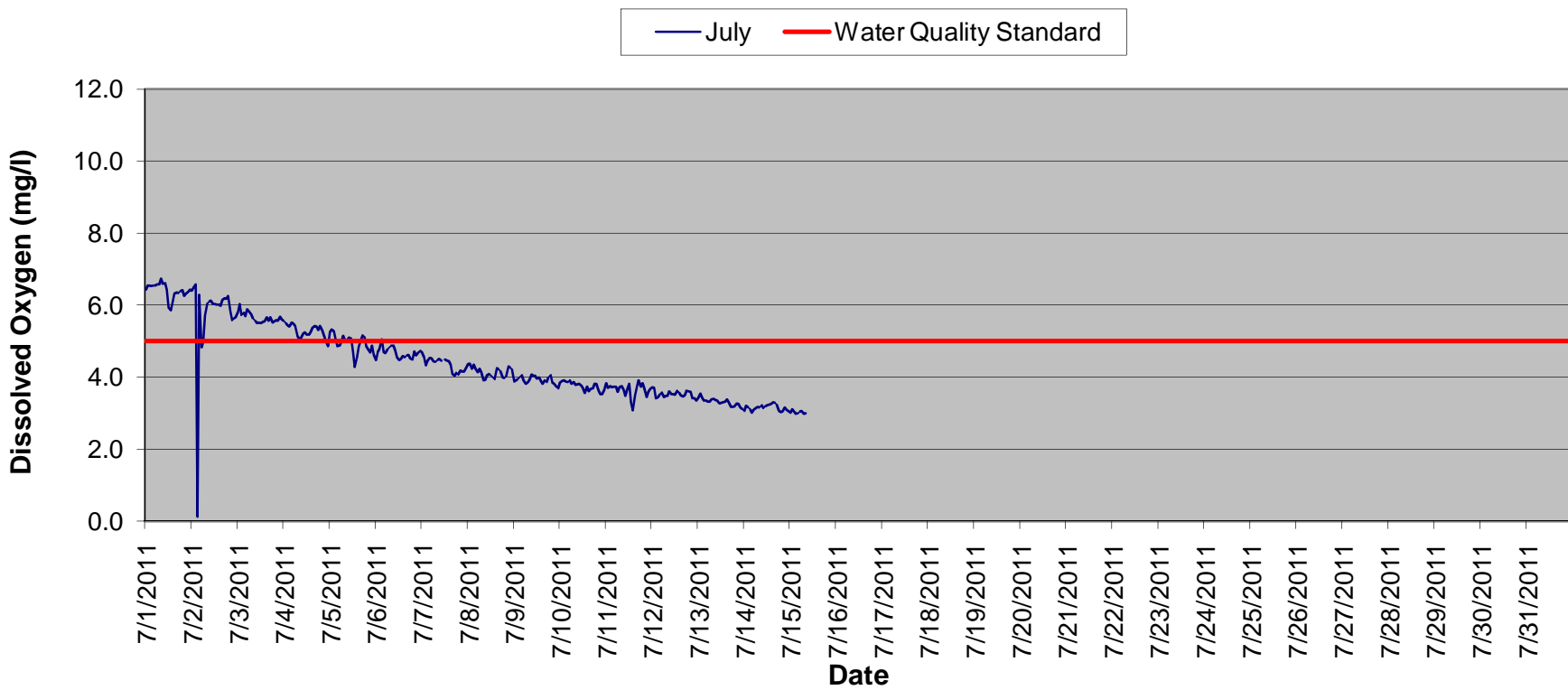
## **Attachments**

### **Peshtigo River Hydroelectric Projects**

#### **Water Quality Monitoring Data**

## Caldron Falls

### Caldron Falls Headwater Dissolved Oxygen - July 2011



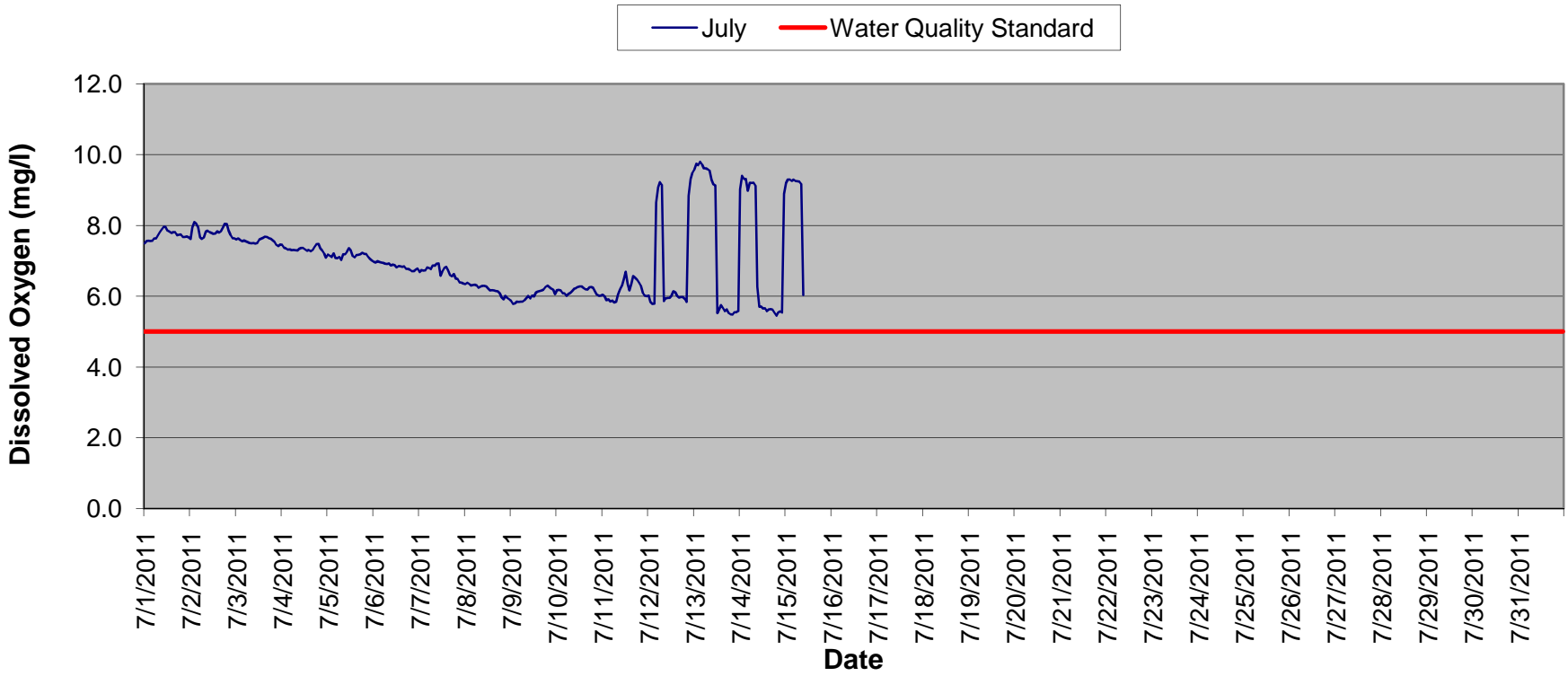
Caldron Falls Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	6.4	6.4	5.8	5.6	5.2	4.5	4.7	4.4	3.9	3.8	3.8	3.7	3.4	3.1	3.0	0.0
10000	6.5	6.5	6.0	5.5	5.3	4.7	4.6	4.4	3.9	3.9	3.7	3.7	3.6	3.2	3.1	0.0
20000	6.5	6.6	5.7	5.4	5.3	4.8	4.3	4.2	3.9	3.9	3.8	3.4	3.4	3.2	3.0	0.0
30000	6.5	0.1	5.8	5.4	5.0	5.0	4.5	4.4	4.0	3.9	3.7	3.5	3.4	3.1	3.0	0.0
40000	6.5	6.3	5.7	5.5	4.9	4.7	4.5	4.2	4.1	3.9	3.7	3.5	3.3	3.0	3.0	0.0
50000	6.5	4.8	5.9	5.5	4.9	4.7	4.5	4.1	3.9	3.9	3.7	3.6	3.3	3.1	3.0	0.0
60000	6.6	5.0	5.8	5.4	5.0	4.8	4.4	4.2	3.8	3.8	3.6	3.5	3.3	3.1	3.1	0.0
70000	6.6	5.7	5.7	5.1	5.1	4.8	4.4	4.1	3.9	3.9	3.7	3.5	3.4	3.2	3.0	0.0
80000	6.7	6.1	5.6	5.0	5.0	4.9	4.5	3.9	3.9	3.8	3.8	3.5	3.4	3.2	3.0	0.0
90000	6.6	6.1	5.6	5.1	5.0	4.9	4.5	3.9	4.1	3.8	3.7	3.6	3.4	3.2	0.0	0.0
100000	6.6	6.1	5.5	5.2	5.1	4.8	4.5	4.1	4.0	3.8	3.5	3.5	3.3	3.1	0.0	0.0
110000	6.4	6.0	5.5	5.2	5.1	4.6	4.5	4.1	4.0	3.8	3.6	3.5	3.3	3.2	0.0	0.0
120000	5.9	6.0	5.5	5.2	4.7	4.5	4.5	4.0	4.0	3.7	3.8	3.5	3.3	3.2	0.0	0.0
130000	5.9	6.0	5.5	5.2	4.3	4.5	4.5	4.0	4.0	3.6	3.3	3.6	3.3	3.2	0.0	0.0
140000	6.1	6.0	5.5	5.3	4.6	4.6	4.4	3.9	3.9	3.7	3.1	3.6	3.3	3.3	0.0	0.0
150000	6.3	6.0	5.7	5.4	4.8	4.6	4.4	4.3	3.8	3.6	3.5	3.5	3.4	3.3	0.0	0.0
160000	6.3	6.1	5.6	5.4	5.0	4.6	4.1	4.2	3.9	3.7	3.7	3.5	3.3	3.3	0.0	0.0
170000	6.3	6.2	5.7	5.4	5.2	4.6	4.0	4.2	3.9	3.7	3.9	3.5	3.2	3.2	0.0	0.0
180000	6.4	6.2	5.5	5.3	5.1	4.5	4.1	4.0	4.0	3.8	3.7	3.6	3.2	3.1	0.0	0.0
190000	6.4	6.3	5.6	5.4	4.9	4.5	4.1	4.0	4.1	3.8	3.8	3.6	3.2	3.0	0.0	0.0
200000	6.3	5.8	5.6	5.3	4.8	4.7	4.2	4.0	3.9	3.6	3.7	3.6	3.3	3.0	0.0	0.0
210000	6.3	5.6	5.6	5.2	4.7	4.6	4.2	4.3	3.8	3.5	3.4	3.4	3.3	3.2	0.0	0.0
220000	6.4	5.6	5.7	5.0	4.9	4.7	4.2	4.3	3.7	3.5	3.6	3.4	3.2	3.1	0.0	0.0
230000	6.4	5.7	5.6	4.9	4.6	4.7	4.3	4.2	3.7	3.7	3.7	3.3	3.1	3.1	0.0	0.0
Daily Max	6.7	6.6	6.0	5.6	5.3	5.0	4.7	4.4	4.1	3.9	3.9	3.7	3.6	3.3	3.1	0.0
Daily Min	5.9	0.1	5.5	4.9	4.3	4.5	4.0	3.9	3.7	3.5	3.1	3.3	3.1	3.0	0.0	0.0
Average	6.4	5.7	5.7	5.3	4.9	4.7	4.4	4.1	3.9	3.8	3.6	3.5	3.3	3.2	1.1	0.0

Anomolie - likely instrument malfunction  
 Low readings due to reservoir stratification

Missing data due to equipment maintenance

### Caldron Falls Tailwater Dissolved Oxygen - July 2011



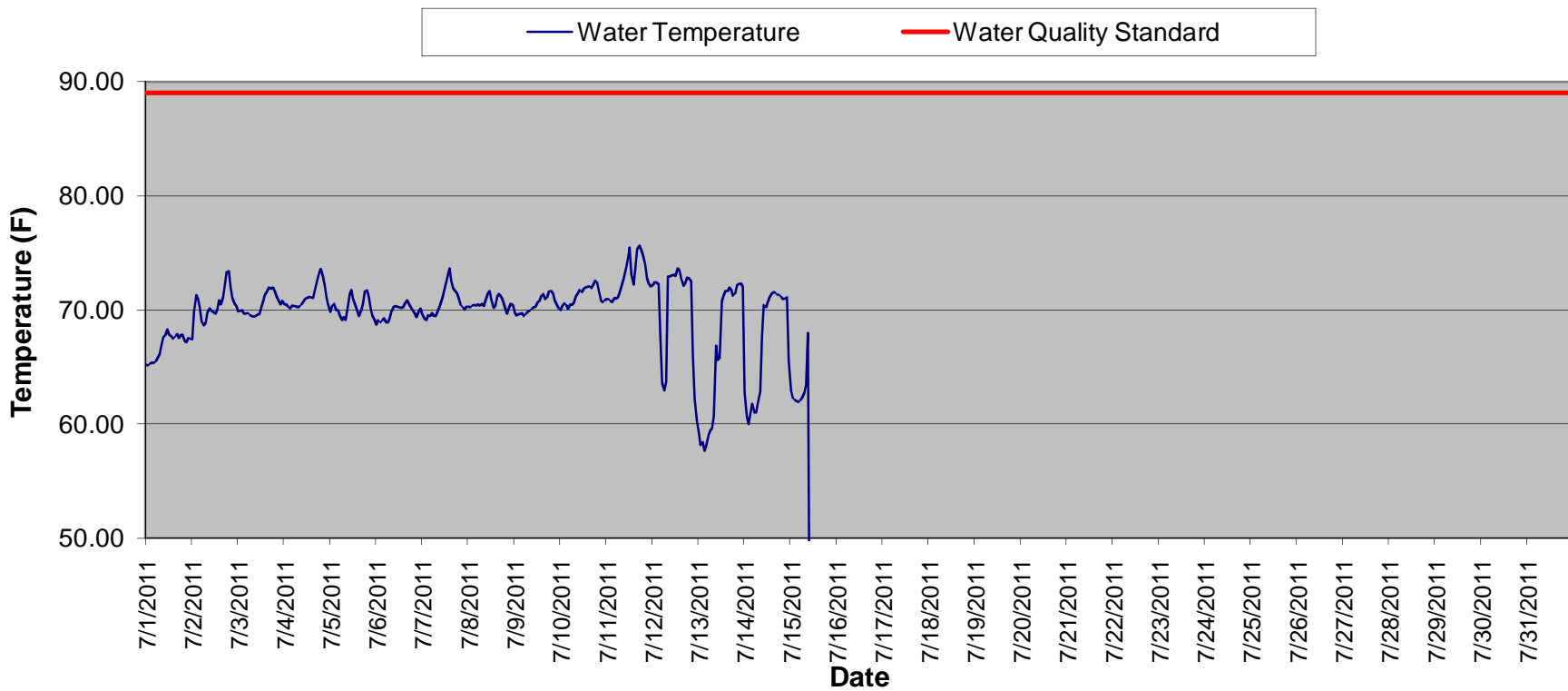
Caldron Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.5	7.6	7.6	7.5	7.2	7.0	6.7	6.3	5.9	6.2	6.0	6.0	9.6	9.0	9.2	0.0
10000	7.6	7.9	7.6	7.4	7.1	6.9	6.7	6.4	5.8	6.2	6.0	5.8	9.7	9.4	9.3	0.0
20000	7.6	8.1	7.6	7.3	7.1	7.0	6.7	6.4	5.8	6.2	5.9	5.8	9.7	9.3	9.3	0.0
30000	7.6	8.0	7.6	7.3	7.2	7.0	6.7	6.3	5.9	6.1	5.9	5.8	9.8	9.3	9.3	0.0
40000	7.6	8.0	7.6	7.3	7.1	7.0	6.8	6.3	5.8	6.1	5.9	8.7	9.7	9.0	9.3	0.0
50000	7.6	7.7	7.6	7.3	7.1	6.9	6.8	6.3	5.9	6.0	5.9	9.1	9.6	9.2	9.3	0.0
60000	7.6	7.6	7.5	7.3	7.1	6.9	6.8	6.3	5.9	6.1	5.8	9.2	9.6	9.2	9.3	0.0
70000	7.7	7.7	7.5	7.3	7.0	6.9	6.9	6.2	5.9	6.1	5.9	9.1	9.6	9.2	9.2	0.0
80000	7.8	7.8	7.5	7.3	7.2	6.9	6.9	6.3	6.0	6.2	6.0	5.9	9.6	9.1	9.2	0.0
90000	7.9	7.8	7.5	7.3	7.2	6.9	6.9	6.3	6.0	6.2	6.2	5.9	9.3	6.3	6.0	0.0
100000	8.0	7.8	7.5	7.4	7.2	6.9	6.9	6.3	5.9	6.2	6.3	6.0	9.2	5.7	0.0	0.0
110000	8.0	7.8	7.5	7.4	7.4	6.9	6.6	6.3	6.0	6.3	6.5	6.0	9.1	5.7	0.0	0.0
120000	7.9	7.8	7.6	7.3	7.3	6.8	6.7	6.2	6.0	6.3	6.7	6.0	5.5	5.7	0.0	0.0
130000	7.8	7.8	7.6	7.3	7.1	6.9	6.8	6.2	6.1	6.3	6.3	6.1	5.6	5.7	0.0	0.0
140000	7.8	7.8	7.6	7.3	7.1	6.8	6.8	6.2	6.1	6.2	6.2	6.1	5.8	5.6	0.0	0.0
150000	7.8	7.8	7.7	7.3	7.2	6.8	6.7	6.2	6.2	6.2	6.4	6.0	5.7	5.6	0.0	0.0
160000	7.8	7.8	7.7	7.3	7.2	6.8	6.6	6.2	6.2	6.2	6.6	6.0	5.6	5.6	0.0	0.0
170000	7.7	7.9	7.6	7.4	7.2	6.8	6.6	6.1	6.2	6.3	6.5	6.0	5.6	5.6	0.0	0.0
180000	7.7	8.0	7.6	7.5	7.2	6.8	6.6	6.1	6.3	6.3	6.5	6.0	5.5	5.5	0.0	0.0
190000	7.8	8.0	7.6	7.5	7.2	6.8	6.5	6.0	6.3	6.2	6.4	5.9	5.5	5.5	0.0	0.0
200000	7.7	7.9	7.5	7.4	7.2	6.7	6.5	5.9	6.3	6.1	6.3	5.8	5.5	5.5	0.0	0.0
210000	7.7	7.7	7.5	7.3	7.1	6.7	6.4	6.0	6.2	6.0	6.1	8.8	5.6	5.6	0.0	0.0
220000	7.7	7.6	7.4	7.2	7.1	6.8	6.4	6.0	6.2	6.0	6.0	9.3	5.6	5.5	0.0	0.0
230000	7.7	7.6	7.5	7.1	7.0	6.8	6.4	5.9	6.1	6.0	6.0	9.5	5.6	8.9	0.0	0.0
Daily Max	8.0	8.1	7.7	7.5	7.4	7.0	6.9	6.4	6.3	6.3	6.7	9.5	9.8	9.4	9.3	0.0
Daily Min	7.5	7.6	7.4	7.1	7.0	6.7	6.4	5.9	5.8	6.0	5.8	5.8	5.5	5.5	0.0	0.0
Average	7.7	7.8	7.6	7.3	7.2	6.9	6.7	6.2	6.0	6.2	6.2	6.9	7.6	7.1	3.7	0.0

Peaking operation began on 7/12/11. Monitor out of water.

License Minimum Dissolved Oxygen: 5.0 mg/l

### Caldron Falls Tailwater Water Temperature - July 2011





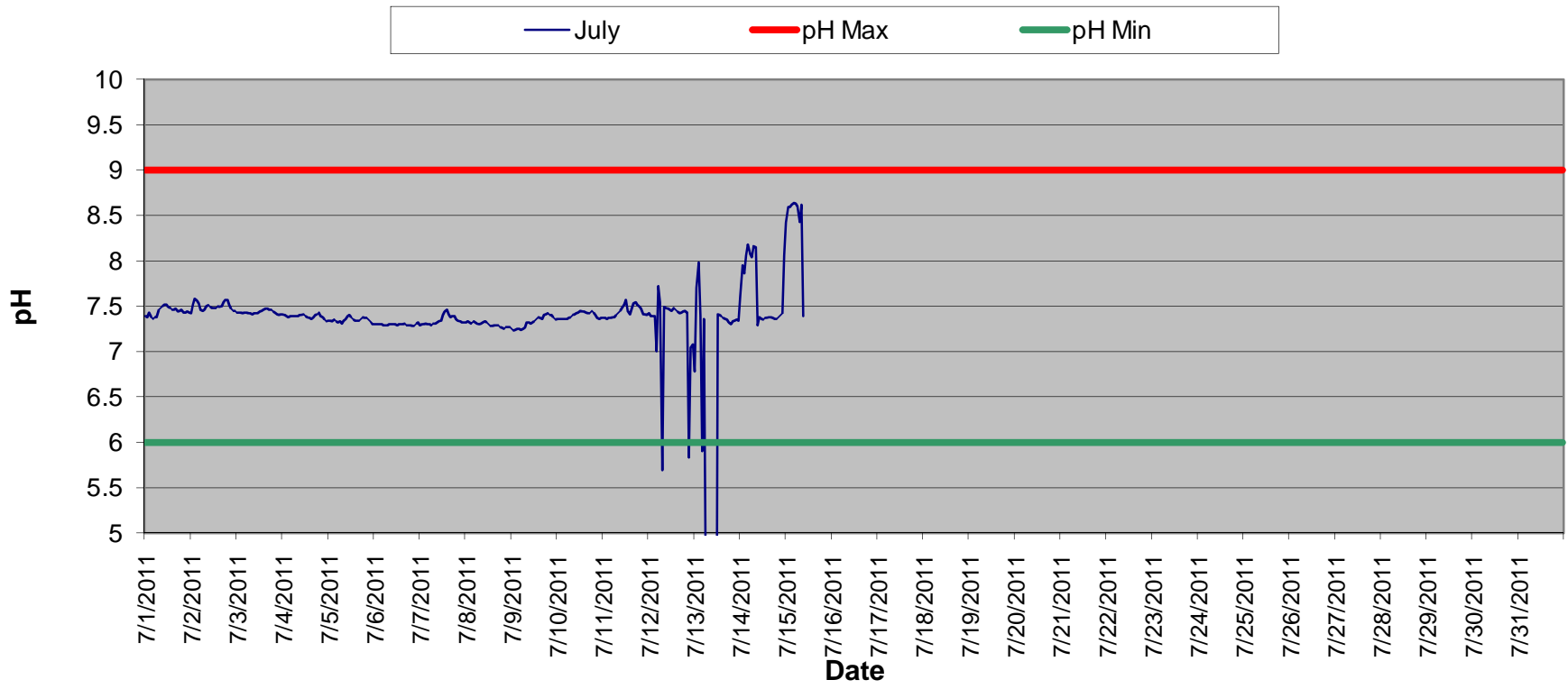
Caldron Falls Powerhouse Tailrace Temperature Summary - July 2011

Time	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11	07/17/11
0	65.2	67.4	69.9	70.5	69.8	68.7	69.6	70.3	69.8	70.0	70.9	72.2	59.3	62.8	63.0	32.0	32.0
10000	65.1	69.9	69.9	70.5	70.4	69.1	69.2	70.2	69.5	70.3	70.9	72.4	58.2	60.6	62.3	32.0	32.0
20000	65.3	71.3	70.0	70.3	70.5	68.9	69.1	70.4	69.6	70.6	70.8	72.4	58.4	60.0	62.2	32.0	32.0
30000	65.4	70.9	69.7	70.1	70.0	69.1	69.5	70.4	69.7	70.4	70.7	72.3	57.7	60.9	62.0	32.0	32.0
40000	65.3	70.2	69.7	70.4	70.0	69.2	69.4	70.4	69.7	70.1	71.0	67.6	58.1	61.8	61.9	32.0	32.0
50000	65.5	69.0	69.7	70.3	69.5	68.9	69.7	70.5	69.5	70.5	71.0	63.6	59.0	61.0	62.1	32.0	32.0
60000	65.8	68.6	69.5	70.3	69.1	68.9	69.4	70.4	69.7	70.4	71.1	63.0	59.4	61.0	62.3	32.0	32.0
70000	66.2	68.8	69.4	70.2	69.4	69.3	69.5	70.6	69.9	70.6	71.6	63.7	59.6	61.9	62.7	32.0	32.0
80000	66.9	69.7	69.4	70.3	69.1	69.9	69.9	70.3	69.9	71.2	72.3	72.9	60.6	62.9	63.5	32.0	32.0
90000	67.6	70.1	69.5	70.5	70.3	70.3	70.3	70.9	70.1	71.4	72.7	73.0	66.9	67.7	68.0	32.0	32.0
100000	67.8	69.9	69.6	70.8	71.3	70.3	70.8	71.4	70.2	71.7	73.5	73.0	65.6	70.4	32.0	32.0	32.0
110000	68.3	69.8	69.7	71.0	71.8	70.3	71.5	71.6	70.3	71.5	74.4	73.1	65.7	70.3	32.0	32.0	32.0
120000	67.8	69.7	70.2	71.0	71.0	70.2	72.1	70.9	70.7	71.8	75.5	73.0	70.8	70.7	32.0	32.0	32.0
130000	67.7	70.0	70.7	71.1	70.4	70.2	72.9	70.2	70.8	72.0	73.1	73.6	71.3	71.1	32.0	32.0	32.0
140000	67.5	70.8	71.3	71.1	69.9	70.3	73.6	70.4	71.2	72.0	72.2	73.4	71.6	71.5	32.0	32.0	32.0
150000	67.6	70.5	71.7	71.0	69.5	70.6	72.5	71.1	71.4	72.1	73.7	72.7	71.7	71.5	32.0	32.0	32.0
160000	67.9	71.1	71.9	71.7	70.0	70.8	71.9	71.4	70.9	71.9	75.3	72.1	72.0	71.5	32.0	32.0	32.0
170000	67.5	72.2	71.9	72.6	70.6	70.5	71.7	71.1	71.1	72.2	75.6	72.4	71.7	71.3	32.0	32.0	32.0
180000	67.8	73.3	72.0	73.1	71.6	70.2	71.5	70.8	71.6	72.6	75.3	72.8	71.2	71.3	32.0	32.0	32.0
190000	67.8	73.4	71.6	73.6	71.7	69.9	71.0	70.3	71.7	72.4	74.8	72.8	71.5	71.2	32.0	32.0	32.0
200000	67.3	72.0	71.2	72.9	71.1	69.7	70.4	69.7	71.5	71.7	73.9	72.5	72.1	70.9	32.0	32.0	32.0
210000	67.2	71.0	70.8	72.2	70.2	69.4	70.2	70.1	70.9	70.8	72.8	65.9	72.3	71.0	32.0	32.0	32.0
220000	67.5	70.5	70.5	71.2	69.5	69.9	70.0	70.5	70.4	70.7	72.3	62.2	72.3	71.1	32.0	32.0	32.0
230000	67.5	70.3	70.8	70.4	69.1	70.1	70.3	70.4	70.1	70.8	72.1	60.3	72.0	65.5	32.0	32.0	32.0
Daily Max	68.3	73.4	72.0	73.6	71.8	70.8	73.6	71.6	71.7	72.6	75.6	73.6	72.3	71.5	68.0	32.0	32.0
Daily Min	65.1	67.4	69.4	70.1	69.1	68.7	69.1	69.7	69.5	70.0	70.7	60.3	57.7	60.0	32.0	32.0	32.0
Average	66.9	70.4	70.4	71.1	70.2	69.8	70.7	70.6	70.4	71.2	72.8	70.1	66.2	67.1	44.9	32.0	32.0

Monthly average: 49.5  
 License Maximum Monthly Average: 89 F

Peaking operation began on 7/12/11. Monitor out of water.

### Caldron Falls Tailwater pH Summary - July 2011



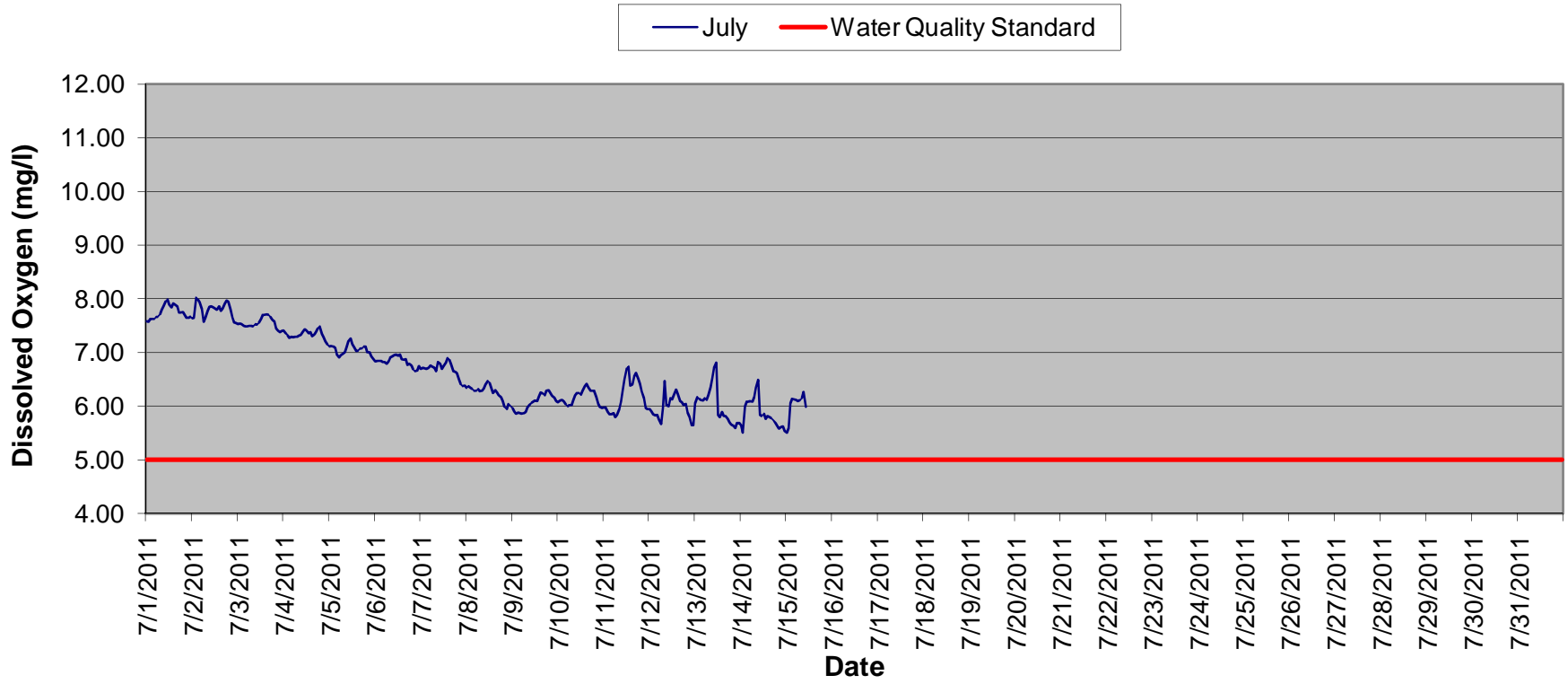
Caldron Falls Tailwater pH Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11	07/17/11
0	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.4	6.8	7.6	8.4	0.0	0.0
10000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.4	7.4	7.4	7.7	8.0	8.6	0.0	0.0
20000	7.4	7.6	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.4	7.4	7.4	8.0	7.9	8.6	0.0	0.0
30000	7.4	7.6	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.4	8.1	8.6	0.0	0.0
40000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.0	5.9	8.2	8.6	0.0	0.0
50000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.4	7.4	7.7	7.4	8.1	8.6	0.0	0.0
60000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.5	3.7	8.0	8.6	0.0	0.0
70000	7.5	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	5.7	2.0	8.2	8.4	0.0	0.0
80000	7.5	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.5	0.0	8.2	8.6	0.0	0.0
90000	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.5	7.5	0.0	7.3	7.4	0.0	0.0
100000	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.5	7.5	0.0	7.4	0.0	0.0	0.0
110000	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.5	7.5	0.0	7.4	0.0	0.0	0.0
120000	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.5	7.6	7.5	7.4	7.4	0.0	0.0	0.0
130000	7.5	7.5	7.5	7.4	7.4	7.3	7.4	7.3	7.4	7.4	7.5	7.5	7.4	7.4	0.0	0.0	0.0
140000	7.5	7.5	7.5	7.4	7.3	7.3	7.5	7.3	7.4	7.4	7.4	7.5	7.4	7.4	0.0	0.0	0.0
150000	7.5	7.5	7.5	7.4	7.3	7.3	7.4	7.3	7.4	7.4	7.5	7.4	7.4	7.4	0.0	0.0	0.0
160000	7.5	7.5	7.5	7.4	7.3	7.3	7.4	7.3	7.4	7.4	7.5	7.4	7.4	7.4	0.0	0.0	0.0
170000	7.4	7.5	7.5	7.4	7.4	7.3	7.4	7.3	7.4	7.4	7.5	7.4	7.4	7.4	0.0	0.0	0.0
180000	7.5	7.6	7.5	7.4	7.4	7.3	7.4	7.3	7.4	7.5	7.5	7.4	7.3	7.4	0.0	0.0	0.0
190000	7.5	7.6	7.4	7.4	7.4	7.3	7.4	7.3	7.4	7.4	7.5	7.5	7.3	7.4	0.0	0.0	0.0
200000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.4	7.4	7.5	7.4	7.3	7.4	0.0	0.0	0.0
210000	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.4	7.4	7.4	5.8	7.3	7.4	0.0	0.0	0.0
220000	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.0	7.4	7.4	0.0	0.0	0.0
230000	7.4	7.5	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.1	7.3	8.1	0.0	0.0	0.0
Daily Max	7.5	7.6	7.5	7.4	7.4	7.3	7.5	7.3	7.4	7.5	7.6	7.7	8.0	8.2	8.6	0.0	0.0
Daily Min	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.2	7.4	7.4	5.7	0.0	7.3	0.0	0.0	0.0
Average	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	5.7	7.6	3.5	0.0	0.0

Peaking operation began on 7/12/11. Monitor out of water.

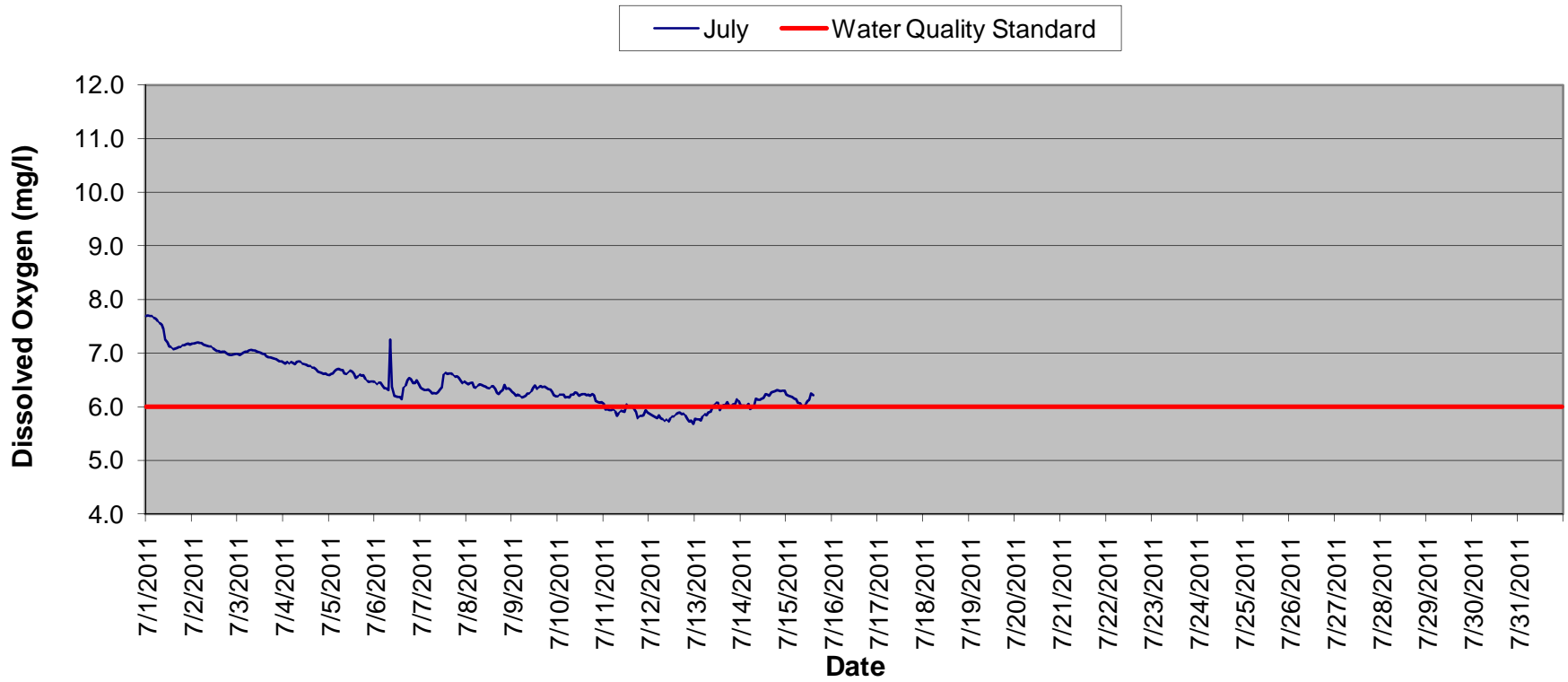
Liscense maximum ph: 9  
Liscense minimum ph: 6

### Caldron Falls Bridge Dissolved Oxygen - July 2011



## Johnson Falls

### Johnson Falls Tailwater Dissolved Oxygen - July 2011

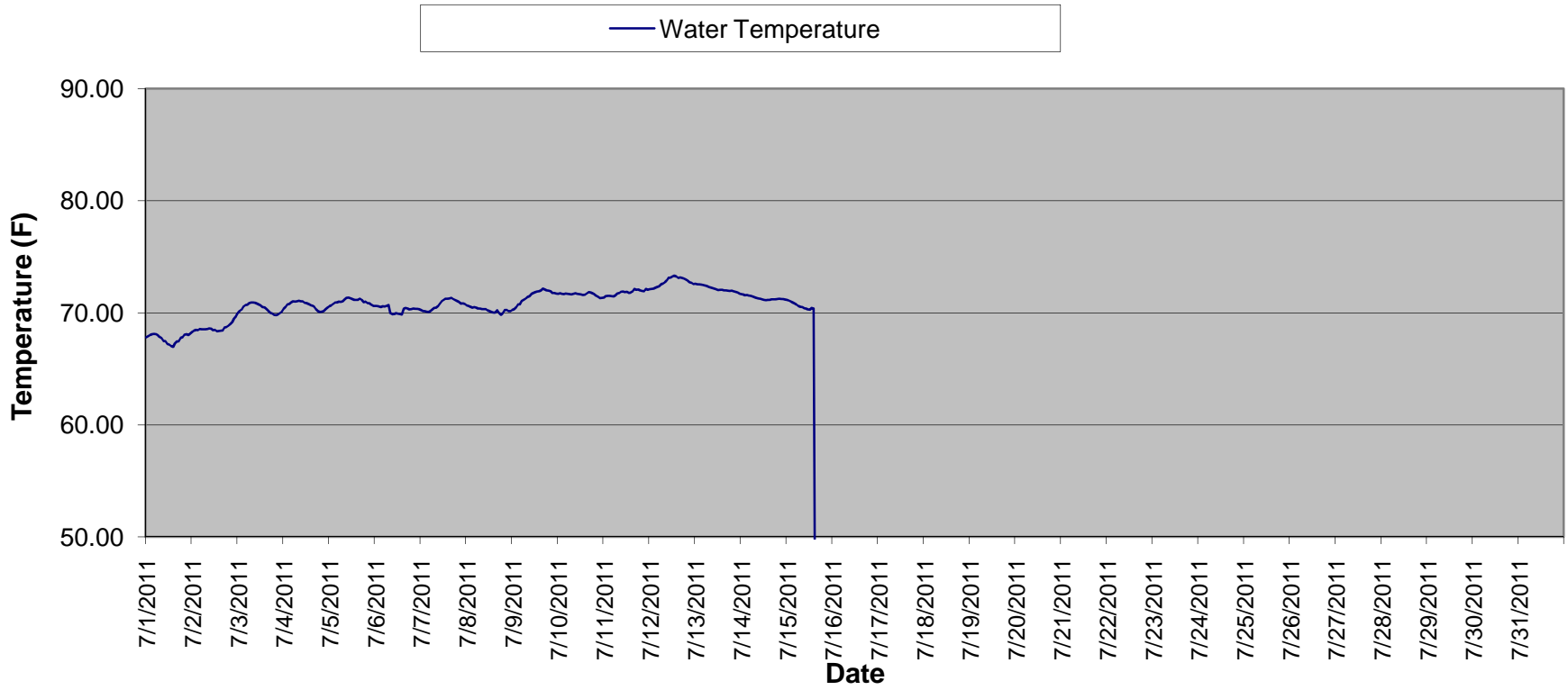


Johnson Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.7	7.2	7.0	6.8	6.6	6.5	6.4	6.4	6.3	6.2	6.1	5.9	5.8	6.0	6.2	0.0
10000	7.7	7.2	7.0	6.8	6.6	6.4	6.3	6.4	6.2	6.2	5.9	5.9	5.8	6.0	6.2	0.0
20000	7.7	7.2	7.0	6.8	6.6	6.5	6.3	6.4	6.2	6.2	6.0	5.8	5.8	6.0	6.2	0.0
30000	7.7	7.2	7.0	6.8	6.7	6.5	6.3	6.5	6.2	6.2	5.9	5.8	5.7	6.0	6.2	0.0
40000	7.7	7.2	7.0	6.8	6.7	6.4	6.3	6.4	6.2	6.2	5.9	5.8	5.8	6.1	6.1	0.0
50000	7.6	7.2	7.0	6.8	6.7	6.3	6.3	6.3	6.2	6.2	6.0	5.8	5.9	6.0	6.1	0.0
60000	7.6	7.2	7.0	6.8	6.7	6.3	6.2	6.4	6.2	6.2	5.9	5.8	5.8	6.0	6.1	0.0
70000	7.6	7.1	7.1	6.8	6.7	6.3	6.3	6.4	6.2	6.2	5.8	5.8	5.9	6.0	6.1	0.0
80000	7.5	7.1	7.1	6.8	6.6	7.3	6.2	6.4	6.2	6.2	5.9	5.7	5.9	6.2	6.0	0.0
90000	7.4	7.1	7.1	6.8	6.6	6.4	6.3	6.4	6.2	6.3	5.9	5.8	6.0	6.1	6.0	0.0
100000	7.3	7.1	7.0	6.8	6.6	6.2	6.3	6.4	6.3	6.3	5.9	5.7	6.0	6.1	6.1	0.0
110000	7.2	7.1	7.0	6.8	6.7	6.2	6.4	6.3	6.3	6.2	5.9	5.8	6.1	6.2	6.1	0.0
120000	7.1	7.1	7.0	6.8	6.7	6.2	6.6	6.3	6.4	6.2	6.0	5.8	6.1	6.2	6.1	0.0
130000	7.1	7.0	7.0	6.8	6.6	6.2	6.6	6.4	6.3	6.2	6.0	5.8	5.9	6.2	6.3	0.0
140000	7.1	7.0	7.0	6.8	6.5	6.1	6.6	6.4	6.4	6.2	6.0	5.9	6.0	6.2	6.2	0.0
150000	7.1	7.0	6.9	6.7	6.6	6.4	6.6	6.3	6.4	6.2	6.0	5.9	6.0	6.2	0.0	0.0
160000	7.1	7.0	6.9	6.7	6.6	6.4	6.6	6.3	6.4	6.2	6.0	5.9	6.0	6.3	0.0	0.0
170000	7.1	7.0	6.9	6.7	6.6	6.5	6.6	6.2	6.4	6.2	5.9	5.9	6.1	6.3	0.0	0.0
180000	7.1	7.0	6.9	6.6	6.6	6.5	6.6	6.3	6.4	6.2	5.8	5.9	6.0	6.3	0.0	0.0
190000	7.1	7.0	6.9	6.6	6.5	6.5	6.6	6.3	6.3	6.2	5.8	5.8	6.0	6.3	0.0	0.0
200000	7.2	7.0	6.9	6.6	6.5	6.4	6.5	6.4	6.3	6.1	5.8	5.8	6.0	6.3	0.0	0.0
210000	7.2	7.0	6.9	6.6	6.5	6.4	6.5	6.3	6.3	6.1	5.8	5.7	6.1	6.3	0.0	0.0
220000	7.2	7.0	6.8	6.6	6.5	6.5	6.4	6.3	6.2	6.1	5.9	5.7	6.1	6.3	0.0	0.0
230000	7.2	7.0	6.8	6.6	6.5	6.4	6.5	6.3	6.2	6.1	5.9	5.7	6.1	6.3	0.0	0.0
Daily Max	7.7	7.2	7.1	6.8	6.7	7.3	6.6	6.5	6.4	6.3	6.1	5.9	6.1	6.3	6.3	0.0
Daily Min	7.1	7.0	6.8	6.6	6.5	6.1	6.2	6.2	6.2	6.1	5.8	5.7	5.7	6.0	0.0	0.0
Average	7.3	7.1	7.0	6.8	6.6	6.4	6.4	6.4	6.3	6.2	5.9	5.8	6.0	6.2	3.8	0.0
Below Water Quality Standard																

License Minimum Dissolved Oxygen: 6.0 mg/l  
 Instrument Precision - +/- 0.2 mg/l

### Johnson Falls Tailwater Temperature - July 2011





Johnson Falls Tailwater Temperature Summary - July 2011

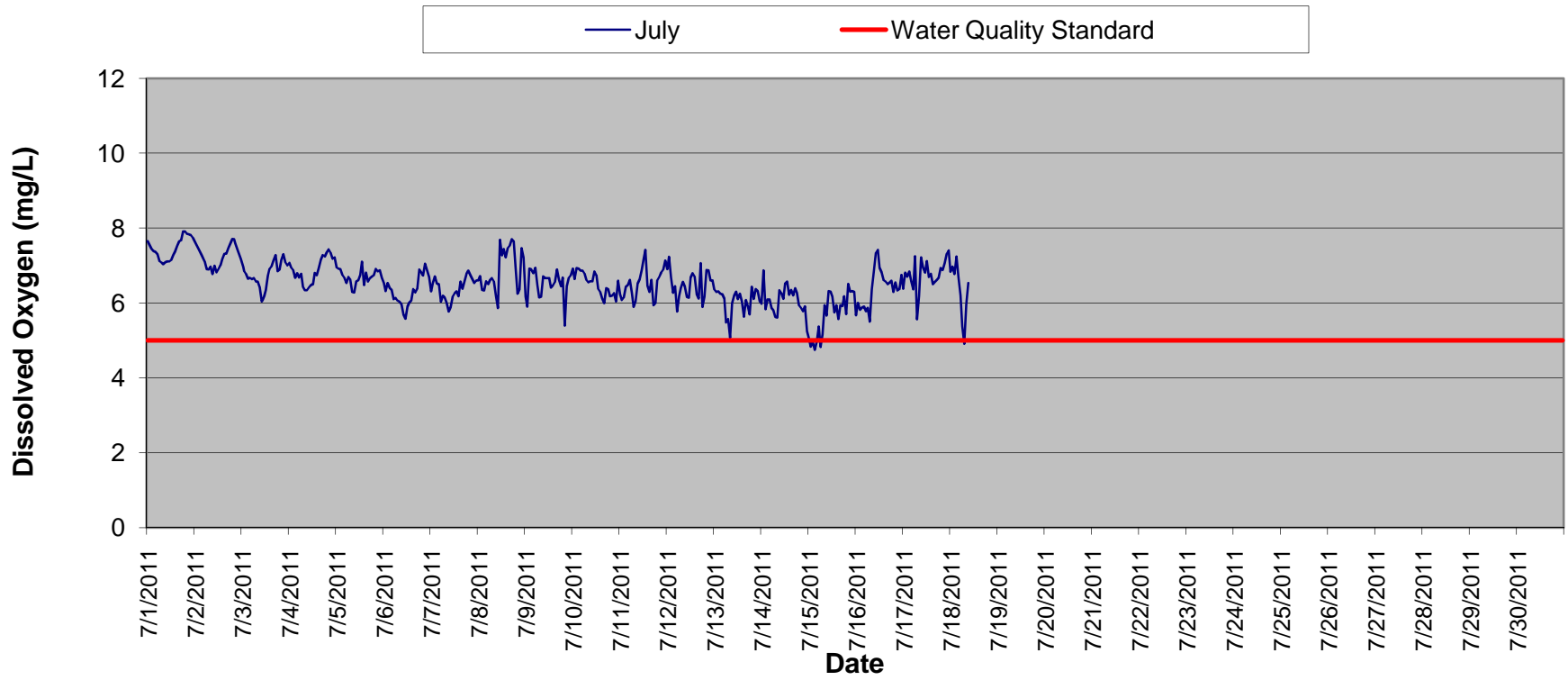
Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	67.8	68.3	70.0	70.4	70.6	70.6	70.3	70.7	70.3	71.7	71.4	72.1	72.6	71.7	71.2	32.0
10000	67.9	68.4	70.2	70.5	70.7	70.6	70.2	70.6	70.3	71.7	71.5	72.1	72.6	71.6	71.1	32.0
20000	68.0	68.5	70.3	70.8	70.8	70.6	70.1	70.5	70.5	71.7	71.5	72.2	72.5	71.6	71.0	32.0
30000	68.1	68.5	70.6	70.8	70.9	70.5	70.1	70.5	70.8	71.7	71.5	72.2	72.5	71.6	70.9	32.0
40000	68.1	68.6	70.7	71.0	70.9	70.6	70.1	70.5	70.8	71.7	71.5	72.3	72.5	71.5	70.8	32.0
50000	68.1	68.5	70.7	71.0	71.0	70.6	70.2	70.5	71.1	71.7	71.5	72.4	72.4	71.5	70.7	32.0
60000	68.0	68.5	70.9	71.0	71.0	70.6	70.3	70.4	71.2	71.7	71.5	72.6	72.4	71.5	70.6	32.0
70000	67.8	68.5	70.9	71.0	71.0	70.7	70.4	70.4	71.3	71.7	71.7	72.6	72.3	71.4	70.5	32.0
80000	67.7	68.6	70.9	71.1	71.2	70.0	70.5	70.3	71.4	71.7	71.8	72.7	72.3	71.3	70.5	32.0
90000	67.5	68.6	70.9	71.0	71.3	69.9	70.6	70.3	71.5	71.7	71.9	72.9	72.2	71.3	70.4	32.0
100000	67.5	68.6	70.8	71.0	71.4	69.9	70.8	70.3	71.7	71.7	71.9	73.1	72.2	71.3	70.4	32.0
110000	67.2	68.5	70.8	70.9	71.3	70.0	71.1	70.2	71.8	71.7	71.9	73.1	72.1	71.2	70.3	32.0
120000	67.2	68.5	70.6	70.9	71.2	69.9	71.2	70.1	71.9	71.7	71.9	73.2	72.0	71.2	70.3	32.0
130000	67.0	68.4	70.5	70.8	71.2	69.9	71.3	70.1	71.9	71.6	71.8	73.3	72.1	71.1	70.4	32.0
140000	67.0	68.4	70.5	70.7	71.2	69.9	71.3	70.0	71.9	71.6	71.8	73.2	72.1	71.2	70.4	32.0
150000	67.3	68.4	70.3	70.6	71.2	70.4	71.3	70.0	72.0	71.7	71.9	73.1	72.0	71.2	32.0	32.0
160000	67.5	68.4	70.2	70.5	71.3	70.4	71.3	70.2	72.2	71.9	72.1	73.2	72.0	71.2	32.0	32.0
170000	67.4	68.7	70.0	70.3	71.2	70.4	71.2	70.0	72.1	71.8	72.1	73.1	72.0	71.2	32.0	32.0
180000	67.8	68.7	69.9	70.1	71.0	70.3	71.1	69.8	72.0	71.7	72.1	73.1	72.0	71.2	32.0	32.0
190000	67.8	68.8	69.8	70.1	71.0	70.3	71.0	70.0	72.0	71.6	72.0	73.0	72.0	71.2	32.0	32.0
200000	68.0	69.0	69.8	70.1	70.9	70.4	71.0	70.3	71.9	71.5	72.0	72.8	71.9	71.3	32.0	32.0
210000	68.1	69.2	69.8	70.2	70.8	70.4	70.8	70.3	71.8	71.4	71.9	72.7	71.9	71.2	32.0	32.0
220000	68.0	69.5	70.0	70.3	70.7	70.4	70.8	70.1	71.8	71.3	72.1	72.7	71.8	71.2	32.0	32.0
230000	68.1	69.7	70.1	70.5	70.6	70.3	70.8	70.2	71.7	71.3	72.1	72.6	71.7	71.2	32.0	32.0
Daily Max	68.1	69.7	70.9	71.1	71.4	70.7	71.3	70.7	72.2	71.9	72.1	73.3	72.6	71.7	71.2	32.0
Daily Min	67.0	68.3	69.8	70.1	70.6	69.9	70.1	69.8	70.3	71.3	71.4	72.1	71.7	71.1	32.0	32.0
Average	67.7	68.7	70.4	70.7	71.0	70.3	70.7	70.3	71.5	71.6	71.8	72.8	72.2	71.3	56.2	32.0

Monthly average: 50.3

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

## Potato Rapids

### Potato Rapids Headwater Dissolved Oxygen Summary - July 2011



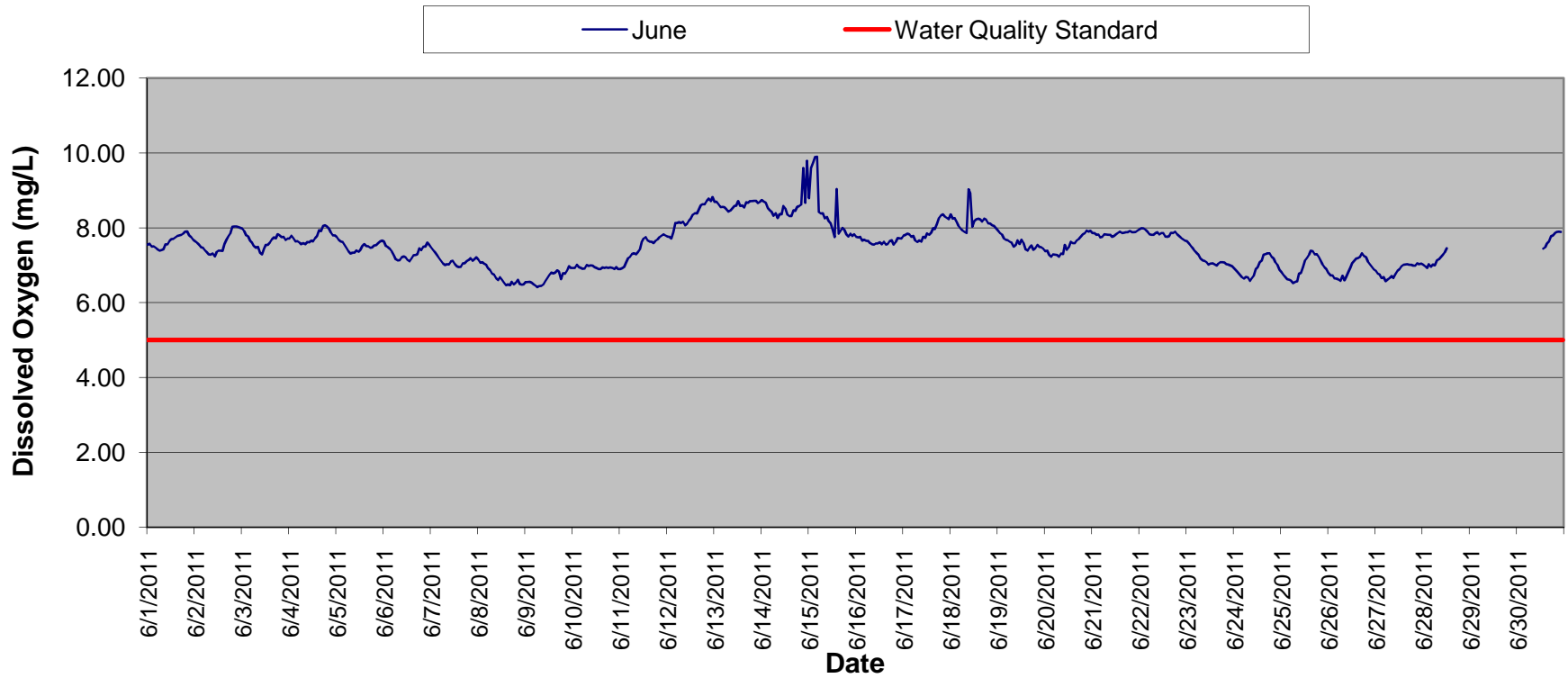
Potato Rapids Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.7	7.6	7.1	7.1	7.0	6.5	6.3	6.6	6.2	6.9	6.2	6.9	6.4	6.0	5.1	5.7
10000	7.5	7.5	6.9	7.0	6.9	6.3	6.5	6.7	5.9	6.6	6.1	7.2	6.3	6.9	4.8	6.0
20000	7.5	7.5	6.8	6.9	6.9	6.5	6.7	6.4	6.9	6.9	6.2	6.7	6.3	5.8	5.0	5.8
30000	7.4	7.3	6.7	6.7	6.8	6.4	6.5	6.3	6.9	6.9	6.4	6.3	6.3	6.1	4.8	5.9
40000	7.4	7.2	6.7	6.8	6.7	6.4	6.5	6.6	6.8	6.9	6.5	6.5	6.2	6.1	5.0	5.9
50000	7.3	7.1	6.6	6.7	6.5	6.1	6.0	6.5	6.9	6.9	6.6	5.8	6.1	5.9	5.4	5.8
60000	7.1	6.9	6.7	6.8	6.7	6.1	6.2	6.6	6.5	6.8	6.3	6.2	5.5	5.8	4.8	5.9
70000	7.1	6.9	6.6	6.4	6.6	6.1	6.2	6.7	6.2	6.6	5.9	6.4	5.6	5.6	5.2	5.5
80000	7.0	7.0	6.6	6.3	6.3	6.0	6.0	6.6	6.2	6.6	6.1	6.6	5.1	5.6	5.9	6.4
90000	7.1	6.8	6.4	6.3	6.3	6.0	5.8	6.2	6.7	6.6	6.5	6.4	6.0	6.3	5.7	6.8
100000	7.1	7.0	6.0	6.4	6.6	5.7	5.9	5.9	6.7	6.6	6.6	6.2	6.2	6.3	6.3	7.3
110000	7.1	6.8	6.2	6.5	6.6	5.6	6.2	7.7	6.7	6.8	6.9	6.1	6.3	6.1	6.3	7.4
120000	7.2	6.9	6.3	6.5	6.8	5.9	6.3	7.3	6.7	6.7	7.2	6.7	6.1	6.5	6.2	6.9
130000	7.3	7.0	6.7	6.8	7.1	6.0	6.3	7.4	6.4	6.4	7.4	6.8	6.3	6.6	5.8	6.8
140000	7.4	7.2	6.9	6.7	6.5	6.1	6.2	7.2	6.5	6.3	6.5	6.7	6.0	6.2	5.9	6.6
150000	7.5	7.3	7.0	6.9	6.8	6.4	6.6	7.5	6.6	6.1	6.3	6.2	5.6	6.4	5.6	6.6
160000	7.6	7.3	7.1	7.2	6.6	6.3	6.4	7.5	6.9	6.0	6.6	6.1	6.1	6.2	5.9	6.5
170000	7.7	7.5	7.3	7.3	6.7	6.4	6.6	7.7	6.6	6.4	5.9	7.1	5.9	6.4	5.9	6.6
180000	7.9	7.6	6.9	7.2	6.7	6.9	6.8	7.6	6.5	6.4	6.0	5.9	5.7	6.3	6.2	6.6
190000	7.9	7.7	6.9	7.3	6.7	6.8	6.9	7.0	6.7	6.2	6.6	6.2	6.4	5.9	5.7	6.3
200000	7.9	7.7	7.2	7.4	6.9	6.7	6.8	6.3	5.4	6.2	6.7	6.9	6.1	5.9	6.5	6.6
210000	7.8	7.5	7.3	7.3	6.8	7.1	6.6	6.4	6.5	6.3	6.8	6.9	6.4	5.8	6.3	6.3
220000	7.8	7.4	7.1	7.2	6.9	6.9	6.5	7.5	6.7	6.0	6.9	6.6	6.3	5.9	6.3	6.4
230000	7.7	7.2	7.0	7.2	6.7	6.7	6.6	7.2	6.7	6.6	7.1	6.6	6.0	5.3	6.3	6.8
Daily Max	7.9	7.7	7.3	7.4	7.1	7.1	6.9	7.7	6.9	6.9	7.4	7.2	6.4	6.9	6.5	7.4
Daily Min	7.0	6.8	6.0	6.3	6.3	5.6	5.8	5.9	5.4	6.0	5.9	5.8	5.1	5.3	4.8	5.5
Average	7.5	7.2	6.8	6.9	6.7	6.3	6.4	6.9	6.5	6.5	6.5	6.5	6.0	6.1	5.7	6.4

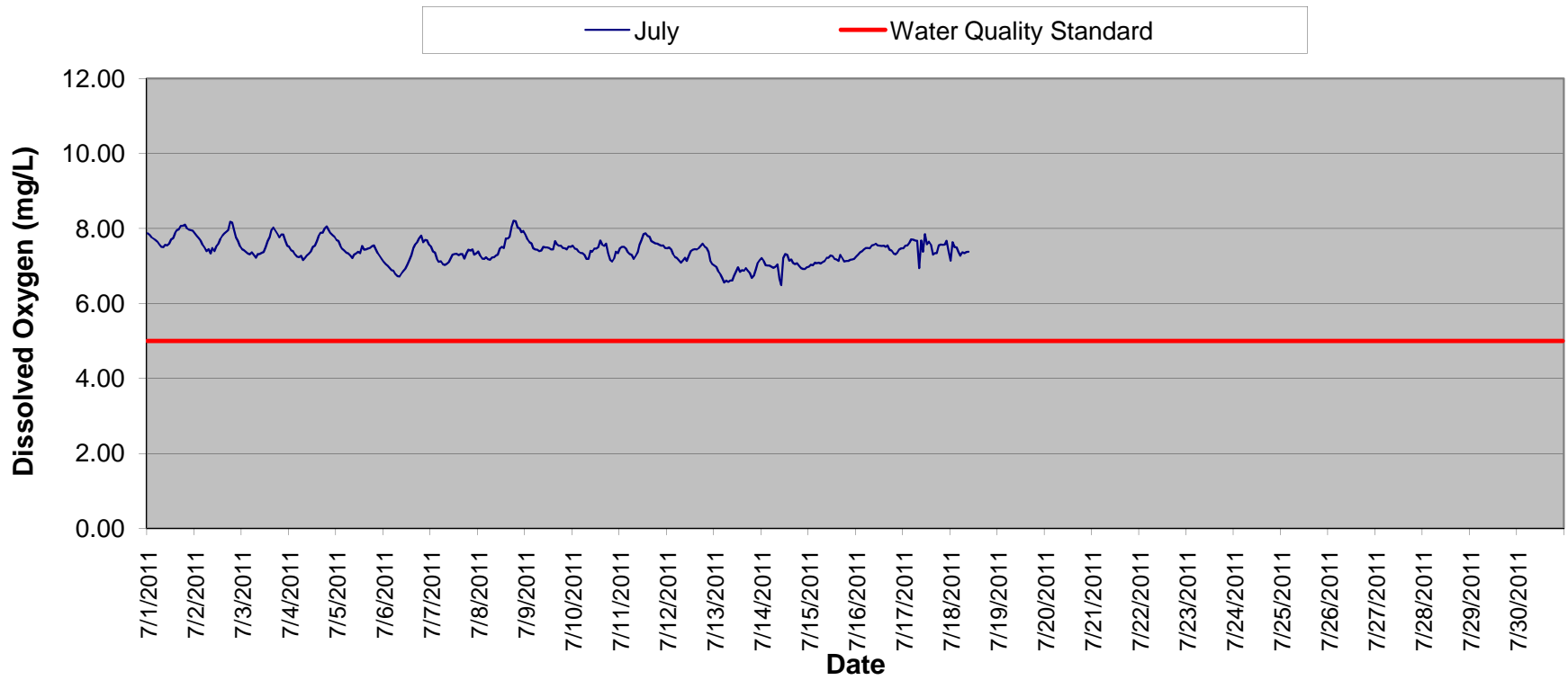
Low readings due to stratification of reservoir

License Minimum Dissolved Oxygen: 5.0 mg/l

### Potato Rapids Tailwater Dissolved Oxygen Summary - June 2011



### Potato Rapids Tailwater Dissolved Oxygen Summary - July 2011



Potato Rapids Tailwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/01/11	06/02/11	06/03/11	06/04/11	06/05/11	06/06/11	06/07/11	06/08/11	06/09/11	06/10/11	06/11/11	06/12/11	06/13/11	06/14/11	06/15/11	06/16/11
0	7.6	7.6	8.0	7.7	7.8	7.6	7.5	7.1	6.6	6.9	6.9	7.8	8.7	8.7	8.8	7.8
10000	7.6	7.6	7.9	7.8	7.7	7.5	7.4	7.1	6.6	6.9	6.9	7.8	8.7	8.7	9.6	7.7
20000	7.5	7.5	7.8	7.7	7.6	7.5	7.3	7.1	6.6	7.0	7.0	7.7	8.6	8.7	9.7	7.8
30000	7.5	7.5	7.8	7.6	7.6	7.4	7.3	7.0	6.5	7.0	7.1	7.9	8.6	8.5	9.9	7.7
40000	7.5	7.5	7.6	7.6	7.5	7.4	7.2	7.0	6.5	6.9	7.2	8.1	8.6	8.5	9.9	7.7
50000	7.4	7.4	7.6	7.6	7.5	7.3	7.1	6.9	6.5	6.9	7.2	8.1	8.6	8.4	8.4	7.7
60000	7.4	7.3	7.5	7.6	7.4	7.2	7.1	6.9	6.4	6.9	7.3	8.2	8.5	8.3	8.4	7.7
70000	7.4	7.3	7.5	7.6	7.3	7.1	7.0	6.8	6.4	7.0	7.3	8.1	8.4	8.4	8.4	7.6
80000	7.4	7.3	7.5	7.6	7.3	7.1	7.0	6.7	6.4	7.0	7.3	8.2	8.5	8.3	8.3	7.6
90000	7.6	7.3	7.3	7.6	7.3	7.2	7.0	6.7	6.5	7.0	7.4	8.1	8.5	8.4	8.3	7.6
100000	7.6	7.2	7.3	7.6	7.4	7.2	7.1	6.6	6.6	7.0	7.4	8.1	8.6	8.4	8.2	7.6
110000	7.7	7.4	7.4	7.7	7.4	7.2	7.1	6.7	6.7	6.9	7.6	8.2	8.6	8.6	8.1	7.6
120000	7.7	7.4	7.5	7.6	7.4	7.1	7.0	6.6	6.7	6.9	7.7	8.3	8.7	8.5	8.0	7.6
130000	7.7	7.4	7.5	7.7	7.5	7.1	7.0	6.5	6.8	6.9	7.8	8.4	8.6	8.4	7.8	7.6
140000	7.7	7.4	7.6	7.8	7.6	7.2	6.9	6.5	6.8	6.9	7.7	8.4	8.6	8.3	9.0	7.6
150000	7.8	7.6	7.7	7.9	7.5	7.3	7.0	6.5	6.8	6.9	7.6	8.4	8.5	8.3	7.8	7.6
160000	7.8	7.7	7.7	7.9	7.5	7.3	7.1	6.5	6.9	6.9	7.6	8.5	8.7	8.5	7.9	7.6
170000	7.8	7.8	7.7	8.0	7.5	7.3	7.1	6.6	6.8	6.9	7.6	8.6	8.7	8.5	8.0	7.6
180000	7.8	7.8	7.8	8.1	7.5	7.5	7.1	6.5	6.6	6.9	7.7	8.6	8.7	8.6	7.9	7.7
190000	7.9	8.0	7.8	8.0	7.5	7.4	7.1	6.5	6.8	6.9	7.7	8.6	8.7	8.6	7.8	7.6
200000	7.9	8.0	7.7	8.0	7.5	7.5	7.2	6.6	6.8	6.9	7.8	8.7	8.7	8.6	7.8	7.6
210000	7.8	8.0	7.8	7.9	7.6	7.5	7.1	6.5	6.9	6.9	7.8	8.8	8.7	9.6	7.8	7.7
220000	7.8	8.0	7.7	7.8	7.6	7.6	7.2	6.5	7.0	7.0	7.8	8.7	8.7	8.7	7.8	7.7
230000	7.7	8.0	7.7	7.8	7.7	7.5	7.2	6.5	6.9	6.9	7.8	8.8	8.7	9.8	7.8	7.7
Daily Max	7.9	8.0	8.0	8.1	7.8	7.6	7.5	7.1	7.0	7.0	7.8	8.8	8.7	9.8	9.9	7.8
Daily Min	7.4	7.2	7.3	7.6	7.3	7.1	6.9	6.5	6.4	6.9	6.9	7.7	8.4	8.3	7.8	7.6
Average	7.6	7.6	7.7	7.8	7.5	7.3	7.1	6.7	6.7	6.9	7.5	8.3	8.6	8.6	8.4	7.6

License Minimum: 5.0 mg/l

Potato Rapids Tailwater Dissolved Oxygen Summary - June 2011

Time HHMMSS	06/17/11	06/18/11	06/19/11	06/20/11	06/21/11	06/22/11	06/23/11	06/24/11	06/25/11	06/26/11	06/27/11	06/28/11	06/29/11	06/30/11
0	7.8	8.4	7.9	7.4	7.9	8.0	7.6	6.9	6.8	6.8	6.9	7.0		
10000	7.8	8.2	7.9	7.4	7.9	8.0	7.6	6.9	6.7	6.7	6.8	7.0		
20000	7.8	8.3	7.8	7.3	7.8	8.0	7.5	6.8	6.7	6.7	6.7	6.9		
30000	7.8	8.2	7.7	7.2	7.8	7.9	7.5	6.7	6.6	6.7	6.7	7.0		
40000	7.8	8.1	7.7	7.3	7.7	7.9	7.4	6.7	6.6	6.6	6.7	7.0		
50000	7.8	8.0	7.7	7.3	7.8	7.8	7.3	6.6	6.6	6.6	6.6	7.0		
60000	7.7	7.9	7.6	7.3	7.8	7.8	7.3	6.7	6.5	6.6	6.6	7.0		
70000	7.6	7.9	7.6	7.2	7.8	7.8	7.2	6.7	6.6	6.7	6.7	7.1		
80000	7.7	7.9	7.5	7.3	7.8	7.9	7.1	6.6	6.6	6.6	6.7	7.2		
90000	7.6	9.0	7.5	7.3	7.8	7.9	7.1	6.7	6.8	6.7	6.7	7.2		
100000	7.8	8.9	7.7	7.5	7.8	7.8	7.1	6.7	6.8	6.8	6.8	7.3		
110000	7.7	8.0	7.6	7.4	7.8	7.9	7.0	6.9	7.0	6.9	6.9	7.3		
120000	7.9	8.2	7.7	7.5	7.8	7.9	7.0	7.0	7.1	7.1	6.9	7.5		
130000	7.8	8.2	7.6	7.6	7.9	7.8	7.1	7.1	7.2	7.1	7.0			7.4
140000	7.9	8.2	7.4	7.6	7.9	7.8	7.0	7.1	7.3	7.2	7.0			7.5
150000	8.0	8.2	7.4	7.6	7.9	7.8	7.0	7.3	7.4	7.2	7.0			7.6
160000	8.0	8.2	7.5	7.7	7.9	7.9	7.0	7.3	7.4	7.2	7.0			7.6
170000	8.1	8.2	7.5	7.7	7.9	7.9	7.1	7.3	7.3	7.3	7.0			7.8
180000	8.3	8.2	7.4	7.8	7.9	7.9	7.1	7.3	7.3	7.2	7.0			7.8
190000	8.3	8.1	7.5	7.8	7.9	7.8	7.1	7.2	7.2	7.2	7.0			7.9
200000	8.4	8.1	7.5	7.9	7.9	7.8	7.0	7.2	7.1	7.1	7.0			7.9
210000	8.3	8.1	7.5	7.9	7.9	7.7	7.0	7.1	7.0	7.0	7.1			7.9
220000	8.3	8.1	7.5	7.9	7.9	7.7	7.0	7.0	6.9	7.0	7.0			7.9
230000	8.2	8.0	7.4	7.9	7.9	7.7	7.0	6.9	6.9	6.9	7.0			7.9
Daily Max	8.4	9.0	7.9	7.9	7.9	8.0	7.6	7.3	7.4	7.3	7.1	7.5	0.0	7.9
Daily Min	7.6	7.9	7.4	7.2	7.7	7.7	7.0	6.6	6.5	6.6	6.6	6.9	0.0	7.4
Average	7.9	8.2	7.6	7.5	7.8	7.8	7.2	6.9	6.9	6.9	6.9	7.1	#DIV/0!	7.7
Missing data - equipment pulled out of water														



Potato Rapids Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.9	7.9	7.4	7.5	7.7	7.1	7.5	7.4	7.8	7.5	7.5	7.5	7.0	7.2	7.0	7.3
10000	7.8	7.8	7.4	7.4	7.7	7.0	7.4	7.3	7.7	7.5	7.5	7.5	7.0	7.1	7.0	7.3
20000	7.8	7.7	7.4	7.4	7.5	7.0	7.4	7.2	7.6	7.5	7.5	7.4	6.9	7.0	7.0	7.4
30000	7.7	7.7	7.3	7.3	7.5	6.9	7.2	7.2	7.6	7.4	7.5	7.3	6.8	7.0	7.1	7.4
40000	7.7	7.6	7.3	7.2	7.4	6.9	7.1	7.2	7.5	7.4	7.4	7.2	6.7	7.0	7.1	7.4
50000	7.6	7.5	7.4	7.2	7.4	6.9	7.1	7.2	7.4	7.3	7.3	7.2	6.6	7.0	7.1	7.5
60000	7.6	7.4	7.3	7.3	7.3	6.8	7.0	7.2	7.4	7.3	7.3	7.2	6.6	7.0	7.1	7.5
70000	7.5	7.4	7.2	7.2	7.3	6.7	7.0	7.2	7.4	7.2	7.2	7.1	6.6	7.0	7.1	7.5
80000	7.5	7.3	7.3	7.2	7.2	6.7	7.1	7.2	7.4	7.2	7.3	7.2	6.6	7.0	7.1	7.6
90000	7.6	7.5	7.3	7.3	7.3	6.8	7.1	7.3	7.5	7.4	7.4	7.2	6.6	6.7	7.2	7.6
100000	7.5	7.4	7.3	7.3	7.3	6.9	7.2	7.3	7.5	7.4	7.6	7.1	6.7	6.5	7.2	7.6
110000	7.6	7.5	7.4	7.4	7.4	6.9	7.3	7.5	7.5	7.5	7.7	7.3	6.9	7.2	7.3	7.6
120000	7.7	7.6	7.5	7.5	7.3	7.0	7.3	7.5	7.5	7.5	7.9	7.4	7.0	7.3	7.3	7.5
130000	7.7	7.7	7.7	7.5	7.5	7.2	7.3	7.5	7.4	7.5	7.9	7.4	6.8	7.3	7.2	7.5
140000	7.9	7.8	7.8	7.7	7.4	7.3	7.3	7.7	7.4	7.7	7.8	7.5	6.9	7.1	7.2	7.5
150000	8.0	7.9	8.0	7.8	7.4	7.5	7.3	7.7	7.7	7.6	7.8	7.4	6.9	7.2	7.1	7.5
160000	8.0	7.9	8.0	7.9	7.5	7.6	7.3	7.8	7.6	7.5	7.7	7.5	6.9	7.1	7.3	7.6
170000	8.1	8.0	7.9	7.9	7.5	7.6	7.2	8.1	7.5	7.6	7.6	7.5	6.9	7.1	7.2	7.4
180000	8.1	8.2	7.9	8.0	7.5	7.7	7.3	8.2	7.5	7.3	7.6	7.6	6.8	7.1	7.1	7.4
190000	8.1	8.2	7.8	8.1	7.5	7.8	7.4	8.2	7.5	7.2	7.6	7.5	6.7	7.0	7.1	7.3
200000	8.0	7.9	7.8	8.0	7.4	7.6	7.4	8.0	7.5	7.1	7.6	7.5	6.7	6.9	7.1	7.3
210000	8.0	7.8	7.8	7.9	7.3	7.7	7.4	8.0	7.4	7.2	7.5	7.4	6.9	6.9	7.2	7.4
220000	8.0	7.7	7.7	7.8	7.3	7.7	7.3	7.9	7.5	7.4	7.6	7.1	7.1	6.9	7.2	7.4
230000	7.9	7.5	7.5	7.8	7.2	7.6	7.3	7.9	7.5	7.3	7.5	7.1	7.2	7.0	7.2	7.5
Daily Max	8.1	8.2	8.0	8.1	7.7	7.8	7.5	8.2	7.8	7.7	7.9	7.6	7.2	7.3	7.3	7.6
Daily Min	7.5	7.3	7.2	7.2	7.2	6.7	7.0	7.2	7.4	7.1	7.2	7.1	6.6	6.5	7.0	7.3
Average	7.8	7.7	7.6	7.6	7.4	7.2	7.3	7.6	7.5	7.4	7.5	7.3	6.8	7.0	7.1	7.5

License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	7.5	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	7.5	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	7.6	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	7.6	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	7.7	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	7.7	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	7.7	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	7.7	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	6.9	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	7.7	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	7.9	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	7.5	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## Metcalfe, Mark W

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**From:** Metcalf, Mark W  
**Sent:** Wednesday, July 27, 2011 11:45 AM  
**To:** 'Donofrio, Michael C'; 'Utrup, Nick'  
**Cc:** Puzen, Shawn C; Brandt, Edward S; Crocker, Bruce E  
**Subject:** Water Quality Monitoring - Peshtigo Hydroelectric Projects  
**Attachments:** 20110727 Peshtigo WQM report to agencies.pdf

Good morning Mike and Nick,

Per the water quality monitoring plans for the Caldron Falls, High Falls, and Johnson Falls hydroelectric projects, attached for your information and review is a report on dissolved oxygen data where the readings have been observed to be below the water quality standard. If you have any questions, please feel free to contact me.

Thank you,  
Mark

### Mark Metcalf

**Environmental Consultant - Air & Water | Integrys Business Support, LLC**

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920-433-4916 *fax*

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**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

July 27, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards - Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for the Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations. Per the monitoring plans, monitoring for dissolved oxygen, temperature, and pH is being conducted from June 1 through September 30, 2011 at the following projects: Caldron Falls (FERC No. 2525), High Falls, (FERC No. 2595), and Johnson Falls (FERC No. 2522). The dissolved oxygen water quality standard at all of the developments except Johnson Falls is 5.0 mg/l. The water quality standard downstream of Johnson Falls is 6 mg/l.

At the Caldron Falls project, deviations from the dissolved oxygen standard have been observed upstream and downstream of the powerhouse. The upstream monitoring location is in the reservoir near the powerhouse intake, approximately 1 meter from the bottom of the reservoir. Throughout the month of July, dissolved oxygen levels have steadily decreased in the hypolimnion of the reservoir due to a natural stratification of the impoundment. The most recent monitoring data has shown levels are nearing 1.0 mg/l. Dissolved oxygen concentrations will continue to be below the water quality standard until the impoundment is no longer stratified.

At the Caldron Falls tailrace and Parkway road bridge monitoring locations, deviations from the water quality standard were recorded on July 23rd while the facility was conducting peaking operation. Between 12:00 p.m. and midnight, the lowest reading at either location was 4.6 mg/l. All of the low readings occurred while the facility was releasing maximum flow from the powerhouse (over 400 cfs). The cause of the low readings is due to the low levels of dissolved oxygen in the hypolimnion of the reservoir (where water is being withdrawn and subsequently released through the powerhouse). On the 24<sup>th</sup>, peaking generation was conducted between the hours of 11:00 a.m. to 10:00 pm. No deviations from the water quality standard were observed during this time period, which suggests the low dissolved oxygen readings observed on the 23<sup>rd</sup> may have been an isolated incident. A comparison of the monitoring data from the upstream, tailrace, and Parkway bridge monitoring locations shows that water quality is improving with distance from the reservoir. Water quality monitoring data from the Caldron Falls headwater, tailrace, and Parkway Bridge monitoring locations are attached for your review.

July 27, 2011

Mr. Donofrio & Mr. Utrup

Page 2 of 2

Downstream of the Johnson Falls Powerhouse, hourly readings below the water quality standard were recorded between July 18<sup>th</sup> and July 23<sup>th</sup>. The lowest dissolved oxygen level recorded was 5.5 mg/l. The likely cause of the low readings is warm water temperatures. Water temperatures during this time period were consistently above 72°F, and even as high as 76°F. Dissolved oxygen and temperature monitoring data from the Johnson Falls monitoring location is attached for your review.

There are no other potential deviations from the dissolved oxygen standard to report. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf

Environmental Consultant – Air & Water

Telephone: (920) 433-1833

Attach.

cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

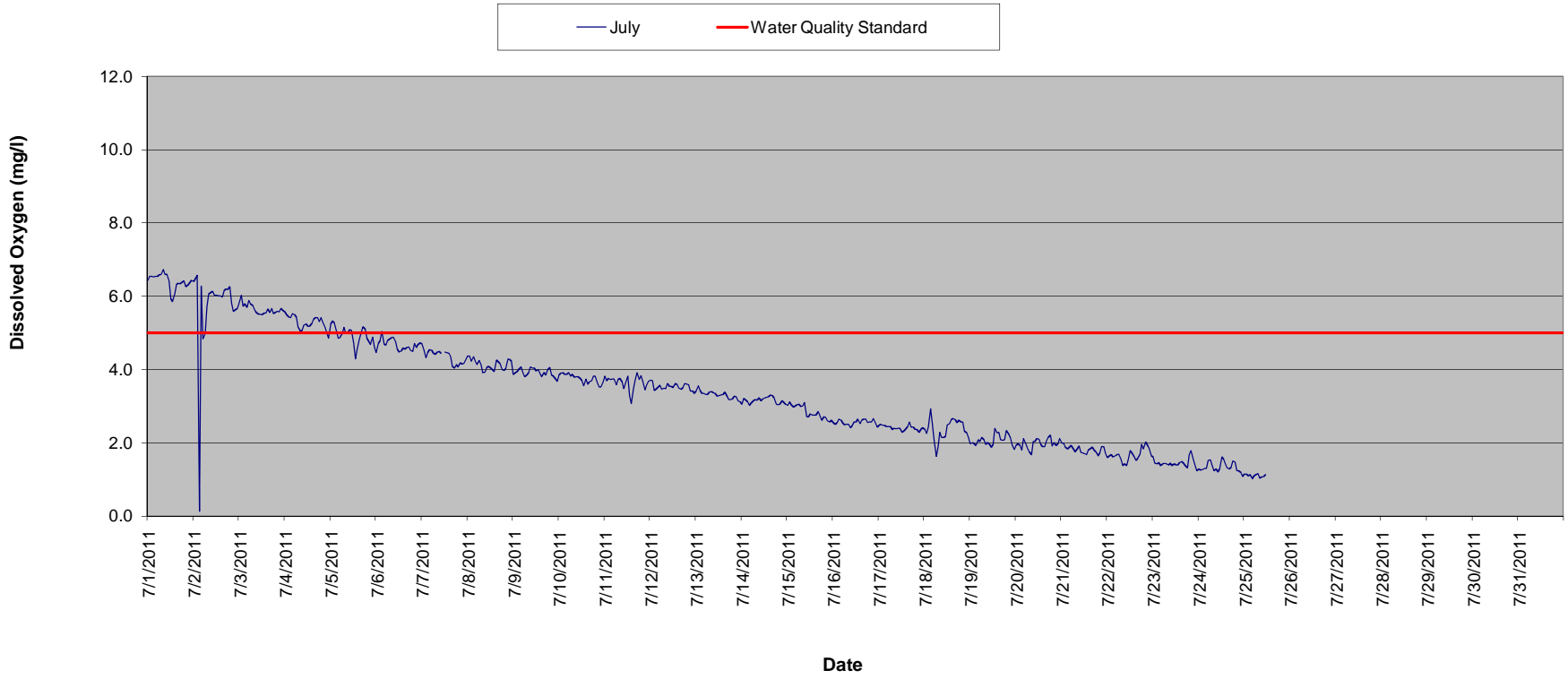
## **Attachments**

### **Peshtigo River Hydroelectric Projects**

#### **Water Quality Monitoring Data**

## **Caldron Falls**

Caldron Falls Headwater Dissolved Oxygen - July 2011





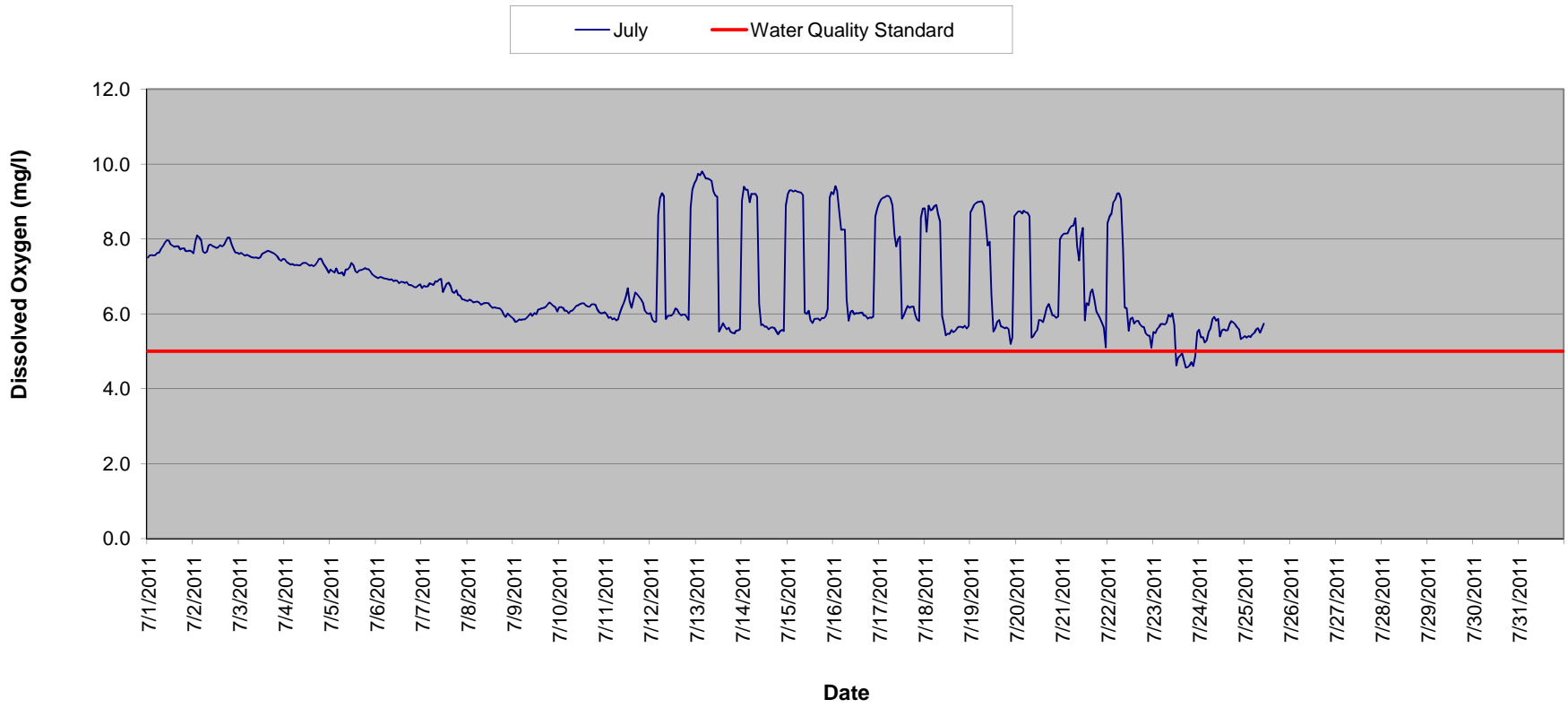
Caldron Falls Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	6.4	6.4	5.8	5.6	5.2	4.5	4.7	4.4	3.9	3.8	3.8	3.7	3.4	3.1	3.0	2.6
10000	6.5	6.5	6.0	5.5	5.3	4.7	4.6	4.4	3.9	3.9	3.7	3.7	3.6	3.2	3.1	2.5
20000	6.5	6.6	5.7	5.4	5.3	4.8	4.3	4.2	3.9	3.9	3.8	3.4	3.4	3.2	3.0	2.6
30000	6.5	0.1	5.8	5.4	5.0	5.0	4.5	4.4	4.0	3.9	3.7	3.5	3.4	3.1	3.0	2.7
40000	6.5	6.3	5.7	5.5	4.9	4.7	4.5	4.2	4.1	3.9	3.7	3.5	3.3	3.0	3.0	2.6
50000	6.5	4.8	5.9	5.5	4.9	4.7	4.5	4.1	3.9	3.9	3.7	3.6	3.3	3.1	3.0	2.5
60000	6.6	5.0	5.8	5.4	5.0	4.8	4.4	4.2	3.8	3.8	3.6	3.5	3.3	3.1	3.1	2.5
70000	6.6	5.7	5.7	5.1	5.1	4.8	4.4	4.1	3.9	3.9	3.7	3.5	3.4	3.2	3.0	2.5
80000	6.7	6.1	5.6	5.0	5.0	4.9	4.5	3.9	3.9	3.8	3.8	3.5	3.4	3.2	3.0	2.5
90000	6.6	6.1	5.6	5.1	5.0	4.9	4.5	3.9	4.1	3.8	3.7	3.6	3.4	3.2	3.1	2.4
100000	6.6	6.1	5.5	5.2	5.1	4.8	4.5	4.1	4.0	3.8	3.5	3.5	3.3	3.1	2.7	2.5
110000	6.4	6.0	5.5	5.2	5.1	4.6	4.5	4.1	4.0	3.8	3.6	3.5	3.3	3.2	2.7	2.6
120000	5.9	6.0	5.5	5.2	4.7	4.5	4.5	4.0	4.0	3.7	3.8	3.5	3.3	3.2	2.8	2.6
130000	5.9	6.0	5.5	5.2	4.3	4.5	4.5	4.0	4.0	3.6	3.3	3.6	3.3	3.2	2.8	2.6
140000	6.1	6.0	5.5	5.3	4.6	4.6	4.4	3.9	3.9	3.7	3.1	3.6	3.3	3.3	2.8	2.5
150000	6.3	6.0	5.7	5.4	4.8	4.6	4.4	4.3	3.8	3.6	3.5	3.5	3.4	3.3	2.8	2.6
160000	6.3	6.1	5.6	5.4	5.0	4.6	4.4	4.2	3.9	3.7	3.7	3.5	3.3	3.3	2.9	2.7
170000	6.3	6.2	5.7	5.4	5.2	4.6	4.0	4.2	3.9	3.7	3.9	3.5	3.2	3.2	2.7	2.7
180000	6.4	6.2	5.5	5.3	5.1	4.5	4.1	4.0	4.0	3.8	3.7	3.6	3.2	3.1	2.6	2.6
190000	6.4	6.3	5.6	5.4	4.9	4.5	4.1	4.0	4.1	3.8	3.8	3.6	3.2	3.0	2.7	2.6
200000	6.3	5.8	5.6	5.3	4.8	4.7	4.2	4.0	3.9	3.6	3.7	3.6	3.3	3.0	2.7	2.6
210000	6.3	5.6	5.6	5.2	4.7	4.6	4.2	4.3	3.8	3.5	3.4	3.4	3.3	3.2	2.6	2.7
220000	6.4	5.6	5.7	5.0	4.9	4.7	4.2	4.3	3.7	3.5	3.6	3.4	3.2	3.1	2.6	2.6
230000	6.4	5.7	5.6	4.9	4.6	4.7	4.3	4.2	3.7	3.7	3.7	3.3	3.1	3.1	2.6	2.4
Daily Max	6.7	6.6	6.0	5.6	5.3	5.0	4.7	4.4	4.1	3.9	3.9	3.7	3.6	3.3	3.1	2.7
Daily Min	5.9	0.1	5.5	4.9	4.3	4.5	4.0	3.9	3.7	3.5	3.1	3.3	3.1	3.0	2.6	2.4
Average	6.4	5.7	5.7	5.3	4.9	4.7	4.4	4.1	3.9	3.8	3.6	3.5	3.3	3.2	2.8	2.6
Anomalie - likely instrument malfunction																
Low readings due to reservoir stratification																
						Missing data due to equipment maintenance										

Caldron Falls Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	2.5	2.4	2.0	1.9	2.0	1.6	1.6	1.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0
10000	2.5	2.3	2.0	2.0	2.0	1.7	1.4	1.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0
20000	2.5	2.4	2.0	1.9	1.9	1.7	1.4	1.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0
30000	2.5	2.9	1.9	1.8	1.8	1.6	1.5	1.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0
40000	2.5	2.5	2.1	2.1	1.9	1.6	1.4	1.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	2.5	2.1	2.0	2.0	1.9	1.7	1.4	1.5	1.1	0.0	0.0	0.0	0.0	0.0	0.0
60000	2.5	1.6	2.1	1.9	1.8	1.7	1.4	1.5	1.1	0.0	0.0	0.0	0.0	0.0	0.0
70000	2.4	1.9	2.1	1.8	1.8	1.6	1.4	1.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0
80000	2.4	2.3	2.0	1.7	1.8	1.4	1.4	1.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	2.4	2.1	2.0	2.0	1.9	1.4	1.4	1.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0
100000	2.4	2.1	2.0	2.0	1.7	1.4	1.4	1.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0
110000	2.4	2.2	1.9	2.1	1.7	1.6	1.4	1.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0
120000	2.3	2.5	2.0	2.1	1.7	1.8	1.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	2.3	2.5	2.4	2.0	1.7	1.7	1.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	2.4	2.6	2.3	1.9	1.8	1.6	1.5	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	2.4	2.7	2.3	1.9	1.8	1.5	1.5	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	2.6	2.6	2.1	2.1	1.9	1.6	1.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	2.4	2.6	2.1	2.2	1.8	1.7	1.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	2.4	2.6	2.1	2.2	1.8	2.0	1.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	2.4	2.6	2.3	1.9	1.7	1.8	1.7	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	2.4	2.6	2.2	2.0	1.7	2.0	1.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	2.3	2.3	2.2	1.9	1.9	1.9	1.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	2.4	2.3	2.0	2.0	1.9	1.8	1.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	2.4	2.1	1.8	2.1	1.7	1.6	1.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	2.6	2.9	2.4	2.2	2.0	2.0	1.8	1.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	2.3	1.6	1.8	1.7	1.7	1.4	1.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	2.4	2.4	2.1	2.0	1.8	1.7	1.4	1.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0

### Caldron Falls Tailwater Dissolved Oxygen - July 2011



Caldron Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.5	7.6	7.6	7.5	7.2	7.0	6.7	6.3	5.9	6.2	6.0	6.0	9.6	9.0	9.2	9.2
10000	7.6	7.9	7.6	7.4	7.1	6.9	6.7	6.4	5.8	6.2	6.0	5.8	9.7	9.4	9.3	9.4
20000	7.6	8.1	7.6	7.3	7.1	7.0	6.7	6.4	5.8	6.2	5.9	5.8	9.7	9.3	9.3	9.3
30000	7.6	8.0	7.6	7.3	7.2	7.0	6.7	6.3	5.9	6.1	5.9	5.8	9.8	9.3	9.3	8.8
40000	7.6	8.0	7.6	7.3	7.1	7.0	6.8	6.3	5.8	6.1	5.9	8.7	9.7	9.0	9.3	8.2
50000	7.6	7.7	7.6	7.3	7.1	6.9	6.8	6.3	5.9	6.0	5.9	9.1	9.6	9.2	9.3	8.2
60000	7.6	7.6	7.5	7.3	7.1	6.9	6.8	6.3	5.9	6.1	5.8	9.2	9.6	9.2	9.3	8.2
70000	7.7	7.7	7.5	7.3	7.0	6.9	6.9	6.2	5.9	6.1	5.9	9.1	9.6	9.2	9.2	6.4
80000	7.8	7.8	7.5	7.3	7.2	6.9	6.9	6.3	6.0	6.2	6.0	5.9	9.6	9.1	9.2	5.8
90000	7.9	7.8	7.5	7.3	7.2	6.9	6.9	6.3	6.0	6.2	6.2	5.9	9.3	6.3	6.0	6.1
100000	8.0	7.8	7.5	7.4	7.2	6.9	6.9	6.3	5.9	6.2	6.3	6.0	9.2	5.7	6.0	6.1
110000	8.0	7.8	7.5	7.4	7.4	6.9	6.6	6.3	6.0	6.3	6.5	6.0	9.1	5.7	6.1	6.0
120000	7.9	7.8	7.6	7.3	7.3	6.8	6.7	6.2	6.0	6.3	6.7	6.0	5.5	5.7	5.8	6.0
130000	7.8	7.8	7.6	7.3	7.1	6.9	6.8	6.2	6.1	6.3	6.3	6.1	5.6	5.7	5.8	6.0
140000	7.8	7.8	7.6	7.3	7.1	6.8	6.8	6.2	6.1	6.2	6.2	6.1	5.8	5.6	5.9	6.0
150000	7.8	7.8	7.7	7.3	7.2	6.8	6.7	6.2	6.2	6.2	6.4	6.0	5.7	5.6	5.9	6.0
160000	7.8	7.8	7.7	7.3	7.2	6.8	6.6	6.2	6.2	6.2	6.6	6.0	5.6	5.6	5.9	6.0
170000	7.7	7.9	7.6	7.4	7.2	6.8	6.6	6.1	6.2	6.3	6.5	6.0	5.6	5.6	5.8	5.9
180000	7.7	8.0	7.6	7.5	7.2	6.8	6.6	6.1	6.3	6.3	6.5	6.0	5.5	5.5	5.9	5.9
190000	7.8	8.0	7.6	7.5	7.2	6.8	6.5	6.0	6.3	6.2	6.4	5.9	5.5	5.5	5.9	5.9
200000	7.7	7.9	7.5	7.4	7.2	6.7	6.5	5.9	6.3	6.1	6.3	5.8	5.5	5.5	5.9	5.9
210000	7.7	7.7	7.5	7.3	7.1	6.7	6.4	6.0	6.2	6.0	6.1	8.8	5.6	5.6	6.1	5.9
220000	7.7	7.6	7.4	7.2	7.1	6.8	6.4	6.0	6.2	6.0	6.0	9.3	5.6	5.5	9.1	8.6
230000	7.7	7.6	7.5	7.1	7.0	6.8	6.4	5.9	6.1	6.0	6.0	9.5	5.6	8.9	9.3	8.8
Daily Max	8.0	8.1	7.7	7.5	7.4	7.0	6.9	6.4	6.3	6.3	6.7	9.5	9.8	9.4	9.3	9.4
Daily Min	7.5	7.6	7.4	7.1	7.0	6.7	6.4	5.9	5.8	6.0	5.8	5.8	5.5	5.5	5.8	5.8
Average	7.7	7.8	7.6	7.3	7.2	6.9	6.7	6.2	6.0	6.2	6.2	6.9	7.6	7.1	7.4	7.0

Peaking operation began on 7/12/11. Monitor out of water.

License Minimum Dissolved Oxygen: 5.0 mg/l

Caldron Falls Tailwater Dissolved Oxygen Summary - July 2011

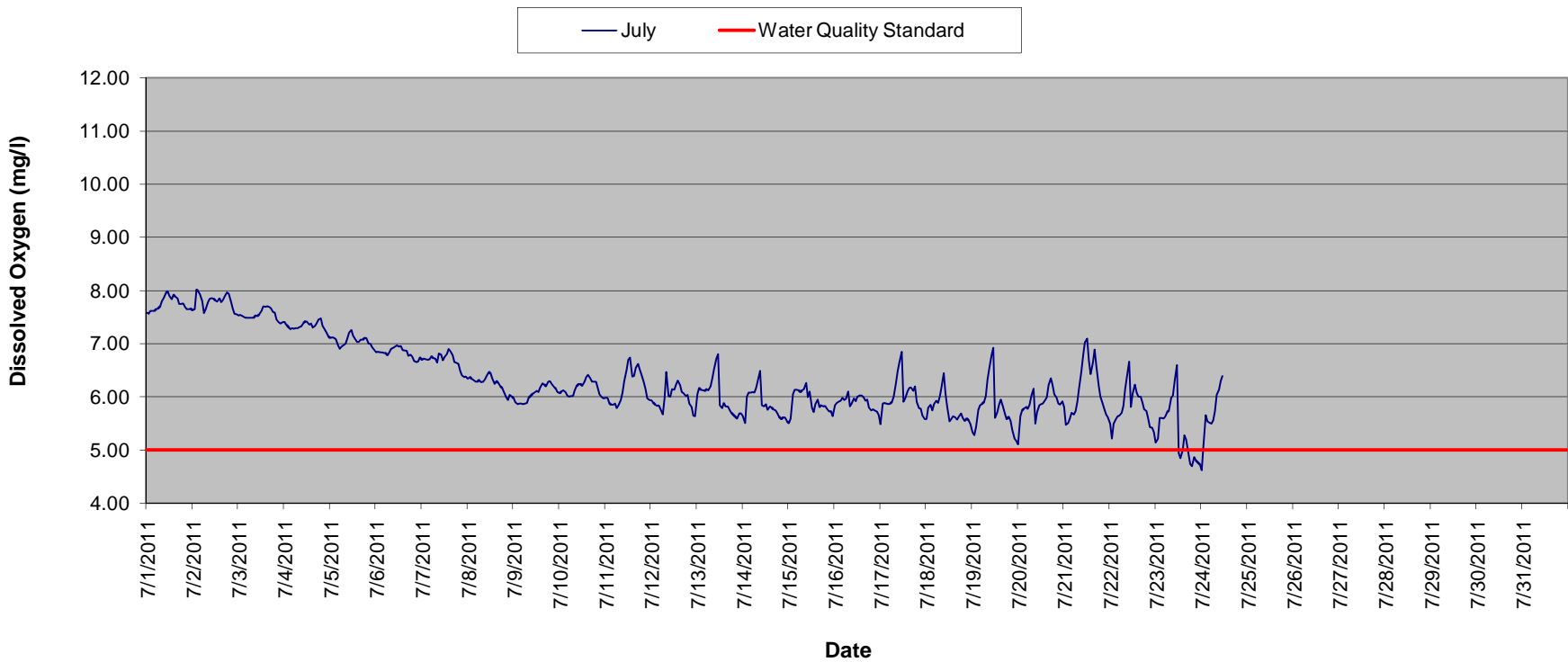
Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	8.9	8.8	8.7	8.7	8.1	8.4	5.5	5.6	5.4	0.0	0.0	0.0	0.0	0.0	0.0
10000	9.1	8.2	8.8	8.7	8.1	8.6	5.5	5.4	5.4	0.0	0.0	0.0	0.0	0.0	0.0
20000	9.1	8.9	8.9	8.7	8.1	8.7	5.6	5.4	5.4	0.0	0.0	0.0	0.0	0.0	0.0
30000	9.1	8.8	9.0	8.7	8.2	9.0	5.6	5.2	5.4	0.0	0.0	0.0	0.0	0.0	0.0
40000	9.2	8.8	9.0	8.8	8.3	9.1	5.7	5.3	5.4	0.0	0.0	0.0	0.0	0.0	0.0
50000	9.1	8.9	9.0	8.7	8.3	9.2	5.7	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0
60000	9.1	8.9	9.0	8.7	8.4	9.2	5.7	5.6	5.6	0.0	0.0	0.0	0.0	0.0	0.0
70000	8.9	8.7	8.9	8.6	8.6	9.1	5.8	5.9	5.6	0.0	0.0	0.0	0.0	0.0	0.0
80000	8.1	8.5	8.4	5.4	7.8	7.7	6.0	5.9	5.5	0.0	0.0	0.0	0.0	0.0	0.0
90000	7.8	5.9	7.8	5.4	7.4	6.2	5.9	5.8	5.6	0.0	0.0	0.0	0.0	0.0	0.0
100000	8.0	5.7	7.9	5.5	8.0	6.1	6.0	5.9	5.7	0.0	0.0	0.0	0.0	0.0	0.0
110000	8.1	5.4	6.5	5.6	8.3	5.5	5.7	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	5.9	5.5	5.5	5.8	5.8	5.9	4.6	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	6.0	5.5	5.6	5.8	6.3	5.9	4.8	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	6.1	5.6	5.8	5.8	6.2	5.7	4.9	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	6.2	5.5	5.8	5.9	6.6	5.8	4.9	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	6.2	5.5	5.7	6.2	6.7	5.8	4.8	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	6.2	5.6	5.6	6.3	6.4	5.7	4.6	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	6.2	5.7	5.6	6.1	6.1	5.7	4.6	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	6.0	5.7	5.6	6.0	6.0	5.6	4.6	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	5.8	5.6	5.6	5.9	5.9	5.5	4.7	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	5.8	5.7	5.2	5.9	5.8	5.4	4.6	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	8.6	5.6	5.4	5.9	5.6	5.4	4.9	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	8.8	5.7	8.6	8.0	5.1	5.1	5.5	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	9.2	8.9	9.0	8.8	8.6	9.2	6.0	5.9	5.7	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	5.8	5.4	5.2	5.4	5.1	5.1	4.6	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	7.6	6.8	7.2	6.9	7.1	6.9	5.3	5.6	2.5	0.0	0.0	0.0	0.0	0.0	0.0

Below water quality standard

## **High Falls Headwater**

### **Parkway Road Bridge Monitoring Location**

### Parkway Bridge Dissolved Oxygen - July 2011



Parkway Bridge Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.6	7.6	7.5	7.4	7.1	6.8	6.7	6.3	6.0	6.1	6.0	5.9	6.1	5.6	5.5	5.8
10000	7.6	7.6	7.5	7.4	7.1	6.8	6.7	6.4	5.9	6.1	6.0	5.9	6.2	5.5	5.6	5.9
20000	7.6	8.0	7.5	7.3	7.1	6.8	6.7	6.3	5.9	6.1	5.9	5.9	6.1	6.0	6.1	5.9
30000	7.6	8.0	7.5	7.3	7.1	6.8	6.7	6.3	5.9	6.1	5.9	5.8	6.1	6.1	6.1	5.9
40000	7.6	7.9	7.5	7.3	7.0	6.8	6.7	6.3	5.9	6.0	5.9	5.8	6.1	6.1	6.1	6.0
50000	7.7	7.8	7.5	7.3	6.9	6.8	6.8	6.3	5.9	6.0	5.9	5.8	6.2	6.1	6.1	5.9
60000	7.7	7.6	7.5	7.3	6.9	6.8	6.7	6.3	5.9	6.0	5.8	5.7	6.1	6.1	6.1	6.0
70000	7.7	7.6	7.5	7.3	7.0	6.8	6.7	6.3	5.9	6.0	5.8	6.0	6.2	6.2	6.1	6.1
80000	7.8	7.8	7.5	7.3	7.0	6.9	6.6	6.3	6.0	6.1	5.9	6.5	6.4	6.4	6.2	5.8
90000	7.9	7.8	7.5	7.3	7.1	6.9	6.8	6.3	6.0	6.2	6.1	6.0	6.5	6.5	6.3	5.9
100000	8.0	7.9	7.5	7.4	7.2	7.0	6.8	6.4	6.1	6.2	6.3	6.0	6.7	5.8	6.0	6.0
110000	8.0	7.8	7.5	7.4	7.3	7.0	6.7	6.5	6.1	6.2	6.5	6.2	6.8	5.8	6.1	5.9
120000	7.9	7.8	7.6	7.4	7.2	6.9	6.8	6.4	6.1	6.2	6.7	6.1	5.8	5.9	5.8	6.0
130000	7.8	7.8	7.7	7.4	7.1	7.0	6.8	6.3	6.1	6.3	6.7	6.2	5.8	5.8	5.7	6.0
140000	7.9	7.9	7.7	7.4	7.0	6.9	6.9	6.2	6.2	6.4	6.4	6.3	5.9	5.8	5.9	6.0
150000	7.9	7.8	7.7	7.3	7.0	6.9	6.9	6.3	6.3	6.4	6.4	6.2	5.8	5.8	6.0	6.0
160000	7.9	7.8	7.7	7.3	7.1	6.9	6.8	6.3	6.2	6.4	6.6	6.1	5.8	5.8	5.8	5.9
170000	7.7	7.9	7.7	7.4	7.1	6.8	6.7	6.2	6.2	6.3	6.6	6.1	5.8	5.7	5.8	6.0
180000	7.7	8.0	7.6	7.5	7.1	6.8	6.6	6.2	6.3	6.3	6.5	6.0	5.7	5.7	5.8	5.8
190000	7.8	7.9	7.6	7.5	7.1	6.8	6.6	6.1	6.3	6.3	6.4	6.0	5.7	5.6	5.8	5.7
200000	7.7	7.8	7.5	7.3	7.0	6.7	6.5	6.0	6.2	6.2	6.3	5.9	5.6	5.6	5.8	5.8
210000	7.6	7.7	7.4	7.3	7.0	6.6	6.4	5.9	6.2	6.1	6.2	5.8	5.6	5.6	5.7	5.8
220000	7.7	7.6	7.4	7.2	6.9	6.7	6.4	6.0	6.2	6.0	6.0	5.7	5.7	5.6	5.7	5.7
230000	7.7	7.6	7.4	7.1	6.9	6.7	6.4	6.0	6.1	6.0	5.9	5.6	5.7	5.5	5.6	5.7
Daily Max	8.0	8.0	7.7	7.5	7.3	7.0	6.9	6.5	6.3	6.4	6.7	6.5	6.8	6.5	6.3	6.1
Daily Min	7.6	7.6	7.4	7.1	6.9	6.6	6.4	5.9	5.9	6.0	5.8	5.6	5.6	5.5	5.5	5.7
Average	7.7	7.8	7.5	7.3	7.1	6.8	6.7	6.3	6.1	6.2	6.2	6.0	6.0	5.9	5.9	5.9

Average Monthly D.O. 5.0  
 License Minimum Dissolved Oxygen: 5.0 mg/l



Parkway Bridge Dissolved Oxygen Summary - July 2011

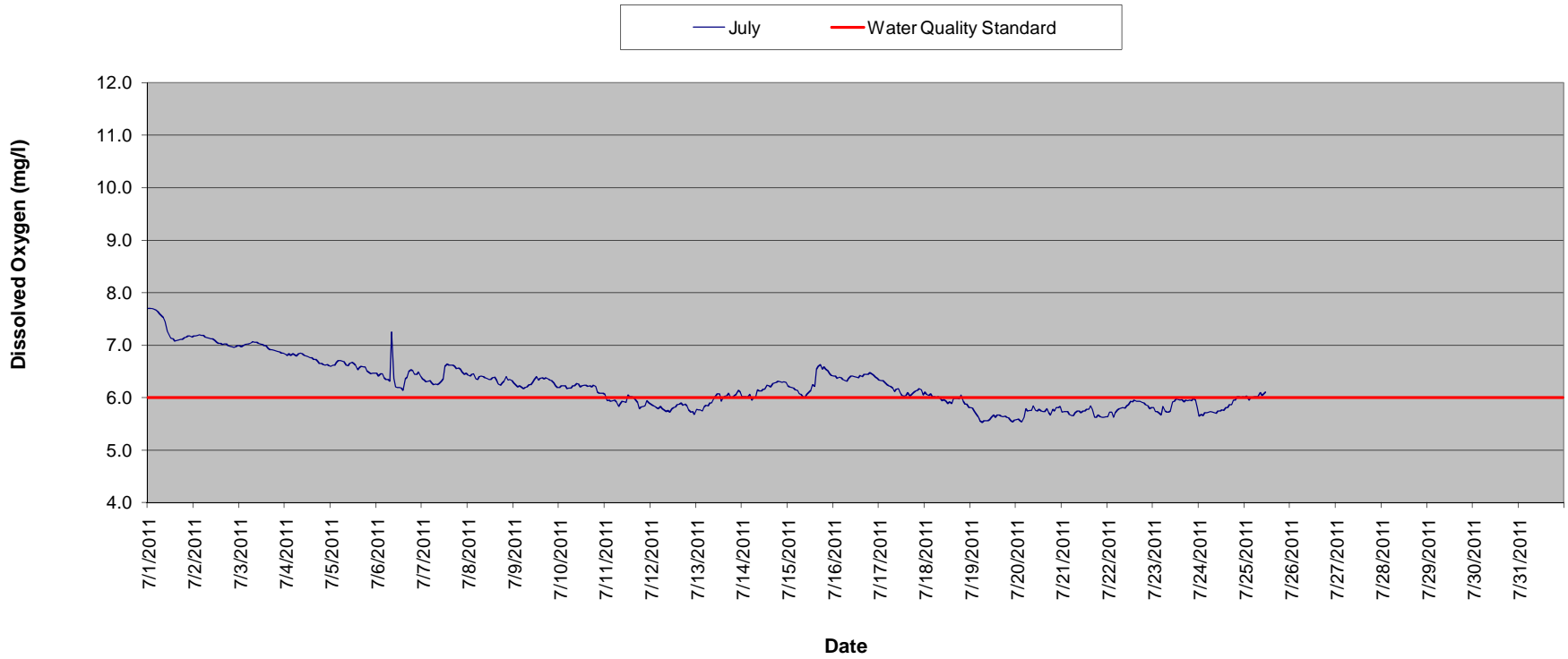
Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	5.5	5.6	5.3	5.1	5.8	5.5	5.1	4.6		0.0	0.0	0.0	0.0	0.0	0.0
10000	5.9	5.8	5.3	5.6	5.5	5.2	5.2	5.1		0.0	0.0	0.0	0.0	0.0	0.0
20000	5.9	5.9	5.4	5.7	5.5	5.5	5.6	5.7		0.0	0.0	0.0	0.0	0.0	0.0
30000	5.9	5.7	5.8	5.8	5.6	5.6	5.6	5.5		0.0	0.0	0.0	0.0	0.0	0.0
40000	5.9	5.9	5.8	5.8	5.7	5.6	5.6	5.5		0.0	0.0	0.0	0.0	0.0	0.0
50000	5.9	5.9	5.9	5.8	5.7	5.7	5.6	5.5		0.0	0.0	0.0	0.0	0.0	0.0
60000	5.9	5.9	5.9	5.9	5.7	5.7	5.7	5.6		0.0	0.0	0.0	0.0	0.0	0.0
70000	6.0	6.0	6.0	6.0	5.9	5.8	5.8	5.7		0.0	0.0	0.0	0.0	0.0	0.0
80000	6.3	6.2	6.3	6.2	6.2	6.2	6.0	6.0		0.0	0.0	0.0	0.0	0.0	0.0
90000	6.5	6.5	6.5	5.5	6.5	6.4	6.0	6.1		0.0	0.0	0.0	0.0	0.0	0.0
100000	6.7	6.1	6.8	5.7	6.8	6.7	6.3	6.3		0.0	0.0	0.0	0.0	0.0	0.0
110000	6.9	5.8	6.9	5.8	7.0	5.8	6.6	6.4		0.0	0.0	0.0	0.0	0.0	0.0
120000	5.9	5.5	5.6	5.9	7.1	6.1	4.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	6.0	5.6	5.7	5.9	6.7	6.2	4.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	6.1	5.6	5.9	5.9	6.4	6.1	5.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	6.2	5.6	6.0	6.0	6.6	6.0	5.3		0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	6.2	5.6	5.8	6.2	6.9	6.0	5.2		0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	6.1	5.6	5.7	6.4	6.6	5.9	4.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	6.2	5.7	5.6	6.2	6.2	5.8	4.7		0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	5.9	5.6	5.6	6.1	6.0	5.7	4.7		0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	5.8	5.6	5.6	6.0	5.9	5.6	4.9		0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	5.8	5.6	5.4	5.9	5.8	5.4	4.8		0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	5.7	5.6	5.2	5.9	5.7	5.4	4.8		0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	5.6	5.5	5.2	5.9	5.6	5.3	4.7		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	6.9	6.5	6.9	6.4	7.1	6.7	6.6	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	5.5	5.5	5.2	5.1	5.5	5.2	4.7	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	6.0	5.8	5.8	5.9	6.1	5.8	5.3	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Missing data due to equipment malfunction - loss of power

     Below water quality standard

## **Johnson Falls**

Johnson Falls Tailwater Dissolved Oxygen - July 2011



Johnson Falls Tailwater Dissolved Oxygen Summary - July 2011

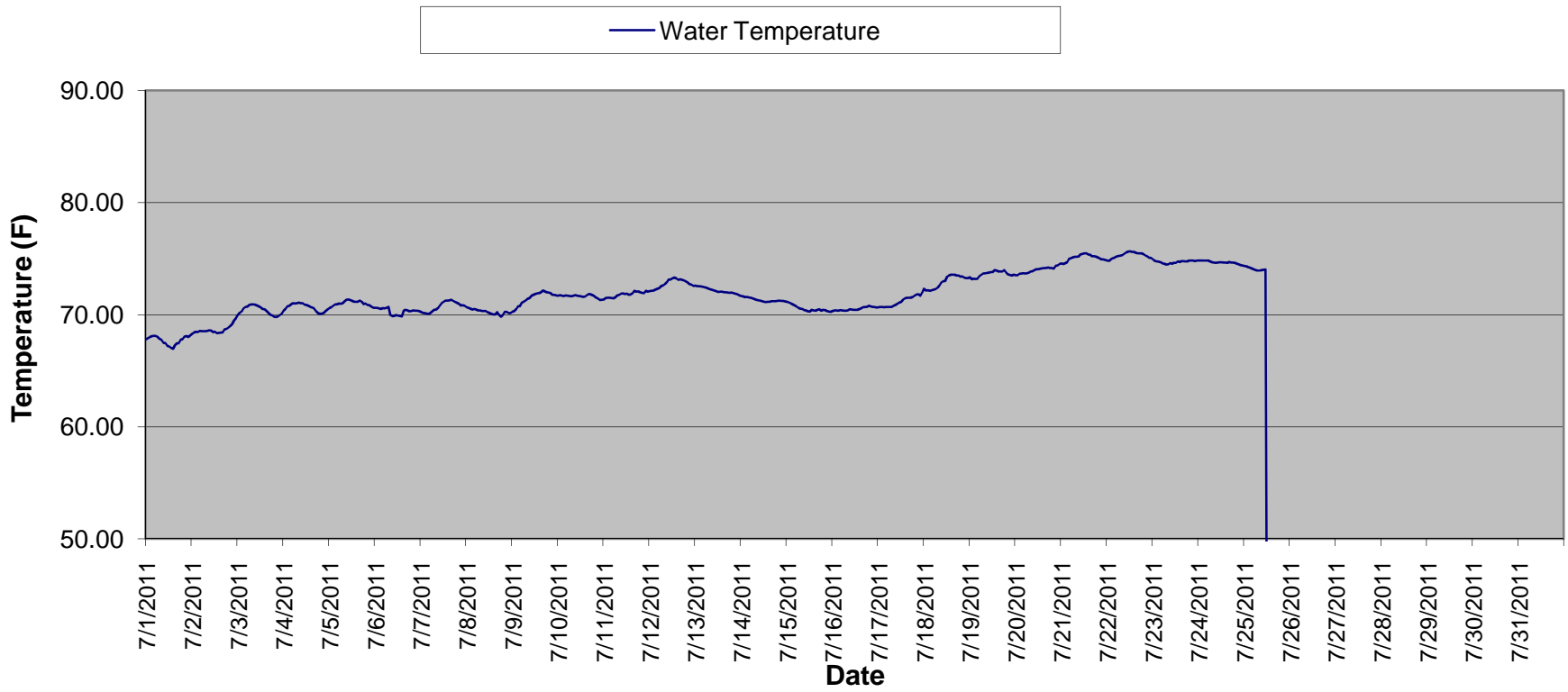
Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.7	7.2	7.0	6.8	6.6	6.5	6.4	6.4	6.3	6.2	6.1	5.9	5.8	6.0	6.2	6.4
10000	7.7	7.2	7.0	6.8	6.6	6.4	6.3	6.4	6.2	6.2	5.9	5.9	5.8	6.0	6.2	6.4
20000	7.7	7.2	7.0	6.8	6.6	6.5	6.3	6.4	6.2	6.2	6.0	5.8	5.8	6.0	6.2	6.4
30000	7.7	7.2	7.0	6.8	6.7	6.5	6.3	6.5	6.2	6.2	5.9	5.8	5.7	6.0	6.2	6.4
40000	7.7	7.2	7.0	6.8	6.7	6.4	6.3	6.4	6.2	6.2	5.9	5.8	5.8	6.1	6.1	6.4
50000	7.6	7.2	7.0	6.8	6.7	6.3	6.3	6.3	6.2	6.2	6.0	5.8	5.9	6.0	6.1	6.4
60000	7.6	7.2	7.0	6.8	6.7	6.3	6.2	6.4	6.2	6.2	5.9	5.8	5.8	6.0	6.1	6.3
70000	7.6	7.1	7.1	6.8	6.7	6.3	6.3	6.4	6.2	6.2	5.8	5.8	5.9	6.0	6.1	6.3
80000	7.5	7.1	7.1	6.8	6.6	7.3	6.2	6.4	6.2	6.2	5.9	5.7	5.9	6.2	6.0	6.4
90000	7.4	7.1	7.1	6.8	6.6	6.4	6.3	6.4	6.2	6.3	5.9	5.8	6.0	6.1	6.0	6.4
100000	7.3	7.1	7.0	6.8	6.6	6.2	6.3	6.4	6.3	6.3	5.9	5.7	6.0	6.1	6.1	6.4
110000	7.2	7.1	7.0	6.8	6.7	6.2	6.4	6.3	6.3	6.2	5.9	5.8	6.1	6.2	6.1	6.4
120000	7.1	7.1	7.0	6.8	6.7	6.2	6.6	6.3	6.4	6.2	6.0	5.8	6.1	6.2	6.1	6.4
130000	7.1	7.0	7.0	6.8	6.6	6.2	6.6	6.4	6.3	6.2	6.0	5.8	5.9	6.2	6.3	6.4
140000	7.1	7.0	7.0	6.8	6.5	6.1	6.6	6.4	6.4	6.2	6.0	5.9	6.0	6.2	6.2	6.4
150000	7.1	7.0	6.9	6.7	6.6	6.4	6.6	6.3	6.4	6.2	6.0	5.9	6.0	6.2	6.5	6.4
160000	7.1	7.0	6.9	6.7	6.6	6.4	6.6	6.3	6.4	6.2	6.0	5.9	6.0	6.3	6.6	6.4
170000	7.1	7.0	6.9	6.7	6.6	6.5	6.6	6.2	6.4	6.2	5.9	5.9	6.1	6.3	6.6	6.4
180000	7.1	7.0	6.9	6.6	6.6	6.5	6.6	6.3	6.4	6.2	5.8	5.9	6.0	6.3	6.5	6.4
190000	7.1	7.0	6.9	6.6	6.5	6.5	6.6	6.3	6.3	6.2	5.8	5.8	6.0	6.3	6.6	6.5
200000	7.2	7.0	6.9	6.6	6.5	6.4	6.5	6.4	6.3	6.1	5.8	5.8	6.0	6.3	6.5	6.5
210000	7.2	7.0	6.9	6.6	6.5	6.4	6.5	6.3	6.3	6.1	5.8	5.7	6.1	6.3	6.5	6.4
220000	7.2	7.0	6.8	6.6	6.5	6.5	6.4	6.3	6.2	6.1	5.9	5.7	6.1	6.3	6.5	6.4
230000	7.2	7.0	6.8	6.6	6.5	6.4	6.5	6.3	6.2	6.1	5.9	5.7	6.1	6.3	6.4	6.4
Daily Max	7.7	7.2	7.1	6.8	6.7	7.3	6.6	6.5	6.4	6.3	6.1	5.9	6.1	6.3	6.6	6.5
Daily Min	7.1	7.0	6.8	6.6	6.5	6.1	6.2	6.2	6.2	6.1	5.8	5.7	5.7	6.0	6.0	6.3
Average	7.3	7.1	7.0	6.8	6.6	6.4	6.4	6.4	6.3	6.2	5.9	5.8	6.0	6.2	6.3	6.4
Below Water Quality Standard																

License Minimum Dissolved Oxygen: 6.0 mg/l

Johnson Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	6.3	6.1	5.8	5.6	5.7	5.6	5.8	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	6.3	6.1	5.8	5.6	5.7	5.7	5.7	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	6.3	6.0	5.7	5.6	5.7	5.7	5.7	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	6.3	6.1	5.7	5.5	5.7	5.6	5.7	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	6.3	6.0	5.6	5.6	5.7	5.7	5.7	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	6.2	6.0	5.6	5.8	5.7	5.8	5.8	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	6.2	6.0	5.5	5.8	5.7	5.8	5.7	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	6.2	6.0	5.6	5.8	5.7	5.8	5.7	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	6.1	6.0	5.6	5.8	5.7	5.8	5.7	5.7	6.1	0.0	0.0	0.0	0.0	0.0	0.0
90000	6.2	5.9	5.6	5.8	5.8	5.8	5.7	5.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	6.2	6.0	5.6	5.8	5.7	5.8	5.9	5.7	6.1	0.0	0.0	0.0	0.0	0.0	0.0
110000	6.1	5.9	5.6	5.7	5.7	5.9	5.9	5.8	6.1	0.0	0.0	0.0	0.0	0.0	0.0
120000	6.0	5.9	5.7	5.8	5.7	5.9	6.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	6.0	5.9	5.6	5.7	5.8	5.9	6.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	6.0	5.9	5.7	5.7	5.8	6.0	6.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	6.1	6.0	5.7	5.7	5.8	5.9	6.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	6.0	6.0	5.7	5.8	5.8	5.9	5.9	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	6.1	6.0	5.6	5.7	5.6	5.9	6.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	6.1	6.0	5.7	5.7	5.6	5.9	5.9	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	6.1	6.1	5.6	5.8	5.7	5.9	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	6.1	5.9	5.6	5.8	5.6	5.9	5.9	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	6.2	5.9	5.6	5.8	5.6	5.8	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	6.2	5.9	5.5	5.8	5.6	5.8	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	6.1	5.8	5.6	5.8	5.6	5.8	5.8	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	6.3	6.1	5.8	5.8	5.8	6.0	6.0	6.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	6.0	5.8	5.5	5.5	5.6	5.6	5.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	6.2	6.0	5.6	5.7	5.7	5.8	5.9	5.8	3.0	0.0	0.0	0.0	0.0	0.0	0.0

### Johnson Falls Tailwater Temperature - July 2011



Johnson Falls Tailwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	67.8	68.3	70.0	70.4	70.6	70.6	70.3	70.7	70.3	71.7	71.4	72.1	72.6	71.7	71.2	70.3
10000	67.9	68.4	70.2	70.5	70.7	70.6	70.2	70.6	70.3	71.7	71.5	72.1	72.6	71.6	71.1	70.4
20000	68.0	68.5	70.3	70.8	70.8	70.6	70.1	70.5	70.5	71.7	71.5	72.2	72.5	71.6	71.0	70.4
30000	68.1	68.5	70.6	70.8	70.9	70.5	70.1	70.5	70.8	71.7	71.5	72.2	72.5	71.6	70.9	70.4
40000	68.1	68.6	70.7	71.0	70.9	70.6	70.1	70.5	70.8	71.7	71.5	72.3	72.5	71.5	70.8	70.4
50000	68.1	68.5	70.7	71.0	71.0	70.6	70.2	70.5	71.1	71.7	71.5	72.4	72.4	71.5	70.7	70.4
60000	68.0	68.5	70.9	71.0	71.0	70.6	70.3	70.4	71.2	71.7	71.5	72.6	72.4	71.5	70.6	70.4
70000	67.8	68.5	70.9	71.0	71.0	70.7	70.4	70.4	71.3	71.7	71.7	72.6	72.3	71.4	70.5	70.4
80000	67.7	68.6	70.9	71.1	71.2	70.0	70.5	70.3	71.4	71.7	71.8	72.7	72.3	71.3	70.5	70.4
90000	67.5	68.6	70.9	71.0	71.3	69.9	70.6	70.3	71.5	71.7	71.9	72.9	72.2	71.3	70.4	70.5
100000	67.5	68.6	70.8	71.0	71.4	69.9	70.8	70.3	71.7	71.7	71.9	73.1	72.2	71.3	70.4	70.5
110000	67.2	68.5	70.8	70.9	71.3	70.0	71.1	70.2	71.8	71.7	71.9	73.1	72.1	71.2	70.3	70.4
120000	67.2	68.5	70.6	70.9	71.2	69.9	71.2	70.1	71.9	71.7	71.9	73.2	72.0	71.2	70.3	70.4
130000	67.0	68.4	70.5	70.8	71.2	69.9	71.3	70.1	71.9	71.6	71.8	73.3	72.1	71.1	70.4	70.4
140000	67.0	68.4	70.5	70.7	71.2	69.9	71.3	70.0	71.9	71.6	71.8	73.2	72.1	71.2	70.4	70.5
150000	67.3	68.4	70.3	70.6	71.2	70.4	71.3	70.0	72.0	71.7	71.9	73.1	72.0	71.2	70.4	70.6
160000	67.5	68.4	70.2	70.5	71.3	70.4	71.3	70.2	72.2	71.9	72.1	73.2	72.0	71.2	70.4	70.7
170000	67.4	68.7	70.0	70.3	71.2	70.4	71.2	70.0	72.1	71.8	72.1	73.1	72.0	71.2	70.5	70.7
180000	67.8	68.7	69.9	70.1	71.0	70.3	71.1	69.8	72.0	71.7	72.1	73.1	72.0	71.2	70.4	70.7
190000	67.8	68.8	69.8	70.1	71.0	70.3	71.0	70.0	72.0	71.6	72.0	73.0	72.0	71.2	70.4	70.8
200000	68.0	69.0	69.8	70.1	70.9	70.4	71.0	70.3	71.9	71.5	72.0	72.8	71.9	71.3	70.4	70.8
210000	68.1	69.2	69.8	70.2	70.8	70.4	70.8	70.3	71.8	71.4	71.9	72.7	71.9	71.2	70.3	70.7
220000	68.0	69.5	70.0	70.3	70.7	70.4	70.8	70.1	71.8	71.3	72.1	72.7	71.8	71.2	70.3	70.7
230000	68.1	69.7	70.1	70.5	70.6	70.3	70.8	70.2	71.7	71.3	72.1	72.6	71.7	71.2	70.3	70.6
Daily Max	68.1	69.7	70.9	71.1	71.4	70.7	71.3	70.7	72.2	71.9	72.1	73.3	72.6	71.7	71.2	70.8
Daily Min	67.0	68.3	69.8	70.1	70.6	69.9	70.1	69.8	70.3	71.3	71.4	72.1	71.7	71.1	70.3	70.3
Average	67.7	68.7	70.4	70.7	71.0	70.3	70.7	70.3	71.5	71.6	71.8	72.8	72.2	71.3	70.5	70.5

Monthly average: 63.5

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

Johnson Falls Tailwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	70.7	72.3	73.3	73.5	74.6	74.8	74.9	74.8	74.4	32.0	32.0	32.0	32.0	32.0	32.0
10000	70.7	72.2	73.2	73.5	74.5	74.8	74.8	74.8	74.3	32.0	32.0	32.0	32.0	32.0	32.0
20000	70.7	72.2	73.2	73.7	74.6	74.9	74.8	74.8	74.2	32.0	32.0	32.0	32.0	32.0	32.0
30000	70.7	72.1	73.2	73.7	74.7	75.0	74.7	74.8	74.2	32.0	32.0	32.0	32.0	32.0	32.0
40000	70.7	72.2	73.2	73.7	75.0	75.1	74.7	74.8	74.1	32.0	32.0	32.0	32.0	32.0	32.0
50000	70.7	72.2	73.4	73.7	75.0	75.2	74.6	74.8	74.0	32.0	32.0	32.0	32.0	32.0	32.0
60000	70.7	72.3	73.6	73.7	75.1	75.2	74.6	74.8	74.0	32.0	32.0	32.0	32.0	32.0	32.0
70000	70.7	72.4	73.7	73.7	75.2	75.3	74.5	74.7	73.9	32.0	32.0	32.0	32.0	32.0	32.0
80000	70.8	72.6	73.7	73.9	75.2	75.3	74.5	74.6	73.9	32.0	32.0	32.0	32.0	32.0	32.0
90000	70.9	72.9	73.7	73.9	75.2	75.5	74.6	74.6	74.0	32.0	32.0	32.0	32.0	32.0	32.0
100000	71.0	73.0	73.7	74.0	75.4	75.6	74.6	74.7	74.0	32.0	32.0	32.0	32.0	32.0	32.0
110000	71.1	73.0	73.8	74.1	75.4	75.6	74.6	74.7	74.0	32.0	32.0	32.0	32.0	32.0	32.0
120000	71.2	73.4	73.8	74.1	75.5	75.7	74.6	74.7	32.0	32.0	32.0	32.0	32.0	32.0	32.0
130000	71.4	73.5	74.0	74.1	75.5	75.6	74.8	74.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0
140000	71.5	73.6	73.9	74.1	75.4	75.6	74.7	74.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0
150000	71.5	73.6	73.9	74.2	75.3	75.5	74.8	74.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0
160000	71.5	73.6	73.9	74.2	75.2	75.5	74.8	74.7	32.0	32.0	32.0	32.0	32.0	32.0	32.0
170000	71.5	73.5	73.9	74.2	75.2	75.5	74.8	74.7	32.0	32.0	32.0	32.0	32.0	32.0	32.0
180000	71.6	73.5	74.0	74.2	75.2	75.5	74.8	74.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0
190000	71.7	73.4	73.7	74.2	75.1	75.4	74.8	74.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0
200000	71.8	73.4	73.6	74.1	75.0	75.3	74.8	74.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0
210000	71.8	73.3	73.5	74.4	74.9	75.2	74.8	74.5	32.0	32.0	32.0	32.0	32.0	32.0	32.0
220000	71.7	73.3	73.5	74.4	74.9	75.1	74.8	74.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0
230000	72.0	73.3	73.6	74.5	74.9	75.1	74.8	74.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Daily Max	72.0	73.6	74.0	74.5	75.5	75.7	74.9	74.8	74.4	32.0	32.0	32.0	32.0	32.0	32.0
Daily Min	70.7	72.1	73.2	73.5	74.5	74.8	74.5	74.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Average	71.2	72.9	73.6	74.0	75.1	75.3	74.7	74.7	53.0	32.0	32.0	32.0	32.0	32.0	32.0





**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

August 3, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards – Potato Rapids Hydroelectric Project (FERC Project No. 2560)

Pursuant to the water quality monitoring plans for the Potato Rapids hydroelectric facility, Wisconsin Public Service Corporation (WPSC) is providing notice of deviations from the dissolved oxygen water quality standard observed upstream of the facility. The dissolved oxygen water quality standard is 5.0 mg/l.

Between July 18 and July 28<sup>th</sup>, several hourly readings below the water quality standard were observed at the water quality monitoring location located in the Potato Rapids reservoir. The likely cause of the low readings is a natural stratification of the reservoir and warm water temperatures. During this time period, water temperatures in the reservoir ranged between 75°F and 85°F. No deviations from the dissolved oxygen standard were observed downstream of the facility. Dissolved oxygen and temperature monitoring data from the Potato Rapids upstream monitoring location is attached for your review.

Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Thank you for your time and consideration.

Sincerely,

A handwritten signature in black ink that reads "Mark Metcalf".

Mark W. Metcalf  
Environmental Consultant – Air & Water  
Telephone: (920) 433-1833

Attach.

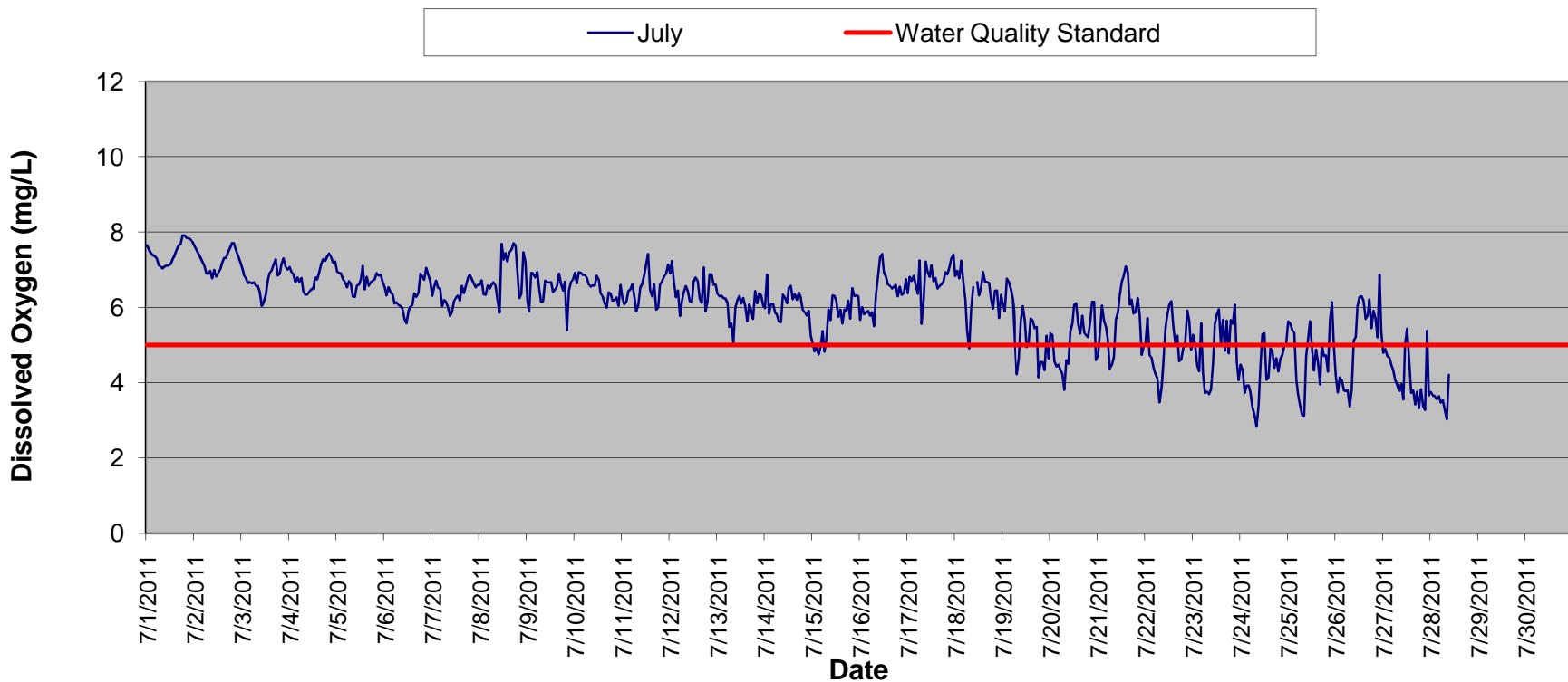
cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

## **Attachments**

### **Peshtigo River Hydroelectric Projects**

#### **Water Quality Monitoring Data**

### Potato Rapids Headwater Dissolved Oxygen Summary - July 2011



Potato Rapids Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.7	7.6	7.1	7.1	7.0	6.5	6.3	6.6	6.2	6.9	6.2	6.9	6.4	6.0	5.1	5.7
10000	7.5	7.5	6.9	7.0	6.9	6.3	6.5	6.7	5.9	6.6	6.1	7.2	6.3	6.9	4.8	6.0
20000	7.5	7.5	6.8	6.9	6.9	6.5	6.7	6.4	6.9	6.9	6.2	6.7	6.3	5.8	5.0	5.8
30000	7.4	7.3	6.7	6.7	6.8	6.4	6.5	6.3	6.9	6.9	6.4	6.3	6.3	6.1	4.8	5.9
40000	7.4	7.2	6.7	6.8	6.7	6.4	6.5	6.6	6.8	6.9	6.5	6.5	6.2	6.1	5.0	5.9
50000	7.3	7.1	6.6	6.7	6.5	6.1	6.0	6.5	6.9	6.9	6.6	5.8	6.1	5.9	5.4	5.8
60000	7.1	6.9	6.7	6.8	6.7	6.1	6.2	6.6	6.5	6.8	6.3	6.2	5.5	5.8	4.8	5.9
70000	7.1	6.9	6.6	6.4	6.6	6.1	6.2	6.7	6.2	6.6	5.9	6.4	5.6	5.6	5.2	5.5
80000	7.0	7.0	6.6	6.3	6.3	6.0	6.0	6.6	6.2	6.6	6.1	6.6	5.1	5.6	5.9	6.4
90000	7.1	6.8	6.4	6.3	6.3	6.0	5.8	6.2	6.7	6.6	6.5	6.4	6.0	6.3	5.7	6.8
100000	7.1	7.0	6.0	6.4	6.6	5.7	5.9	5.9	6.7	6.6	6.6	6.2	6.2	6.3	6.3	7.3
110000	7.1	6.8	6.2	6.5	6.6	5.6	6.2	7.7	6.7	6.8	6.9	6.1	6.3	6.1	6.3	7.4
120000	7.2	6.9	6.3	6.5	6.8	5.9	6.3	7.3	6.7	6.7	7.2	6.7	6.1	6.5	6.2	6.9
130000	7.3	7.0	6.7	6.8	7.1	6.0	6.3	7.4	6.4	6.4	7.4	6.8	6.3	6.6	5.8	6.8
140000	7.4	7.2	6.9	6.7	6.5	6.1	6.2	7.2	6.5	6.3	6.5	6.7	6.0	6.2	5.9	6.6
150000	7.5	7.3	7.0	6.9	6.8	6.4	6.6	7.5	6.6	6.1	6.3	6.2	5.6	6.4	5.6	6.6
160000	7.6	7.3	7.1	7.2	6.6	6.3	6.4	7.5	6.9	6.0	6.6	6.1	6.1	6.2	5.9	6.5
170000	7.7	7.5	7.3	7.3	6.7	6.4	6.6	7.7	6.6	6.4	5.9	7.1	5.9	6.4	5.9	6.6
180000	7.9	7.6	6.9	7.2	6.7	6.9	6.8	7.6	6.5	6.4	6.0	5.9	5.7	6.3	6.2	6.6
190000	7.9	7.7	6.9	7.3	6.7	6.8	6.9	7.0	6.7	6.2	6.6	6.2	6.4	5.9	5.7	6.3
200000	7.9	7.7	7.2	7.4	6.9	6.7	6.8	6.3	5.4	6.2	6.7	6.9	6.1	5.9	6.5	6.6
210000	7.8	7.5	7.3	7.3	6.8	7.1	6.6	6.4	6.5	6.3	6.8	6.9	6.4	5.8	6.3	6.3
220000	7.8	7.4	7.1	7.2	6.9	6.9	6.5	7.5	6.7	6.0	6.9	6.6	6.3	5.9	6.3	6.4
230000	7.7	7.2	7.0	7.2	6.7	6.7	6.6	7.2	6.7	6.6	7.1	6.6	6.0	5.3	6.3	6.8
Daily Max	7.9	7.7	7.3	7.4	7.1	7.1	6.9	7.7	6.9	6.9	7.4	7.2	6.4	6.9	6.5	7.4
Daily Min	7.0	6.8	6.0	6.3	6.3	5.6	5.8	5.9	5.4	6.0	5.9	5.8	5.1	5.3	4.8	5.5
Average	7.5	7.2	6.8	6.9	6.7	6.3	6.4	6.9	6.5	6.5	6.5	6.5	6.0	6.1	5.7	6.4

Low readings due to stratification of reservoir

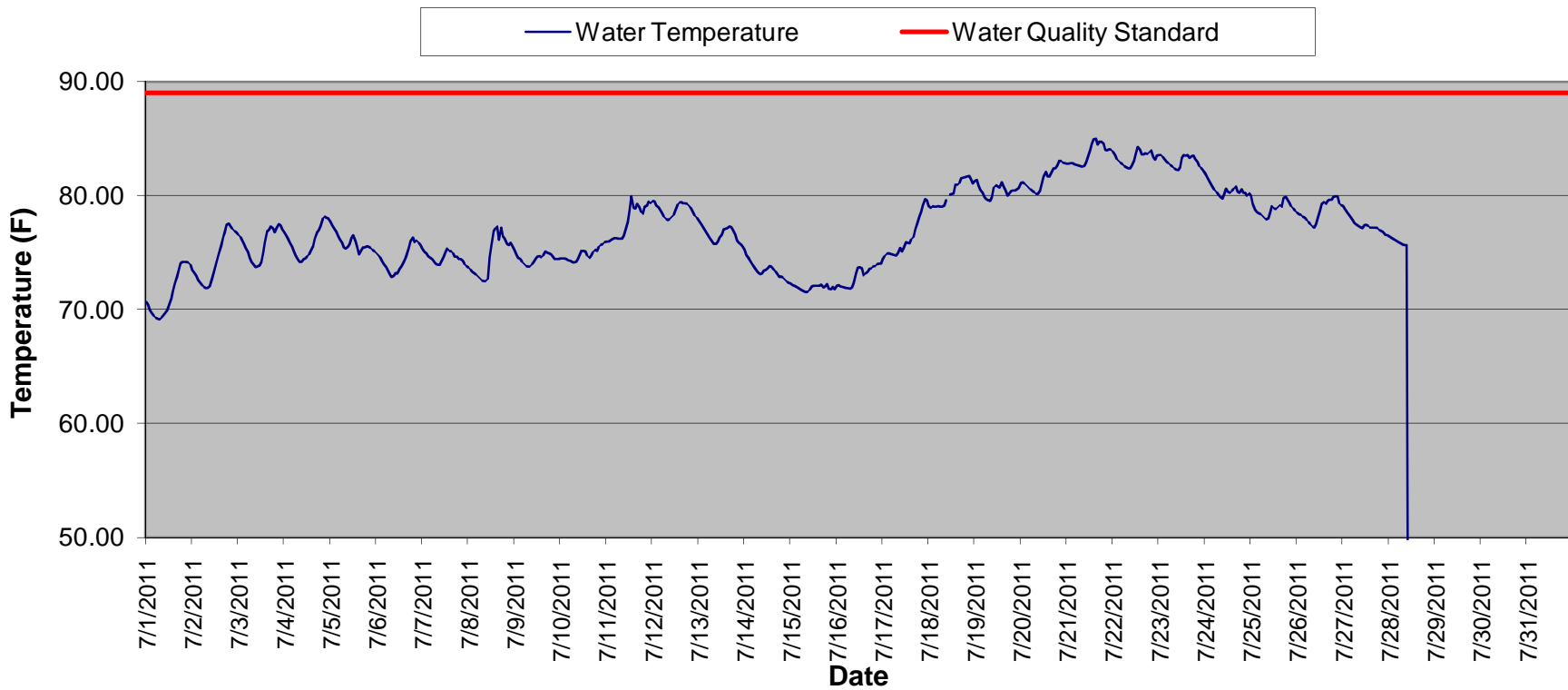
License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	6.4	6.8	6.1	5.3	4.7	5.1	5.3	4.5	5.6	4.2	4.8	3.8	0.0	0.0	0.0
10000	6.8	7.0	5.9	5.3	5.4	5.7	5.0	4.3	5.6	3.7	4.9	3.7	0.0	0.0	0.0
20000	6.7	6.8	6.8	4.6	6.1	4.7	4.5	3.7	5.4	4.1	4.7	3.6	0.0	0.0	0.0
30000	6.8	7.2	6.7	4.4	5.7	4.7	4.3	3.9	5.3	4.1	4.7	3.6	0.0	0.0	0.0
40000	6.6	6.7	6.5	4.5	5.5	4.4	5.6	3.9	4.1	3.8	4.5	3.6	0.0	0.0	0.0
50000	6.4	6.2	6.2	4.3	5.2	4.2	4.3	3.7	3.7	3.8	4.3	3.5	0.0	0.0	0.0
60000	7.3	5.4	5.2	4.2	4.4	4.1	3.7	3.3	3.4	3.8	4.1	3.5	0.0	0.0	0.0
70000	5.6	4.9	4.2	3.8	4.5	3.5	3.8	3.1	3.1	3.4	3.9	3.3	0.0	0.0	0.0
80000	6.2	6.0	4.6	4.6	4.7	3.8	3.7	2.8	3.1	3.8	3.8	3.0	0.0	0.0	0.0
90000	7.2	6.5	5.6	4.5	5.7	4.6	3.8	3.4	4.7	5.1	4.0	4.2	0.0	0.0	0.0
100000	6.9		6.0	5.4	5.9	5.5	4.5	4.5	5.2	5.2	3.6	0.0	0.0	0.0	0.0
110000	6.8	6.7	5.6	5.6	6.3	5.8	5.6	5.3	5.6	6.0	5.0	0.0	0.0	0.0	0.0
120000	7.1	6.3	5.0	6.1	6.7	6.1	5.8	5.3	4.9	6.3	5.4	0.0	0.0	0.0	0.0
130000	6.7	6.5	5.1	6.1	6.8	6.2	6.0	4.1	4.3	6.3	4.6	0.0	0.0	0.0	0.0
140000	6.8	6.9	5.7	5.6	7.1	5.5	5.0	4.1	4.9	6.2	3.7	0.0	0.0	0.0	0.0
150000	6.5	6.7	5.7	5.3	6.9	5.0	5.7	4.9	4.5	5.7	3.8	0.0	0.0	0.0	0.0
160000	6.6	6.7	5.5	5.8	6.1	5.3	4.9	4.8	4.0	5.8	3.4	0.0	0.0	0.0	0.0
170000	6.6	6.6	5.5	5.3	6.2	4.6	5.7	4.4	5.0	6.2	3.8	0.0	0.0	0.0	0.0
180000	6.7	6.3	4.1	5.3	5.8	4.6	4.8	4.7	4.7	5.5	3.3	0.0	0.0	0.0	0.0
190000	6.9	6.0	4.6	5.2	5.9	4.9	5.7	4.3	4.7	5.9	3.8	0.0	0.0	0.0	0.0
200000	6.9	6.4	4.6	5.6	6.3	5.1	5.6	4.6	4.3	5.7	3.4	0.0	0.0	0.0	0.0
210000	7.1	6.5	4.3	6.2	5.8	5.9	6.1	4.7	5.7	5.2	3.3	0.0	0.0	0.0	0.0
220000	7.3	5.7	5.3	6.2	4.7	5.6	4.5	5.0	6.1	6.9	5.4	0.0	0.0	0.0	0.0
230000	7.4	6.3	4.6	4.6	5.0	4.9	4.1	5.0	5.0	5.4	3.7	0.0	0.0	0.0	0.0
Daily Max	7.4	7.2	6.8	6.2	7.1	6.2	6.1	5.3	6.1	6.9	5.4	4.2	0.0	0.0	0.0
Daily Min	5.6	4.9	4.1	3.8	4.4	3.5	3.7	2.8	3.1	3.4	3.3	0.0	0.0	0.0	0.0
Average	6.8	6.4	5.4	5.1	5.7	5.0	4.9	4.3	4.7	5.1	4.2	1.5	0.0	0.0	0.0

Missing data due to equipment exchange

### Potato Rapids Headwater Temperature - July 2011



Potato Rapids Headwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	70.7	73.5	76.6	76.7	77.7	74.9	75.3	73.7	75.2	74.5	76.0	79.5	77.8	75.2	72.3	72.1
10000	70.4	73.2	76.4	76.5	77.4	74.8	75.1	73.5	74.8	74.5	76.0	79.5	77.6	74.8	72.1	72.1
20000	70.0	72.9	76.1	76.2	77.1	74.5	74.9	73.3	74.6	74.5	76.1	79.1	77.3	74.6	72.1	72.1
30000	69.6	72.6	75.7	75.8	76.8	74.2	74.7	73.2	74.4	74.4	76.2	79.0	77.0	74.2	72.0	72.0
40000	69.4	72.4	75.4	75.5	76.5	74.0	74.5	73.0	74.2	74.3	76.2	78.7	76.7	74.0	71.9	71.9
50000	69.3	72.1	75.0	75.1	76.1	73.7	74.4	72.9	74.0	74.3	76.3	78.4	76.5	73.7	71.8	71.9
60000	69.2	72.0	74.5	74.8	75.8	73.4	74.2	72.7	73.8	74.2	76.2	78.2	76.2	73.4	71.7	71.9
70000	69.1	71.9	74.2	74.4	75.4	73.1	74.0	72.5	73.8	74.1	76.2	78.0	76.0	73.2	71.6	71.8
80000	69.3	71.9	73.9	74.2	75.3	72.8	73.9	72.5	73.8	74.2	76.2	77.9	75.8	73.1	71.5	71.9
90000	69.5	72.1	73.7	74.2	75.5	73.0	73.9	72.5	74.0	74.4	76.5	78.0	75.7	73.2	71.5	72.4
100000	69.7	72.5	73.8	74.4	75.7	73.2	74.2	72.7	74.2	74.8	77.0	78.1	76.0	73.4	71.7	73.2
110000	69.9	73.0	73.9	74.5	76.3	73.1	74.6	74.6	74.4	75.2	77.7	78.3	76.3	73.5	72.0	73.7
120000	70.4	73.8	74.2	74.7	76.5	73.5	75.0	75.6	74.6	75.2	78.7	78.7	76.6	73.6	72.1	73.7
130000	70.9	74.4	74.9	74.9	76.0	73.8	75.3	76.9	74.7	75.1	79.9	79.2	77.0	73.8	72.1	73.6
140000	71.7	74.9	75.9	75.2	75.4	74.1	75.2	77.1	74.6	74.8	78.9	79.4	77.1	73.8	72.1	73.0
150000	72.3	75.6	76.9	75.6	74.8	74.5	75.1	77.3	74.8	74.5	78.9	79.4	77.1	73.5	72.1	73.1
160000	72.9	76.3	77.0	76.2	75.2	74.9	74.9	76.1	75.1	74.8	79.3	79.3	77.3	73.4	72.2	73.3
170000	73.5	76.8	77.3	76.8	75.4	75.4	74.6	77.2	75.0	75.1	79.0	79.3	77.2	73.1	71.9	73.5
180000	74.0	77.4	77.1	77.0	75.5	76.0	74.6	76.4	74.9	75.2	78.5	79.3	77.0	72.9	72.0	73.6
190000	74.2	77.5	76.7	77.3	75.5	76.3	74.4	76.2	74.8	75.2	78.4	79.1	76.6	72.9	72.2	73.7
200000	74.2	77.3	77.1	78.0	75.5	75.9	74.4	75.7	74.6	75.5	79.0	78.9	76.1	72.8	71.8	73.8
210000	74.2	77.1	77.5	78.1	75.4	76.1	74.3	75.7	74.4	75.7	79.1	78.5	75.8	72.6	71.8	74.0
220000	74.1	76.9	77.4	78.0	75.2	75.8	74.0	75.8	74.4	75.8	79.5	78.2	75.7	72.4	72.0	74.0
230000	73.9	76.7	77.0	78.0	75.1	75.6	73.8	75.5	74.4	75.9	79.3	78.1	75.5	72.3	71.8	74.0
Daily Max	74.2	77.5	77.5	78.1	77.7	76.3	75.3	77.3	75.2	75.9	79.9	79.5	77.8	75.2	72.3	74.0
Daily Min	69.1	71.9	73.7	74.2	74.8	72.8	73.8	72.5	73.8	74.1	76.0	77.9	75.5	72.3	71.5	71.8
Average	71.3	74.4	75.8	75.9	75.9	74.4	74.6	74.7	74.5	74.8	77.7	78.8	76.6	73.5	71.9	72.9
Monthly average:					71.9											
License Maximum:					89 F											

Potato Rapids Headwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	74.4	79.1	81.3	81.1	82.8	83.9	83.6	82.0	80.0	78.5	79.1	76.4	32.0	32.0	32.0
10000	74.7	78.9	81.4	81.2	82.8	83.6	83.6	81.7	79.3	78.4	78.8	76.3	32.0	32.0	32.0
20000	74.9	79.1	80.9	81.0	82.8	83.2	83.4	81.4	78.8	78.3	78.6	76.2	32.0	32.0	32.0
30000	74.9	79.0	80.5	80.9	82.8	83.0	83.2	81.0	78.6	78.2	78.3	76.1	32.0	32.0	32.0
40000	74.9	79.0	80.3	80.7	82.8	82.9	82.9	80.8	78.5	78.0	78.1	76.0	32.0	32.0	32.0
50000	74.8	79.1	79.9	80.6	82.7	82.7	82.8	80.5	78.3	77.9	77.8	75.9	32.0	32.0	32.0
60000	74.8	79.0	79.7	80.4	82.7	82.6	82.7	80.3	78.2	77.7	77.6	75.8	32.0	32.0	32.0
70000	74.7	79.0	79.6	80.3	82.6	82.5	82.5	80.1	78.0	77.5	77.5	75.7	32.0	32.0	32.0
80000	74.9	79.1	79.5	80.1	82.5	82.4	82.4	79.9	77.9	77.3	77.3	75.6	32.0	32.0	32.0
90000	75.4	79.6	79.9	80.2	82.6	82.4	82.3	79.8	78.0	77.2	77.2	75.7	32.0	32.0	32.0
100000	75.1		80.7	80.4	82.9	82.7	82.2	80.1	78.5	77.5	77.1	32.0	32.0	32.0	32.0
110000	75.4	80.1	80.9	81.1	83.4	83.1	82.5	80.6	79.1	78.2	77.4	32.0	32.0	32.0	32.0
120000	75.9	80.1	80.8	81.6	84.0	83.7	83.3	80.3	78.9	78.7	77.4	32.0	32.0	32.0	32.0
130000	75.9	80.2	80.7	82.1	84.5	84.3	83.6	80.2	78.8	79.3	77.3	32.0	32.0	32.0	32.0
140000	75.8	81.0	81.1	81.7	84.9	84.0	83.5	80.4	79.0	79.4	77.2	32.0	32.0	32.0	32.0
150000	76.1	81.0	80.8	81.7	85.0	83.6	83.5	80.6	79.2	79.3	77.2	32.0	32.0	32.0	32.0
160000	76.4	81.1	80.5	82.1	84.5	83.6	83.3	80.8	79.0	79.5	77.2	32.0	32.0	32.0	32.0
170000	77.0	81.5	80.0	82.4	84.7	83.7	83.5	80.3	79.8	79.6	77.2	32.0	32.0	32.0	32.0
180000	77.5	81.6	80.2	82.4	84.7	83.7	83.5	80.3	79.9	79.6	77.1	32.0	32.0	32.0	32.0
190000	78.2	81.6	80.4	82.6	84.6	83.8	83.2	80.5	79.6	79.9	77.0	32.0	32.0	32.0	32.0
200000	78.6	81.7	80.4	83.0	84.0	83.9	83.0	80.3	79.4	80.0	76.9	32.0	32.0	32.0	32.0
210000	79.1	81.7	80.4	83.0	84.0	83.4	82.6	80.2	79.1	79.9	76.8	32.0	32.0	32.0	32.0
220000	79.7	81.4	80.6	82.9	84.1	83.2	82.5	80.0	78.9	79.3	76.6	32.0	32.0	32.0	32.0
230000	79.6	81.1	80.6	82.8	84.0	83.5	82.2	80.2	78.7	79.2	76.5	32.0	32.0	32.0	32.0
Daily Max	79.7	81.7	81.4	83.0	85.0	84.3	83.6	82.0	80.0	80.0	79.1	76.4	32.0	32.0	32.0
Daily Min	74.4	78.9	79.5	80.1	82.5	82.4	82.2	79.8	77.9	77.2	76.5	32.0	32.0	32.0	32.0
Average	76.2	80.2	80.5	81.5	83.6	83.3	83.0	80.5	78.9	78.7	77.5	50.3	32.0	32.0	32.0
			Missing data due to equipment maintenance												



## Metcalfe, Mark W

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**From:** Metcalf, Mark W  
**Sent:** Tuesday, August 09, 2011 3:26 PM  
**To:** Utrup, Nick; Donofrio, Michael C  
**Cc:** Puzen, Shawn C; Brandt, Edward S; Crocker, Bruce E  
**Subject:** Water quality monitoring - Peshtigo Hydros  
**Attachments:** 20110809 Peshtigo WQM report to agencies.pdf

Good afternoon Mike and Nick,

Attached please find a report on water quality monitoring deviations observed between July 25<sup>th</sup> and August 5<sup>th</sup> at WPSC hydroelectric projects located on the Peshtigo River. If you have any questions about the enclosed report, please feel free to contact me.

Thanks,  
Mark

### Mark Metcalf

**Environmental Consultant - Air & Water | Integrys Business Support, LLC**

920-433-1833

920-606-8432 *cell*

920-433-4916 *fax*

[mwmetcalf@integrysgroup.com](mailto:mwmetcalf@integrysgroup.com)

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*Providing support for Integrys Energy Group, Integrys Energy Services, Michigan Gas Utilities, Minnesota Energy Resources, North Shore Gas, Peoples Gas, Upper Peninsula Power Company and Wisconsin Public Service.*



**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

August 9, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards – Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations observed between July 25<sup>th</sup> and August 5<sup>th</sup>, 2011. Per the monitoring plans, monitoring for dissolved oxygen, temperature, and pH is being conducted at the following projects: Caldron Falls (FERC No. 2525), High Falls, (FERC No. 2595), Johnson Falls (FERC No. 2522), and Potato Rapids (FERC No. 2560). The dissolved oxygen water quality standard at all of the developments except Johnson Falls is 5.0 mg/l. The water quality standard downstream of Johnson Falls is 6 mg/l.

At the Caldron Falls project, deviations from the dissolved oxygen standard were observed upstream and downstream of the powerhouse. The upstream monitoring location is in the reservoir near the powerhouse intake, approximately 1 meter from the bottom of the reservoir. Since the beginning of July, dissolved oxygen levels have steadily decreased in the hypolimnion of the reservoir due to a natural stratification of the impoundment. Monitoring data collected between July 25<sup>th</sup> and August 4<sup>th</sup> indicates the dissolved oxygen concentration near the bottom of the reservoir ranged between 0.3 and 2.0 mg/l. Dissolved oxygen concentrations will continue to be below the water quality standard until the impoundment is no longer stratified.

Downstream of the Caldron Falls powerhouse, readings below the water quality standard were recorded daily from July 27<sup>th</sup> through August 3<sup>rd</sup>. All of the low readings corresponded to periods of low river flow due to refilling of the Caldron Falls reservoir after completion of peaking operation. WPS has investigated plant operations during the refill periods and has determined that the required 56 cfs flow through the sluice gate was not being provided. Consequently, all water being released during the refill period was low dissolved oxygen water from the hypolimnion of the Caldron Falls reservoir through the powerhouse. The combination of low flow and low dissolved oxygen resulted in a lack of aeration to meet the water quality standard at the monitoring location. Under higher flows, the water released is able to meet the water quality standard. WPSC is actively addressing a procedural change to ensure that aeration flow is being released during refill periods to mitigate low dissolved oxygen levels during low flow periods. Please note that no deviations from the dissolved oxygen standard were observed at the Parkway Road Bridge monitoring location (headwater monitoring location for the High Falls project), which is approximately ½

August 9, 2011  
Mr. Donofrio & Mr. Utrup  
Page 2 of 2

mile downstream of the Caldron Falls tailrace monitoring location. This demonstrates that water quality is improving with distance from the powerhouse under low flow conditions.

Downstream of the Johnson Falls Powerhouse, hourly readings below the dissolved oxygen water quality standard were observed between July 28<sup>th</sup> and August 4<sup>th</sup>. The lowest dissolved oxygen level recorded was 5.4 mg/l. The likely cause of the low readings is warm water temperatures. Daily average water temperatures during this time period were ranged between 73°F and 75°F, while hourly water temperatures only varied by 1°F. Please note that the Johnson Falls tailrace monitoring location is approximately 40 to 60 feet downstream of the powerhouse. As observed downstream of the Caldron Falls powerhouse, water quality improves with distance from the powerhouse. Therefore, it is likely that the water quality standard is being met within a short distance from the powerhouse.

At the Potato Rapids facility, a water quality monitor was deployed upstream of the facility on July 28<sup>th</sup>. Readings below the water quality standard were recorded between 11:00 and 18:00. The likely cause of the low readings is a stratification of the impoundment. Between 18:00 and 19:00 on the 28<sup>th</sup>, the monitor experienced a power failure. Therefore, no monitoring data is available from July 28<sup>th</sup> at 19:00 through August 5<sup>th</sup> at 10:00 when the monitor was retrieved. Please note that no deviations from the dissolved oxygen water quality standard were observed downstream of the facility during the monitoring period.

Attached for your review is dissolved oxygen and temperature monitoring data from the Caldron Falls headwater and tail water monitoring locations, the Parkway Road Bridge monitoring location, the Johnson Falls tailrace monitoring location, and the Potato Rapids headwater monitoring location. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf  
Environmental Consultant – Air & Water  
Telephone: (920) 433-1833

Attach.

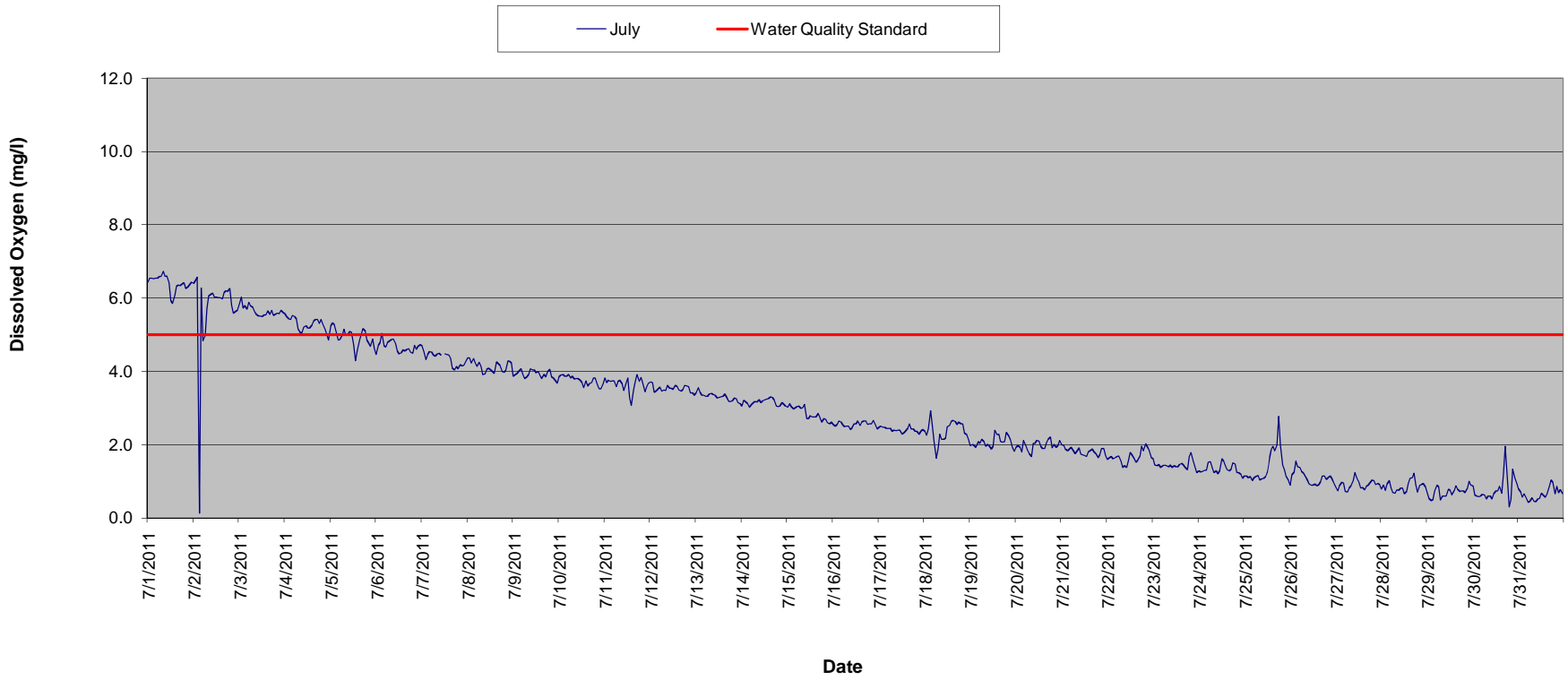
cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

## **Attachments**

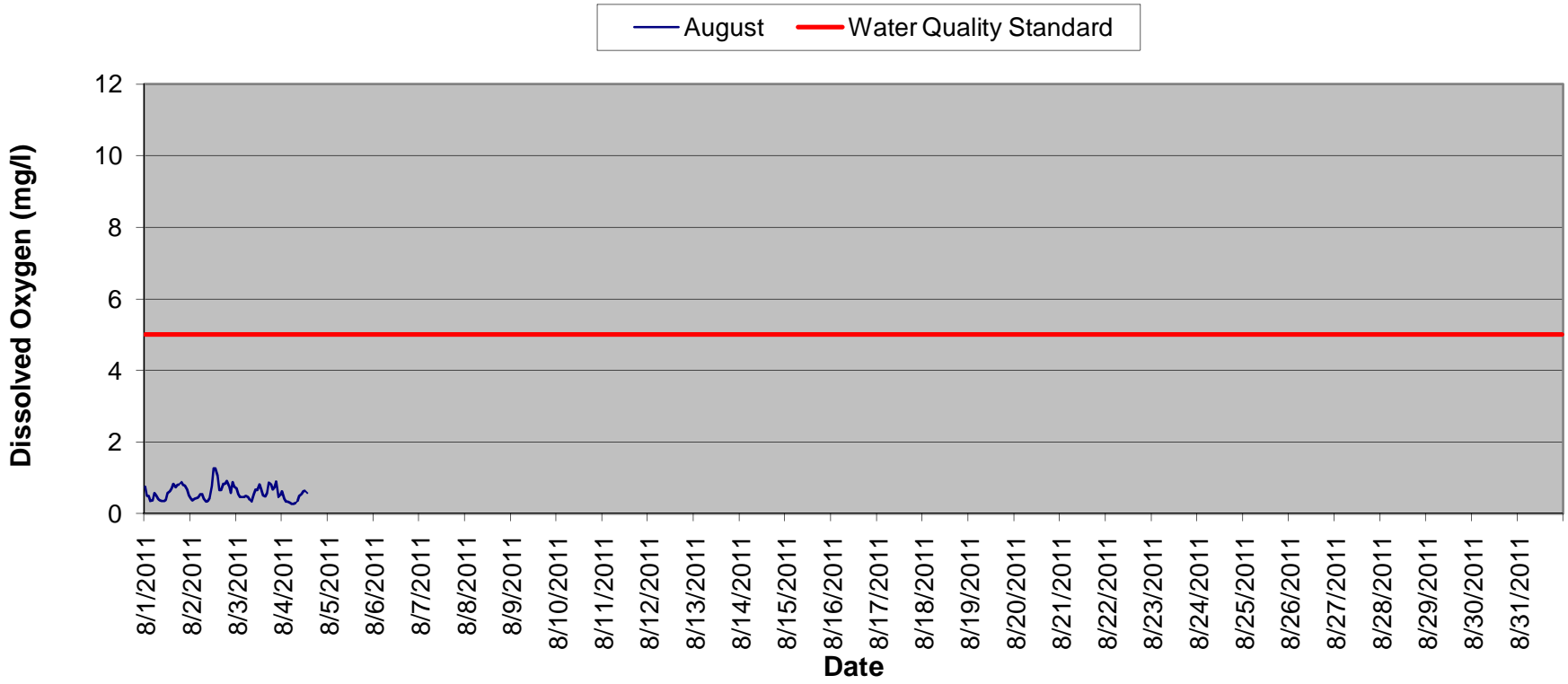
### **Peshtigo River Hydroelectric Projects**

#### **Water Quality Monitoring Data**

Caldron Falls Headwater Dissolved Oxygen - July 2011



### Caldron Falls Headwater Dissolved Oxygen - August 2011



Caldron Falls Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	6.4	6.4	5.8	5.6	5.2	4.5	4.7	4.4	3.9	3.8	3.8	3.7	3.4	3.1	3.0	2.6
10000	6.5	6.5	6.0	5.5	5.3	4.7	4.6	4.4	3.9	3.9	3.7	3.7	3.6	3.2	3.1	2.5
20000	6.5	6.6	5.7	5.4	5.3	4.8	4.3	4.2	3.9	3.9	3.8	3.4	3.4	3.2	3.0	2.6
30000	6.5	0.1	5.8	5.4	5.0	5.0	4.5	4.4	4.0	3.9	3.7	3.5	3.4	3.1	3.0	2.7
40000	6.5	6.3	5.7	5.5	4.9	4.7	4.5	4.2	4.1	3.9	3.7	3.5	3.3	3.0	3.0	2.6
50000	6.5	4.8	5.9	5.5	4.9	4.7	4.5	4.1	3.9	3.9	3.7	3.6	3.3	3.1	3.0	2.5
60000	6.6	5.0	5.8	5.4	5.0	4.8	4.4	4.2	3.8	3.8	3.6	3.5	3.3	3.1	3.1	2.5
70000	6.6	5.7	5.7	5.1	5.1	4.8	4.4	4.1	3.9	3.9	3.7	3.5	3.4	3.2	3.0	2.5
80000	6.7	6.1	5.6	5.0	5.0	4.9	4.5	3.9	3.9	3.8	3.8	3.5	3.4	3.2	3.0	2.5
90000	6.6	6.1	5.6	5.1	5.0	4.9	4.5	3.9	4.1	3.8	3.7	3.6	3.4	3.2	3.1	2.4
100000	6.6	6.1	5.5	5.2	5.1	4.8	4.5	4.1	4.0	3.8	3.5	3.5	3.3	3.1	2.7	2.5
110000	6.4	6.0	5.5	5.2	5.1	4.6	4.5	4.1	4.0	3.8	3.6	3.5	3.3	3.2	2.7	2.6
120000	5.9	6.0	5.5	5.2	4.7	4.5	4.5	4.0	4.0	3.7	3.8	3.5	3.3	3.2	2.8	2.6
130000	5.9	6.0	5.5	5.2	4.3	4.5	4.5	4.0	4.0	3.6	3.3	3.6	3.3	3.2	2.8	2.6
140000	6.1	6.0	5.5	5.3	4.6	4.6	4.4	3.9	3.9	3.7	3.1	3.6	3.3	3.3	2.8	2.5
150000	6.3	6.0	5.7	5.4	4.8	4.6	4.4	4.3	3.8	3.6	3.5	3.5	3.4	3.3	2.8	2.6
160000	6.3	6.1	5.6	5.4	5.0	4.6	4.1	4.2	3.9	3.7	3.7	3.5	3.3	3.3	2.9	2.7
170000	6.3	6.2	5.7	5.4	5.2	4.6	4.0	4.2	3.9	3.7	3.9	3.5	3.2	3.2	2.7	2.7
180000	6.4	6.2	5.5	5.3	5.1	4.5	4.1	4.0	4.0	3.8	3.7	3.6	3.2	3.1	2.6	2.6
190000	6.4	6.3	5.6	5.4	4.9	4.5	4.1	4.0	4.1	3.8	3.8	3.6	3.2	3.0	2.7	2.6
200000	6.3	5.8	5.6	5.3	4.8	4.7	4.2	4.0	3.9	3.6	3.7	3.6	3.3	3.0	2.7	2.6
210000	6.3	5.6	5.6	5.2	4.7	4.6	4.2	4.3	3.8	3.5	3.4	3.4	3.3	3.2	2.6	2.7
220000	6.4	5.6	5.7	5.0	4.9	4.7	4.2	4.3	3.7	3.5	3.6	3.4	3.2	3.1	2.6	2.6
230000	6.4	5.7	5.6	4.9	4.6	4.7	4.3	4.2	3.7	3.7	3.7	3.3	3.1	3.1	2.6	2.4
Daily Max	6.7	6.6	6.0	5.6	5.3	5.0	4.7	4.4	4.1	3.9	3.9	3.7	3.6	3.3	3.1	2.7
Daily Min	5.9	0.1	5.5	4.9	4.3	4.5	4.0	3.9	3.7	3.5	3.1	3.3	3.1	3.0	2.6	2.4
Average	6.4	5.7	5.7	5.3	4.9	4.7	4.4	4.1	3.9	3.8	3.6	3.5	3.3	3.2	2.8	2.6

Anomalie - likely instrument malfunction  
 Low readings due to reservoir stratification

Missing data due to equipment maintenance

Caldron Falls Headwater Dissolved Oxygen Summary - July 2011

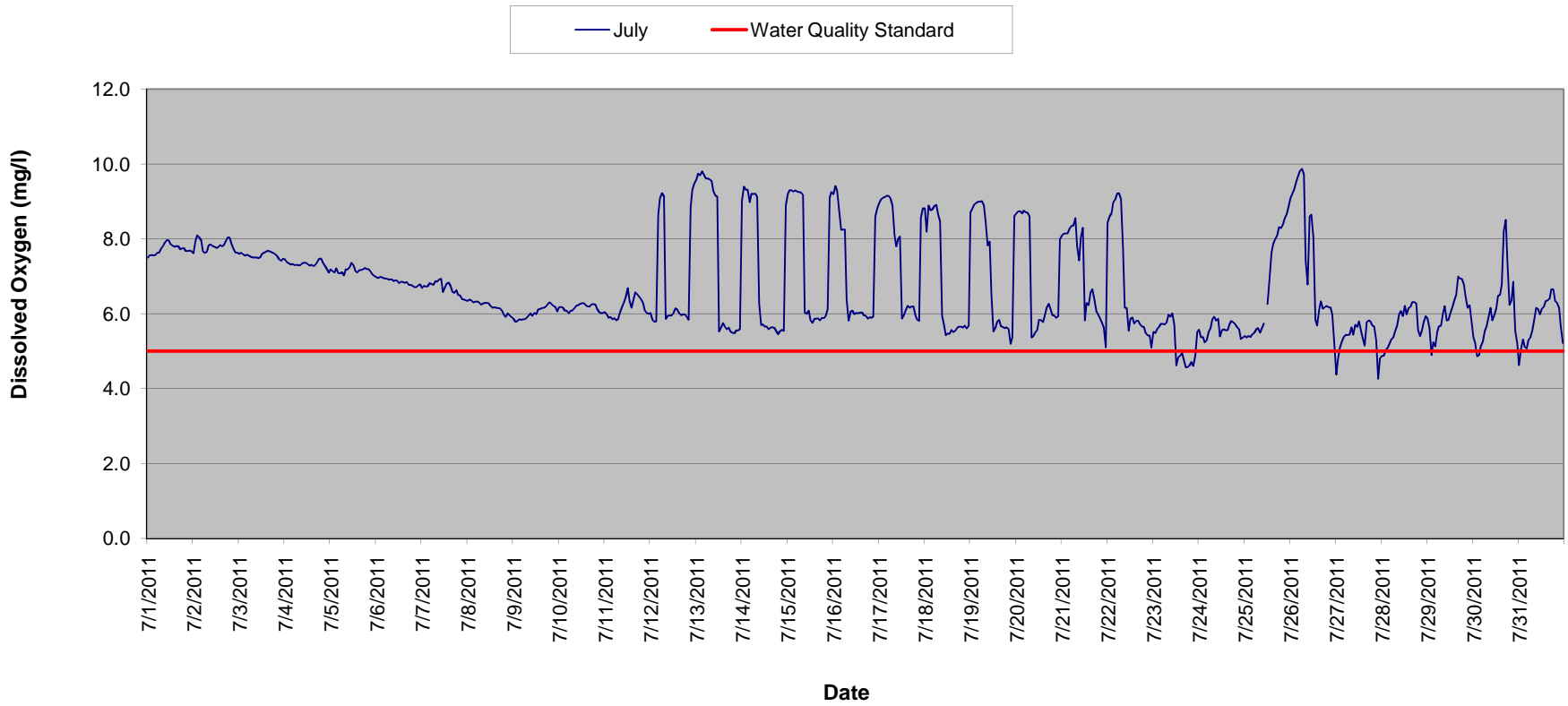
Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	2.5	2.4	2.0	1.9	2.0	1.6	1.6	1.3	1.2	0.9	0.8	0.8	0.7	0.9	0.8
10000	2.5	2.3	2.0	2.0	2.0	1.7	1.4	1.3	1.2	1.2	0.7	0.9	0.5	0.6	0.7
20000	2.5	2.4	2.0	1.9	1.9	1.7	1.4	1.3	1.1	1.3	0.9	0.8	0.5	0.6	0.6
30000	2.5	2.9	1.9	1.8	1.8	1.6	1.5	1.3	1.1	1.6	1.0	0.9	0.5	0.6	0.7
40000	2.5	2.5	2.1	2.1	1.9	1.6	1.4	1.3	1.0	1.4	1.0	1.0	0.7	0.6	0.5
50000	2.5	2.1	2.0	2.0	1.9	1.7	1.4	1.5	1.1	1.4	0.7	0.8	0.9	0.6	0.4
60000	2.5	1.6	2.1	1.9	1.8	1.7	1.4	1.5	1.1	1.3	0.7	0.7	0.8	0.6	0.5
70000	2.4	1.9	2.1	1.8	1.8	1.6	1.4	1.4	1.2	1.2	0.8	0.7	0.5	0.5	0.6
80000	2.4	2.3	2.0	1.7	1.8	1.4	1.4	1.2	1.0	1.1	0.9	0.8	0.6	0.6	0.5
90000	2.4	2.1	2.0	2.0	1.9	1.4	1.4	1.3	1.1	1.0	1.0	0.8	0.6	0.6	0.4
100000	2.4	2.1	2.0	2.0	1.7	1.4	1.4	1.2	1.1	0.9	1.2	0.8	0.6	0.5	0.5
110000	2.4	2.2	1.9	2.1	1.7	1.6	1.4	1.3	1.1	0.9	1.1	0.8	0.8	0.7	0.5
120000	2.3	2.5	2.0	2.1	1.7	1.8	1.4	1.6	1.2	0.9	1.0	0.7	0.8	0.7	0.7
130000	2.3	2.5	2.4	2.0	1.7	1.7	1.4	1.6	1.6	0.9	0.8	0.7	0.6	0.7	0.6
140000	2.4	2.6	2.3	1.9	1.8	1.6	1.5	1.4	1.9	0.9	0.8	0.9	0.7	0.9	0.6
150000	2.4	2.7	2.3	1.9	1.8	1.5	1.5	1.3	2.0	0.9	0.8	1.1	0.9	0.7	0.7
160000	2.6	2.6	2.1	2.1	1.9	1.6	1.4	1.3	1.8	1.0	0.9	1.1	0.8	1.2	0.9
170000	2.4	2.6	2.1	2.2	1.8	1.7	1.4	1.3	2.0	1.2	0.9	1.2	0.7	2.0	1.0
180000	2.4	2.6	2.1	2.2	1.8	2.0	1.3	1.5	2.8	1.1	1.0	0.9	0.7	1.0	1.0
190000	2.4	2.6	2.3	1.9	1.7	1.8	1.7	1.5	2.0	1.1	1.0	0.7	0.7	0.3	0.7
200000	2.4	2.6	2.2	2.0	1.7	2.0	1.8	1.2	1.4	1.1	1.0	0.9	0.7	0.5	0.9
210000	2.3	2.3	2.2	1.9	1.9	1.9	1.6	1.2	1.3	1.2	0.9	0.9	0.8	1.3	0.7
220000	2.4	2.3	2.0	2.0	1.9	1.8	1.4	1.2	1.1	1.1	0.9	0.9	1.0	1.1	0.8
230000	2.4	2.1	1.8	2.1	1.7	1.6	1.2	1.1	1.0	1.0	0.9	0.9	0.9	1.0	0.7
Daily Max	2.6	2.9	2.4	2.2	2.0	2.0	1.8	1.6	2.8	1.6	1.2	1.2	1.0	2.0	1.0
Daily Min	2.3	1.6	1.8	1.7	1.7	1.4	1.2	1.1	1.0	0.9	0.7	0.7	0.5	0.3	0.4
Average	2.4	2.4	2.1	2.0	1.8	1.7	1.4	1.3	1.4	1.1	0.9	0.9	0.7	0.8	0.7



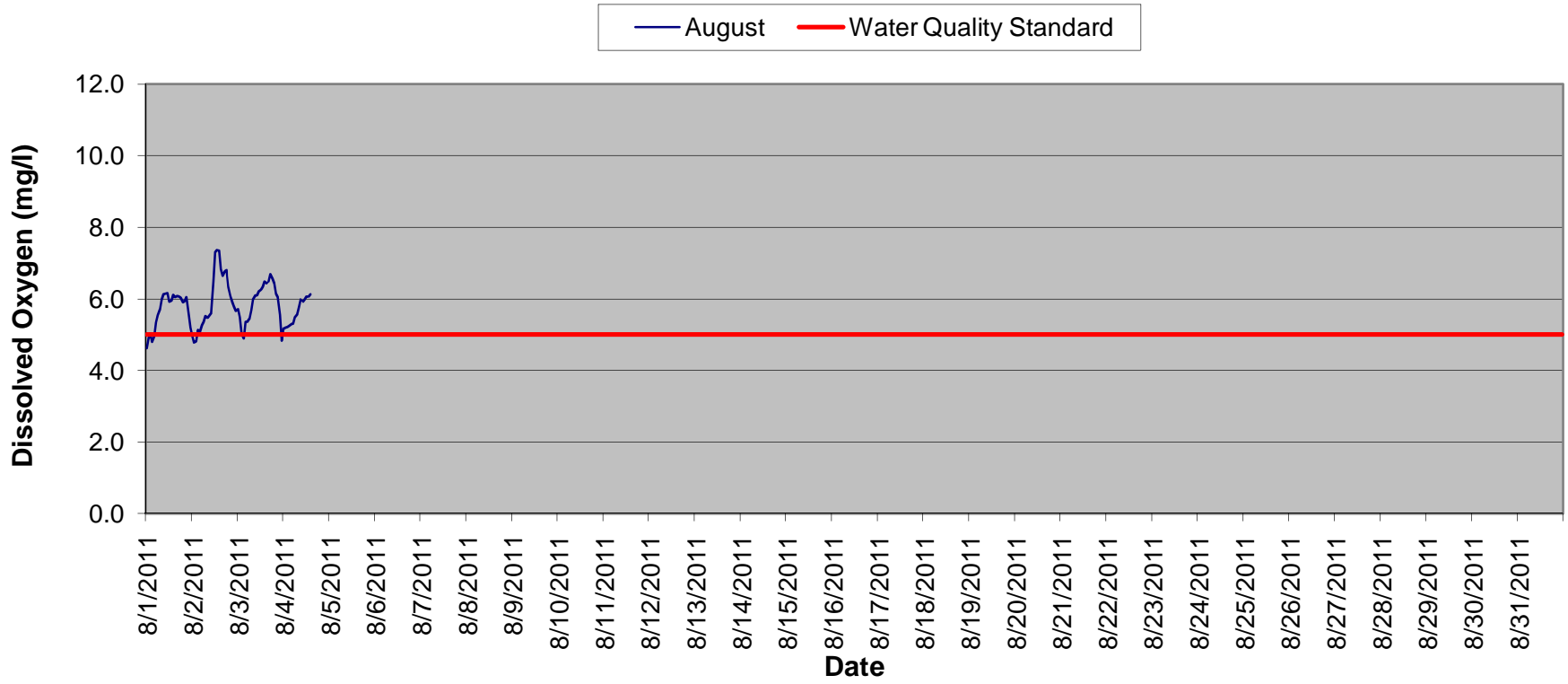
Caldron Falls Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	0.8	0.4	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	0.5	0.4	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	0.5	0.4	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	0.4	0.4	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	0.4	0.5	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	0.6	0.6	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	0.5	0.6	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	0.4	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	0.4	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	0.4	0.4	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	0.4	0.4	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	0.4	0.8	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	0.6	1.3	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	0.6	1.3	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	0.7	1.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	0.8	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	0.7	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	0.8	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	0.9	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	0.8	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	0.8	0.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	0.7	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	0.5	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	0.9	1.3	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	0.4	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.6	0.7	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low readings due to reservoir stratification																

### Caldron Falls Tailwater Dissolved Oxygen - July 2011



### Caldron Falls Tailwater Dissolved Oxygen - August 2011



Caldron Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.5	7.6	7.6	7.5	7.2	7.0	6.7	6.3	5.9	6.2	6.0	6.0	9.6	9.0	9.2	9.2
10000	7.6	7.9	7.6	7.4	7.1	6.9	6.7	6.4	5.8	6.2	6.0	5.8	9.7	9.4	9.3	9.4
20000	7.6	8.1	7.6	7.3	7.1	7.0	6.7	6.4	5.8	6.2	5.9	5.8	9.7	9.3	9.3	9.3
30000	7.6	8.0	7.6	7.3	7.2	7.0	6.7	6.3	5.9	6.1	5.9	5.8	9.8	9.3	9.3	8.8
40000	7.6	8.0	7.6	7.3	7.1	7.0	6.8	6.3	5.8	6.1	5.9	8.7	9.7	9.0	9.3	8.2
50000	7.6	7.7	7.6	7.3	7.1	6.9	6.8	6.3	5.9	6.0	5.9	9.1	9.6	9.2	9.3	8.2
60000	7.6	7.6	7.5	7.3	7.1	6.9	6.8	6.3	5.9	6.1	5.8	9.2	9.6	9.2	9.3	8.2
70000	7.7	7.7	7.5	7.3	7.0	6.9	6.9	6.2	5.9	6.1	5.9	9.1	9.6	9.2	9.2	6.4
80000	7.8	7.8	7.5	7.3	7.2	6.9	6.9	6.3	6.0	6.2	6.0	5.9	9.6	9.1	9.2	5.8
90000	7.9	7.8	7.5	7.3	7.2	6.9	6.9	6.3	6.0	6.2	6.2	5.9	9.3	6.3	6.0	6.1
100000	8.0	7.8	7.5	7.4	7.2	6.9	6.9	6.3	5.9	6.2	6.3	6.0	9.2	5.7	6.0	6.1
110000	8.0	7.8	7.5	7.4	7.4	6.9	6.6	6.3	6.0	6.3	6.5	6.0	9.1	5.7	6.1	6.0
120000	7.9	7.8	7.6	7.3	7.3	6.8	6.7	6.2	6.0	6.3	6.7	6.0	5.5	5.7	5.8	6.0
130000	7.8	7.8	7.6	7.3	7.1	6.9	6.8	6.2	6.1	6.3	6.3	6.1	5.6	5.7	5.8	6.0
140000	7.8	7.8	7.6	7.3	7.1	6.8	6.8	6.2	6.1	6.2	6.2	6.1	5.8	5.6	5.9	6.0
150000	7.8	7.8	7.7	7.3	7.2	6.8	6.7	6.2	6.2	6.2	6.4	6.0	5.7	5.6	5.9	6.0
160000	7.8	7.8	7.7	7.3	7.2	6.8	6.6	6.2	6.2	6.2	6.6	6.0	5.6	5.6	5.9	6.0
170000	7.7	7.9	7.6	7.4	7.2	6.8	6.6	6.1	6.2	6.3	6.5	6.0	5.6	5.6	5.8	5.9
180000	7.7	8.0	7.6	7.5	7.2	6.8	6.6	6.1	6.3	6.3	6.5	6.0	5.5	5.5	5.9	5.9
190000	7.8	8.0	7.6	7.5	7.2	6.8	6.5	6.0	6.3	6.2	6.4	5.9	5.5	5.5	5.9	5.9
200000	7.7	7.9	7.5	7.4	7.2	6.7	6.5	5.9	6.3	6.1	6.3	5.8	5.5	5.5	5.9	5.9
210000	7.7	7.7	7.5	7.3	7.1	6.7	6.4	6.0	6.2	6.0	6.1	8.8	5.6	5.6	6.1	5.9
220000	7.7	7.6	7.4	7.2	7.1	6.8	6.4	6.0	6.2	6.0	6.0	9.3	5.6	5.5	9.1	8.6
230000	7.7	7.6	7.5	7.1	7.0	6.8	6.4	5.9	6.1	6.0	6.0	9.5	5.6	8.9	9.3	8.8
Daily Max	8.0	8.1	7.7	7.5	7.4	7.0	6.9	6.4	6.3	6.3	6.7	9.5	9.8	9.4	9.3	9.4
Daily Min	7.5	7.6	7.4	7.1	7.0	6.7	6.4	5.9	5.8	6.0	5.8	5.8	5.5	5.5	5.8	5.8
Average	7.7	7.8	7.6	7.3	7.2	6.9	6.7	6.2	6.0	6.2	6.2	6.9	7.6	7.1	7.4	7.0

Peaking operation began on 7/12/11. Monitor out of water.

License Minimum Dissolved Oxygen: 5.0 mg/l

Caldron Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	8.9	8.8	8.7	8.7	8.1	8.4	5.5	5.6	5.4	9.1	4.4	4.9	5.9	5.4	4.6
10000	9.1	8.2	8.8	8.7	8.1	8.6	5.5	5.4	5.4	9.2	4.8	4.9	5.6	5.2	5.0
20000	9.1	8.9	8.9	8.7	8.1	8.7	5.6	5.4	5.4	9.3	5.1	5.0	4.9	4.9	5.3
30000	9.1	8.8	9.0	8.7	8.2	9.0	5.6	5.2	5.4	9.5	5.3	5.1	5.2	4.9	5.1
40000	9.2	8.8	9.0	8.8	8.3	9.1	5.7	5.3	5.4	9.7	5.4	5.2	5.1	5.1	5.1
50000	9.1	8.9	9.0	8.7	8.3	9.2	5.7	5.5	5.5	9.8	5.4	5.3	5.5	5.3	5.3
60000	9.1	8.9	9.0	8.7	8.4	9.2	5.7	5.6	5.6	9.9	5.4	5.4	5.7	5.5	5.4
70000	8.9	8.7	8.9	8.6	8.6	9.1	5.8	5.9	5.6	9.7	5.4	5.5	5.7	5.7	5.6
80000	8.1	8.5	8.4	5.4	7.8	7.7	6.0	5.9	5.5	7.4	5.6	5.7	6.0	5.9	5.8
90000	7.8	5.9	7.8	5.4	7.4	6.2	5.9	5.8	5.6	6.8	5.4	6.0	6.2	6.2	6.2
100000	8.0	5.7	7.9	5.5	8.0	6.1	6.0	5.9	5.7	8.6	5.7	6.1	5.8	5.8	6.1
110000	8.1	5.4	6.5	5.6	8.3	5.5	5.7	5.4	6.3	8.6	5.6	5.9	5.8	6.0	6.0
120000	5.9	5.5	5.5	5.8	5.8	5.9	4.6	5.6	6.3	8.0	5.8	6.2	6.0	6.1	6.1
130000	6.0	5.5	5.6	5.8	6.3	5.9	4.8	5.6	6.9	5.8	5.5	6.0	6.2	6.5	6.2
140000	6.1	5.6	5.8	5.8	6.2	5.7	4.9	5.6	7.6	5.7	5.3	6.2	6.3	6.5	6.3
150000	6.2	5.5	5.8	5.9	6.6	5.8	4.9	5.6	7.9	6.1	5.1	6.2	6.5	6.8	6.4
160000	6.2	5.5	5.7	6.2	6.7	5.8	4.8	5.7	8.0	6.3	5.8	6.3	7.0	8.2	6.4
170000	6.2	5.6	5.6	6.3	6.4	5.7	4.6	5.8	8.1	6.1	5.8	6.3	6.9	8.5	6.7
180000	6.2	5.7	5.6	6.1	6.1	5.7	4.6	5.8	8.3	6.2	5.8	6.3	6.9	7.3	6.6
190000	6.0	5.7	5.6	6.0	6.0	5.6	4.6	5.7	8.3	6.2	5.7	5.6	6.8	6.2	6.3
200000	5.8	5.6	5.6	5.9	5.9	5.5	4.7	5.6	8.4	6.2	5.7	5.4	6.4	6.4	6.3
210000	5.8	5.7	5.2	5.9	5.8	5.4	4.6	5.6	8.5	6.2	5.3	5.5	6.2	6.9	6.2
220000	8.6	5.6	5.4	5.9	5.6	5.4	4.9	5.3	8.7	6.0	4.3	5.8	6.2	5.5	5.6
230000	8.8	5.7	8.6	8.0	5.1	5.1	5.5	5.4	8.9	5.2	4.8	5.9	5.8	5.2	5.2
Daily Max	9.2	8.9	9.0	8.8	8.6	9.2	6.0	5.9	8.9	9.9	5.8	6.3	7.0	8.5	6.7
Daily Min	5.8	5.4	5.2	5.4	5.1	5.1	4.6	5.2	5.4	5.2	4.3	4.9	4.9	4.9	4.6
Average	7.6	6.8	7.2	6.9	7.1	6.9	5.3	5.6	6.8	7.6	5.4	5.7	6.0	6.1	5.8

  Below water quality standard    
   Missing data due to equipment maintenance  
 Low readings on 7/23 occurred while peaking. Flows were over 400 CFS at the time of the low readings.

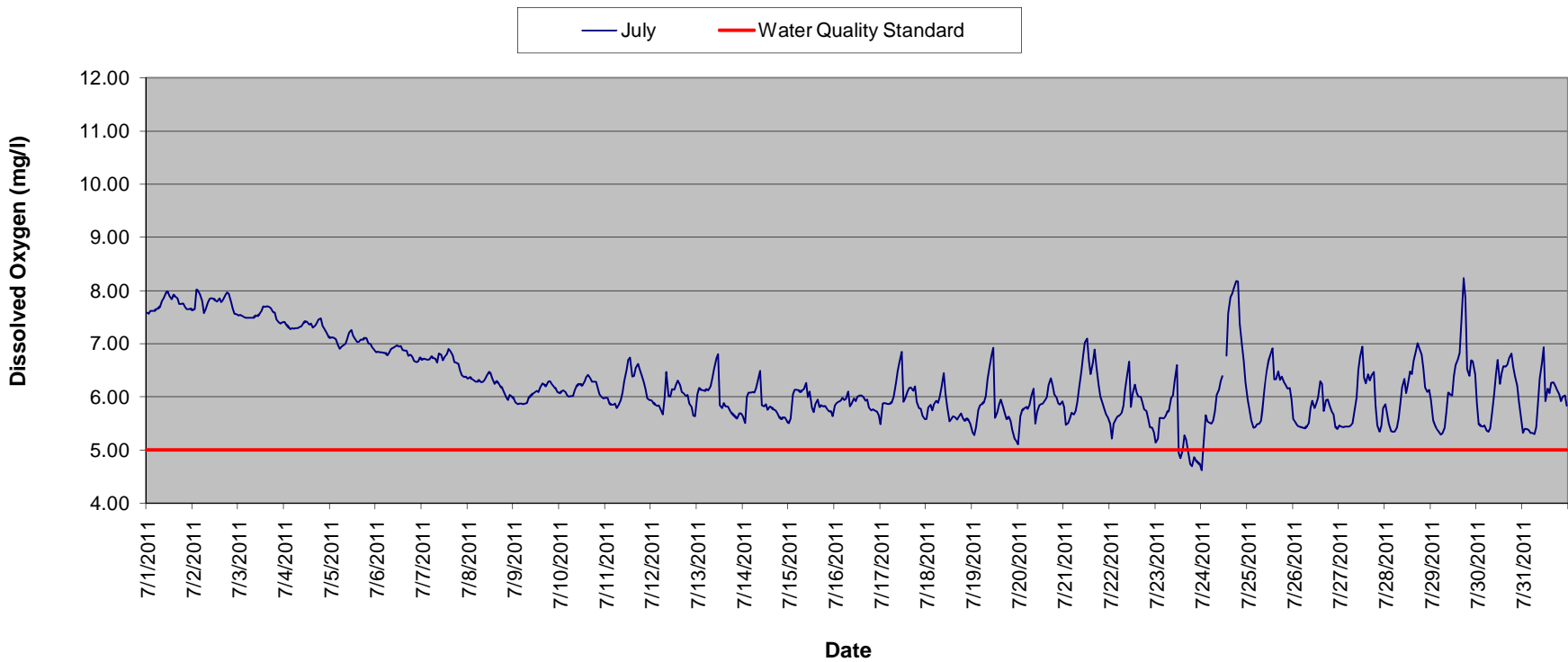
Caldron Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	4.6	5.0	5.7	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	4.9	4.8	5.5	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	5.0	4.8	5.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	4.8	5.1	4.9	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	5.0	5.1	5.4	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	5.4	5.3	5.4	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	5.5	5.4	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	5.7	5.5	5.7	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	6.0	5.5	6.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	6.1	5.5	6.1	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	6.1	5.6	6.1	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	6.2	6.5	6.2	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	5.9	7.3	6.3	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	6.0	7.4	6.3	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	6.1	7.3	6.5	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	6.1	6.8	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	6.1	6.6	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	6.1	6.8	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	6.0	6.8	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	5.9	6.3	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	5.9	6.1	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	6.1	5.9	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	5.6	5.8	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	5.2	5.7	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	6.2	7.4	6.7	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	4.6	4.8	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	5.7	5.9	5.9	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

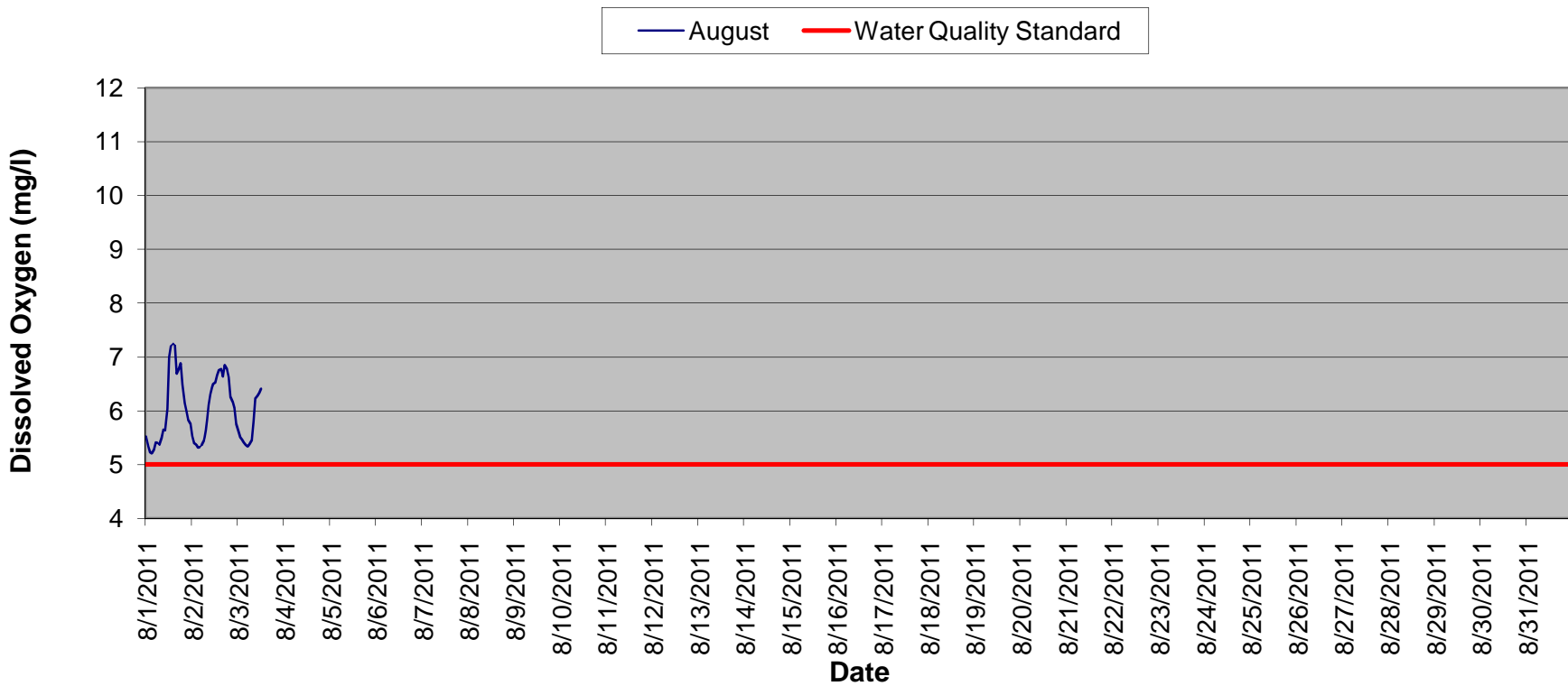
Below water quality standard

License Minimum Dissolved Oxygen: 5.0 mg/l

### Parkway Road Bridge Dissolved Oxygen - July 2011



### Parkway Road Bridge Dissolved Oxygen - August 2011





Parkway Bridge Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.6	7.6	7.5	7.4	7.1	6.8	6.7	6.3	6.0	6.1	6.0	5.9	6.1	5.6	5.5	5.8
10000	7.6	7.6	7.5	7.4	7.1	6.8	6.7	6.4	5.9	6.1	6.0	5.9	6.2	5.5	5.6	5.9
20000	7.6	8.0	7.5	7.3	7.1	6.8	6.7	6.3	5.9	6.1	5.9	5.9	6.1	6.0	6.1	5.9
30000	7.6	8.0	7.5	7.3	7.1	6.8	6.7	6.3	5.9	6.1	5.9	5.8	6.1	6.1	6.1	5.9
40000	7.6	7.9	7.5	7.3	7.0	6.8	6.7	6.3	5.9	6.0	5.9	5.8	6.1	6.1	6.1	6.0
50000	7.7	7.8	7.5	7.3	6.9	6.8	6.8	6.3	5.9	6.0	5.9	5.8	6.2	6.1	6.1	5.9
60000	7.7	7.6	7.5	7.3	6.9	6.8	6.7	6.3	5.9	6.0	5.8	5.7	6.1	6.1	6.1	6.0
70000	7.7	7.6	7.5	7.3	7.0	6.8	6.7	6.3	5.9	6.0	5.8	6.0	6.2	6.2	6.1	6.1
80000	7.8	7.8	7.5	7.3	7.0	6.9	6.6	6.3	6.0	6.1	5.9	6.5	6.4	6.4	6.2	5.8
90000	7.9	7.8	7.5	7.3	7.1	6.9	6.8	6.3	6.0	6.2	6.1	6.0	6.5	6.5	6.3	5.9
100000	8.0	7.9	7.5	7.4	7.2	7.0	6.8	6.4	6.1	6.2	6.3	6.0	6.7	5.8	6.0	6.0
110000	8.0	7.8	7.5	7.4	7.3	7.0	6.7	6.5	6.1	6.2	6.5	6.2	6.8	5.8	6.1	5.9
120000	7.9	7.8	7.6	7.4	7.2	6.9	6.8	6.4	6.1	6.2	6.7	6.1	5.8	5.9	5.8	6.0
130000	7.8	7.8	7.7	7.4	7.1	7.0	6.8	6.3	6.1	6.3	6.7	6.2	5.8	5.8	5.7	6.0
140000	7.9	7.9	7.7	7.4	7.0	6.9	6.9	6.2	6.2	6.4	6.4	6.3	5.9	5.8	5.9	6.0
150000	7.9	7.8	7.7	7.3	7.0	6.9	6.9	6.3	6.3	6.4	6.4	6.2	5.8	5.8	6.0	6.0
160000	7.9	7.8	7.7	7.3	7.1	6.9	6.8	6.3	6.2	6.4	6.6	6.1	5.8	5.8	5.8	5.9
170000	7.7	7.9	7.7	7.4	7.1	6.8	6.7	6.2	6.2	6.3	6.6	6.1	5.8	5.7	5.8	6.0
180000	7.7	8.0	7.6	7.5	7.1	6.8	6.6	6.2	6.3	6.3	6.5	6.0	5.7	5.7	5.8	5.8
190000	7.8	7.9	7.6	7.5	7.1	6.8	6.6	6.1	6.3	6.3	6.4	6.0	5.7	5.6	5.8	5.7
200000	7.7	7.8	7.5	7.3	7.0	6.7	6.5	6.0	6.2	6.2	6.3	5.9	5.6	5.6	5.8	5.8
210000	7.6	7.7	7.4	7.3	7.0	6.6	6.4	5.9	6.2	6.1	6.2	5.8	5.6	5.6	5.7	5.8
220000	7.7	7.6	7.4	7.2	6.9	6.7	6.4	6.0	6.2	6.0	6.0	5.7	5.7	5.6	5.7	5.7
230000	7.7	7.6	7.4	7.1	6.9	6.7	6.4	6.0	6.1	6.0	5.9	5.6	5.7	5.5	5.6	5.7
Daily Max	8.0	8.0	7.7	7.5	7.3	7.0	6.9	6.5	6.3	6.4	6.7	6.5	6.8	6.5	6.3	6.1
Daily Min	7.6	7.6	7.4	7.1	6.9	6.6	6.4	5.9	5.9	6.0	5.8	5.6	5.6	5.5	5.5	5.7
Average	7.7	7.8	7.5	7.3	7.1	6.8	6.7	6.3	6.1	6.2	6.2	6.0	6.0	5.9	5.9	5.9

Average Monthly D.O. 6.3  
 License Minimum Dissolved Oxygen: 5.0 mg/l

Parkway Bridge Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	5.5	5.6	5.3	5.1	5.8	5.5	5.1	4.6		5.6	5.5	5.9	6.0	5.9	5.3
10000	5.9	5.8	5.3	5.6	5.5	5.2	5.2	5.1		5.5	5.4	5.7	5.6	5.5	5.4
20000	5.9	5.9	5.4	5.7	5.5	5.5	5.6	5.7		5.5	5.4	5.5	5.5	5.5	5.4
30000	5.9	5.7	5.8	5.8	5.6	5.6	5.6	5.5		5.4	5.4	5.4	5.4	5.4	5.4
40000	5.9	5.9	5.8	5.8	5.7	5.6	5.6	5.5		5.4	5.4	5.4	5.3	5.5	5.3
50000	5.9	5.9	5.9	5.8	5.7	5.7	5.6	5.5		5.4	5.4	5.3	5.3	5.4	5.3
60000	5.9	5.9	5.9	5.9	5.7	5.7	5.7	5.6		5.4	5.5	5.4	5.3	5.3	5.3
70000	6.0	6.0	6.0	6.0	5.9	5.8	5.8	5.7		5.5	5.5	5.6	5.4	5.4	5.4
80000	6.3	6.2	6.3	6.2	6.2	6.2	6.0	6.0		5.5	5.7	5.9	5.7	5.7	5.9
90000	6.5	6.5	6.5	5.5	6.5	6.4	6.0	6.1		5.8	6.0	6.2	6.1	6.1	6.3
100000	6.7	6.1	6.8	5.7	6.8	6.7	6.3	6.3		5.9	6.5	6.3	6.1	6.4	6.6
110000	6.9	5.8	6.9	5.8	7.0	5.8	6.6	6.4		5.8	6.8	6.1	6.0	6.7	6.9
120000	5.9	5.5	5.6	5.9	7.1	6.1	4.9	6.4	6.8	5.9	7.0	6.2	6.4	6.2	5.9
130000	6.0	5.6	5.7	5.9	6.7	6.2	4.9	6.4	6.9	6.0	6.4	6.5	6.6	6.5	6.2
140000	6.1	5.6	5.9	5.9	6.4	6.1	5.0	6.4	6.3	6.3	6.3	6.4	6.7	6.6	6.1
150000	6.2	5.6	6.0	6.0	6.6	6.0	5.3	6.4	6.3	6.2	6.4	6.7	6.8	6.6	6.3
160000	6.2	5.6	5.8	6.2	6.9	6.0	5.2	6.4	6.5	5.7	6.3	6.9	7.4	6.6	6.3
170000	6.1	5.6	5.7	6.4	6.6	5.9	4.9	6.4	6.3	5.9	6.4	7.0	8.2	6.7	6.2
180000	6.2	5.7	5.6	6.2	6.2	5.8	4.7	6.4	6.4	6.0	6.5	6.9	7.9	6.8	6.1
190000	5.9	5.6	5.6	6.1	6.0	5.7	4.7	6.4	6.3	5.8	5.8	6.8	6.5	6.6	6.1
200000	5.8	5.6	5.6	6.0	5.9	5.6	4.9	6.4	6.2	5.7	5.5	6.5	6.4	6.4	5.9
210000	5.8	5.6	5.4	5.9	5.8	5.4	4.8	6.4	6.2	5.7	5.4	6.2	6.7	6.2	6.0
220000	5.7	5.6	5.2	5.9	5.7	5.4	4.8	6.4	6.2	5.4	5.5	6.1	6.7	5.9	6.0
230000	5.6	5.5	5.2	5.9	5.6	5.3	4.7	6.4	6.0	5.4	5.8	6.1	6.4	5.7	5.8
Daily Max	6.9	6.5	6.9	6.4	7.1	6.7	6.6	6.4	6.9	6.3	7.0	7.0	8.2	6.8	6.9
Daily Min	5.5	5.5	5.2	5.1	5.5	5.2	4.7	4.6	6.0	5.4	5.4	5.3	5.3	5.3	5.3
Average	6.0	5.8	5.8	5.9	6.1	5.8	5.3	5.7	6.4	5.7	5.9	6.1	6.3	6.1	5.9

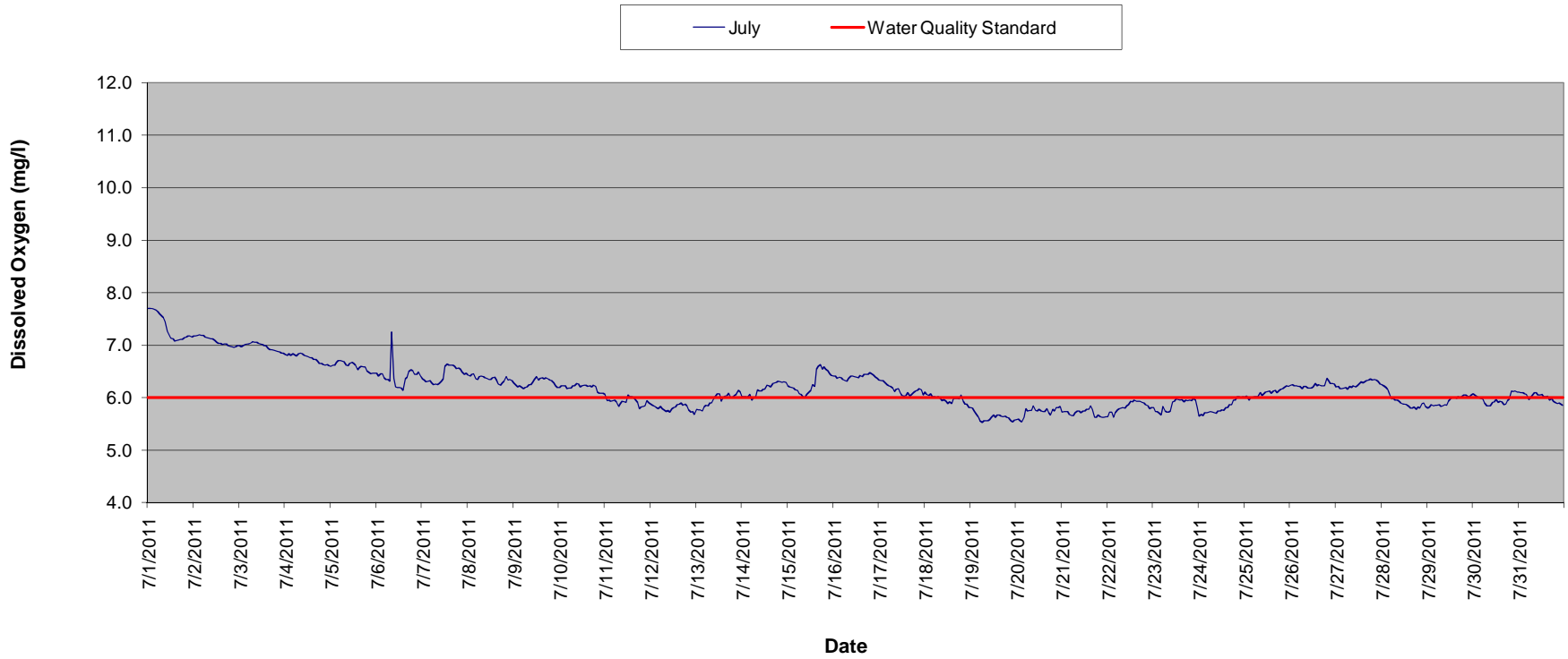
Missing data due to equipment malfunction - loss of power  
 Below water quality standard

Parkway Road Bridge Dissolved Oxygen Summary - August 2011

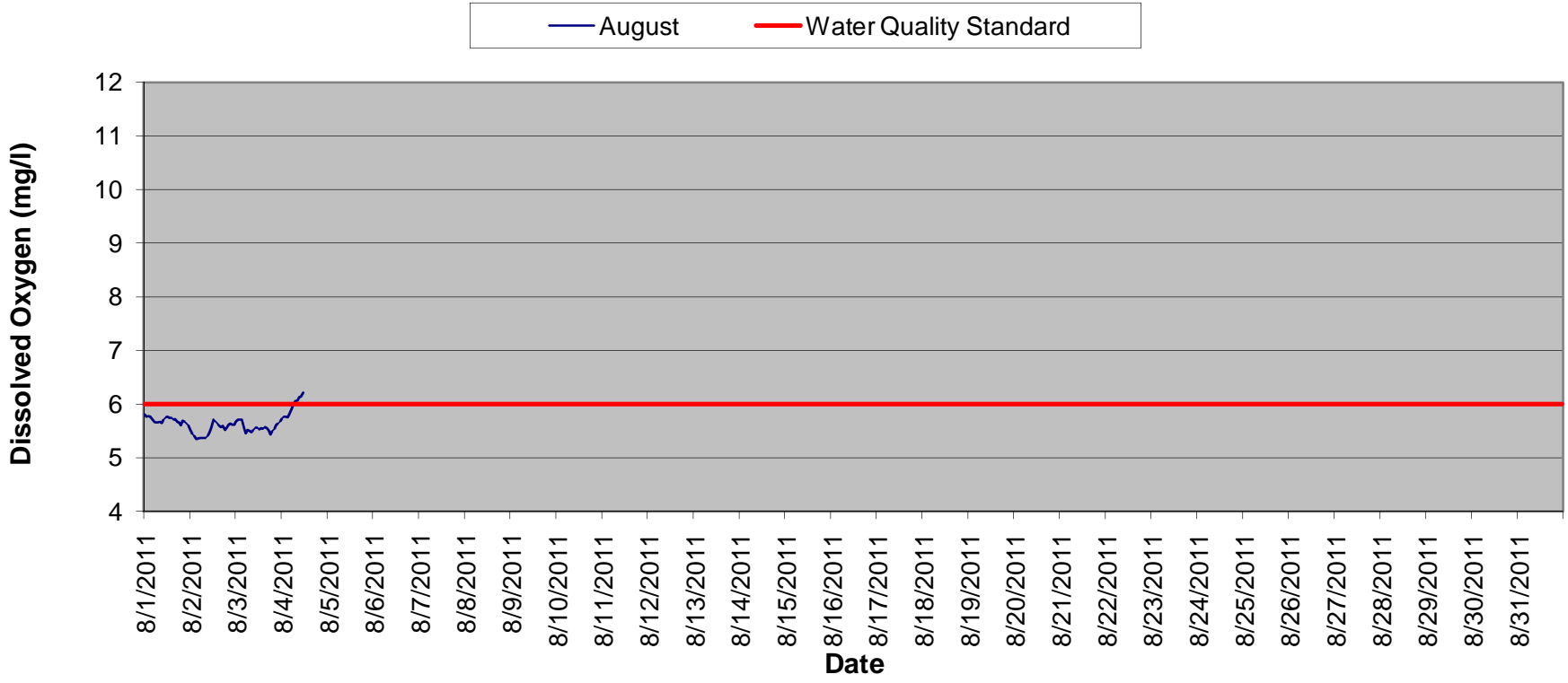
Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	5.5	5.5	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	5.3	5.4	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	5.2	5.4	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	5.2	5.3	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	5.3	5.3	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	5.4	5.4	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	5.4	5.4	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	5.4	5.6	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	5.5	5.9	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	5.7	6.2	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	5.6	6.4	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	6.0	6.5	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	7.0	6.5	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	7.2	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	7.3	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	7.2	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	6.7	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	6.8	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	6.9	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	6.5	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	6.1	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	6.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	5.8	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	5.8	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	7.3	6.9	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	5.2	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	6.0	6.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Monthly Average D.O. 0.5  
 License Minimum Dissolved Oxygen: 5.0 mg/l

Johnson Falls Tailwater Dissolved Oxygen - July 2011



### Johnson Falls Tailwater Dissolved Oxygen - August 2011



Johnson Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.7	7.2	7.0	6.8	6.6	6.5	6.4	6.4	6.3	6.2	6.1	5.9	5.8	6.0	6.2	6.4
10000	7.7	7.2	7.0	6.8	6.6	6.4	6.3	6.4	6.2	6.2	5.9	5.9	5.8	6.0	6.2	6.4
20000	7.7	7.2	7.0	6.8	6.6	6.5	6.3	6.4	6.2	6.2	6.0	5.8	5.8	6.0	6.2	6.4
30000	7.7	7.2	7.0	6.8	6.7	6.5	6.3	6.5	6.2	6.2	5.9	5.8	5.7	6.0	6.2	6.4
40000	7.7	7.2	7.0	6.8	6.7	6.4	6.3	6.4	6.2	6.2	5.9	5.8	5.8	6.1	6.1	6.4
50000	7.6	7.2	7.0	6.8	6.7	6.3	6.3	6.3	6.2	6.2	6.0	5.8	5.9	6.0	6.1	6.4
60000	7.6	7.2	7.0	6.8	6.7	6.3	6.2	6.4	6.2	6.2	5.9	5.8	5.8	6.0	6.1	6.3
70000	7.6	7.1	7.1	6.8	6.7	6.3	6.3	6.4	6.2	6.2	5.8	5.8	5.9	6.0	6.1	6.3
80000	7.5	7.1	7.1	6.8	6.6	7.3	6.2	6.4	6.2	6.2	5.9	5.7	5.9	6.2	6.0	6.4
90000	7.4	7.1	7.1	6.8	6.6	6.4	6.3	6.4	6.2	6.3	5.9	5.8	6.0	6.1	6.0	6.4
100000	7.3	7.1	7.0	6.8	6.6	6.2	6.3	6.4	6.3	6.3	5.9	5.7	6.0	6.1	6.1	6.4
110000	7.2	7.1	7.0	6.8	6.7	6.2	6.4	6.3	6.3	6.2	5.9	5.8	6.1	6.2	6.1	6.4
120000	7.1	7.1	7.0	6.8	6.7	6.2	6.6	6.3	6.4	6.2	6.0	5.8	6.1	6.2	6.1	6.4
130000	7.1	7.0	7.0	6.8	6.6	6.2	6.6	6.4	6.3	6.2	6.0	5.8	5.9	6.2	6.3	6.4
140000	7.1	7.0	7.0	6.8	6.5	6.1	6.6	6.4	6.4	6.2	6.0	5.9	6.0	6.2	6.2	6.4
150000	7.1	7.0	6.9	6.7	6.6	6.4	6.6	6.3	6.4	6.2	6.0	5.9	6.0	6.2	6.5	6.4
160000	7.1	7.0	6.9	6.7	6.6	6.4	6.6	6.3	6.4	6.2	6.0	5.9	6.0	6.3	6.6	6.4
170000	7.1	7.0	6.9	6.7	6.6	6.5	6.6	6.2	6.4	6.2	5.9	5.9	6.1	6.3	6.6	6.4
180000	7.1	7.0	6.9	6.6	6.6	6.5	6.6	6.3	6.4	6.2	5.8	5.9	6.0	6.3	6.5	6.4
190000	7.1	7.0	6.9	6.6	6.5	6.5	6.6	6.3	6.3	6.2	5.8	5.8	6.0	6.3	6.6	6.5
200000	7.2	7.0	6.9	6.6	6.5	6.4	6.5	6.4	6.3	6.1	5.8	5.8	6.0	6.3	6.5	6.5
210000	7.2	7.0	6.9	6.6	6.5	6.4	6.5	6.3	6.3	6.1	5.8	5.7	6.1	6.3	6.5	6.4
220000	7.2	7.0	6.8	6.6	6.5	6.5	6.4	6.3	6.2	6.1	5.9	5.7	6.1	6.3	6.5	6.4
230000	7.2	7.0	6.8	6.6	6.5	6.4	6.5	6.3	6.2	6.1	5.9	5.7	6.1	6.3	6.4	6.4
Daily Max	7.7	7.2	7.1	6.8	6.7	7.3	6.6	6.5	6.4	6.3	6.1	5.9	6.1	6.3	6.6	6.5
Daily Min	7.1	7.0	6.8	6.6	6.5	6.1	6.2	6.2	6.2	6.1	5.8	5.7	5.7	6.0	6.0	6.3
Average	7.3	7.1	7.0	6.8	6.6	6.4	6.4	6.4	6.3	6.2	5.9	5.8	6.0	6.2	6.3	6.4
Below Water Quality Standard																

License Minimum Dissolved Oxygen: 6.0 mg/l

Johnson Falls Tailwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	6.3	6.1	5.8	5.6	5.7	5.6	5.8	5.7	6.0	6.2	6.2	6.3	5.8	6.1	6.1
10000	6.3	6.1	5.8	5.6	5.7	5.7	5.7	5.7	6.0	6.3	6.2	6.2	5.8	6.0	6.1
20000	6.3	6.0	5.7	5.6	5.7	5.7	5.7	5.7	6.0	6.2	6.2	6.2	5.9	6.0	6.1
30000	6.3	6.1	5.7	5.5	5.7	5.6	5.7	5.7	6.0	6.2	6.2	6.2	5.8	6.0	6.1
40000	6.3	6.0	5.6	5.6	5.7	5.7	5.7	5.7	6.0	6.2	6.2	6.1	5.9	6.0	6.1
50000	6.2	6.0	5.6	5.8	5.7	5.8	5.8	5.7	6.0	6.2	6.2	6.0	5.9	6.0	6.0
60000	6.2	6.0	5.5	5.8	5.7	5.8	5.7	5.7	6.0	6.2	6.2	6.0	5.9	5.9	6.0
70000	6.2	6.0	5.6	5.8	5.7	5.8	5.7	5.7	6.0	6.2	6.2	6.0	5.8	5.8	6.0
80000	6.1	6.0	5.6	5.8	5.7	5.8	5.7	5.7	6.1	6.2	6.2	6.0	5.8	5.8	6.1
90000	6.2	5.9	5.6	5.8	5.8	5.8	5.7	5.7	6.0	6.2	6.2	5.9	5.9	5.8	6.1
100000	6.2	6.0	5.6	5.8	5.7	5.8	5.9	5.7	6.1	6.2	6.2	5.9	5.9	5.9	6.1
110000	6.1	5.9	5.6	5.7	5.7	5.9	5.9	5.8	6.1	6.2	6.2	5.9	5.9	5.9	6.1
120000	6.0	5.9	5.7	5.8	5.7	5.9	6.0	5.8	6.1	6.2	6.3	5.9	6.0	6.0	6.1
130000	6.0	5.9	5.6	5.7	5.8	5.9	6.0	5.8	6.1	6.3	6.3	5.9	6.0	5.9	6.0
140000	6.0	5.9	5.7	5.7	5.8	6.0	6.0	5.8	6.1	6.2	6.3	5.8	6.0	5.9	6.0
150000	6.1	6.0	5.7	5.7	5.8	5.9	6.0	5.8	6.1	6.3	6.3	5.8	6.0	5.9	6.0
160000	6.0	6.0	5.7	5.8	5.8	5.9	5.9	5.9	6.1	6.2	6.3	5.8	6.0	5.9	6.0
170000	6.1	6.0	5.6	5.7	5.6	5.9	6.0	5.9	6.1	6.2	6.3	5.8	6.0	5.9	6.0
180000	6.1	6.0	5.7	5.7	5.6	5.9	5.9	6.0	6.1	6.2	6.4	5.8	6.0	5.9	5.9
190000	6.1	6.1	5.6	5.8	5.7	5.9	6.0	6.0	6.2	6.4	6.3	5.8	6.1	6.0	5.9
200000	6.1	5.9	5.6	5.8	5.6	5.9	5.9	6.0	6.2	6.3	6.4	5.8	6.1	6.1	5.9
210000	6.2	5.9	5.6	5.8	5.6	5.8	6.0	6.0	6.2	6.3	6.3	5.9	6.0	6.1	5.9
220000	6.2	5.9	5.5	5.8	5.6	5.8	6.0	6.0	6.2	6.3	6.3	5.9	6.0	6.1	5.9
230000	6.1	5.8	5.6	5.8	5.6	5.8	5.8	6.0	6.2	6.3	6.3	5.8	6.1	6.1	5.9
Daily Max	6.3	6.1	5.8	5.8	5.8	6.0	6.0	6.0	6.2	6.4	6.4	6.3	6.1	6.1	6.1
Daily Min	6.0	5.8	5.5	5.5	5.6	5.6	5.7	5.7	6.0	6.2	6.2	5.8	5.8	5.8	5.9
Average	6.2	6.0	5.6	5.7	5.7	5.8	5.9	5.8	6.1	6.2	6.3	5.9	5.9	6.0	6.0

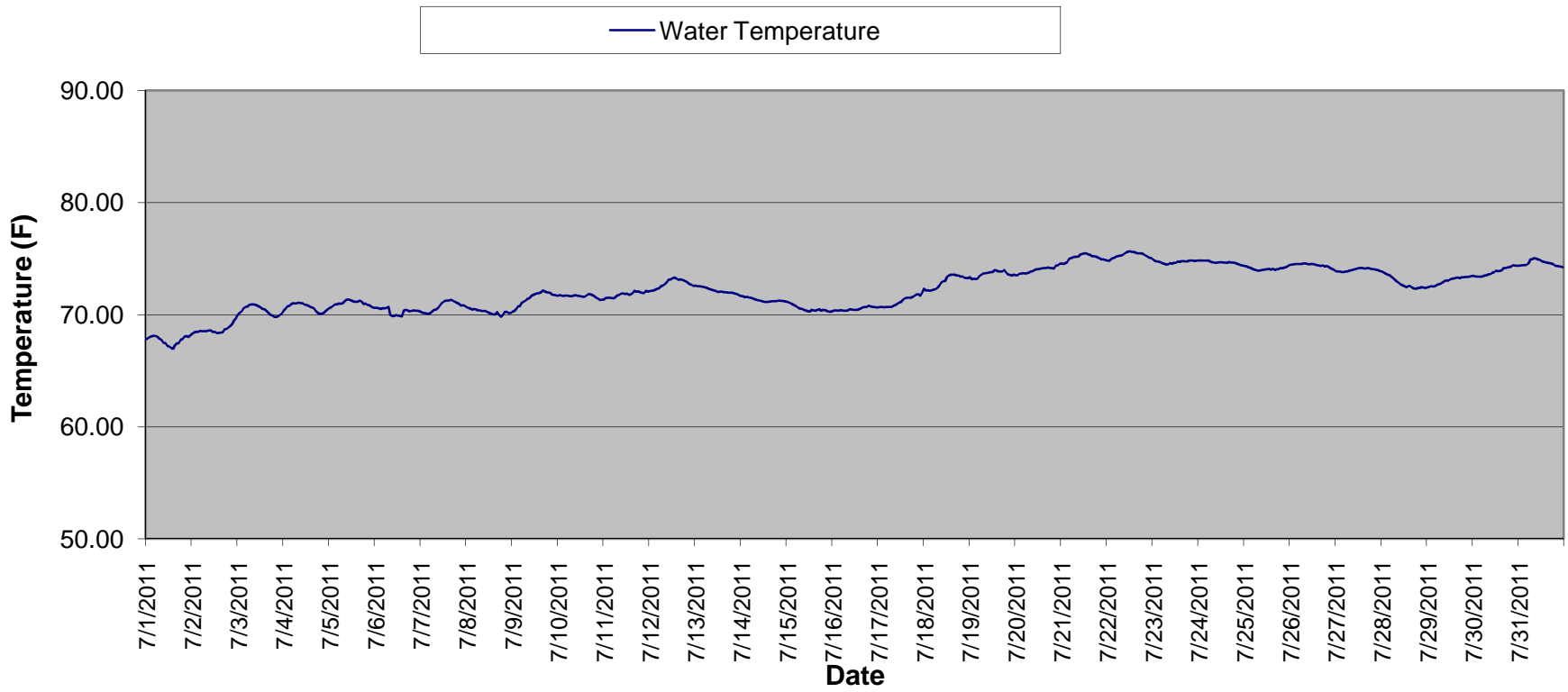
Johnson Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	5.8	5.5	5.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	5.8	5.4	5.7	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	5.8	5.4	5.7	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	5.8	5.4	5.7	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	5.7	5.4	5.6	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	5.7	5.4	5.5	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	5.7	5.4	5.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	5.7	5.4	5.5	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	5.7	5.4	5.5	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	5.7	5.4	5.5	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	5.7	5.5	5.6	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	5.8	5.6	5.6	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	5.8	5.7	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	5.7	5.7	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	5.7	5.7	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	5.7	5.6	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	5.7	5.6	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	5.7	5.6	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	5.7	5.5	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	5.6	5.6	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	5.7	5.6	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	5.7	5.6	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	5.6	5.6	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	5.6	5.6	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	5.8	5.7	5.7	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	5.6	5.4	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	5.7	5.5	5.6	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

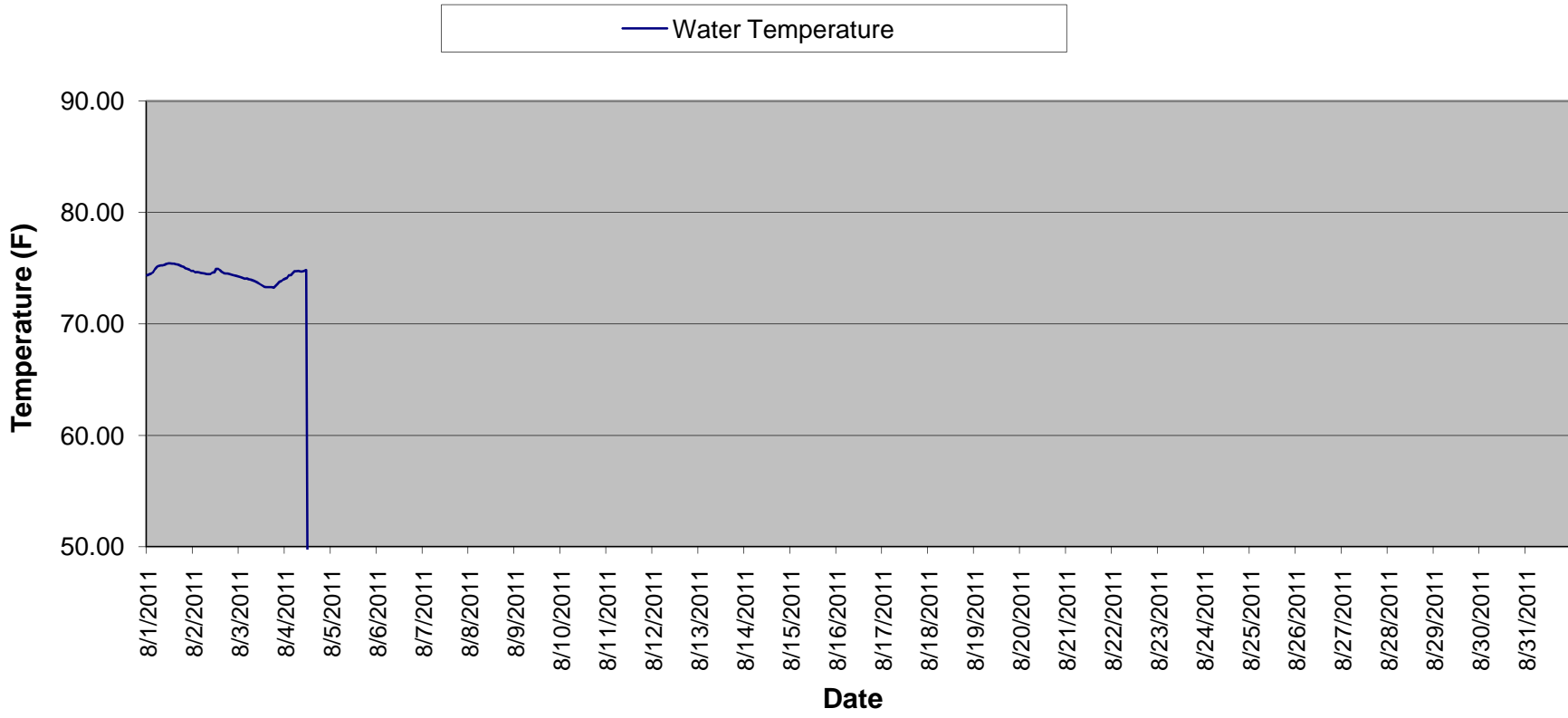
License Minimum Dissolved Oxygen: 6.0 mg/l  
 Instrument Precision - +/- 0.2 mg/l



### Johnson Falls Tailwater Temperature - July 2011



### Johnson Falls Tailwater Temperature - August 2011



Johnson Falls Tailwater Temperature Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	67.8	68.3	70.0	70.4	70.6	70.6	70.3	70.7	70.3	71.7	71.4	72.1	72.6	71.7	71.2	70.3
10000	67.9	68.4	70.2	70.5	70.7	70.6	70.2	70.6	70.3	71.7	71.5	72.1	72.6	71.6	71.1	70.4
20000	68.0	68.5	70.3	70.8	70.8	70.6	70.1	70.5	70.5	71.7	71.5	72.2	72.5	71.6	71.0	70.4
30000	68.1	68.5	70.6	70.8	70.9	70.5	70.1	70.5	70.8	71.7	71.5	72.2	72.5	71.6	70.9	70.4
40000	68.1	68.6	70.7	71.0	70.9	70.6	70.1	70.5	70.8	71.7	71.5	72.3	72.5	71.5	70.8	70.4
50000	68.1	68.5	70.7	71.0	71.0	70.6	70.2	70.5	71.1	71.7	71.5	72.4	72.4	71.5	70.7	70.4
60000	68.0	68.5	70.9	71.0	71.0	70.6	70.3	70.4	71.2	71.7	71.5	72.6	72.4	71.5	70.6	70.4
70000	67.8	68.5	70.9	71.0	71.0	70.7	70.4	70.4	71.3	71.7	71.7	72.6	72.3	71.4	70.5	70.4
80000	67.7	68.6	70.9	71.1	71.2	70.0	70.5	70.3	71.4	71.7	71.8	72.7	72.3	71.3	70.5	70.4
90000	67.5	68.6	70.9	71.0	71.3	69.9	70.6	70.3	71.5	71.7	71.9	72.9	72.2	71.3	70.4	70.5
100000	67.5	68.6	70.8	71.0	71.4	69.9	70.8	70.3	71.7	71.7	71.9	73.1	72.2	71.3	70.4	70.5
110000	67.2	68.5	70.8	70.9	71.3	70.0	71.1	70.2	71.8	71.7	71.9	73.1	72.1	71.2	70.3	70.4
120000	67.2	68.5	70.6	70.9	71.2	69.9	71.2	70.1	71.9	71.7	71.9	73.2	72.0	71.2	70.3	70.4
130000	67.0	68.4	70.5	70.8	71.2	69.9	71.3	70.1	71.9	71.6	71.8	73.3	72.1	71.1	70.4	70.4
140000	67.0	68.4	70.5	70.7	71.2	69.9	71.3	70.0	71.9	71.6	71.8	73.2	72.1	71.2	70.4	70.5
150000	67.3	68.4	70.3	70.6	71.2	70.4	71.3	70.0	72.0	71.7	71.9	73.1	72.0	71.2	70.4	70.6
160000	67.5	68.4	70.2	70.5	71.3	70.4	71.3	70.2	72.2	71.9	72.1	73.2	72.0	71.2	70.4	70.7
170000	67.4	68.7	70.0	70.3	71.2	70.4	71.2	70.0	72.1	71.8	72.1	73.1	72.0	71.2	70.5	70.7
180000	67.8	68.7	69.9	70.1	71.0	70.3	71.1	69.8	72.0	71.7	72.1	73.1	72.0	71.2	70.4	70.7
190000	67.8	68.8	69.8	70.1	71.0	70.3	71.0	70.0	72.0	71.6	72.0	73.0	72.0	71.2	70.4	70.8
200000	68.0	69.0	69.8	70.1	70.9	70.4	71.0	70.3	71.9	71.5	72.0	72.8	71.9	71.3	70.4	70.8
210000	68.1	69.2	69.8	70.2	70.8	70.4	70.8	70.3	71.8	71.4	71.9	72.7	71.9	71.2	70.3	70.7
220000	68.0	69.5	70.0	70.3	70.7	70.4	70.8	70.1	71.8	71.3	72.1	72.7	71.8	71.2	70.3	70.7
230000	68.1	69.7	70.1	70.5	70.6	70.3	70.8	70.2	71.7	71.3	72.1	72.6	71.7	71.2	70.3	70.6
Daily Max	68.1	69.7	70.9	71.1	71.4	70.7	71.3	70.7	72.2	71.9	72.1	73.3	72.6	71.7	71.2	70.8
Daily Min	67.0	68.3	69.8	70.1	70.6	69.9	70.1	69.8	70.3	71.3	71.4	72.1	71.7	71.1	70.3	70.3
Average	67.7	68.7	70.4	70.7	71.0	70.3	70.7	70.3	71.5	71.6	71.8	72.8	72.2	71.3	70.5	70.5

Monthly average: 72.3

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

Johnson Falls Tailwater Temperature Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	70.7	72.3	73.3	73.5	74.6	74.8	74.9	74.8	74.4	74.4	73.9	73.9	72.4	73.5	74.4
10000	70.7	72.2	73.2	73.5	74.5	74.8	74.8	74.8	74.3	74.5	73.9	73.8	72.5	73.4	74.4
20000	70.7	72.2	73.2	73.7	74.6	74.9	74.8	74.8	74.2	74.5	73.9	73.7	72.6	73.4	74.4
30000	70.7	72.1	73.2	73.7	74.7	75.0	74.7	74.8	74.2	74.5	73.8	73.6	72.5	73.4	74.4
40000	70.7	72.2	73.2	73.7	75.0	75.1	74.7	74.8	74.1	74.5	73.8	73.5	72.6	73.4	74.4
50000	70.7	72.2	73.4	73.7	75.0	75.2	74.6	74.8	74.0	74.5	73.9	73.4	72.6	73.4	74.6
60000	70.7	72.3	73.6	73.7	75.1	75.2	74.6	74.8	74.0	74.5	73.9	73.3	72.7	73.5	74.9
70000	70.7	72.4	73.7	73.7	75.2	75.3	74.5	74.7	73.9	74.6	73.9	73.1	72.8	73.5	75.0
80000	70.8	72.6	73.7	73.9	75.2	75.3	74.5	74.6	73.9	74.6	74.0	73.0	72.9	73.6	75.0
90000	70.9	72.9	73.7	73.9	75.2	75.5	74.6	74.6	74.0	74.5	74.0	72.8	73.0	73.6	75.0
100000	71.0	73.0	73.7	74.0	75.4	75.6	74.6	74.7	74.0	74.5	74.1	72.7	73.1	73.7	74.9
110000	71.1	73.0	73.8	74.1	75.4	75.6	74.6	74.7	74.0	74.5	74.1	72.6	73.0	73.8	74.9
120000	71.2	73.4	73.8	74.1	75.5	75.7	74.6	74.7	74.1	74.5	74.2	72.6	73.2	73.9	74.8
130000	71.4	73.5	74.0	74.1	75.5	75.6	74.8	74.6	74.1	74.5	74.2	72.4	73.2	73.9	74.7
140000	71.5	73.6	73.9	74.1	75.4	75.6	74.7	74.6	74.0	74.4	74.2	72.6	73.2	73.9	74.7
150000	71.5	73.6	73.9	74.2	75.3	75.5	74.8	74.6	74.1	74.4	74.1	72.6	73.3	74.0	74.6
160000	71.5	73.6	73.9	74.2	75.2	75.5	74.8	74.7	74.0	74.4	74.1	72.4	73.3	74.2	74.6
170000	71.5	73.5	73.9	74.2	75.2	75.5	74.8	74.7	74.1	74.4	74.2	72.3	73.3	74.2	74.6
180000	71.6	73.5	74.0	74.2	75.2	75.5	74.8	74.6	74.1	74.3	74.1	72.3	73.3	74.2	74.5
190000	71.7	73.4	73.7	74.2	75.1	75.4	74.8	74.6	74.2	74.4	74.1	72.4	73.3	74.2	74.4
200000	71.8	73.4	73.6	74.1	75.0	75.3	74.8	74.6	74.1	74.3	74.1	72.4	73.4	74.3	74.3
210000	71.8	73.3	73.5	74.4	74.9	75.2	74.8	74.5	74.2	74.2	74.0	72.5	73.4	74.4	74.3
220000	71.7	73.3	73.5	74.4	74.9	75.1	74.8	74.4	74.2	74.1	74.0	72.4	73.4	74.4	74.3
230000	72.0	73.3	73.6	74.5	74.9	75.1	74.8	74.4	74.3	74.0	73.9	72.4	73.5	74.4	74.2
Daily Max	72.0	73.6	74.0	74.5	75.5	75.7	74.9	74.8	74.4	74.6	74.2	73.9	73.5	74.4	75.0
Daily Min	70.7	72.1	73.2	73.5	74.5	74.8	74.5	74.4	73.9	74.0	73.8	72.3	72.4	73.4	74.2
Average	71.2	72.9	73.6	74.0	75.1	75.3	74.7	74.7	74.1	74.4	74.0	72.9	73.0	73.8	74.6

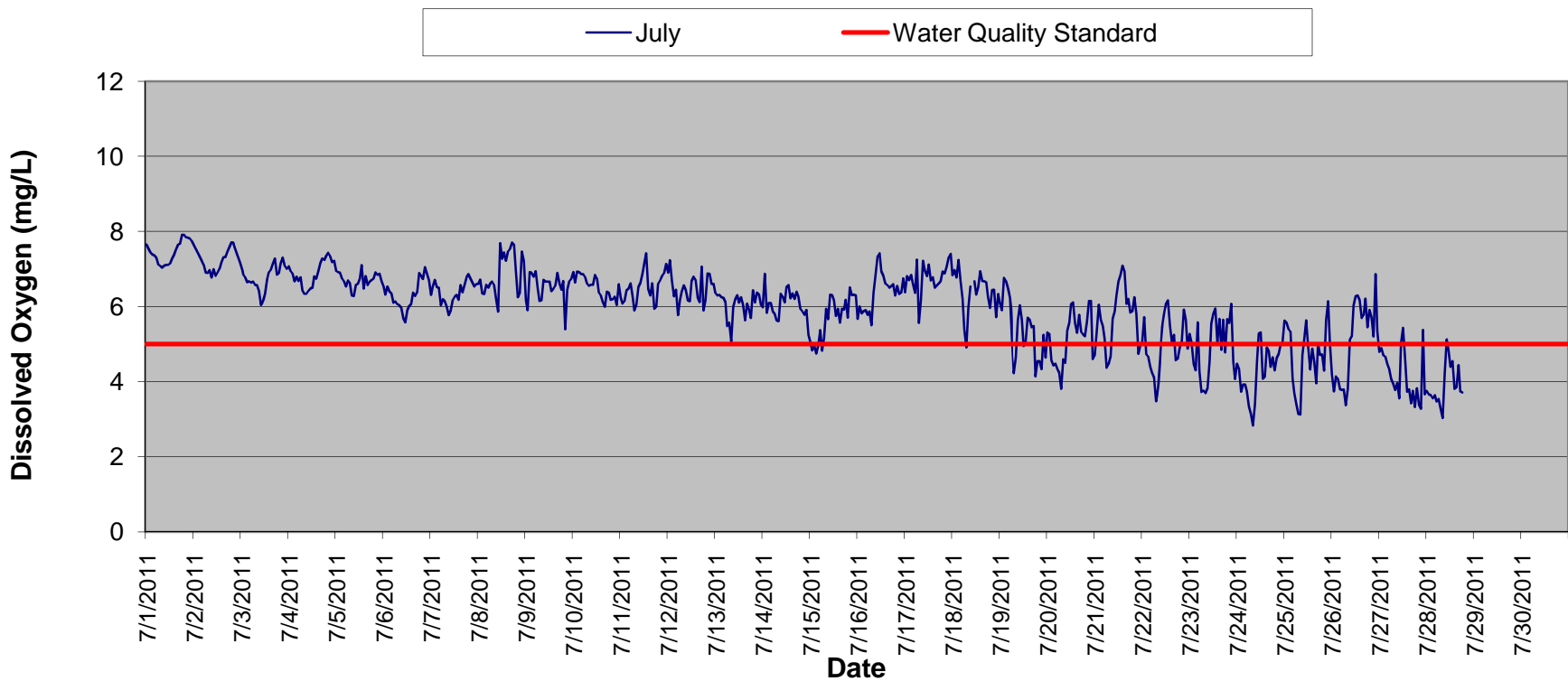
Johnson Falls Tailwater Temperature Summary - August 2011

Time	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
HHMMSS																
0	74.4	74.8	74.2	74.1	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
10000	74.4	74.6	74.2	74.1	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
20000	74.5	74.7	74.1	74.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
30000	74.6	74.6	74.0	74.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
40000	74.9	74.6	74.1	74.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
50000	75.1	74.6	74.0	74.7	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
60000	75.2	74.5	74.0	74.7	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
70000	75.2	74.5	73.9	74.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
80000	75.3	74.5	73.9	74.7	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
90000	75.3	74.5	73.8	74.7	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
100000	75.4	74.6	73.7	74.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
110000	75.4	74.6	73.6	74.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
120000	75.4	74.9	73.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
130000	75.4	74.9	73.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
140000	75.4	74.8	73.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
150000	75.3	74.7	73.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
160000	75.3	74.6	73.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
170000	75.3	74.5	73.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
180000	75.2	74.5	73.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
190000	75.1	74.5	73.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
200000	75.0	74.4	73.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
210000	74.9	74.4	73.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
220000	74.9	74.3	73.9	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
230000	74.8	74.3	74.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Daily Max	75.4	74.9	74.2	74.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Daily Min	74.4	74.3	73.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Average	75.1	74.6	73.7	53.3	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0

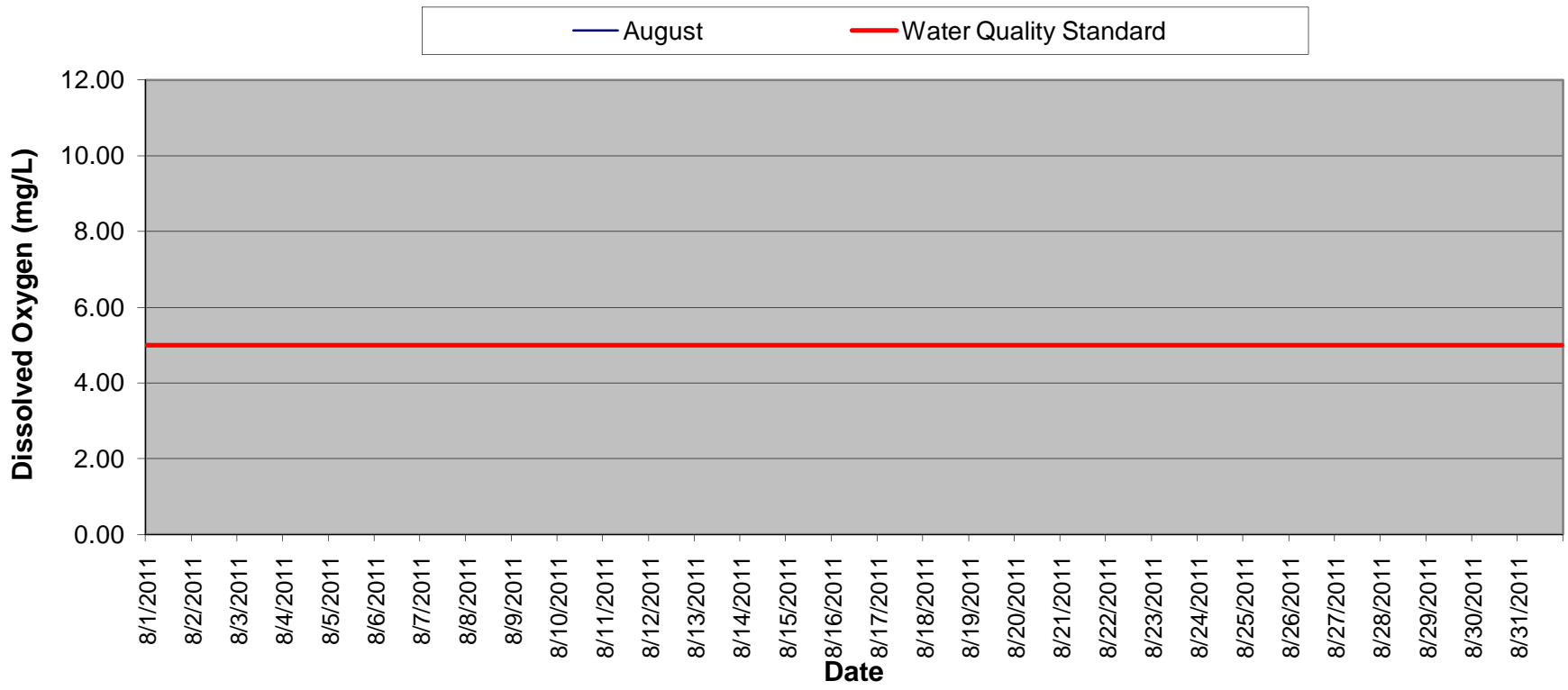
Monthly average: 36.8

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

### Potato Rapids Headwater Dissolved Oxygen Summary - July 2011



### Potato Rapids Headwater Dissolved Oxygen Summary - August 2011



Potato Rapids Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/01/11	07/02/11	07/03/11	07/04/11	07/05/11	07/06/11	07/07/11	07/08/11	07/09/11	07/10/11	07/11/11	07/12/11	07/13/11	07/14/11	07/15/11	07/16/11
0	7.7	7.6	7.1	7.1	7.0	6.5	6.3	6.6	6.2	6.9	6.2	6.9	6.4	6.0	5.1	5.7
10000	7.5	7.5	6.9	7.0	6.9	6.3	6.5	6.7	5.9	6.6	6.1	7.2	6.3	6.9	4.8	6.0
20000	7.5	7.5	6.8	6.9	6.9	6.5	6.7	6.4	6.9	6.9	6.2	6.7	6.3	5.8	5.0	5.8
30000	7.4	7.3	6.7	6.7	6.8	6.4	6.5	6.3	6.9	6.9	6.4	6.3	6.3	6.1	4.8	5.9
40000	7.4	7.2	6.7	6.8	6.7	6.4	6.5	6.6	6.8	6.9	6.5	6.5	6.2	6.1	5.0	5.9
50000	7.3	7.1	6.6	6.7	6.5	6.1	6.0	6.5	6.9	6.9	6.6	5.8	6.1	5.9	5.4	5.8
60000	7.1	6.9	6.7	6.8	6.7	6.1	6.2	6.6	6.5	6.8	6.3	6.2	5.5	5.8	4.8	5.9
70000	7.1	6.9	6.6	6.4	6.6	6.1	6.2	6.7	6.2	6.6	5.9	6.4	5.6	5.6	5.2	5.5
80000	7.0	7.0	6.6	6.3	6.3	6.0	6.0	6.6	6.2	6.6	6.1	6.6	5.1	5.6	5.9	6.4
90000	7.1	6.8	6.4	6.3	6.3	6.0	5.8	6.2	6.7	6.6	6.5	6.4	6.0	6.3	5.7	6.8
100000	7.1	7.0	6.0	6.4	6.6	5.7	5.9	5.9	6.7	6.6	6.6	6.2	6.2	6.3	6.3	7.3
110000	7.1	6.8	6.2	6.5	6.6	5.6	6.2	7.7	6.7	6.8	6.9	6.1	6.3	6.1	6.3	7.4
120000	7.2	6.9	6.3	6.5	6.8	5.9	6.3	7.3	6.7	6.7	7.2	6.7	6.1	6.5	6.2	6.9
130000	7.3	7.0	6.7	6.8	7.1	6.0	6.3	7.4	6.4	6.4	7.4	6.8	6.3	6.6	5.8	6.8
140000	7.4	7.2	6.9	6.7	6.5	6.1	6.2	7.2	6.5	6.3	6.5	6.7	6.0	6.2	5.9	6.6
150000	7.5	7.3	7.0	6.9	6.8	6.4	6.6	7.5	6.6	6.1	6.3	6.2	5.6	6.4	5.6	6.6
160000	7.6	7.3	7.1	7.2	6.6	6.3	6.4	7.5	6.9	6.0	6.6	6.1	6.1	6.2	5.9	6.5
170000	7.7	7.5	7.3	7.3	6.7	6.4	6.6	7.7	6.6	6.4	5.9	7.1	5.9	6.4	5.9	6.6
180000	7.9	7.6	6.9	7.2	6.7	6.9	6.8	7.6	6.5	6.4	6.0	5.9	5.7	6.3	6.2	6.6
190000	7.9	7.7	6.9	7.3	6.7	6.8	6.9	7.0	6.7	6.2	6.6	6.2	6.4	5.9	5.7	6.3
200000	7.9	7.7	7.2	7.4	6.9	6.7	6.8	6.3	5.4	6.2	6.7	6.9	6.1	5.9	6.5	6.6
210000	7.8	7.5	7.3	7.3	6.8	7.1	6.6	6.4	6.5	6.3	6.8	6.9	6.4	5.8	6.3	6.3
220000	7.8	7.4	7.1	7.2	6.9	6.9	6.5	7.5	6.7	6.0	6.9	6.6	6.3	5.9	6.3	6.4
230000	7.7	7.2	7.0	7.2	6.7	6.7	6.6	7.2	6.7	6.6	7.1	6.6	6.0	5.3	6.3	6.8
Daily Max	7.9	7.7	7.3	7.4	7.1	7.1	6.9	7.7	6.9	6.9	7.4	7.2	6.4	6.9	6.5	7.4
Daily Min	7.0	6.8	6.0	6.3	6.3	5.6	5.8	5.9	5.4	6.0	5.9	5.8	5.1	5.3	4.8	5.5
Average	7.5	7.2	6.8	6.9	6.7	6.3	6.4	6.9	6.5	6.5	6.5	6.5	6.0	6.1	5.7	6.4

Low readings due to stratification of reservoir

License Minimum Dissolved Oxygen: 5.0 mg/l



Potato Rapids Headwater Dissolved Oxygen Summary - July 2011

Time HHMMSS	07/17/11	07/18/11	07/19/11	07/20/11	07/21/11	07/22/11	07/23/11	07/24/11	07/25/11	07/26/11	07/27/11	07/28/11	07/29/11	07/30/11	07/31/11
0	6.4	6.8	6.1	5.3	4.7	5.1	5.3	4.5	5.6	4.2	4.8	3.8			
10000	6.8	7.0	5.9	5.3	5.4	5.7	5.0	4.3	5.6	3.7	4.9	3.7			
20000	6.7	6.8	6.8	4.6	6.1	4.7	4.5	3.7	5.4	4.1	4.7	3.6			
30000	6.8	7.2	6.7	4.4	5.7	4.7	4.3	3.9	5.3	4.1	4.7	3.6			
40000	6.6	6.7	6.5	4.5	5.5	4.4	5.6	3.9	4.1	3.8	4.5	3.6			
50000	6.4	6.2	6.2	4.3	5.2	4.2	4.3	3.7	3.7	3.8	4.3	3.5			
60000	7.3	5.4	5.2	4.2	4.4	4.1	3.7	3.3	3.4	3.8	4.1	3.5			
70000	5.6	4.9	4.2	3.8	4.5	3.5	3.8	3.1	3.1	3.4	3.9	3.3			
80000	6.2	6.0	4.6	4.6	4.7	3.8	3.7	2.8	3.1	3.8	3.8	3.0			
90000	7.2	6.5	5.6	4.5	5.7	4.6	3.8	3.4	4.7	5.1	4.0	4.2			
100000	6.9		6.0	5.4	5.9	5.5	4.5	4.5	5.2	5.2	3.6	5.1			
110000	6.8	6.7	5.6	5.6	6.3	5.8	5.6	5.3	5.6	6.0	5.0	4.9			
120000	7.1	6.3	5.0	6.1	6.7	6.1	5.8	5.3	4.9	6.3	5.4	4.4			
130000	6.7	6.5	5.1	6.1	6.8	6.2	6.0	4.1	4.3	6.3	4.6	4.6			
140000	6.8	6.9	5.7	5.6	7.1	5.5	5.0	4.1	4.9	6.2	3.7	3.8			
150000	6.5	6.7	5.7	5.3	6.9	5.0	5.7	4.9	4.5	5.7	3.8	3.9			
160000	6.6	6.7	5.5	5.8	6.1	5.3	4.9	4.8	4.0	5.8	3.4	4.4			
170000	6.6	6.6	5.5	5.3	6.2	4.6	5.7	4.4	5.0	6.2	3.8	3.7			
180000	6.7	6.3	4.1	5.3	5.8	4.6	4.8	4.7	4.7	5.5	3.3	3.7			
190000	6.9	6.0	4.6	5.2	5.9	4.9	5.7	4.3	4.7	5.9	3.8				
200000	6.9	6.4	4.6	5.6	6.3	5.1	5.6	4.6	4.3	5.7	3.4				
210000	7.1	6.5	4.3	6.2	5.8	5.9	6.1	4.7	5.7	5.2	3.3				
220000	7.3	5.7	5.3	6.2	4.7	5.6	4.5	5.0	6.1	6.9	5.4				
230000	7.4	6.3	4.6	4.6	5.0	4.9	4.1	5.0	5.0	5.4	3.7				
Daily Max	7.4	7.2	6.8	6.2	7.1	6.2	6.1	5.3	6.1	6.9	5.4	5.1	0.0	0.0	0.0
Daily Min	5.6	4.9	4.1	3.8	4.4	3.5	3.7	2.8	3.1	3.4	3.3	3.0	0.0	0.0	0.0
Average	6.8	6.4	5.4	5.1	5.7	5.0	4.9	4.3	4.7	5.1	4.2	3.9	#DIV/0!	#DIV/0!	#DIV/0!

Missing data due to equipment maintenance

Missing data due to power failure

Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Missing data due to power failure

License Minimum Dissolved Oxygen: 5.0 mg/l



**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

August 19, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards – Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations between August 4<sup>th</sup> and August 15<sup>th</sup>, 2011. Per the monitoring plans, monitoring for dissolved oxygen, temperature, and pH is being conducted at the following projects: Caldron Falls (FERC No. 2525), High Falls, (FERC No. 2595), Johnson Falls (FERC No. 2522), Sandstone Rapids (FERC No. 2546), Potato Rapids (FERC No. 2560), and Peshtigo (FERC No. 2581). The dissolved oxygen water quality standard at all of the developments except Johnson Falls is 5.0 mg/l. The water quality standard downstream of Johnson Falls is 6 mg/l.

At the Caldron Falls project, deviations from the dissolved oxygen standard were observed upstream and downstream of the powerhouse. At the headwater monitoring location, data collected between August 4<sup>th</sup> and August 12<sup>th</sup> shows very low levels of dissolved oxygen near the bottom of the reservoir (where water is being withdrawn and subsequently released through the powerhouse). The low dissolved oxygen level is due to a natural stratification of the impoundment. Dissolved oxygen concentrations will continue to be below the water quality standard at this location until the impoundment is no longer stratified.

Downstream of the Caldron Falls powerhouse, one hourly reading below the dissolved oxygen water quality standard was recorded on August 4<sup>th</sup>. The low reading corresponded to periods of low river flow due to refilling of the Caldron Falls reservoir after completion of peaking operation. As previously reported, WPS investigated plant operations during refill periods and determined that the required 56 cfs flow through the sluice gate was not being provided. Consequently, all water being released during the refill period was low dissolved oxygen water from the hypolimnion of the Caldron Falls reservoir through the powerhouse. The combination of low flow and low dissolved oxygen resulted in a lack of aeration to meet the water quality standard at the monitoring location. As of August 12<sup>th</sup>, the necessary aeration flow is being released through a gate.

Please note that at the Caldron Falls tailrace monitoring location, periods of non-representative data have been recorded due to the water quality monitor being out of the water during reservoir refill periods. Between August 5<sup>th</sup> and August 12<sup>th</sup>, the monitor at this location was out of the water for some period of time during the reservoir refill period. Periods of non-representative readings are highlighted in the

August 19, 2011

Mr. Donofrio & Mr. Utrup

Page 2 of 2

attached monitoring data. On August 11<sup>th</sup>, the monitoring data indicates that there was an exceedance of the pH limitation; however, the monitor was not in the water at the time of the reading. Please note that no deviations from the dissolved oxygen standard were observed at the Parkway Road Bridge monitoring location (the High Falls project upstream monitoring location).

Downstream of the Johnson Falls Powerhouse, hourly readings below the dissolved oxygen water quality standard has been recorded. The lowest dissolved oxygen level recorded was 5.5 mg/l. The likely cause of the low readings is warm water temperatures. Daily average water temperatures during this time period were ranged between 74°F and 75°F. Please note that the Johnson Falls tailrace monitoring location is approximately 40 to 60 feet downstream of the powerhouse. As observed downstream of the Caldron Falls powerhouse, water quality improves with distance from the powerhouse. Therefore, it is likely that the water quality standard is being met within a short distance from the powerhouse.

At the Sandstone Rapids, Potato Rapids, and Peshtigo monitoring locations, there is a period of missing monitoring data from August 12<sup>th</sup> at 18:00 until the morning of August 15<sup>th</sup>. When the water quality monitors were deployed on August 5<sup>th</sup>, the monitoring equipment was accidentally programmed to stop recording data on August 12<sup>th</sup> instead of August 15<sup>th</sup> when the monitors were retrieved. No deviations from water quality standards were observed at the tailrace monitoring locations for these three projects.

Upstream of the Potato Rapids facility, dissolved oxygen readings below the dissolved oxygen water quality standard was recorded between August 5<sup>th</sup> and 12<sup>th</sup>. The likely cause of the low readings is a stratification of the impoundment and warm water temperatures. The lowest dissolved oxygen reading recorded was 4.0 mg/l. Daily average water temperatures ranged between 74°F and 78°F during this period. No deviations from the water quality standards were observed downstream of the facility.

Attached for your review is dissolved oxygen and temperature monitoring data from the Caldron Falls headwater and tail water monitoring locations, the Johnson Falls tailrace monitoring location, and the Potato Rapids headwater monitoring location. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf

Environmental Consultant – Air & Water

Telephone: (920) 433-1833

Attach.

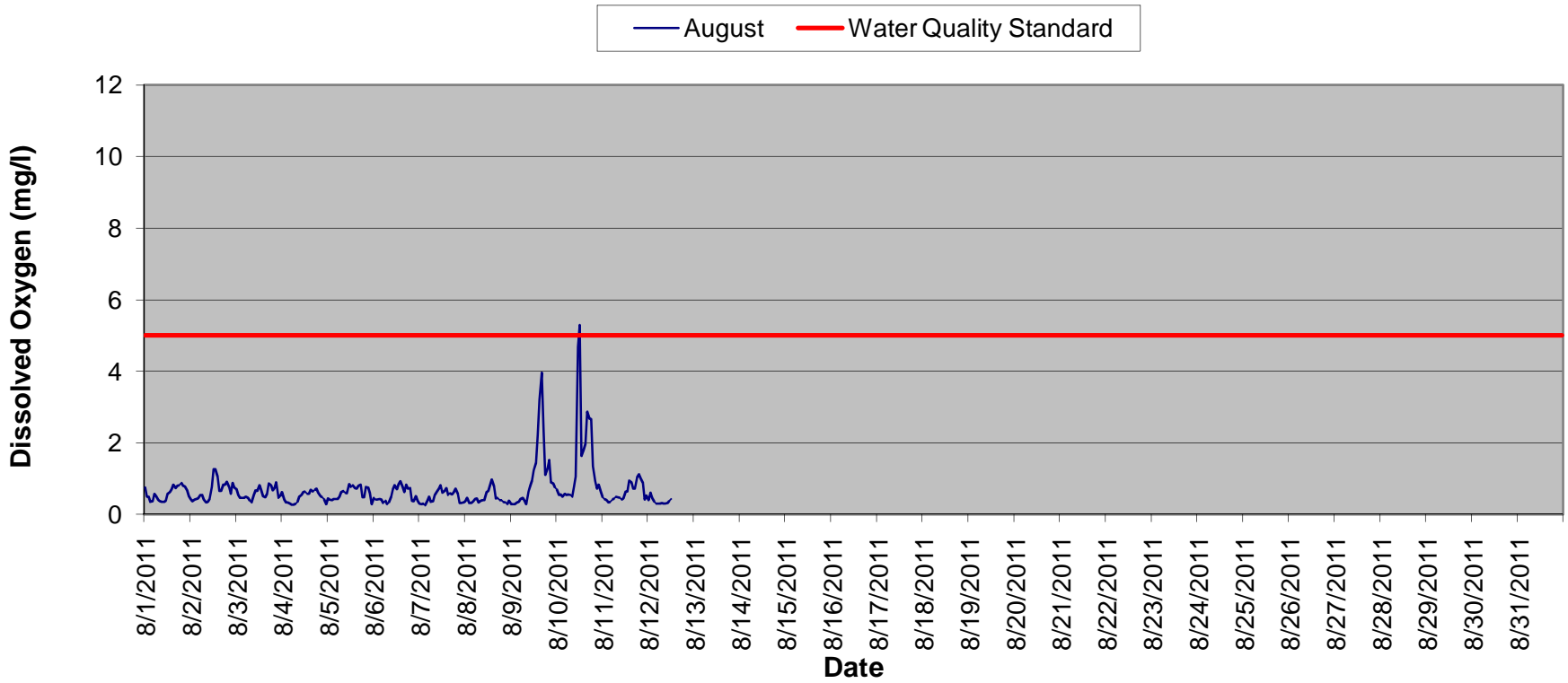
cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

## **Attachments**

### **Peshtigo River Hydroelectric Projects**

#### **Water Quality Monitoring Data**

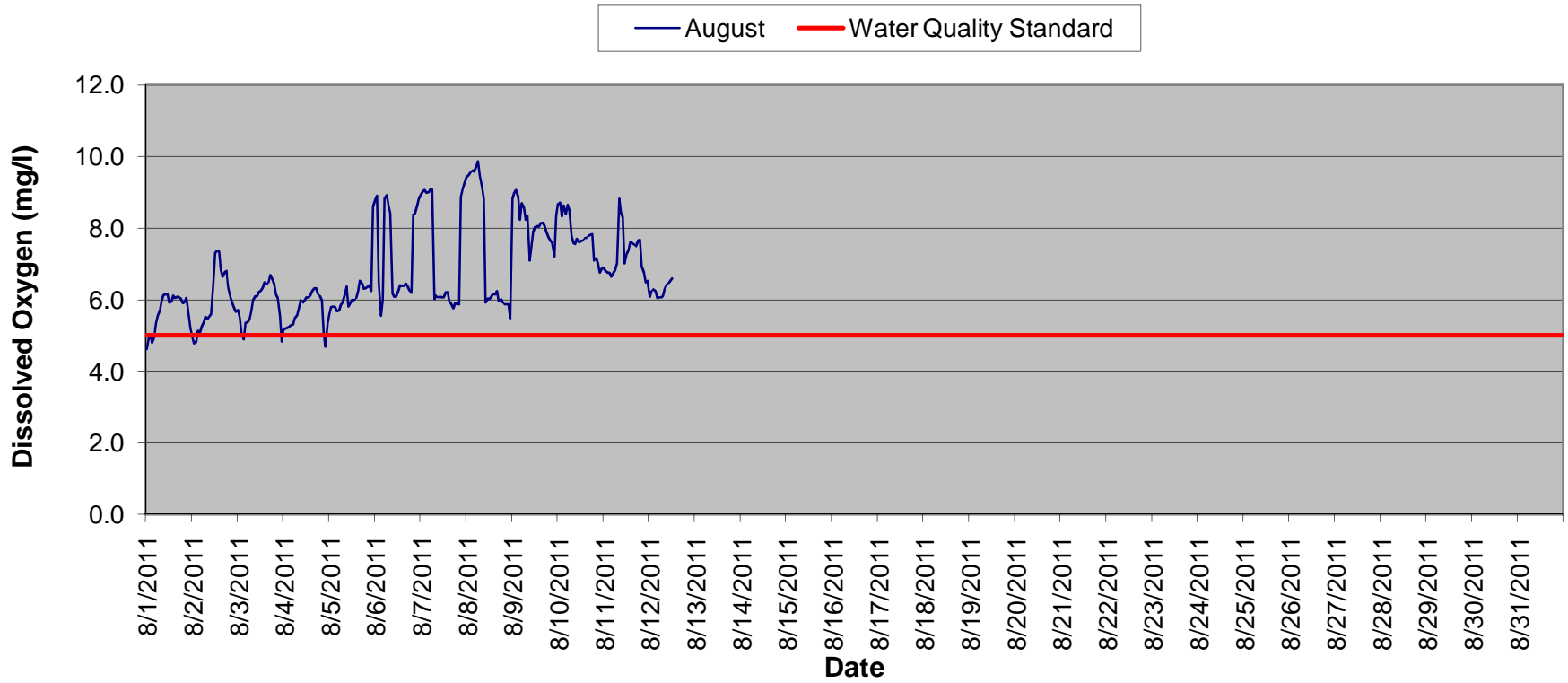
### Caldron Falls Headwater Dissolved Oxygen - August 2011



Caldron Falls Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	0.8	0.4	0.7	0.6	0.5	0.5	0.3	0.4	0.3	0.7	0.5	0.4	0.0	0.0	0.0	0.0
10000	0.5	0.4	0.5	0.4	0.4	0.4	0.3	0.5	0.3	0.5	0.4	0.6	0.0	0.0	0.0	0.0
20000	0.5	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.6	0.4	0.5	0.0	0.0	0.0	0.0
30000	0.4	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.4	0.0	0.0	0.0	0.0
40000	0.4	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.6	0.4	0.3	0.0	0.0	0.0	0.0
50000	0.6	0.6	0.5	0.3	0.4	0.3	0.5	0.4	0.4	0.5	0.4	0.3	0.0	0.0	0.0	0.0
60000	0.5	0.6	0.5	0.3	0.5	0.4	0.3	0.4	0.5	0.6	0.5	0.3	0.0	0.0	0.0	0.0
70000	0.4	0.4	0.4	0.3	0.6	0.3	0.4	0.3	0.4	0.5	0.5	0.3	0.0	0.0	0.0	0.0
80000	0.4	0.3	0.3	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.5	0.3	0.0	0.0	0.0	0.0
90000	0.4	0.4	0.5	0.5	0.6	0.5	0.6	0.4	0.6	0.8	0.5	0.3	0.0	0.0	0.0	0.0
100000	0.4	0.4	0.7	0.5	0.6	0.7	0.7	0.4	0.8	1.1	0.4	0.3	0.0	0.0	0.0	0.0
110000	0.4	0.8	0.7	0.6	0.9	0.8	0.8	0.6	0.9	4.7	0.5	0.4	0.0	0.0	0.0	0.0
120000	0.6	1.3	0.8	0.6	0.8	0.7	0.6	0.7	1.2	5.3	0.6	0.4	0.0	0.0	0.0	0.0
130000	0.6	1.3	0.7	0.6	0.8	0.8	0.7	0.8	1.4	1.6	0.6	0.0	0.0	0.0	0.0	0.0
140000	0.7	1.1	0.5	0.6	0.7	0.9	0.7	1.0	2.2	1.8	0.9	0.0	0.0	0.0	0.0	0.0
150000	0.8	0.7	0.5	0.7	0.7	0.8	0.5	0.8	3.2	2.0	0.9	0.0	0.0	0.0	0.0	0.0
160000	0.7	0.7	0.6	0.6	0.8	0.6	0.6	0.5	4.0	2.9	0.7	0.0	0.0	0.0	0.0	0.0
170000	0.8	0.8	0.9	0.7	0.8	0.8	0.6	0.5	2.4	2.7	0.7	0.0	0.0	0.0	0.0	0.0
180000	0.8	0.8	0.8	0.7	0.5	0.7	0.6	0.4	1.1	2.7	1.0	0.0	0.0	0.0	0.0	0.0
190000	0.9	0.9	0.7	0.6	0.5	0.7	0.7	0.4	1.3	1.4	1.1	0.0	0.0	0.0	0.0	0.0
200000	0.8	0.8	0.7	0.5	0.8	0.4	0.6	0.4	1.5	0.9	1.0	0.0	0.0	0.0	0.0	0.0
210000	0.8	0.6	0.9	0.5	0.8	0.4	0.3	0.3	0.9	0.7	0.9	0.0	0.0	0.0	0.0	0.0
220000	0.7	0.9	0.5	0.4	0.6	0.5	0.3	0.3	0.9	0.8	0.4	0.0	0.0	0.0	0.0	0.0
230000	0.5	0.8	0.5	0.3	0.3	0.4	0.3	0.4	0.7	0.6	0.5	0.0	0.0	0.0	0.0	0.0
Daily Max	0.9	1.3	0.9	0.7	0.9	0.9	0.8	1.0	4.0	5.3	1.1	0.6	0.0	0.0	0.0	0.0
Daily Min	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.0	0.0	0.0	0.0	0.0
Average	0.6	0.7	0.6	0.5	0.6	0.6	0.5	0.5	1.1	1.5	0.6	0.2	0.0	0.0	0.0	0.0
Low readings due to reservoir stratification																

### Caldron Falls Tailwater Dissolved Oxygen - August 2011



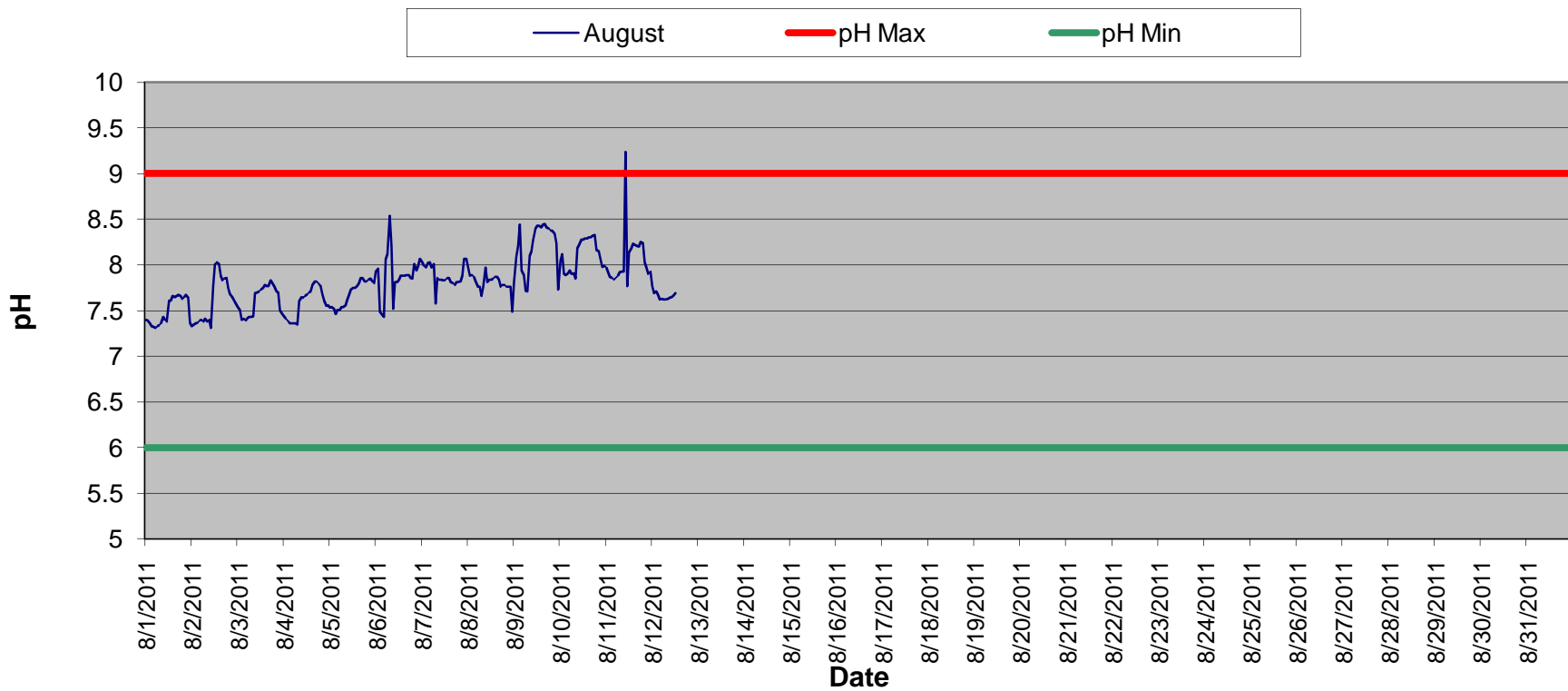


Caldron Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	4.6	5.0	5.7	5.2	5.6	8.8	8.9	9.4	8.8	8.7	6.9	6.1	0.0	0.0	0.0	0.0
10000	4.9	4.8	5.5	5.2	5.8	8.9	9.0	9.5	9.0	8.7	6.8	6.2	0.0	0.0	0.0	0.0
20000	5.0	4.8	5.0	5.2	5.8	6.5	9.1	9.6	9.1	8.3	6.8	6.3	0.0	0.0	0.0	0.0
30000	4.8	5.1	4.9	5.3	5.8	5.6	9.0	9.6	8.9	8.6	6.8	6.2	0.0	0.0	0.0	0.0
40000	5.0	5.1	5.4	5.3	5.7	6.0	9.0	9.6	8.2	8.4	6.7	6.1	0.0	0.0	0.0	0.0
50000	5.4	5.3	5.4	5.3	5.7	8.8	9.1	9.7	8.7	8.7	6.8	6.1	0.0	0.0	0.0	0.0
60000	5.5	5.4	5.5	5.5	5.9	8.9	9.1	9.9	8.6	8.5	6.8	6.1	0.0	0.0	0.0	0.0
70000	5.7	5.5	5.7	5.6	5.9	8.6	6.0	9.5	8.2	7.8	7.0	6.1	0.0	0.0	0.0	0.0
80000	6.0	5.5	6.0	5.8	6.1	8.4	6.1	9.2	8.3	7.6	8.8	6.3	0.0	0.0	0.0	0.0
90000	6.1	5.5	6.1	6.0	6.4	6.2	6.1	8.8	7.1	7.6	8.4	6.4	0.0	0.0	0.0	0.0
100000	6.1	5.6	6.1	5.9	5.8	6.1	6.1	5.9	7.5	7.7	8.3	6.5	0.0	0.0	0.0	0.0
110000	6.2	6.5	6.2	6.0	5.9	6.1	6.1	6.0	7.9	7.6	7.0	6.5	0.0	0.0	0.0	0.0
120000	5.9	7.3	6.3	6.1	6.0	6.2	6.1	6.0	8.0	7.6	7.3	6.6	0.0	0.0	0.0	0.0
130000	6.0	7.4	6.3	6.1	6.0	6.4	6.2	6.1	8.1	7.7	7.4	0.0	0.0	0.0	0.0	0.0
140000	6.1	7.3	6.5	6.1	6.1	6.4	6.2	6.2	8.0	7.7	7.6	0.0	0.0	0.0	0.0	0.0
150000	6.1	6.8	6.4	6.3	6.2	6.4	6.0	6.2	8.1	7.7	7.6	0.0	0.0	0.0	0.0	0.0
160000	6.1	6.6	6.5	6.3	6.5	6.5	5.9	6.2	8.2	7.8	7.6	0.0	0.0	0.0	0.0	0.0
170000	6.1	6.8	6.7	6.3	6.5	6.4	5.8	6.0	8.1	7.8	7.5	0.0	0.0	0.0	0.0	0.0
180000	6.0	6.8	6.6	6.2	6.3	6.3	5.9	6.0	7.9	7.8	7.7	0.0	0.0	0.0	0.0	0.0
190000	5.9	6.3	6.4	6.1	6.3	6.2	5.9	5.9	7.7	7.1	7.7	0.0	0.0	0.0	0.0	0.0
200000	5.9	6.1	6.1	6.0	6.4	8.4	5.9	5.9	7.7	7.2	6.9	0.0	0.0	0.0	0.0	0.0
210000	6.1	5.9	6.1	5.1	6.4	8.4	8.9	5.9	7.6	7.0	6.8	0.0	0.0	0.0	0.0	0.0
220000	5.6	5.8	5.6	4.7	6.2	8.6	9.1	5.9	7.2	6.8	6.5	0.0	0.0	0.0	0.0	0.0
230000	5.2	5.7	4.8	5.4	8.6	8.8	9.3	5.5	8.4	6.9	6.5	0.0	0.0	0.0	0.0	0.0
Daily Max	6.2	7.4	6.7	6.3	8.6	8.9	9.3	9.9	9.1	8.7	8.8	6.6	0.0	0.0	0.0	0.0
Daily Min	4.6	4.8	4.8	4.7	5.6	5.6	5.8	5.5	7.1	6.8	6.5	0.0	0.0	0.0	0.0	0.0
Average	5.7	5.9	5.9	5.7	6.2	7.2	7.3	7.4	8.1	7.8	7.2	3.4	0.0	0.0	0.0	0.0
	Below water quality standard					Peaking operation. Monitor out of water during refill period.										

License Minimum Dissolved Oxygen: 5.0 mg/l

### Caldron Falls Tailwater pH Summary - August 2011



Caldron Falls Tailwater pH Summary - August 2011

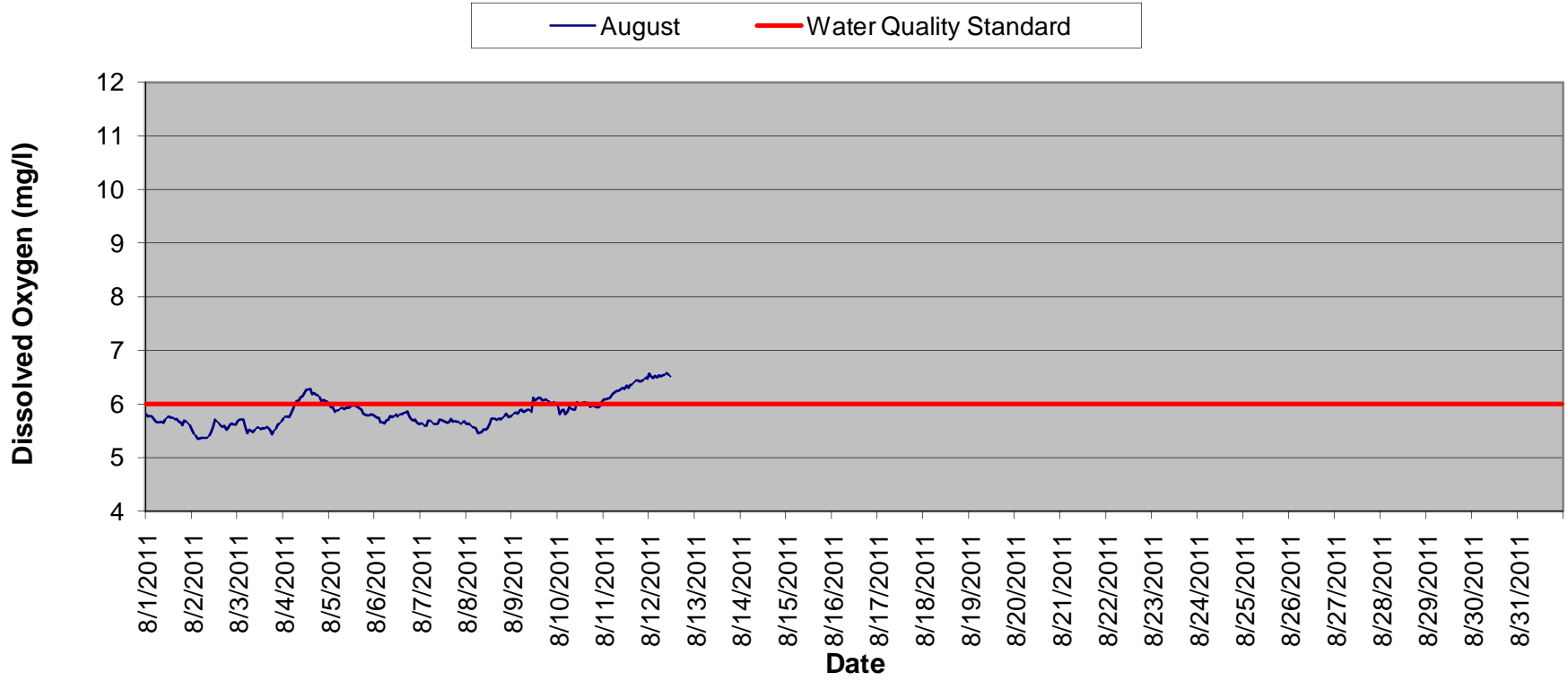
Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	7.4	7.3	7.5	7.4	7.5	7.9	8.0	8.0	7.8	8.0	8.0	7.8	0.0	0.0	0.0	0.0
10000	7.4	7.4	7.5	7.4	7.5	8.0	8.0	7.9	8.1	8.1	7.9	7.7	0.0	0.0	0.0	0.0
20000	7.4	7.4	7.4	7.4	7.5	7.5	8.0	7.9	8.2	7.9	7.9	7.7	0.0	0.0	0.0	0.0
30000	7.3	7.4	7.4	7.4	7.5	7.5	8.0	7.9	8.4	7.9	7.9	7.7	0.0	0.0	0.0	0.0
40000	7.3	7.4	7.4	7.4	7.5	7.4	8.0	7.8	7.9	7.9	7.8	7.6	0.0	0.0	0.0	0.0
50000	7.3	7.4	7.4	7.4	7.5	8.1	8.0	7.8	7.9	7.9	7.9	7.6	0.0	0.0	0.0	0.0
60000	7.3	7.4	7.4	7.4	7.5	8.1	8.0	7.8	7.7	7.9	7.9	7.6	0.0	0.0	0.0	0.0
70000	7.3	7.4	7.4	7.4	7.5	8.5	7.6	7.7	7.7	7.9	7.9	7.6	0.0	0.0	0.0	0.0
80000	7.4	7.4	7.4	7.6	7.6	8.2	7.9	7.8	8.1	7.9	7.9	7.6	0.0	0.0	0.0	0.0
90000	7.4	7.4	7.7	7.7	7.6	7.5	7.8	8.0	8.2	8.2	7.9	7.6	0.0	0.0	0.0	0.0
100000	7.4	7.3	7.7	7.6	7.7	7.8	7.8	7.8	8.3	8.2	9.2	7.7	0.0	0.0	0.0	0.0
110000	7.4	7.8	7.7	7.7	7.7	7.8	7.8	7.8	8.4	8.3	7.8	7.7	0.0	0.0	0.0	0.0
120000	7.6	8.0	7.7	7.7	7.8	7.8	7.8	7.8	8.4	8.3	8.1	7.7	0.0	0.0	0.0	0.0
130000	7.6	8.0	7.8	7.7	7.8	7.9	7.9	7.9	8.4	8.3	8.2	0.0	0.0	0.0	0.0	0.0
140000	7.7	8.0	7.8	7.7	7.8	7.9	7.9	7.9	8.4	8.3	8.2	0.0	0.0	0.0	0.0	0.0
150000	7.7	7.9	7.8	7.8	7.8	7.9	7.9	7.9	8.4	8.3	8.2	0.0	0.0	0.0	0.0	0.0
160000	7.7	7.8	7.8	7.8	7.9	7.9	7.8	7.8	8.5	8.3	8.2	0.0	0.0	0.0	0.0	0.0
170000	7.7	7.9	7.8	7.8	7.9	7.9	7.8	7.8	8.4	8.3	8.2	0.0	0.0	0.0	0.0	0.0
180000	7.7	7.9	7.8	7.8	7.8	7.9	7.8	7.8	8.4	8.3	8.3	0.0	0.0	0.0	0.0	0.0
190000	7.6	7.7	7.8	7.8	7.8	7.9	7.8	7.8	8.4	8.2	8.2	0.0	0.0	0.0	0.0	0.0
200000	7.7	7.7	7.7	7.7	7.8	8.0	7.8	7.8	8.4	8.2	8.0	0.0	0.0	0.0	0.0	0.0
210000	7.7	7.7	7.7	7.6	7.9	7.9	7.9	7.8	8.3	8.1	8.0	0.0	0.0	0.0	0.0	0.0
220000	7.6	7.6	7.5	7.6	7.8	8.0	8.1	7.8	8.2	8.0	7.9	0.0	0.0	0.0	0.0	0.0
230000	7.4	7.6	7.5	7.6	7.8	8.1	8.1	7.5	7.7	8.0	7.9	0.0	0.0	0.0	0.0	0.0
Daily Max	7.7	8.0	7.8	7.8	7.9	8.5	8.1	8.0	8.5	8.3	9.2	7.8	0.0	0.0	0.0	0.0
Daily Min	7.3	7.3	7.4	7.4	7.5	7.4	7.6	7.5	7.7	7.9	7.8	0.0	0.0	0.0	0.0	0.0
Average	7.5	7.6	7.6	7.6	7.7	7.9	7.9	7.8	8.2	8.1	8.1	4.2	0.0	0.0	0.0	0.0

Peaking operation. Monitor out of water during refill period.

License maximum pH: 9

License minimum pH: 6

### Johnson Falls Tailwater Dissolved Oxygen - August 2011



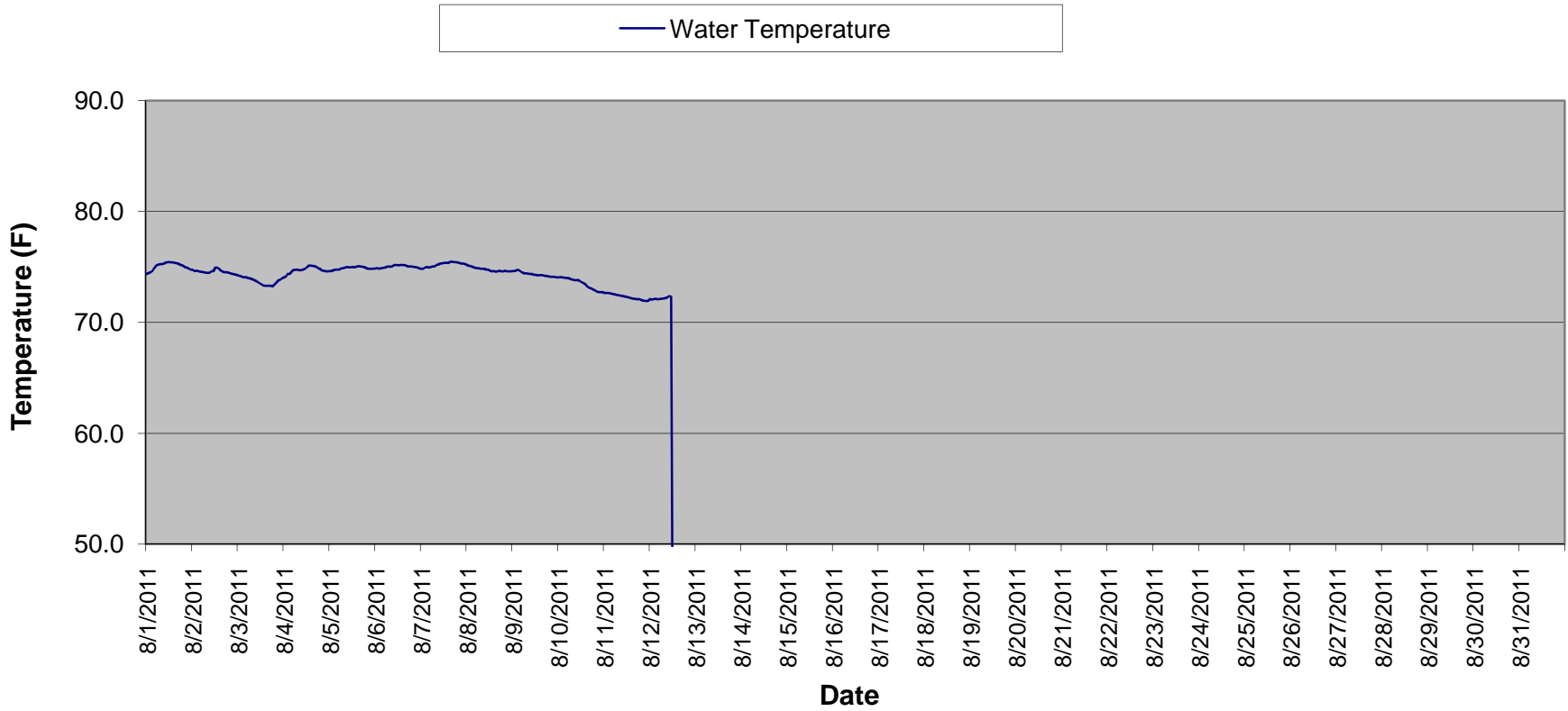
Johnson Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	5.8	5.5	5.7	5.7	6.0	5.8	5.6	5.6	5.8	6.0	6.1	6.6	0.0	0.0	0.0	0.0
10000	5.8	5.4	5.7	5.8	5.9	5.7	5.6	5.6	5.8	5.8	6.1	6.5	0.0	0.0	0.0	0.0
20000	5.8	5.4	5.7	5.8	5.9	5.7	5.6	5.6	5.8	5.9	6.1	6.5	0.0	0.0	0.0	0.0
30000	5.8	5.4	5.7	5.8	5.8	5.7	5.6	5.6	5.8	5.9	6.1	6.5	0.0	0.0	0.0	0.0
40000	5.7	5.4	5.6	5.8	5.9	5.7	5.7	5.6	5.9	5.8	6.1	6.5	0.0	0.0	0.0	0.0
50000	5.7	5.4	5.5	5.9	5.9	5.6	5.7	5.5	5.9	5.9	6.2	6.5	0.0	0.0	0.0	0.0
60000	5.7	5.4	5.5	6.0	5.9	5.7	5.7	5.5	5.8	5.9	6.2	6.5	0.0	0.0	0.0	0.0
70000	5.7	5.4	5.5	6.1	5.9	5.7	5.6	5.5	5.9	5.9	6.2	6.5	0.0	0.0	0.0	0.0
80000	5.7	5.4	5.5	6.1	5.9	5.8	5.6	5.5	5.9	5.9	6.3	6.5	0.0	0.0	0.0	0.0
90000	5.7	5.4	5.5	6.1	5.9	5.8	5.6	5.5	5.9	5.9	6.3	6.6	0.0	0.0	0.0	0.0
100000	5.7	5.5	5.6	6.1	5.9	5.8	5.7	5.5	5.9	6.0	6.3	6.5	0.0	0.0	0.0	0.0
110000	5.8	5.6	5.6	6.2	5.9	5.8	5.7	5.5	6.1	6.0	6.3	6.5	0.0	0.0	0.0	0.0
120000	5.8	5.7	5.5	6.3	6.0	5.8	5.7	5.6	6.1	6.0	6.3	0.0	0.0	0.0	0.0	0.0
130000	5.7	5.7	5.6	6.3	6.0	5.8	5.7	5.7	6.1	6.0	6.3	0.0	0.0	0.0	0.0	0.0
140000	5.7	5.7	5.5	6.3	6.0	5.8	5.6	5.7	6.1	6.0	6.4	0.0	0.0	0.0	0.0	0.0
150000	5.7	5.6	5.6	6.2	5.9	5.8	5.7	5.7	6.1	6.0	6.4	0.0	0.0	0.0	0.0	0.0
160000	5.7	5.6	5.6	6.2	5.9	5.8	5.7	5.7	6.1	6.0	6.4	0.0	0.0	0.0	0.0	0.0
170000	5.7	5.6	5.5	6.2	5.9	5.9	5.7	5.7	6.1	6.0	6.4	0.0	0.0	0.0	0.0	0.0
180000	5.7	5.5	5.4	6.2	5.8	5.8	5.7	5.7	6.1	6.0	6.4	0.0	0.0	0.0	0.0	0.0
190000	5.6	5.6	5.5	6.1	5.8	5.7	5.7	5.7	6.1	6.0	6.4	0.0	0.0	0.0	0.0	0.0
200000	5.7	5.6	5.5	6.1	5.8	5.7	5.7	5.8	6.0	5.9	6.4	0.0	0.0	0.0	0.0	0.0
210000	5.7	5.6	5.6	6.1	5.8	5.7	5.6	5.8	6.0	5.9	6.4	0.0	0.0	0.0	0.0	0.0
220000	5.6	5.6	5.6	6.1	5.8	5.7	5.7	5.8	6.0	6.0	6.5	0.0	0.0	0.0	0.0	0.0
230000	5.6	5.6	5.7	6.0	5.8	5.6	5.7	5.8	6.0	6.0	6.5	0.0	0.0	0.0	0.0	0.0
Daily Max	5.8	5.7	5.7	6.3	6.0	5.9	5.7	5.8	6.1	6.0	6.5	6.6	0.0	0.0	0.0	0.0
Daily Min	5.6	5.4	5.4	5.7	5.8	5.6	5.6	5.5	5.8	5.8	6.1	0.0	0.0	0.0	0.0	0.0
Average	5.7	5.5	5.6	6.0	5.9	5.7	5.7	5.6	6.0	5.9	6.3	3.3	0.0	0.0	0.0	0.0

Readings below water quality standard.

License Minimum Dissolved Oxygen: 6.0 mg/l  
Instrument Precision - +/- 0.2 mg/l

### Johnson Falls Tailwater Temperature - August 2011



Johnson Falls Tailwater Temperature Summary - August 2011

Time	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
HHMMSS																
0	74.4	74.8	74.2	74.1	74.6	74.9	74.8	75.2	74.6	74.1	72.7	72.1	32.0	32.0	32.0	32.0
10000	74.4	74.6	74.2	74.1	74.6	74.9	74.8	75.1	74.6	74.1	72.6	72.1	32.0	32.0	32.0	32.0
20000	74.5	74.7	74.1	74.4	74.7	74.8	74.9	75.1	74.7	74.1	72.6	72.1	32.0	32.0	32.0	32.0
30000	74.6	74.6	74.0	74.4	74.8	74.9	75.0	75.0	74.7	74.0	72.6	72.1	32.0	32.0	32.0	32.0
40000	74.9	74.6	74.1	74.6	74.8	74.9	74.9	74.9	74.6	74.0	72.6	72.1	32.0	32.0	32.0	32.0
50000	75.1	74.6	74.0	74.7	74.8	74.9	75.0	74.9	74.5	74.0	72.5	72.1	32.0	32.0	32.0	32.0
60000	75.2	74.5	74.0	74.7	74.9	75.0	75.0	74.9	74.4	73.9	72.5	72.1	32.0	32.0	32.0	32.0
70000	75.2	74.5	73.9	74.8	74.9	75.0	75.0	74.8	74.4	73.9	72.5	72.2	32.0	32.0	32.0	32.0
80000	75.3	74.5	73.9	74.7	74.9	75.0	75.2	74.8	74.4	73.8	72.4	72.2	32.0	32.0	32.0	32.0
90000	75.3	74.5	73.8	74.7	75.0	75.1	75.2	74.8	74.4	73.8	72.4	72.3	32.0	32.0	32.0	32.0
100000	75.4	74.6	73.7	74.8	75.0	75.2	75.3	74.8	74.4	73.8	72.4	72.4	32.0	32.0	32.0	32.0
110000	75.4	74.6	73.6	74.8	75.0	75.2	75.3	74.8	74.3	73.7	72.3	72.3	32.0	32.0	32.0	32.0
120000	75.4	74.9	73.4	75.0	75.0	75.1	75.3	74.6	74.3	73.6	72.3	32.0	32.0	32.0	32.0	32.0
130000	75.4	74.9	73.3	75.1	75.0	75.2	75.4	74.6	74.2	73.5	72.2	32.0	32.0	32.0	32.0	32.0
140000	75.4	74.8	73.3	75.1	75.0	75.2	75.4	74.6	74.3	73.4	72.2	32.0	32.0	32.0	32.0	32.0
150000	75.3	74.7	73.3	75.1	75.1	75.2	75.4	74.6	74.3	73.2	72.1	32.0	32.0	32.0	32.0	32.0
160000	75.3	74.6	73.3	75.1	75.0	75.1	75.5	74.6	74.2	73.1	72.1	32.0	32.0	32.0	32.0	32.0
170000	75.3	74.5	73.3	75.0	75.0	75.0	75.4	74.6	74.2	73.1	72.1	32.0	32.0	32.0	32.0	32.0
180000	75.2	74.5	73.3	74.9	75.0	75.0	75.4	74.6	74.2	73.0	72.1	32.0	32.0	32.0	32.0	32.0
190000	75.1	74.5	73.4	74.8	74.9	75.0	75.4	74.6	74.1	72.9	72.1	32.0	32.0	32.0	32.0	32.0
200000	75.0	74.4	73.6	74.7	74.8	75.0	75.4	74.7	74.1	72.8	72.0	32.0	32.0	32.0	32.0	32.0
210000	74.9	74.4	73.8	74.6	74.8	75.0	75.3	74.6	74.1	72.7	72.0	32.0	32.0	32.0	32.0	32.0
220000	74.9	74.3	73.9	74.6	74.8	74.9	75.3	74.6	74.1	72.7	71.9	32.0	32.0	32.0	32.0	32.0
230000	74.8	74.3	74.0	74.6	74.8	74.9	75.2	74.6	74.0	72.7	71.9	32.0	32.0	32.0	32.0	32.0
Daily Max	75.4	74.9	74.2	75.1	75.1	75.2	75.5	75.2	74.7	74.1	72.7	72.4	32.0	32.0	32.0	32.0
Daily Min	74.4	74.3	73.3	74.1	74.6	74.8	74.8	74.6	74.0	72.7	71.9	32.0	32.0	32.0	32.0	32.0
Average	75.1	74.6	73.7	74.7	74.9	75.0	75.2	74.8	74.3	73.5	72.3	52.1	32.0	32.0	32.0	32.0

Monthly average: 47.7

No numeric temperature limitation - water temperature must not be "altered above background to such an extent that trout populations are adversely affected".

Map Created on Aug 23, 2011



**Legend**

- County Boundaries
- Civil Towns
- Civil Town
- Cities and Villages
- Village
- City

In stream dissolved oxygen readings on August 22, 2011.

D.O. improving with distance from powerhouse

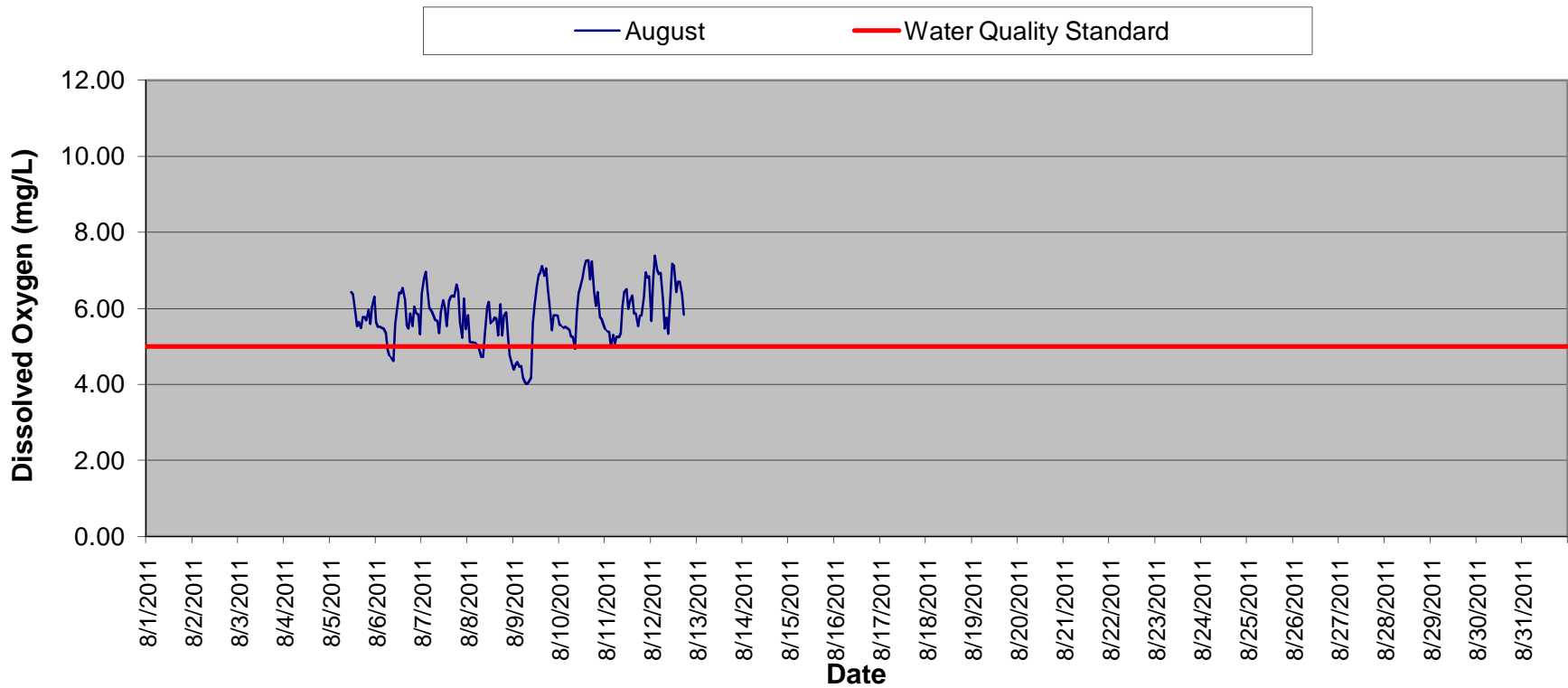


Scale: 1:4,010

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



### Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

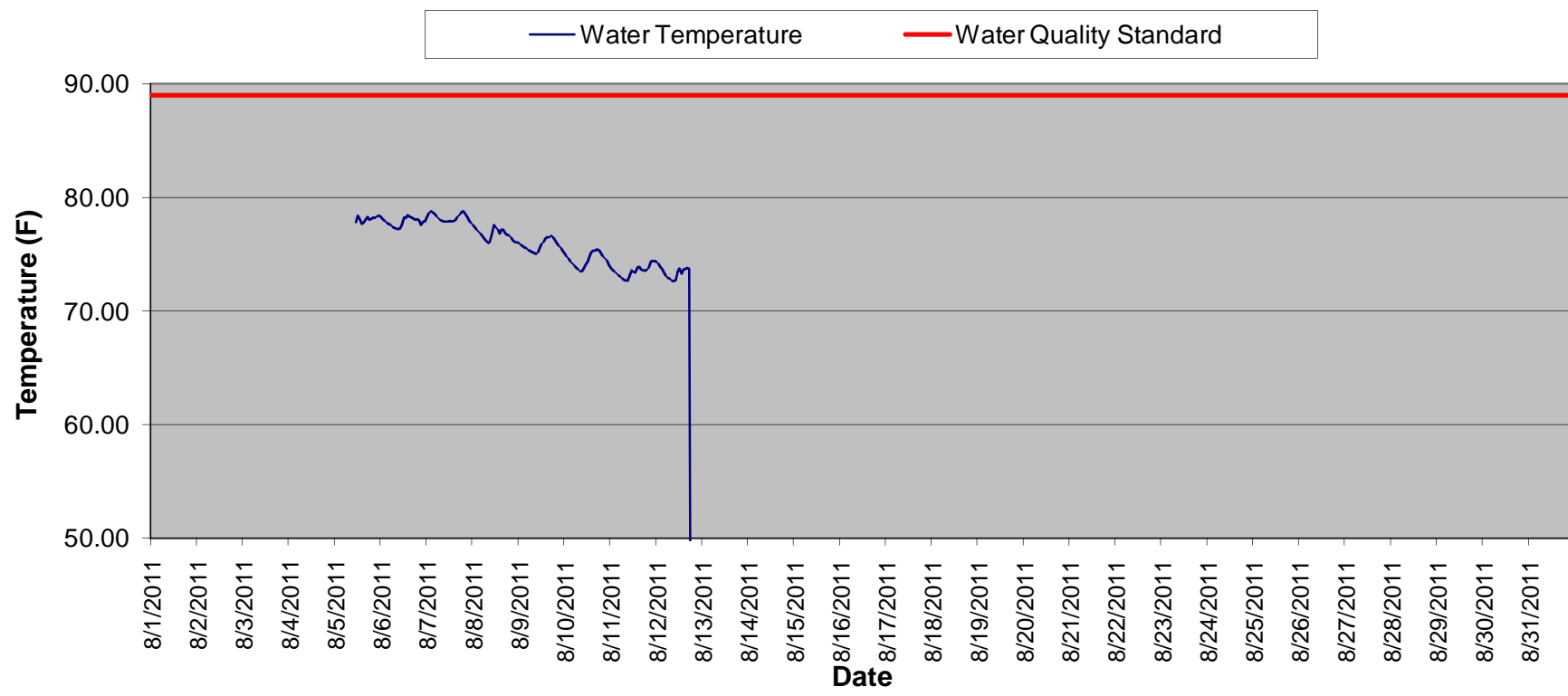


Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						5.6	6.4	5.8	4.4	5.6	5.5	5.7				0.0
10000						5.5	6.8	5.1	4.5	5.5	5.4	6.7				0.0
20000						5.5	7.0	5.1	4.6	5.5	5.4	7.4				0.0
30000						5.5	6.5	5.1	4.5	5.5	5.0	7.0				0.0
40000						5.5	6.0	5.1	4.5	5.5	5.3	6.9				0.0
50000						5.3	5.9	5.0	4.2	5.4	5.1	6.9				0.0
60000						4.9	5.8	4.9	4.0	5.3	5.3	6.2				0.0
70000						4.8	5.7	4.7	4.0	5.3	5.2	5.5				0.0
80000						4.7	5.7	4.7	4.1	4.9	5.3	5.8				0.0
90000						4.6	5.4	5.3	4.2	5.9	6.1	5.3				0.0
100000						5.6	5.9	6.0	5.6	6.4	6.4	6.4			0.0	0.0
110000					6.4	6.0	6.2	6.2	6.1	6.6	6.5	7.2			0.0	0.0
120000					6.4	6.4	6.0	5.6	6.6	6.8	6.0	7.1			0.0	0.0
130000					5.9	6.4	5.5	5.7	6.9	7.1	6.2	6.4			0.0	0.0
140000					5.5	6.5	6.2	5.8	7.0	7.3	6.3	6.7			0.0	0.0
150000					5.6	6.2	6.3	5.7	7.1	7.3	5.9	6.7			0.0	0.0
160000					5.5	5.6	6.3	5.3	6.9	6.8	5.9	6.4			0.0	0.0
170000					5.8	5.5	6.3	6.1	7.1	7.2	5.5	5.8			0.0	0.0
180000					5.8	5.9	6.6	5.3	6.5	6.4	5.8				0.0	0.0
190000					5.7	5.5	6.5	5.8	5.9	6.1	5.8				0.0	0.0
200000					6.0	6.1	5.6	5.9	5.4	6.4	6.3				0.0	0.0
210000					5.6	5.9	5.2	5.3	5.8	5.8	6.9				0.0	0.0
220000					6.1	5.8	6.3	4.8	5.8	5.7	6.8				0.0	0.0
230000					6.3	5.3	5.5	4.5	5.8	5.6	6.8				0.0	0.0
Daily Max	0.0	0.0	0.0	0.0	6.4	6.5	7.0	6.2	7.1	7.3	6.9	7.4	0.0	0.0	0.0	0.0
Daily Min	0.0	0.0	0.0	0.0	5.5	4.6	5.2	4.5	4.0	4.9	5.0	5.3	0.0	0.0	0.0	0.0
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.9	5.6	6.1	5.4	5.5	6.1	5.9	6.5	#DIV/0!	#DIV/0!	0.0	0.0
	Missing data due to power failure															
	Low readings due to stratification of reservoir															
	Missing data due to equipment setup error															

License Minimum Dissolved Oxygen: 5.0 mg/l

### Potato Rapids Headwater Temperature - August 2011



Potato Rapids Headwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						78.3	78.2	77.6	76.0	75.1	73.9	74.3				32.0
10000						78.1	78.7	77.4	75.8	74.8	73.6	74.2				32.0
20000						77.9	78.8	77.2	75.7	74.6	73.5	73.9				32.0
30000						77.8	78.7	77.0	75.6	74.4	73.3	73.7				32.0
40000						77.7	78.5	76.8	75.5	74.2	73.2	73.3				32.0
50000						77.6	78.4	76.6	75.4	74.0	73.0	73.1				32.0
60000						77.4	78.2	76.4	75.3	73.8	72.9	72.9				32.0
70000						77.3	78.1	76.2	75.2	73.7	72.7	72.8				32.0
80000						77.3	78.0	76.0	75.1	73.5	72.7	72.7				32.0
90000						77.2	77.9	76.1	75.1	73.5	72.7	72.6				32.0
100000						77.3	77.9	76.9	75.2	73.7	73.1	72.8				32.0
110000					77.8	77.6	77.9	77.6	75.6	74.1	73.6	73.5			32.0	32.0
120000					78.4	78.2	77.9	77.4	75.9	74.4	73.5	73.8			32.0	32.0
130000					78.1	78.2	77.9	77.2	76.1	74.8	73.4	73.3			32.0	32.0
140000					77.7	78.4	78.0	76.8	76.4	75.2	73.9	73.7			32.0	32.0
150000					77.8	78.3	78.0	77.2	76.5	75.3	73.9	73.7			32.0	32.0
160000					78.1	78.2	78.3	77.2	76.5	75.3	73.7	73.8			32.0	32.0
170000					78.3	78.2	78.4	76.8	76.7	75.4	73.6	73.7			32.0	32.0
180000					78.0	78.1	78.7	76.7	76.5	75.3	73.5				32.0	32.0
190000					78.1	78.1	78.8	76.7	76.2	75.1	73.7				32.0	32.0
200000					78.2	78.0	78.6	76.4	76.0	74.8	73.8				32.0	32.0
210000					78.2	77.6	78.3	76.2	75.7	74.7	74.4				32.0	32.0
220000					78.4	77.9	78.0	76.1	75.5	74.5	74.4				32.0	32.0
230000					78.4	77.9	77.8	76.0	75.3	74.1	74.4				32.0	32.0
Daily Max	0.0	0.0	0.0	0.0	78.4	78.4	78.8	77.6	76.7	75.4	74.4	74.3	0.0	0.0	32.0	32.0
Daily Min	0.0	0.0	0.0	0.0	77.7	77.2	77.8	76.0	75.1	73.5	72.7	72.6	0.0	0.0	32.0	32.0
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	78.1	77.9	78.2	76.8	75.8	74.5	73.5	73.4	#DIV/0!	#DIV/0!	32.0	32.0

Missing data due to equipment setup error

Monthly average: 45.4  
License Maximum: 89 F



**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

August 24, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards – Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations between August 4th and August 15th, 2011. Per the monitoring plans, monitoring for dissolved oxygen, temperature, and pH is being conducted at the following projects: Caldron Falls (FERC No. 2525) and Johnson Falls (FERC No. 2522). The dissolved oxygen water quality standard at Caldron Falls is 5.0 mg/l. The water quality standard downstream of Johnson Falls is 6 mg/l.

At the Caldron Falls project, deviations from the dissolved oxygen standard were observed upstream and downstream of the powerhouse. At the headwater monitoring location, data collected between August 12<sup>h</sup> and August 22<sup>nd</sup> shows very low levels of dissolved oxygen near the bottom of the reservoir (where water is being withdrawn and subsequently released through the powerhouse). The low dissolved oxygen level is due to a natural stratification of the impoundment. Dissolved oxygen concentrations will continue to be below the water quality standard at this location until the impoundment is no longer stratified. No deviations from water quality standards were observed downstream of the facility.

Downstream of the Johnson Falls Powerhouse, several dissolved oxygen readings which are not representative of actual river conditions were recorded between August 12<sup>th</sup> and 22<sup>nd</sup>. The non-representative readings are due to a malfunction of the dissolved oxygen sensor. During the deployment period, vibration of the monitor caused an electrical connection within the dissolved oxygen sensor to become loose. The loose connection resulted in sporadic dissolved oxygen readings between the afternoon of August 14<sup>th</sup> and August 22<sup>nd</sup> when the monitor was retrieved. Of the valid dissolved oxygen monitoring data available, all readings were above the dissolved oxygen water quality standard. Temperature and pH readings were not affected during the monitoring period.

As previously reported, deviations from the dissolved oxygen water quality standard have been observed downstream of the Johnson Falls powerhouse. Based upon monitoring experience and data from the Caldron Falls and Parkway bridge monitoring locations, WPSC believes dissolved oxygen levels are increasing and the water quality standard is being met within a short distance from the powerhouse. On August 22<sup>nd</sup>, in stream readings were taken with a handheld dissolved oxygen monitor to determine how much dissolved

August 24 2011

Mr. Donofrio & Mr. Utrup

Page 2 of 2

oxygen levels improve with distance from the Johnson Falls powerhouse. Readings were taken at four locations: immediately downstream of the powerhouse, at the tailrace monitoring location approximately 40 to 60 feet downstream of the powerhouse, approximately 250 feet downstream of the monitoring location, and approximately 500 feet downstream of the monitoring location. The in stream readings show that dissolved oxygen levels increased 0.4 mg/l within approximately 500 feet of the powerhouse. Therefore, dissolved oxygen levels are improving with distance from the powerhouse and the water quality standard is being met within a short distance from the facility. An aerial photo depicting the monitoring locations with the water quality readings are attached for your review

There are no other potential deviations from water quality standards to note. Attached for your review is dissolved oxygen monitoring data from the Caldron Falls headwater and the Johnson Falls tailrace monitoring locations. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Thank you for your time and consideration.

Sincerely,



Mark W. Metcalf  
Environmental Consultant – Air & Water  
Telephone: (920) 433-1833

Attach.

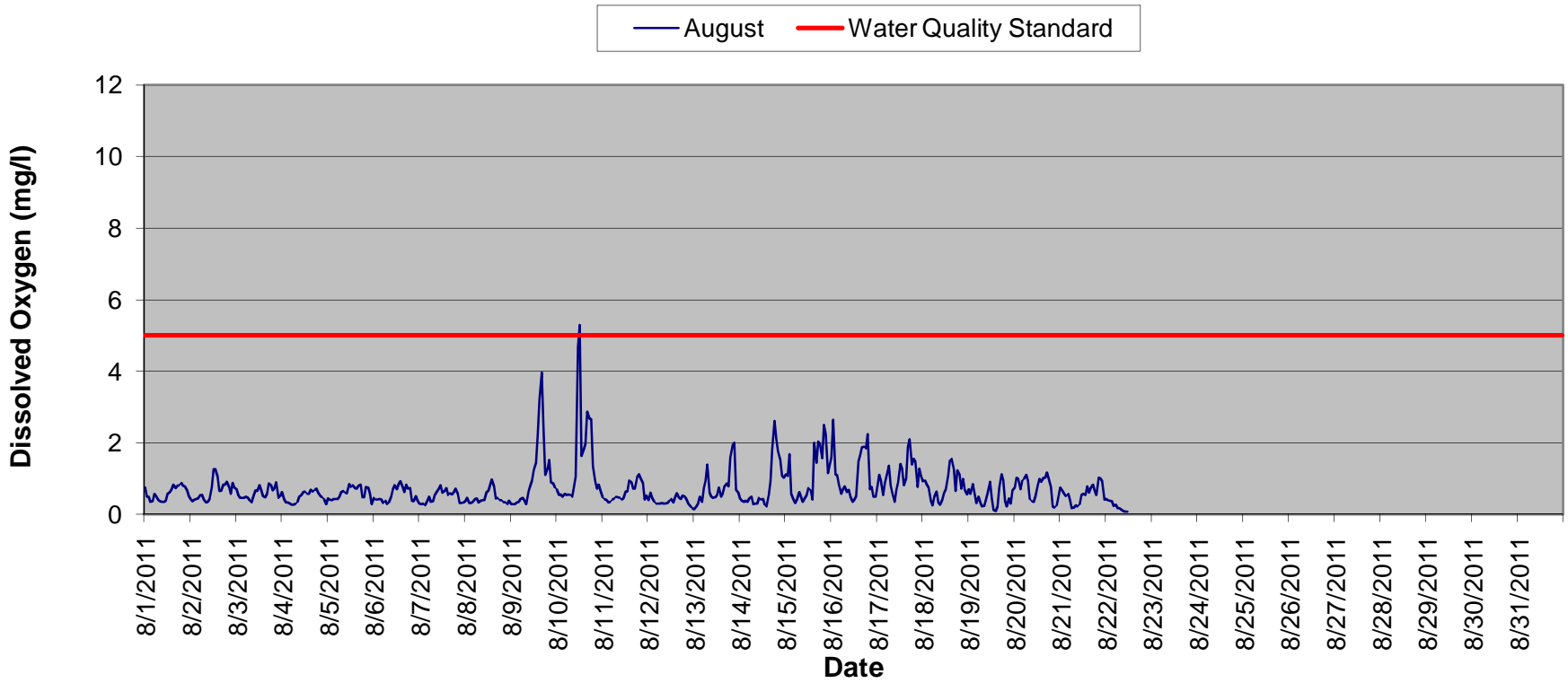
cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

## **Attachments**

### **Peshtigo River Hydroelectric Projects**

#### **Water Quality Monitoring Data**

### Caldron Falls Headwater Dissolved Oxygen - August 2011





Caldron Falls Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	0.8	0.4	0.7	0.6	0.5	0.5	0.3	0.4	0.3	0.7	0.5	0.4	0.2	0.5	1.1	1.6
10000	0.5	0.4	0.5	0.4	0.4	0.4	0.3	0.5	0.3	0.5	0.4	0.6	0.2	0.4	1.1	2.7
20000	0.5	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.6	0.4	0.5	0.3	0.4	1.7	1.1
30000	0.4	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.4	0.5	0.4	0.6	1.1
40000	0.4	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.6	0.4	0.3	0.4	0.4	0.4	0.8
50000	0.6	0.6	0.5	0.3	0.4	0.3	0.5	0.4	0.4	0.5	0.4	0.3	0.7	0.5	0.3	0.6
60000	0.5	0.6	0.5	0.3	0.5	0.4	0.3	0.4	0.5	0.6	0.5	0.3	0.9	0.5	0.4	0.7
70000	0.4	0.4	0.4	0.3	0.6	0.3	0.4	0.3	0.4	0.5	0.5	0.3	1.4	0.3	0.6	0.8
80000	0.4	0.3	0.3	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.5	0.3	0.6	0.3	0.5	0.6
90000	0.4	0.4	0.5	0.5	0.6	0.5	0.6	0.4	0.6	0.8	0.5	0.3	0.5	0.3	0.4	0.7
100000	0.4	0.4	0.7	0.5	0.6	0.7	0.7	0.4	0.8	1.1	0.4	0.3	0.5	0.5	0.5	0.5
110000	0.4	0.8	0.7	0.6	0.9	0.8	0.8	0.6	0.9	4.7	0.5	0.4	0.5	0.4	0.5	0.4
120000	0.6	1.3	0.8	0.6	0.8	0.7	0.6	0.7	1.2	5.3	0.6	0.4	0.6	0.4	0.7	0.4
130000	0.6	1.3	0.7	0.6	0.8	0.8	0.7	0.8	1.4	1.6	0.6	0.3	0.8	0.3	0.7	0.5
140000	0.7	1.1	0.5	0.6	0.7	0.9	0.7	1.0	2.2	1.8	0.9	0.5	0.5	0.2	0.4	1.5
150000	0.8	0.7	0.5	0.7	0.7	0.8	0.5	0.8	3.2	2.0	0.9	0.6	0.6	0.5	2.0	1.7
160000	0.7	0.7	0.6	0.6	0.8	0.6	0.6	0.5	4.0	2.9	0.7	0.5	0.8	0.9	1.4	1.9
170000	0.8	0.8	0.9	0.7	0.8	0.8	0.6	0.5	2.4	2.7	0.7	0.4	0.9	1.9	2.0	1.9
180000	0.8	0.8	0.8	0.7	0.5	0.7	0.6	0.4	1.1	2.7	1.0	0.5	0.8	2.6	2.0	1.8
190000	0.9	0.9	0.7	0.6	0.5	0.7	0.7	0.4	1.3	1.4	1.1	0.5	1.6	2.1	1.6	2.3
200000	0.8	0.8	0.7	0.5	0.8	0.4	0.6	0.4	1.5	0.9	1.0	0.4	1.9	1.8	2.5	0.7
210000	0.8	0.6	0.9	0.5	0.8	0.4	0.3	0.3	0.9	0.7	0.9	0.3	2.0	1.5	2.3	0.8
220000	0.7	0.9	0.5	0.4	0.6	0.5	0.3	0.3	0.9	0.8	0.4	0.2	0.7	1.1	1.2	0.5
230000	0.5	0.8	0.5	0.3	0.3	0.4	0.3	0.4	0.7	0.6	0.5	0.2	0.6	1.0	1.4	0.5
Daily Max	0.9	1.3	0.9	0.7	0.9	0.9	0.8	1.0	4.0	5.3	1.1	0.6	2.0	2.6	2.5	2.7
Daily Min	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.2	0.2	0.2	0.3	0.4
Average	0.6	0.7	0.6	0.5	0.6	0.6	0.5	0.5	1.1	1.5	0.6	0.4	0.8	0.8	1.1	1.1

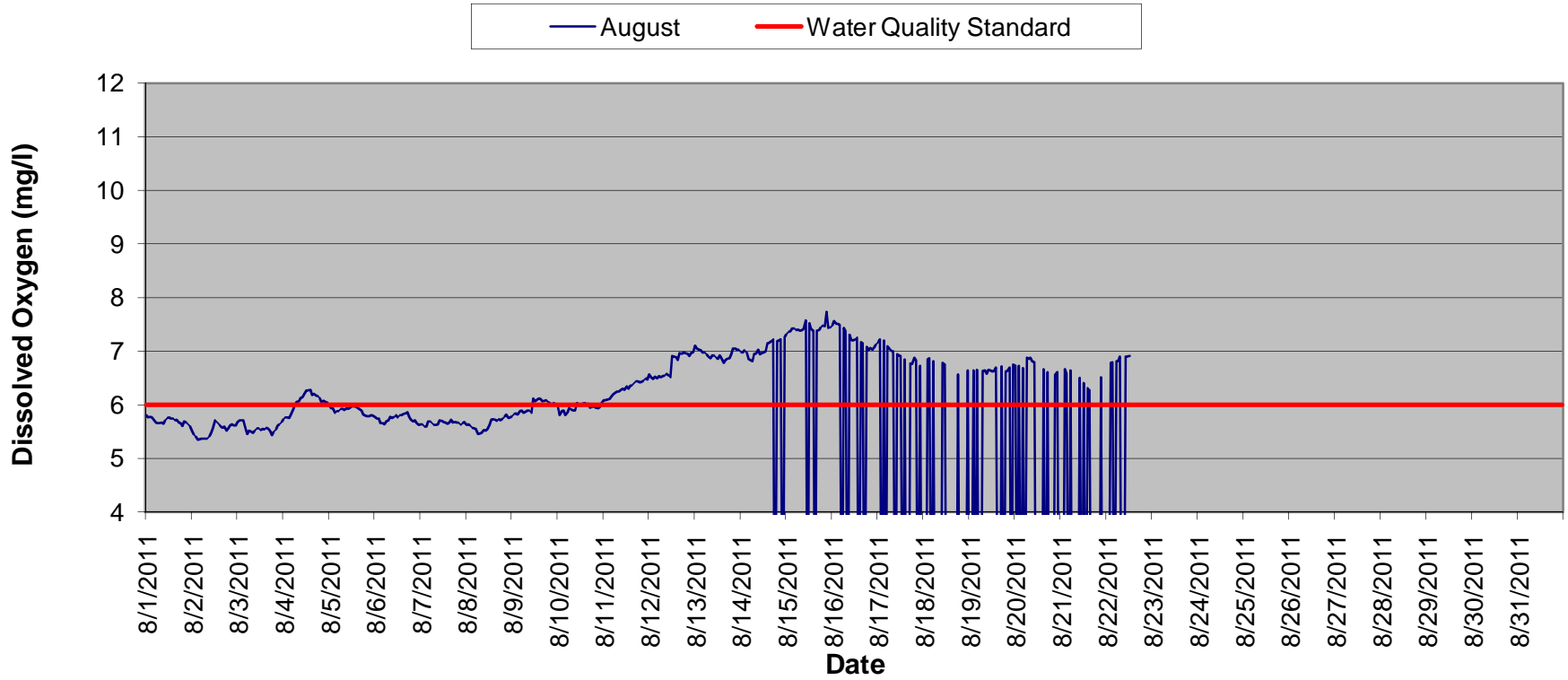
Low readings due to reservoir stratification

Caldron Falls Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	0.8	0.9	0.7	0.8	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	1.1	0.9	0.6	1.0	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	1.0	0.8	0.9	1.0	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	0.6	0.8	0.6	0.7	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	0.9	0.4	0.3	1.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	1.1	0.3	0.5	1.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	1.4	0.5	0.3	1.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	0.8	0.6	0.2	0.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	0.6	0.3	0.2	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	0.4	0.3	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	0.7	0.4	0.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	0.9	0.6	0.9	0.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	1.4	0.7	0.5	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	1.3	1.1	0.1	1.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	0.8	1.5	0.1	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	1.0	1.6	0.2	1.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	1.9	1.3	0.8	1.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	2.1	0.7	1.1	1.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	1.4	1.2	1.0	1.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	1.6	1.1	0.4	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	1.5	0.7	0.2	0.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	0.8	1.0	0.5	0.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	1.3	0.7	0.3	0.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	1.1	0.6	0.7	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	2.1	1.6	1.1	1.2	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	0.4	0.3	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	1.1	0.8	0.5	0.7	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Low readings due to reservoir stratification

### Johnson Falls Tailwater Dissolved Oxygen - August 2011



Johnson Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	5.8	5.5	5.7	5.7	6.0	5.8	5.6	5.6	5.8	6.0	6.1	6.6	7.1	7.0	7.3	7.5
10000	5.8	5.4	5.7	5.8	5.9	5.7	5.6	5.6	5.8	5.8	6.1	6.5	7.1	7.0	7.4	7.6
20000	5.8	5.4	5.7	5.8	5.9	5.7	5.6	5.6	5.8	5.9	6.1	6.5	7.0	7.0	7.4	7.5
30000	5.8	5.4	5.7	5.8	5.8	5.7	5.6	5.6	5.8	5.9	6.1	6.5	7.0	7.0	7.4	7.5
40000	5.7	5.4	5.6	5.8	5.9	5.7	5.7	5.6	5.9	5.8	6.1	6.5	7.0	6.9	7.4	7.5
50000	5.7	5.4	5.5	5.9	5.9	5.6	5.7	5.5	5.9	5.9	6.2	6.5	7.0	6.8	7.4	0.2
60000	5.7	5.4	5.5	6.0	5.9	5.7	5.7	5.5	5.8	5.9	6.2	6.5	6.9	6.8	7.4	7.4
70000	5.7	5.4	5.5	6.1	5.9	5.7	5.6	5.5	5.9	5.9	6.2	6.5	6.9	7.0	7.4	7.4
80000	5.7	5.4	5.5	6.1	5.9	5.8	5.6	5.5	5.9	5.9	6.3	6.5	6.9	7.0	7.4	0.2
90000	5.7	5.4	5.5	6.1	5.9	5.8	5.6	5.5	5.9	5.9	6.3	6.6	6.9	7.0	7.4	7.3
100000	5.7	5.5	5.6	6.1	5.9	5.8	5.7	5.5	5.9	6.0	6.3	6.5	6.9	6.9	7.6	7.2
110000	5.8	5.6	5.6	6.2	5.9	5.8	5.7	5.5	6.1	6.0	6.3	6.5	6.9	7.0	0.2	7.2
120000	5.8	5.7	5.5	6.3	6.0	5.8	5.7	5.6	6.1	6.0	6.3	6.9	6.9	7.0	7.5	7.2
130000	5.7	5.7	5.6	6.3	6.0	5.8	5.7	5.7	6.1	6.0	6.3	6.9	6.9	7.0	7.4	7.3
140000	5.7	5.7	5.5	6.3	6.0	5.8	5.6	5.7	6.1	6.0	6.4	6.9	6.9	7.2	7.4	0.2
150000	5.7	5.6	5.6	6.2	5.9	5.8	5.7	5.7	6.1	6.0	6.4	6.8	6.8	7.2	0.2	7.2
160000	5.7	5.6	5.6	6.2	5.9	5.8	5.7	5.7	6.1	6.0	6.4	7.0	6.8	7.2	7.4	7.2
170000	5.7	5.6	5.5	6.2	5.9	5.9	5.7	5.7	6.1	6.0	6.4	7.0	6.9	7.2	7.4	0.2
180000	5.7	5.5	5.4	6.2	5.8	5.8	5.7	5.7	6.1	6.0	6.4	7.0	6.9	0.2	7.5	7.1
190000	5.6	5.6	5.5	6.1	5.8	5.7	5.7	5.7	6.1	6.0	6.4	7.0	6.9	7.2	7.5	7.0
200000	5.7	5.6	5.5	6.1	5.8	5.7	5.7	5.8	6.0	5.9	6.4	7.0	7.1	7.2	7.5	7.1
210000	5.7	5.6	5.6	6.1	5.8	5.7	5.6	5.8	6.0	5.9	6.4	6.9	7.1	7.2	7.7	7.0
220000	5.6	5.6	5.6	6.1	5.8	5.7	5.7	5.8	6.0	6.0	6.5	7.0	7.0	0.2	7.4	7.1
230000	5.6	5.6	5.7	6.0	5.8	5.6	5.7	5.8	6.0	6.0	6.5	7.0	7.0	7.3	7.5	7.1
Daily Max	5.8	5.7	5.7	6.3	6.0	5.9	5.7	5.8	6.1	6.0	6.5	7.0	7.1	7.3	7.7	7.6
Daily Min	5.6	5.4	5.4	5.7	5.8	5.6	5.6	5.5	5.8	5.8	6.1	6.5	6.8	0.2	0.2	0.2
Average	5.7	5.5	5.6	6.0	5.9	5.7	5.7	5.6	6.0	5.9	6.3	6.7	6.9	6.5	6.8	6.1

Readings below water quality standard.

Missing data due to equipment malfunction (loose sensor connection)

License Minimum Dissolved Oxygen: 6.0 mg/l  
Instrument Precision - +/- 0.2 mg/l

Johnson Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.2	0.3	0.2	6.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	7.2	0.3	0.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	0.3	6.9	6.6	6.7	6.7	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	7.2	6.9	0.2	0.3	6.6	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	0.3	0.3	6.7	6.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	7.1	6.8	0.2	0.3	6.6	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	7.0	0.3	0.2	6.9	0.2	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	7.0	0.3	6.6	6.9	0.2	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	7.0	0.3	6.6	6.9	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	0.3	0.3	6.6	6.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	6.9	6.8	6.7	6.8	6.5	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	6.9	6.8	6.6	0.2	0.2	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	6.9	0.3	6.6	0.2	6.4	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	0.3	0.3	6.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	6.9	0.3	6.7	0.2	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	0.3	0.3	0.3	6.7	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	0.3	0.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	6.8	0.3	6.7	6.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	6.8	6.6	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	6.9	0.3	6.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	6.8	0.3	6.6	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	0.3	0.2	6.7	6.6	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	6.7	0.2	0.3	6.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	0.3	6.6	6.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	7.2	6.9	6.8	6.9	6.7	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	4.7	2.1	4.3	3.5	2.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Missing data due to equipment malfunction (loose sensor connection)

Map Created on Aug 23, 2011



Location 2  
6.8 mg/L D.O.  
73 F

Location 4  
7.2 mg/l D.O.  
73 F

Location 3  
6.9 mg/L D.O.  
73 F

Location 1  
6.8 mg/L D.O.  
73 F

**Legend**

- County Boundaries
- Civil Towns
- Civil Town
- Cities and Villages
- Village
- City

In stream dissolved oxygen readings on August 22, 2011.

D.O. improving with distance from powerhouse



Scale: 1:4,010

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

## Metcalfe, Mark W

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**From:** Metcalf, Mark W  
**Sent:** Wednesday, August 31, 2011 8:28 AM  
**To:** 'Utrup, Nick'; 'Donofrio, Michael C'  
**Cc:** Puzen, Shawn C; Crocker, Bruce E; Brandt, Edward S  
**Subject:** Water quality monitoring - Potato Rapids  
**Attachments:** Potato Rapids Headwater Summary Aug 11.pdf

Good morning Mike and Nick,

Pursuant to the water quality monitoring plan for the Potato Rapids Hydroelectric project, WPSC has been conducting dissolved oxygen, temperature, and pH monitoring upstream and downstream of the facility during the summer of 2011. Between August 15<sup>th</sup> and August 25<sup>th</sup>, dissolved oxygen readings below the water quality standard were observed at the upstream monitoring location. No deviations from the dissolved oxygen water quality standard were observed downstream of the facility during this time period. Dissolved oxygen and temperature monitoring data is attached for your review. Please note that the dissolved oxygen monitoring equipment has an accuracy of +/- 0.2 mg/l. Therefore, readings below 4.8 mg/l are potential deviations from the project license.

The low dissolved oxygen readings occurred in the morning hours of August 23<sup>rd</sup>, 24<sup>th</sup>, and 25<sup>th</sup>. The cause of the low readings is unknown. A review of plant operating data between August 15<sup>th</sup> and 25<sup>th</sup> shows that the facility was in run of river operation and there were no operational issues which could have caused or contributed to the low readings. The dissolved oxygen monitoring data collected between August 15<sup>th</sup> and 22<sup>nd</sup> did not show low dissolved oxygen levels, indicating that the impoundment is no longer stratified. Temperature monitoring data shows that the headwater temperature is still above 70F. As dissolved oxygen concentrations are inversely related to temperature, higher water temperatures do contribute to lower dissolved oxygen levels, but likely did not cause the low readings in this instance.

Please review the attached monitoring data. If you have any questions, feel free to contact me.

Thanks,  
Mark

### Mark Metcalf

**Environmental Consultant - Air & Water | Integrys Business Support, LLC**

920-433-1833

920-606-8432 *cell*

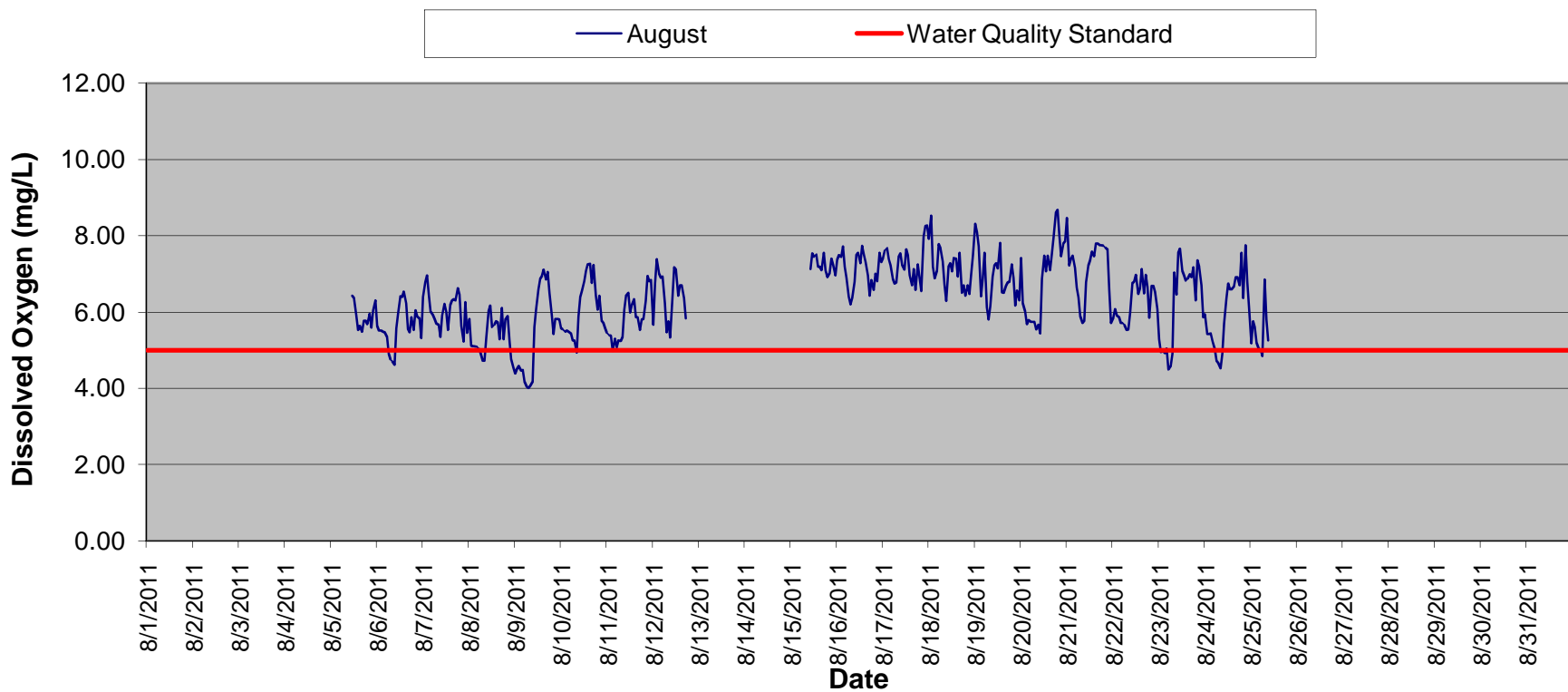
920-433-4916 *fax*

[mwmetcalf@integrysgroup.com](mailto:mwmetcalf@integrysgroup.com)

[www.integrysgroup.com](http://www.integrysgroup.com)

*Providing support for Integrys Energy Group, Integrys Energy Services, Michigan Gas Utilities, Minnesota Energy Resources, North Shore Gas, Peoples Gas, Upper Peninsula Power Company and Wisconsin Public Service.*

### Potato Rapids Headwater Dissolved Oxygen Summary - August 2011





Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						5.6	6.4	5.8	4.4	5.6	5.5	5.7				7.4
10000						5.5	6.8	5.1	4.5	5.5	5.4	6.7				7.5
20000						5.5	7.0	5.1	4.6	5.5	5.4	7.4				7.4
30000						5.5	6.5	5.1	4.5	5.5	5.0	7.0				7.7
40000						5.5	6.0	5.1	4.5	5.5	5.3	6.9				7.2
50000						5.3	5.9	5.0	4.2	5.4	5.1	6.9				6.9
60000						4.9	5.8	4.9	4.0	5.3	5.3	6.2				6.4
70000						4.8	5.7	4.7	4.0	5.3	5.2	5.5				6.2
80000						4.7	5.7	4.7	4.1	4.9	5.3	5.8				6.4
90000						4.6	5.4	5.3	4.2	5.9	6.1	5.3				6.8
100000						5.6	5.9	6.0	5.6	6.4	6.4	6.4				7.5
110000					6.4	6.0	6.2	6.2	6.1	6.6	6.5	7.2			7.1	7.5
120000					6.4	6.4	6.0	5.6	6.6	6.8	6.0	7.1			7.5	7.5
130000					5.9	6.4	5.5	5.7	6.9	7.1	6.2	6.4			7.4	7.3
140000					5.5	6.5	6.2	5.8	7.0	7.3	6.3	6.7			7.5	7.7
150000					5.6	6.2	6.3	5.7	7.1	7.3	5.9	6.7			7.2	7.5
160000					5.5	5.6	6.3	5.3	6.9	6.8	5.9	6.4			7.1	7.0
170000					5.8	5.5	6.3	6.1	7.1	7.2	5.5	5.8			7.1	7.0
180000					5.8	5.9	6.6	5.3	6.5	6.4	5.8				7.5	6.4
190000					5.7	5.5	6.5	5.8	5.9	6.1	5.8				7.1	6.8
200000					6.0	6.1	5.6	5.9	5.4	6.4	6.3				6.9	6.6
210000					5.6	5.9	5.2	5.3	5.8	5.8	6.9				7.0	7.0
220000					6.1	5.8	6.3	4.8	5.8	5.7	6.8				7.4	6.8
230000					6.3	5.3	5.5	4.5	5.8	5.6	6.8				7.2	7.5
															7.0	7.3
Daily Max	0.0	0.0	0.0	0.0	6.4	6.5	7.0	6.2	7.1	7.3	6.9	7.4	0.0	0.0	7.5	7.7
Daily Min	0.0	0.0	0.0	0.0	5.5	4.6	5.2	4.5	4.0	4.9	5.0	5.3	0.0	0.0	6.9	6.2
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.9	5.6	6.1	5.4	5.5	6.1	5.9	6.5	#DIV/0!	#DIV/0!	7.2	7.1
	Missing data due to power failure															
	Low readings due to stratification of reservoir															
												Missing data due to equipment setup error				

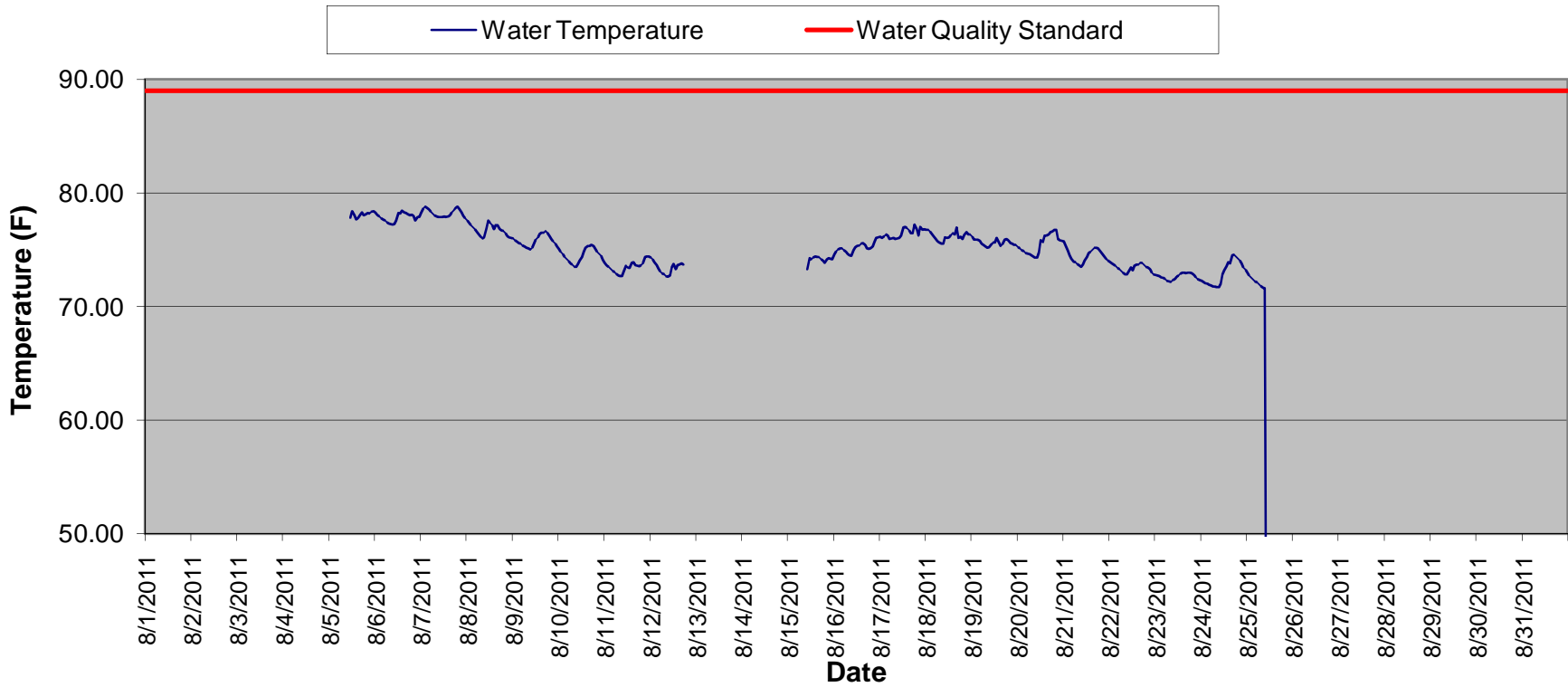
License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.4	7.9	8.3	7.4	8.5	5.8	5.3	5.9	5.2	0.0	0.0	0.0	0.0	0.0	0.0
10000	7.6	8.5	8.1	6.2	7.2	6.1	5.0	5.4	5.8	0.0	0.0	0.0	0.0	0.0	0.0
20000	7.7	7.2	7.7	6.0	7.4	5.9	5.0	5.4	5.6	0.0	0.0	0.0	0.0	0.0	0.0
30000	7.4	6.9	6.4	5.7	7.5	5.9	4.9	5.4	5.2	0.0	0.0	0.0	0.0	0.0	0.0
40000	7.2	7.1	6.9	5.8	7.2	5.7	5.1	5.2	5.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	6.9	7.8	7.6	5.7	6.6	5.7	4.5	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	6.7	7.7	6.1	5.7	6.4	5.7	4.6	4.7	4.8	0.0	0.0	0.0	0.0	0.0	0.0
70000	6.8	7.3	5.8	5.7	5.9	5.5	4.9	4.7	6.9	0.0	0.0	0.0	0.0	0.0	0.0
80000	7.4	6.7	6.2	5.5	5.7	5.5	7.0	4.5	5.8	0.0	0.0	0.0	0.0	0.0	0.0
90000	7.5	6.3	6.9	5.7	5.8	6.0	6.5	4.9	5.3	0.0	0.0	0.0	0.0	0.0	0.0
100000	7.2	7.2	7.2	5.4	6.8	6.8	7.6	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	7.1	7.3	7.3	6.9	7.2	6.8	7.7	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	7.6	7.1	7.1	7.5	7.4	7.0	7.1	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	7.5	7.4	7.8	7.1	7.6	6.5	7.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	7.0	7.4	6.5	7.5	7.5	6.6	6.8	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	6.7	6.9	6.5	7.1	7.8	7.1	6.9	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	7.1	7.5	6.7	7.5	7.8	6.5	7.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	6.6	6.5	6.8	8.0	7.8	7.0	6.9	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	7.2	6.7	6.8	8.6	7.8	6.7	7.2	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	6.9	6.4	7.2	8.7	7.7	5.9	6.3	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	6.5	6.7	6.9	8.0	7.7	6.7	7.4	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	8.0	6.5	6.2	7.5	7.6	6.7	7.2	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	8.3	7.0	6.6	7.8	6.6	6.5	6.7	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	8.3	7.5	6.3	7.9	5.7	6.1	5.9	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	8.3	8.5	8.3	8.7	8.5	7.1	7.7	7.8	6.9	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	6.5	6.3	5.8	5.4	5.7	5.5	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	7.3	7.1	6.9	6.9	7.1	6.3	6.3	6.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0

       Below water quality standard

### Potato Rapids Headwater Temperature - August 2011



Potato Rapids Headwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						78.3	78.2	77.6	76.0	75.1	73.9	74.3				74.6
10000						78.1	78.7	77.4	75.8	74.8	73.6	74.2				74.9
20000						77.9	78.8	77.2	75.7	74.6	73.5	73.9				75.0
30000						77.8	78.7	77.0	75.6	74.4	73.3	73.7				75.1
40000						77.7	78.5	76.8	75.5	74.2	73.2	73.3				75.1
50000						77.6	78.4	76.6	75.4	74.0	73.0	73.1				75.0
60000						77.4	78.2	76.4	75.3	73.8	72.9	72.9				74.8
70000						77.3	78.1	76.2	75.2	73.7	72.7	72.8				74.6
80000						77.3	78.0	76.0	75.1	73.5	72.7	72.7				74.5
90000						77.2	77.9	76.1	75.1	73.5	72.7	72.6				74.5
100000						77.3	77.9	76.9	75.2	73.7	73.1	72.8				75.0
110000					77.8	77.6	77.9	77.6	75.6	74.1	73.6	73.5			73.3	75.3
120000					78.4	78.2	77.9	77.4	75.9	74.4	73.5	73.8			74.2	75.3
130000					78.1	78.2	77.9	77.2	76.1	74.8	73.4	73.3			74.3	75.4
140000					77.7	78.4	78.0	76.8	76.4	75.2	73.9	73.7			74.4	75.5
150000					77.8	78.3	78.0	77.2	76.5	75.3	73.9	73.7			74.4	75.6
160000					78.1	78.2	78.3	77.2	76.5	75.3	73.7	73.8			74.4	75.4
170000					78.3	78.2	78.4	76.8	76.7	75.4	73.6	73.7			74.2	75.1
180000					78.0	78.1	78.7	76.7	76.5	75.3	73.5				74.1	75.1
190000					78.1	78.1	78.8	76.7	76.2	75.1	73.7				73.9	75.1
200000					78.2	78.0	78.6	76.4	76.0	74.8	73.8				74.2	75.3
210000					78.2	77.6	78.3	76.2	75.7	74.7	74.4				74.2	75.7
220000					78.4	77.9	78.0	76.1	75.5	74.5	74.4				74.2	76.0
230000					78.4	77.9	77.8	76.0	75.3	74.1	74.4				74.2	76.1
Daily Max	0.0	0.0	0.0	0.0	78.4	78.4	78.8	77.6	76.7	75.4	74.4	74.3	0.0	0.0	74.4	76.1
Daily Min	0.0	0.0	0.0	0.0	77.7	77.2	77.8	76.0	75.1	73.5	72.7	72.6	0.0	0.0	73.3	74.5
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	78.1	77.9	78.2	76.8	75.8	74.5	73.5	73.4	#DIV/0!	#DIV/0!	74.1	75.2

Missing data due to equipment setup error

Monthly average: 63.3  
License Maximum: 89 F

Potato Rapids Headwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	76.1	76.8	76.2	75.2	75.8	74.0	72.8	72.3	73.0	32.0	32.0	32.0	32.0	32.0	32.0
10000	76.1	76.8	75.9	75.1	75.4	73.8	72.7	72.2	72.8	32.0	32.0	32.0	32.0	32.0	32.0
20000	76.2	76.6	75.9	75.0	74.9	73.7	72.7	72.1	72.5	32.0	32.0	32.0	32.0	32.0	32.0
30000	76.4	76.4	75.9	74.9	74.5	73.6	72.6	72.0	72.4	32.0	32.0	32.0	32.0	32.0	32.0
40000	76.2	76.2	75.8	74.8	74.2	73.4	72.6	71.9	72.2	32.0	32.0	32.0	32.0	32.0	32.0
50000	76.0	76.0	75.5	74.7	74.0	73.3	72.4	71.9	72.1	32.0	32.0	32.0	32.0	32.0	32.0
60000	76.0	75.8	75.5	74.6	73.9	73.2	72.3	71.8	72.0	32.0	32.0	32.0	32.0	32.0	32.0
70000	76.0	75.7	75.3	74.5	73.8	73.0	72.2	71.7	71.8	32.0	32.0	32.0	32.0	32.0	32.0
80000	76.0	75.5	75.2	74.4	73.6	72.9	72.2	71.7	71.7	32.0	32.0	32.0	32.0	32.0	32.0
90000	76.0	75.6	75.2	74.3	73.5	72.8	72.3	71.7	71.6	32.0	32.0	32.0	32.0	32.0	32.0
100000	76.1	76.1	75.5	74.3	73.7	73.1	72.4	72.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
110000	76.3	76.1	75.6	74.8	74.0	73.5	72.6	72.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0
120000	77.0	76.1	75.7	75.9	74.4	73.2	72.8	73.2	32.0	32.0	32.0	32.0	32.0	32.0	32.0
130000	77.0	76.3	76.1	75.7	74.7	73.6	72.9	73.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0
140000	76.9	76.4	75.7	76.3	74.8	73.7	73.0	73.9	32.0	32.0	32.0	32.0	32.0	32.0	32.0
150000	76.7	76.4	75.3	76.3	75.0	73.7	73.0	73.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0
160000	76.5	76.9	75.5	76.4	75.2	73.9	72.9	74.5	32.0	32.0	32.0	32.0	32.0	32.0	32.0
170000	76.5	76.0	75.9	76.6	75.2	73.9	73.0	74.6	32.0	32.0	32.0	32.0	32.0	32.0	32.0
180000	77.2	76.2	75.9	76.6	75.1	73.7	73.0	74.4	32.0	32.0	32.0	32.0	32.0	32.0	32.0
190000	76.8	75.9	75.8	76.8	74.9	73.5	73.0	74.2	32.0	32.0	32.0	32.0	32.0	32.0	32.0
200000	76.2	76.3	75.6	76.7	74.7	73.4	72.8	74.1	32.0	32.0	32.0	32.0	32.0	32.0	32.0
210000	77.0	76.6	75.5	75.9	74.5	73.3	72.6	73.8	32.0	32.0	32.0	32.0	32.0	32.0	32.0
220000	76.8	76.4	75.5	75.8	74.2	73.0	72.4	73.5	32.0	32.0	32.0	32.0	32.0	32.0	32.0
230000	76.8	76.4	75.4	75.8	74.0	72.9	72.3	73.2	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Daily Max	77.2	76.9	76.2	76.8	75.8	74.0	73.0	74.6	73.0	32.0	32.0	32.0	32.0	32.0	32.0
Daily Min	76.0	75.5	75.2	74.3	73.5	72.8	72.2	71.7	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Average	76.4	76.2	75.6	75.5	74.5	73.4	72.6	73.0	48.8	32.0	32.0	32.0	32.0	32.0	32.0



**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

September 6, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards – Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations between August 22<sup>nd</sup> and September 2<sup>nd</sup>, 2011. Per the monitoring plans, monitoring for dissolved oxygen, temperature, and pH is being conducted at the Caldron Falls (FERC No. 2525) and Potato Rapids (FERC No. 2560) hydroelectric projects.

On August 22<sup>nd</sup>, the Caldron Falls Powerhouse was taken out of service for facility maintenance. During the monitoring period referenced above, all water (except for leakage through the generating units) was released through spillway gates. At the Caldron Falls upstream monitoring location, WPSC is monitoring water quality at a location near the powerhouse intake approximately 1 meter off the bottom of the reservoir. Deviations from the dissolved oxygen standard were observed during the monitoring period at this monitoring location. The cause of the low dissolved oxygen level is due to a natural stratification of the impoundment. Dissolved oxygen concentrations will continue to be below the water quality standard at this location until the impoundment is no longer stratified. Please note that on August 24<sup>th</sup>, there was a temporary inversion of the water column near the headwater monitoring location. From 12:00 on the 24<sup>th</sup> through 01:00 on the 25<sup>th</sup>, dissolved oxygen levels were above the water quality standard and water temperatures increased 5 to 7°F. As the powerhouse was out of service and most of the water released was through spillway gates, it is not clear what may have caused the incident. The water temperature and dissolved oxygen levels quickly returned to levels observed prior to the event.

Downstream of the Caldron Falls Powerhouse, no deviations from the license water quality standards were observed. However, there is a period of missing monitoring data due to a power failure of the monitoring equipment. Consequently, dissolved oxygen, temperature, and pH monitoring data are missing from August 30<sup>th</sup> at 08:00 p.m. through September 1<sup>st</sup> at 10:00 a.m. when the monitor was retrieved and replaced. Monitoring data from August 22<sup>nd</sup> until the time of monitoring equipment power failure showed that the water quality standard for dissolved oxygen was being met. Therefore, it is unlikely that deviations from the dissolved oxygen water quality standard occurred during the period of missing data.

September 6, 2011  
Mr. Donofrio & Mr. Utrup  
Page 2 of 2

At the Potato Rapids Hydroelectric project, WPSC experienced a power failure of the monitor at the upstream monitoring location on August 29<sup>th</sup>. Consequently, there is a period of missing monitoring data between August 29<sup>th</sup> at 05:00 until September 2<sup>nd</sup> at 11:00 when the monitor was retrieved and replaced. Prior to the power failure, deviations from the dissolved oxygen water quality standard were observed at the upstream monitoring location. As reported on August 31<sup>st</sup>, low dissolved oxygen concentrations were observed at this location during the mornings of the 23<sup>rd</sup> through the 25<sup>th</sup>. Monitoring data retrieved on September 2<sup>nd</sup> showed additional hours of low dissolved oxygen levels during the mornings of August 26<sup>th</sup> and 27<sup>th</sup>. At the time of the low readings, the facility was operating normally and there were no operational issues which could have caused or contributed to the low readings. No deviations from water quality standards were observed downstream of the facility.

There are no other potential deviations from water quality standards to note. Attached for your review is monitoring data from the Caldron Falls headwater and tail water monitoring locations, and the Potato Rapids headwater monitoring location. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Sincerely,



Mark W. Metcalf  
Environmental Consultant – Air & Water  
Telephone: (920) 433-1833

Attach.

cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

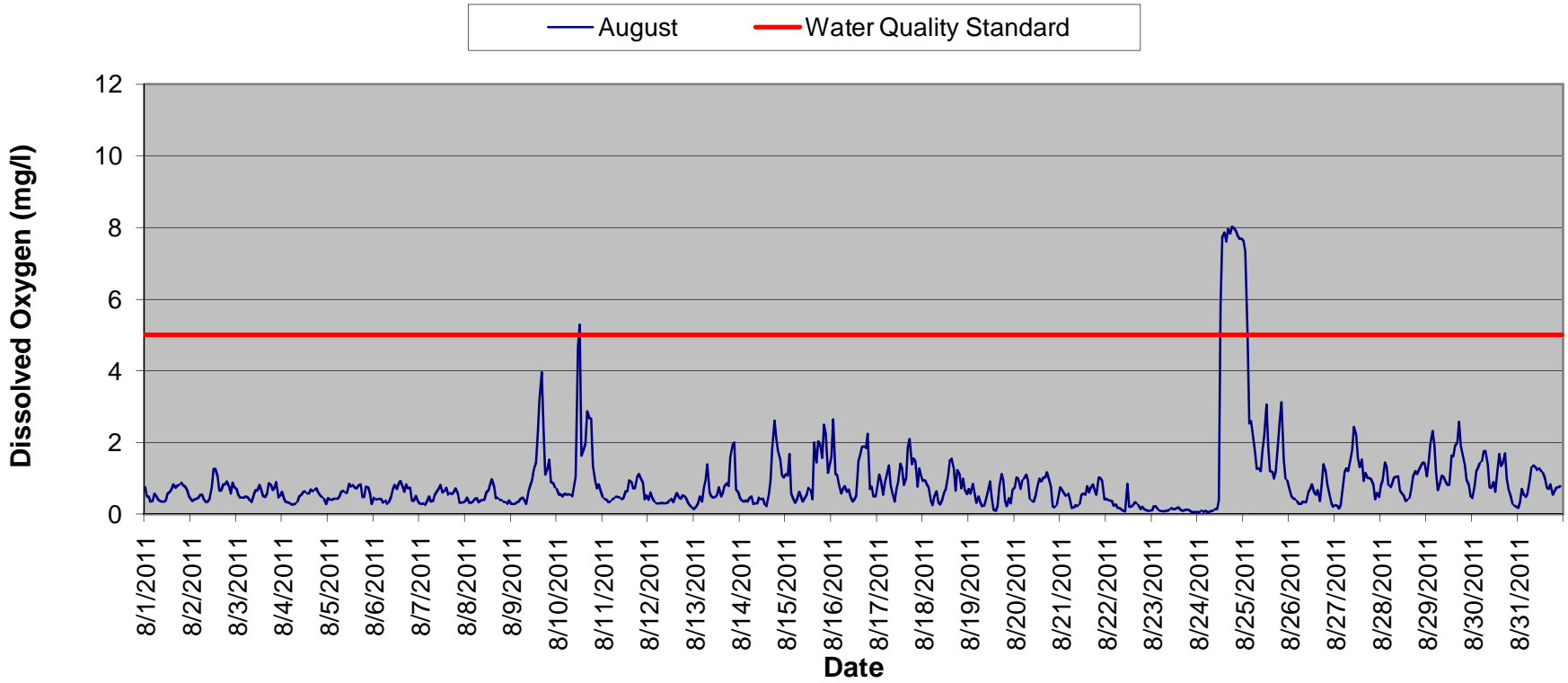
## **Attachments**

### **Peshtigo River Hydroelectric Projects**

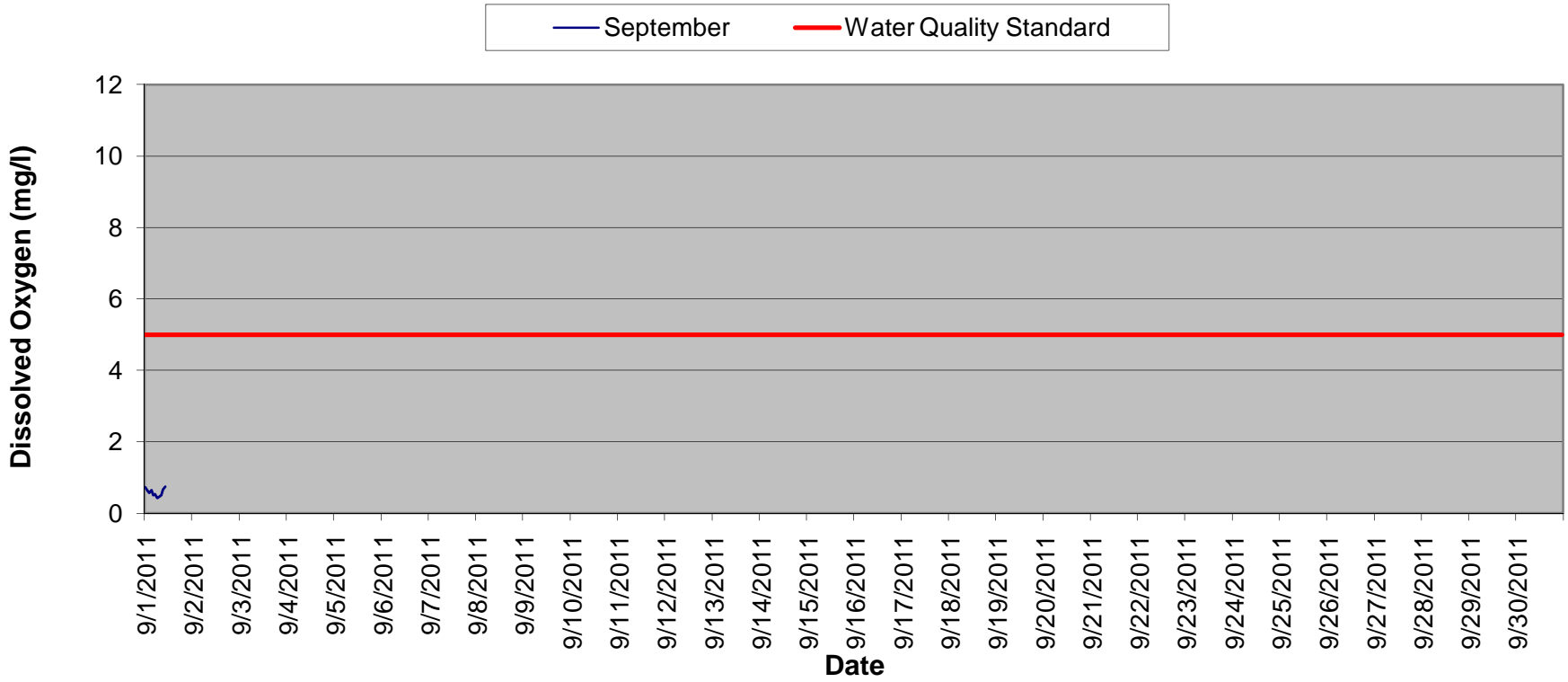
#### **Water Quality Monitoring Data**



### Caldron Falls Headwater Dissolved Oxygen - August 2011



### Caldron Falls Headwater Dissolved Oxygen - September 2011



Caldron Falls Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	0.8	0.4	0.7	0.6	0.5	0.5	0.3	0.4	0.3	0.7	0.5	0.4	0.2	0.5	1.1	1.6
10000	0.5	0.4	0.5	0.4	0.4	0.4	0.3	0.5	0.3	0.5	0.4	0.6	0.2	0.4	1.1	2.7
20000	0.5	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.6	0.4	0.5	0.3	0.4	1.7	1.1
30000	0.4	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.4	0.5	0.4	0.6	1.1
40000	0.4	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.6	0.4	0.3	0.4	0.4	0.4	0.8
50000	0.6	0.6	0.5	0.3	0.4	0.3	0.5	0.4	0.4	0.5	0.4	0.3	0.7	0.5	0.3	0.6
60000	0.5	0.6	0.5	0.3	0.5	0.4	0.3	0.4	0.5	0.6	0.5	0.3	0.9	0.5	0.4	0.7
70000	0.4	0.4	0.4	0.3	0.6	0.3	0.4	0.3	0.4	0.5	0.5	0.3	1.4	0.3	0.6	0.8
80000	0.4	0.3	0.3	0.4	0.7	0.3	0.5	0.4	0.3	0.5	0.5	0.3	0.6	0.3	0.5	0.6
90000	0.4	0.4	0.5	0.5	0.6	0.5	0.6	0.4	0.6	0.8	0.5	0.3	0.5	0.3	0.4	0.7
100000	0.4	0.4	0.7	0.5	0.6	0.7	0.7	0.4	0.8	1.1	0.4	0.3	0.5	0.5	0.5	0.5
110000	0.4	0.8	0.7	0.6	0.9	0.8	0.8	0.6	0.9	4.7	0.5	0.4	0.5	0.4	0.5	0.4
120000	0.6	1.3	0.8	0.6	0.8	0.7	0.6	0.7	1.2	5.3	0.6	0.4	0.6	0.4	0.7	0.4
130000	0.6	1.3	0.7	0.6	0.8	0.8	0.7	0.8	1.4	1.6	0.6	0.3	0.8	0.3	0.7	0.5
140000	0.7	1.1	0.5	0.6	0.7	0.9	0.7	1.0	2.2	1.8	0.9	0.5	0.5	0.2	0.4	1.5
150000	0.8	0.7	0.5	0.7	0.7	0.8	0.5	0.8	3.2	2.0	0.9	0.6	0.6	0.5	2.0	1.7
160000	0.7	0.7	0.6	0.6	0.8	0.6	0.6	0.5	4.0	2.9	0.7	0.5	0.8	0.9	1.4	1.9
170000	0.8	0.8	0.9	0.7	0.8	0.8	0.6	0.5	2.4	2.7	0.7	0.4	0.9	1.9	2.0	1.9
180000	0.8	0.8	0.8	0.7	0.5	0.7	0.6	0.4	1.1	2.7	1.0	0.5	0.8	2.6	2.0	1.8
190000	0.9	0.9	0.7	0.6	0.5	0.7	0.7	0.4	1.3	1.4	1.1	0.5	1.6	2.1	1.6	2.3
200000	0.8	0.8	0.7	0.5	0.8	0.4	0.6	0.4	1.5	0.9	1.0	0.4	1.9	1.8	2.5	0.7
210000	0.8	0.6	0.9	0.5	0.8	0.4	0.3	0.3	0.9	0.7	0.9	0.3	2.0	1.5	2.3	0.8
220000	0.7	0.9	0.5	0.4	0.6	0.5	0.3	0.3	0.9	0.8	0.4	0.2	0.7	1.1	1.2	0.5
230000	0.5	0.8	0.5	0.3	0.3	0.4	0.3	0.4	0.7	0.6	0.5	0.2	0.6	1.0	1.4	0.5
Daily Max	0.9	1.3	0.9	0.7	0.9	0.9	0.8	1.0	4.0	5.3	1.1	0.6	2.0	2.6	2.5	2.7
Daily Min	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.2	0.2	0.2	0.3	0.4
Average	0.6	0.7	0.6	0.5	0.6	0.6	0.5	0.5	1.1	1.5	0.6	0.4	0.8	0.8	1.1	1.1
Low readings due to reservoir stratification																

Caldron Falls Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	0.8	0.9	0.7	0.8	0.8	0.4	0.1	0.1	7.7	0.9	0.2	0.5	1.4	0.5	0.2
10000	1.1	0.9	0.6	1.0	0.7	0.4	0.1	0.1	7.6	0.7	0.3	0.8	1.1	0.5	0.2
20000	1.0	0.8	0.9	1.0	0.6	0.4	0.2	0.1	7.3	0.5	0.2	1.0	1.4	0.8	0.3
30000	0.6	0.8	0.6	0.7	0.5	0.4	0.2	0.1	5.0	0.5	0.2	1.4	2.0	1.2	0.7
40000	0.9	0.4	0.3	1.0	0.6	0.2	0.1	0.1	2.5	0.4	0.3	1.3	2.3	1.3	0.5
50000	1.1	0.3	0.5	1.0	0.4	0.3	0.1	0.1	2.6	0.4	0.8	0.8	1.9	1.4	0.5
60000	1.4	0.5	0.3	1.1	0.2	0.2	0.1	0.1	2.1	0.3	1.2	0.8	1.2	1.5	0.6
70000	0.8	0.6	0.2	0.9	0.2	0.2	0.1	0.1	1.7	0.3	1.3	0.9	0.7	1.8	1.0
80000	0.6	0.3	0.2	0.4	0.3	0.1	0.1	0.1	1.3	0.4	1.2	1.0	0.9	1.8	1.3
90000	0.4	0.3	0.4	0.4	0.2	0.1	0.1	0.1	1.3	0.3	1.5	1.0	1.1	1.4	1.4
100000	0.7	0.4	0.6	0.4	0.3	0.1	0.1	0.1	1.2	0.3	1.8	1.1	1.0	0.8	1.3
110000	0.9	0.6	0.9	0.5	0.6	0.9	0.2	0.2	1.8	0.6	2.4	0.7	0.9	0.7	1.2
120000	1.4	0.7	0.5	0.8	0.6	0.9	0.2	0.4	2.2	0.7	2.2	0.6	0.8	0.9	1.3
130000	1.3	1.1	0.1	1.0	0.6	0.2	0.2	5.8	3.1	0.8	1.6	0.5	0.8	0.6	1.2
140000	0.8	1.5	0.1	0.9	0.8	0.2	0.2	7.7	1.9	0.6	1.3	0.4	1.6	1.1	1.2
150000	1.0	1.6	0.2	1.0	0.6	0.3	0.2	7.9	1.2	0.5	1.5	0.4	1.6	1.7	1.0
160000	1.9	1.3	0.8	1.0	0.7	0.3	0.1	7.6	1.2	0.7	0.9	0.5	1.9	1.3	0.7
170000	2.1	0.7	1.1	1.2	0.8	0.3	0.1	8.0	1.0	0.4	1.2	0.7	2.0	1.4	0.7
180000	1.4	1.2	1.0	1.0	0.7	0.3	0.1	7.8	1.2	0.8	1.0	1.1	2.6	1.7	0.8
190000	1.6	1.1	0.4	0.8	0.6	0.2	0.1	8.0	2.0	1.4	1.0	1.2	1.9	1.0	0.6
200000	1.5	0.7	0.2	0.2	1.0	0.2	0.1	8.0	2.6	1.2	1.0	1.1	1.6	0.7	0.6
210000	0.8	1.0	0.5	0.2	1.0	0.2	0.1	7.9	3.1	0.8	0.8	1.2	1.4	0.5	0.7
220000	1.3	0.7	0.3	0.3	0.9	0.1	0.1	7.8	1.5	0.6	0.4	1.4	1.0	0.3	0.8
230000	1.1	0.6	0.7	0.5	0.4	0.1	0.1	7.7	1.0	0.3	0.6	1.5	0.8	0.2	0.8
Daily Max	2.1	1.6	1.1	1.2	1.0	0.9	0.2	8.0	7.7	1.4	2.4	1.5	2.6	1.8	1.4
Daily Min	0.4	0.3	0.1	0.2	0.2	0.1	0.1	0.1	1.0	0.3	0.2	0.4	0.7	0.2	0.2
Average	1.1	0.8	0.5	0.7	0.6	0.3	0.1	3.6	2.7	0.6	1.0	0.9	1.4	1.0	0.8

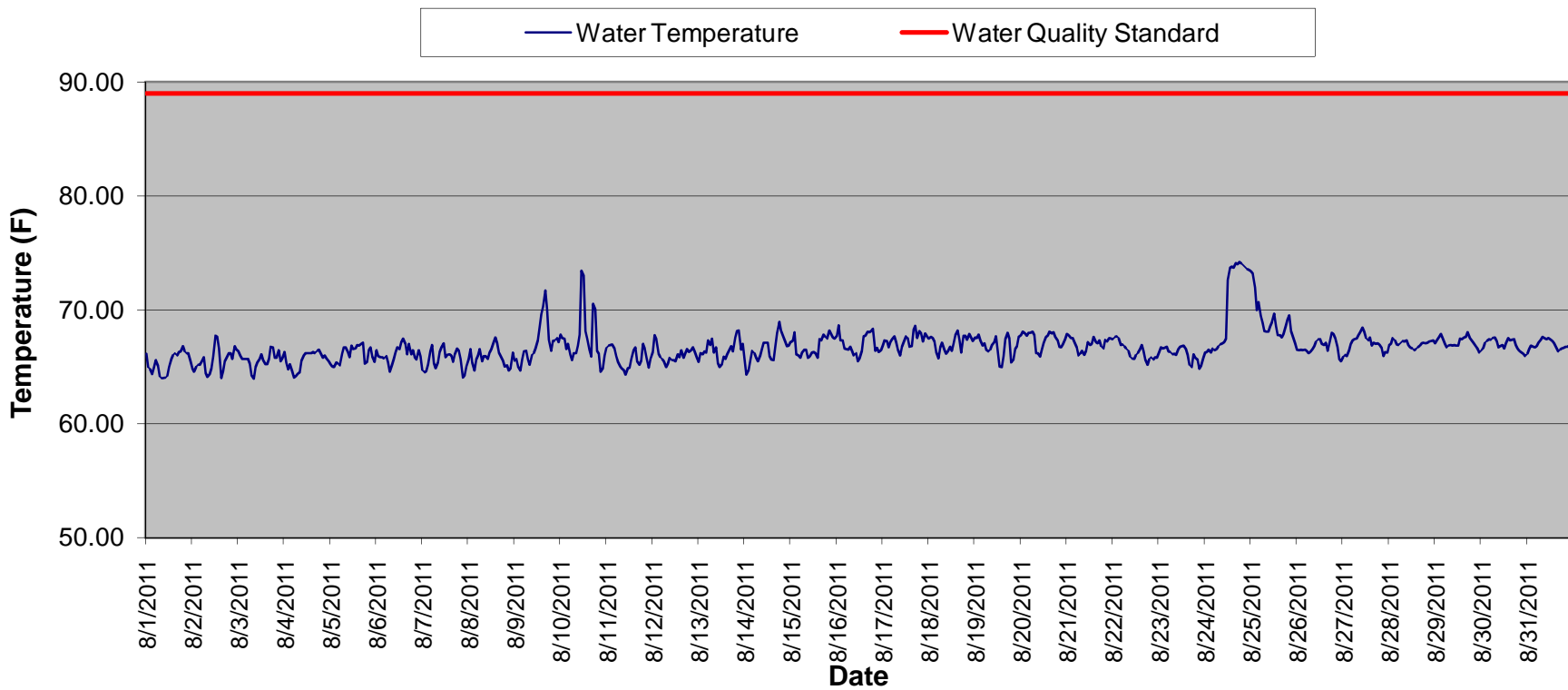
Low readings due to reservoir stratification

Caldron Falls Headwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Low readings due to reservoir stratification

### Caldron Falls Headwater Water Temperature - August 2011



Caldron Falls Headwater Temperature Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	66.2	64.9	66.4	66.3	65.2	66.4	64.7	65.7	65.5	67.8	66.7	66.3	65.4	65.6	67.2	67.7
10000	65.0	64.5	65.9	65.4	65.0	65.9	64.5	66.6	65.7	67.5	66.9	67.8	66.2	64.3	67.3	68.7
20000	64.8	65.0	65.7	64.8	65.0	65.9	64.6	65.4	65.0	67.5	66.9	67.4	66.1	64.7	68.0	67.3
30000	64.4	65.2	65.7	65.2	65.4	65.9	65.2	64.7	64.7	66.5	67.0	66.2	66.4	65.6	66.1	67.3
40000	64.9	65.2	65.7	64.6	65.3	65.7	66.4	65.6	65.6	67.0	66.6	65.8	66.3	66.4	66.0	66.6
50000	65.6	65.6	65.7	64.1	65.1	66.0	66.9	66.0	66.4	66.0	65.9	65.7	67.3	66.2	65.8	66.6
60000	65.1	65.8	65.3	64.1	66.1	65.4	65.3	66.5	66.4	65.6	65.4	65.5	66.9	65.8	66.3	66.5
70000	64.1	64.5	64.2	64.4	66.7	64.5	64.9	65.5	65.6	66.2	65.0	65.0	67.5	65.5	66.5	66.7
80000	64.0	64.1	64.0	64.5	66.7	65.2	65.4	65.9	65.2	66.2	64.8	65.3	66.3	66.0	66.5	66.4
90000	64.0	64.4	65.0	65.6	66.3	65.7	66.3	66.0	66.1	66.8	64.7	65.8	66.7	66.6	65.8	66.0
100000	64.0	64.9	65.4	66.0	65.8	66.2	66.7	65.7	66.2	67.9	64.3	65.6	65.4	67.1	65.9	66.2
110000	64.2	65.9	65.7	66.2	66.9	66.7	67.0	66.3	66.6	73.4	64.9	65.6	65.0	67.1	66.2	65.5
120000	65.0	67.7	66.1	66.2	66.6	66.5	65.8	66.5	67.3	73.0	64.9	65.5	65.2	67.1	66.3	65.8
130000	65.7	67.6	65.6	66.2	66.6	67.2	66.0	67.2	68.5	68.1	65.7	66.1	65.9	66.0	66.2	66.4
140000	66.0	66.6	65.2	66.2	66.9	67.5	66.1	67.6	69.6	67.5	66.5	65.9	65.7	65.6	65.8	67.7
150000	66.2	64.0	65.2	66.3	66.8	67.0	66.0	67.1	70.3	66.5	66.7	66.5	66.1	65.6	67.4	67.7
160000	66.0	64.6	65.7	66.2	67.0	66.1	65.4	66.3	71.7	65.9	65.5	65.8	66.5	66.8	67.3	68.1
170000	66.3	65.5	66.8	66.4	67.1	67.0	66.1	65.9	70.0	70.5	65.2	66.2	66.8	68.0	67.8	68.0
180000	66.3	65.8	66.7	66.5	65.3	66.1	66.6	65.5	67.4	70.0	65.5	66.5	66.4	68.9	67.6	68.2
190000	66.8	66.2	65.8	66.2	65.4	66.4	66.4	65.0	66.4	66.4	67.0	66.3	67.6	68.2	67.5	68.3
200000	66.3	66.2	65.8	65.8	66.5	65.8	65.7	65.1	67.3	66.1	66.6	66.4	68.1	67.7	68.2	66.4
210000	66.2	65.7	66.5	66.0	66.7	65.7	64.0	64.7	67.3	64.6	65.6	66.7	68.2	67.2	67.9	66.7
220000	66.2	66.8	65.5	65.7	65.9	66.4	64.2	64.9	67.6	64.9	64.9	66.3	66.5	66.8	67.6	66.3
230000	65.5	66.5	65.8	65.5	65.4	65.9	65.0	66.3	67.2	66.0	65.7	65.8	67.0	66.8	67.5	66.5
Daily Max	66.8	67.7	66.8	66.5	67.1	67.5	67.0	67.6	71.7	73.4	67.0	67.8	68.2	68.9	68.2	68.7
Daily Min	64.0	64.0	64.0	64.1	65.0	64.5	64.0	64.7	64.7	64.6	64.3	65.0	65.0	64.3	65.8	65.5
Average	65.4	65.6	65.6	65.6	66.1	66.1	65.6	65.9	67.1	67.4	65.8	66.1	66.5	66.5	66.9	67.0

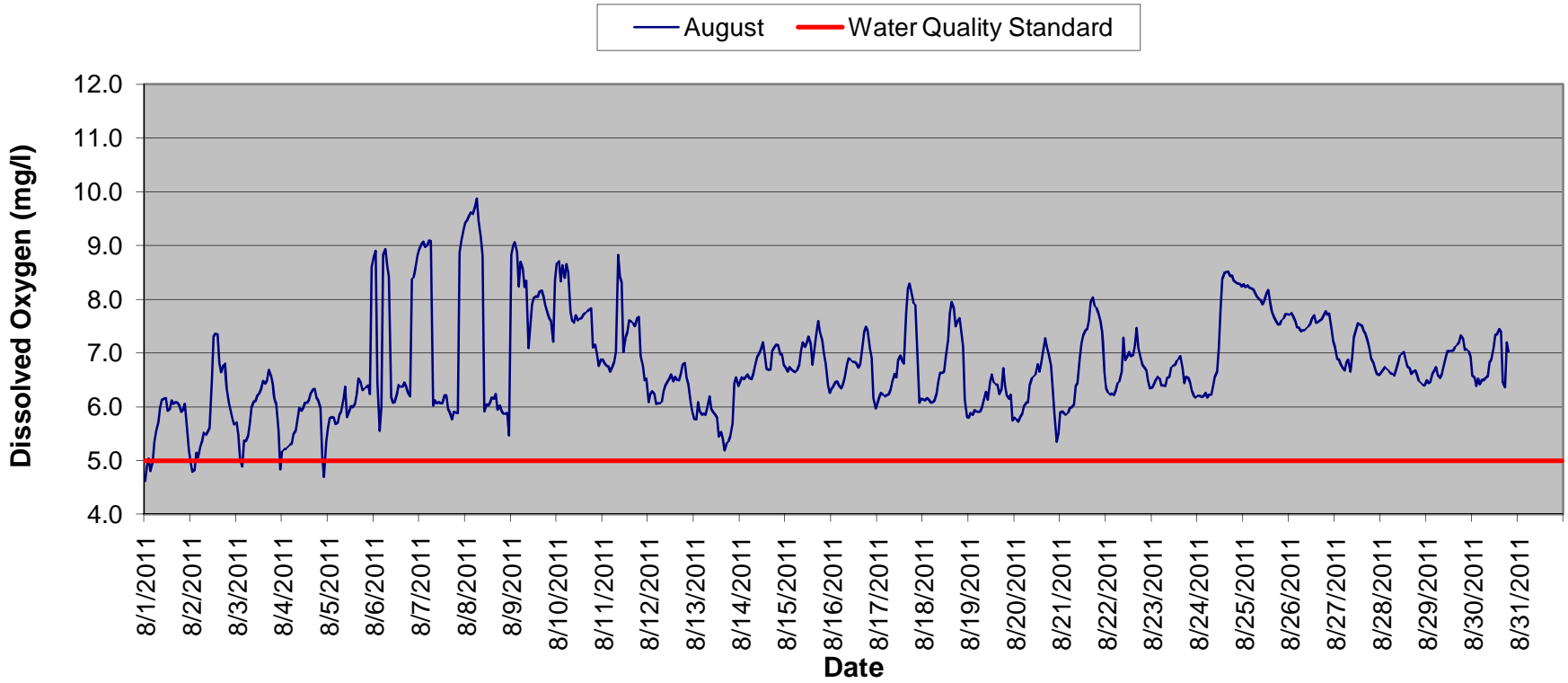
Monthly average: 66.7  
 License Maximum Temperature: 89 F

Caldron Falls Headwater Temperature Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	66.9	67.5	67.6	67.8	67.9	67.4	66.3	66.3	73.4	66.5	65.9	66.9	67.0	66.4	66.1
10000	67.3	67.6	67.5	68.1	67.8	67.6	66.7	66.3	73.2	66.4	66.0	67.0	67.3	66.7	66.5
20000	67.3	67.5	67.8	68.0	67.5	67.7	66.6	66.5	72.0	66.5	65.9	67.5	67.6	67.1	66.8
30000	66.7	67.2	67.3	67.7	67.5	67.6	66.7	66.2	70.0	66.4	66.5	67.3	67.9	67.3	66.8
40000	67.2	66.3	66.9	68.0	67.2	66.9	66.7	66.6	70.7	66.5	67.0	67.0	67.6	67.4	66.7
50000	67.4	65.8	67.1	68.0	66.7	67.0	66.3	66.5	69.5	66.4	67.3	66.9	67.0	67.4	66.8
60000	67.7	66.7	66.5	68.1	66.0	66.8	66.3	66.6	68.8	66.2	67.4	67.1	66.7	67.5	67.1
70000	67.2	67.1	66.4	67.8	66.1	66.6	66.1	66.8	68.2	66.3	67.5	67.3	66.9	67.6	67.4
80000	66.5	66.5	66.5	66.2	66.4	66.4	66.1	67.0	68.1	66.6	67.8	67.2	66.9	67.3	67.6
90000	66.0	66.1	66.9	66.2	66.1	65.9	66.0	67.1	68.1	66.8	68.0	67.3	66.9	66.7	67.5
100000	66.8	66.4	67.2	65.9	66.4	65.7	66.5	67.2	68.5	67.2	68.4	66.9	66.9	66.8	67.4
110000	67.2	66.8	67.7	66.5	67.2	65.7	66.8	67.5	68.9	67.4	68.1	66.7	66.8	66.9	67.5
120000	67.7	66.4	66.4	67.1	66.9	66.0	66.8	72.6	69.7	67.4	67.6	66.6	66.8	66.6	67.4
130000	67.5	67.1	65.0	67.6	67.0	66.2	66.9	73.7	68.6	67.0	67.3	66.5	67.5	67.1	67.3
140000	66.8	67.8	65.0	67.7	67.6	66.5	66.6	73.8	67.8	66.9	67.6	66.5	67.4	67.6	67.1
150000	66.8	68.2	66.0	68.1	67.2	66.9	66.1	73.7	67.8	67.1	66.9	66.7	67.6	67.3	66.7
160000	68.2	67.4	67.4	67.9	67.1	66.3	65.2	74.1	67.6	66.4	67.1	66.9	67.6	67.4	66.4
170000	68.6	66.3	68.0	68.1	67.3	65.7	65.0	74.0	67.9	67.3	67.0	67.0	68.1	67.4	66.5
180000	67.5	67.7	67.5	67.6	66.8	65.2	66.1	74.2	68.6	68.0	67.1	67.1	67.5	66.9	66.6
190000	68.2	67.7	65.4	67.3	66.6	65.7	65.8	74.0	69.2	67.9	67.0	67.1	67.3	66.6	66.7
200000	67.9	67.4	65.6	66.7	67.4	65.8	65.6	73.9	69.5	67.5	66.7	67.1	67.1	66.4	66.8
210000	67.2	67.9	66.6	66.7	67.2	65.6	64.8	73.8	68.1	66.7	65.9	67.2	66.8	66.3	66.7
220000	67.9	67.6	66.8	67.0	67.5	65.8	65.1	73.6	67.5	65.7	66.3	67.3	66.6	66.1	66.9
230000	67.7	67.3	67.6	67.4	67.5	65.8	65.8	73.5	67.1	65.5	66.3	67.3	66.3	65.9	66.7
Daily Max	68.6	68.2	68.0	68.1	67.9	67.7	66.9	74.2	73.4	68.0	68.4	67.5	68.1	67.6	67.6
Daily Min	66.0	65.8	65.0	65.9	66.0	65.2	64.8	66.2	67.1	65.5	65.9	66.5	66.3	65.9	66.1
Average	67.3	67.1	66.8	67.4	67.0	66.4	66.1	70.2	69.1	66.8	67.0	67.0	67.2	66.9	66.9



### Caldron Falls Tailwater Dissolved Oxygen - August 2011



Caldron Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0	4.6	5.0	5.7	5.2	5.6	8.8	8.9	9.4	8.8	8.7	6.9	6.1	5.8	6.5	6.7	6.3
10000	4.9	4.8	5.5	5.2	5.8	8.9	9.0	9.5	9.0	8.7	6.8	6.2	5.8	6.6	6.7	6.4
20000	5.0	4.8	5.0	5.2	5.8	6.5	9.1	9.6	9.1	8.3	6.8	6.3	6.1	6.5	6.7	6.5
30000	4.8	5.1	4.9	5.3	5.8	5.6	9.0	9.6	8.9	8.6	6.8	6.2	5.9	6.6	6.7	6.5
40000	5.0	5.1	5.4	5.3	5.7	6.0	9.0	9.6	8.2	8.4	6.7	6.1	5.9	6.6	6.7	6.4
50000	5.4	5.3	5.4	5.3	5.7	8.8	9.1	9.7	8.7	8.7	6.8	6.1	5.9	6.5	6.6	6.3
60000	5.5	5.4	5.5	5.5	5.9	8.9	9.1	9.9	8.6	8.5	6.8	6.1	5.9	6.5	6.7	6.4
70000	5.7	5.5	5.7	5.6	5.9	8.6	6.0	9.5	8.2	7.8	7.0	6.1	6.0	6.6	6.8	6.5
80000	6.0	5.5	6.0	5.8	6.1	8.4	6.1	9.2	8.3	7.6	8.8	6.3	6.2	6.8	7.0	6.8
90000	6.1	5.5	6.1	6.0	6.4	6.2	6.1	8.8	7.1	7.6	8.4	6.4	6.0	6.9	7.2	6.9
100000	6.1	5.6	6.1	5.9	5.8	6.1	6.1	5.9	7.5	7.7	8.3	6.5	5.9	7.0	7.1	6.9
110000	6.2	6.5	6.2	6.0	5.9	6.1	6.1	6.0	7.9	7.6	7.0	6.5	5.9	7.1	7.2	6.8
120000	5.9	7.3	6.3	6.1	6.0	6.2	6.1	6.0	8.0	7.6	7.3	6.6	5.8	7.2	7.3	6.8
130000	6.0	7.4	6.3	6.1	6.0	6.4	6.2	6.1	8.1	7.7	7.4	6.5	5.4	7.0	7.2	6.8
140000	6.1	7.3	6.5	6.1	6.1	6.4	6.2	6.2	8.0	7.7	7.6	6.6	5.5	6.7	6.8	6.7
150000	6.1	6.8	6.4	6.3	6.2	6.4	6.0	6.2	8.1	7.7	7.6	6.5	5.4	6.7	7.0	6.8
160000	6.1	6.6	6.5	6.3	6.5	6.5	5.9	6.2	8.2	7.8	7.6	6.5	5.2	6.7	7.4	7.0
170000	6.1	6.8	6.7	6.3	6.5	6.4	5.8	6.0	8.1	7.8	7.5	6.6	5.3	7.0	7.6	7.4
180000	6.0	6.8	6.6	6.2	6.3	6.3	5.9	6.0	7.9	7.8	7.7	6.8	5.4	7.1	7.4	7.5
190000	5.9	6.3	6.4	6.1	6.3	6.2	5.9	5.9	7.7	7.1	7.7	6.8	5.5	7.2	7.2	7.4
200000	5.9	6.1	6.1	6.0	6.4	8.4	5.9	5.9	7.7	7.2	6.9	6.5	5.7	7.2	7.0	7.1
210000	6.1	5.9	6.1	5.1	6.4	8.4	8.9	5.9	7.6	7.0	6.8	6.4	6.4	7.0	6.8	6.9
220000	5.6	5.8	5.6	4.7	6.2	8.6	9.1	5.9	7.2	6.8	6.5	6.1	6.6	7.0	6.4	6.2
230000	5.2	5.7	4.8	5.4	8.6	8.8	9.3	5.5	8.4	6.9	6.5	5.9	6.4	6.8	6.3	6.0
Daily Max	6.2	7.4	6.7	6.3	8.6	8.9	9.3	9.9	9.1	8.7	8.8	6.8	6.6	7.2	7.6	7.5
Daily Min	4.6	4.8	4.8	4.7	5.6	5.6	5.8	5.5	7.1	6.8	6.5	5.9	5.2	6.5	6.3	6.0
Average	5.7	5.9	5.9	5.7	6.2	7.2	7.3	7.4	8.1	7.8	7.2	6.4	5.8	6.8	6.9	6.7
	Below water quality standard					Peaking operation. Monitor out of water during refill period.										

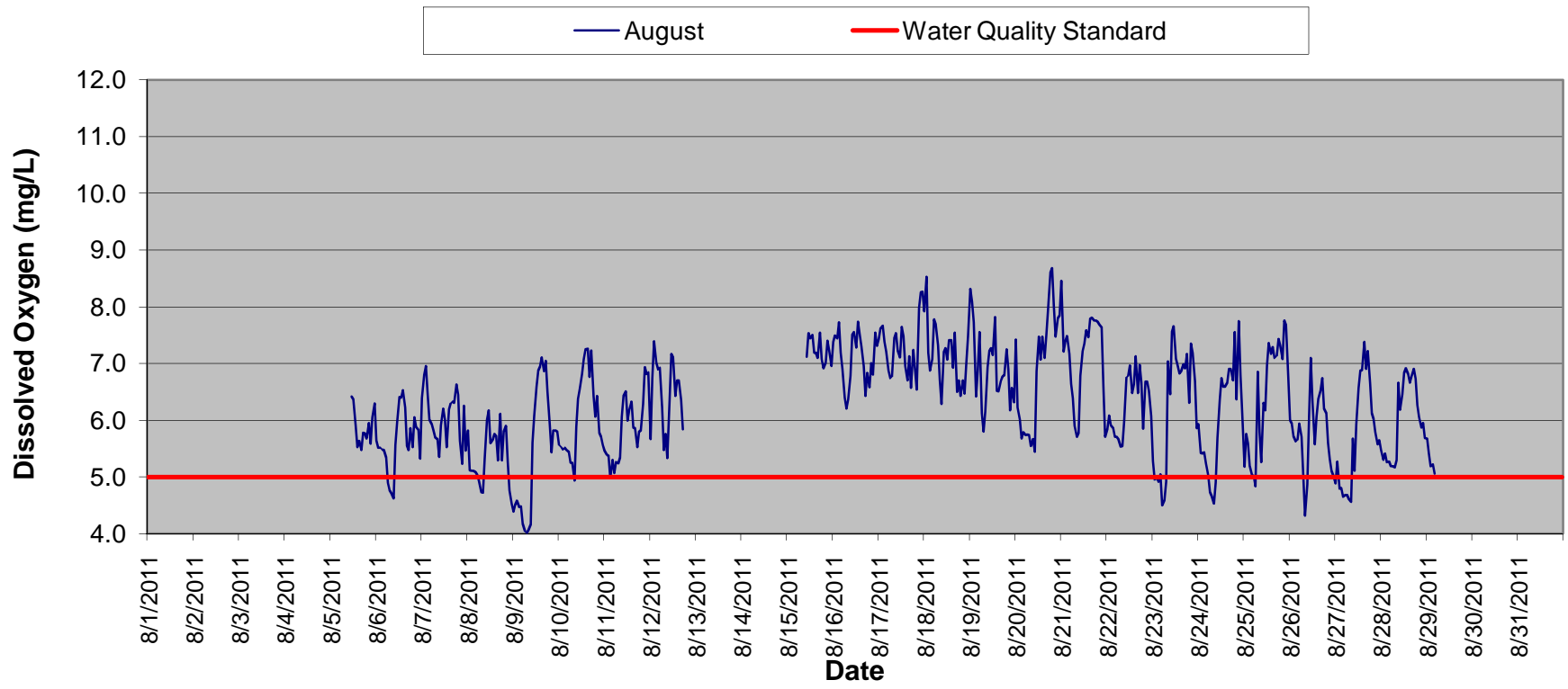
License Minimum Dissolved Oxygen: 5.0 mg/l

Caldron Falls Tailwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	6.1	6.1	5.8	5.8	5.9	6.3	6.4	6.2	8.3	7.7	7.1	6.6	6.5	6.6	
10000	6.2	6.1	5.9	5.8	5.9	6.3	6.4	6.2	8.2	7.8	6.9	6.7	6.4	6.6	
20000	6.3	6.2	5.9	5.7	5.9	6.2	6.5	6.2	8.3	7.7	6.9	6.7	6.5	6.4	
30000	6.2	6.1	5.9	5.8	5.9	6.3	6.6	6.2	8.2	7.6	6.8	6.7	6.6	6.5	
40000	6.2	6.1	5.9	5.9	5.9	6.2	6.5	6.3	8.2	7.5	6.7	6.7	6.7	6.4	
50000	6.2	6.1	5.9	6.0	6.0	6.3	6.4	6.2	8.2	7.5	6.7	6.6	6.7	6.5	
60000	6.2	6.1	5.9	6.1	6.0	6.4	6.4	6.2	8.1	7.4	6.8	6.6	6.6	6.5	
70000	6.3	6.3	6.0	6.1	6.0	6.5	6.4	6.2	8.1	7.4	6.9	6.6	6.5	6.5	
80000	6.5	6.5	6.2	6.4	6.4	6.6	6.5	6.4	8.0	7.4	6.7	6.7	6.6	6.6	
90000	6.6	6.6	6.3	6.5	6.4	7.3	6.6	6.6	8.0	7.5	6.9	6.8	6.8	6.8	
100000	6.6	6.6	6.1	6.6	6.9	6.9	6.7	6.7	7.9	7.5	7.3	7.0	6.9	6.9	
110000	6.9	6.7	6.5	6.6	7.2	6.9	6.8	7.1	8.0	7.5	7.4	7.0	7.0	7.1	
120000	7.0	6.9	6.6	6.8	7.3	7.0	6.8	7.8	8.1	7.6	7.6	7.0	7.0	7.3	
130000	6.9	7.2	6.5	6.7	7.4	6.9	6.9	8.4	8.2	7.7	7.5	6.9	7.0	7.4	
140000	6.8	7.7	6.4	6.8	7.4	7.0	6.9	8.5	8.0	7.6	7.5	6.8	7.1	7.4	
150000	7.8	8.0	6.4	7.1	7.6	7.2	6.9	8.5	7.7	7.6	7.4	6.7	7.1	7.4	
160000	8.2	7.8	6.2	7.3	8.0	7.5	6.7	8.5	7.7	7.6	7.4	6.6	7.2	6.5	
170000	8.3	7.5	6.3	7.1	8.0	7.1	6.4	8.4	7.6	7.6	7.2	6.7	7.2	6.4	
180000	8.1	7.6	6.7	7.0	7.9	6.9	6.6	8.4	7.5	7.7	7.1	6.7	7.3	7.2	
190000	7.9	7.7	6.4	6.8	7.8	6.8	6.5	8.3	7.5	7.8	6.9	6.6	7.3	7.0	
200000	7.9	7.4	6.2	6.3	7.7	6.7	6.5	8.3	7.6	7.7	6.8	6.5	7.1		
210000	6.9	7.1	6.2	5.9	7.6	6.7	6.3	8.3	7.7	7.7	6.7	6.4	7.1		
220000	6.1	6.1	6.2	5.4	7.4	6.5	6.2	8.3	7.7	7.5	6.6	6.4	7.0		
230000	6.2	5.8	5.7	5.5	6.7	6.3	6.2	8.2	7.7	7.2	6.6	6.4	6.9		
Daily Max	8.3	8.0	6.7	7.3	8.0	7.5	6.9	8.5	8.3	7.8	7.6	7.0	7.3	7.4	0.0
Daily Min	6.1	5.8	5.7	5.4	5.9	6.2	6.2	6.2	7.5	7.2	6.6	6.4	6.4	6.4	0.0
Average	6.8	6.8	6.2	6.3	6.9	6.7	6.5	7.3	7.9	7.6	7.0	6.7	6.9	6.8	#DIV/0!

Powerhouse off-line for scheduled maintenance. All water, except for leakage through units, being released through gates.  
 Missing data due to power failure

### Potato Rapids Headwater Dissolved Oxygen Summary - August 2011



Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						5.6	6.4	5.8	4.4	5.6	5.5	5.7				7.4
10000						5.5	6.8	5.1	4.5	5.5	5.4	6.7				7.5
20000						5.5	7.0	5.1	4.6	5.5	5.4	7.4				7.4
30000						5.5	6.5	5.1	4.5	5.5	5.0	7.0				7.7
40000						5.5	6.0	5.1	4.5	5.5	5.3	6.9				7.2
50000						5.3	5.9	5.0	4.2	5.4	5.1	6.9				6.9
60000						4.9	5.8	4.9	4.0	5.3	5.3	6.2				6.4
70000						4.8	5.7	4.7	4.0	5.3	5.2	5.5				6.2
80000						4.7	5.7	4.7	4.1	4.9	5.3	5.8				6.4
90000						4.6	5.4	5.3	4.2	5.9	6.1	5.3				6.8
100000						5.6	5.9	6.0	5.6	6.4	6.4	6.4				7.5
110000					6.4	6.0	6.2	6.2	6.1	6.6	6.5	7.2			7.1	7.5
120000					6.4	6.4	6.0	5.6	6.6	6.8	6.0	7.1			7.5	7.5
130000					5.9	6.4	5.5	5.7	6.9	7.1	6.2	6.4			7.4	7.3
140000					5.5	6.5	6.2	5.8	7.0	7.3	6.3	6.7			7.5	7.7
150000					5.6	6.2	6.3	5.7	7.1	7.3	5.9	6.7			7.2	7.5
160000					5.5	5.6	6.3	5.3	6.9	6.8	5.9	6.4			7.1	7.0
170000					5.8	5.5	6.3	6.1	7.1	7.2	5.5	5.8			7.1	7.0
180000					5.8	5.9	6.6	5.3	6.5	6.4	5.8				7.5	6.4
190000					5.7	5.5	6.5	5.8	5.9	6.1	5.8				7.1	6.8
200000					6.0	6.1	5.6	5.9	5.4	6.4	6.3				6.9	6.6
210000					5.6	5.9	5.2	5.3	5.8	5.8	6.9				7.0	7.0
220000					6.1	5.8	6.3	4.8	5.8	5.7	6.8				7.4	6.8
230000					6.3	5.3	5.5	4.5	5.8	5.6	6.8				7.2	7.5
															7.0	7.3
Daily Max	0.0	0.0	0.0	0.0	6.4	6.5	7.0	6.2	7.1	7.3	6.9	7.4	0.0	0.0	7.5	7.7
Daily Min	0.0	0.0	0.0	0.0	5.5	4.6	5.2	4.5	4.0	4.9	5.0	5.3	0.0	0.0	6.9	6.2
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.9	5.6	6.1	5.4	5.5	6.1	5.9	6.5	#DIV/0!	#DIV/0!	7.2	7.1

Missing data due to power failure

Low readings due to stratification of reservoir

Missing data due to equipment setup error

License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.4	7.9	8.3	7.4	8.5	5.8	5.3	5.9	5.2	6.0	4.9	5.5	5.7		
10000	7.6	8.5	8.1	6.2	7.2	6.1	5.0	5.4	5.8	5.9	5.3	5.3	5.4		
20000	7.7	7.2	7.7	6.0	7.4	5.9	5.0	5.4	5.6	5.7	4.8	5.4	5.2		
30000	7.4	6.9	6.4	5.7	7.5	5.9	4.9	5.4	5.2	5.6	4.8	5.3	5.2		
40000	7.2	7.1	6.9	5.8	7.2	5.7	5.1	5.2	5.0	5.7	4.7	5.3	5.1		
50000	6.9	7.8	7.6	5.7	6.6	5.7	4.5	5.0	5.0	5.9	4.7	5.2			
60000	6.7	7.7	6.1	5.7	6.4	5.7	4.6	4.7	4.8	5.7	4.7	5.2			
70000	6.8	7.3	5.8	5.7	5.9	5.5	4.9	4.7	6.9	5.0	4.6	5.2			
80000	7.4	6.7	6.2	5.5	5.7	5.5	7.0	4.5	5.8	4.3	4.6	5.3			
90000	7.5	6.3	6.9	5.7	5.8	6.0	6.5	4.9	5.3	4.9	5.7	6.7			
100000	7.2	7.2	7.2	5.4	6.8	6.8	7.6	5.7	6.3	6.1	5.1	6.2			
110000	7.1	7.3	7.3	6.9	7.2	6.8	7.7	6.4	6.2	7.1	5.9	6.5			
120000	7.6	7.1	7.1	7.5	7.4	7.0	7.1	6.7	7.0	6.3	6.6	6.8			
130000	7.5	7.4	7.8	7.1	7.6	6.5	7.0	6.6	7.4	5.6	6.9	6.9			
140000	7.0	7.4	6.5	7.5	7.5	6.6	6.8	6.6	7.2	6.1	6.9	6.8			
150000	6.7	6.9	6.5	7.1	7.8	7.1	6.9	6.7	7.3	6.4	7.4	6.7			
160000	7.1	7.5	6.7	7.5	7.8	6.5	7.0	6.9	7.1	6.5	6.9	6.8			
170000	6.6	6.5	6.8	8.0	7.8	7.0	6.9	6.9	7.1	6.7	7.2	6.9			
180000	7.2	6.7	6.8	8.6	7.8	6.7	7.2	6.7	7.4	6.2	6.7	6.7			
190000	6.9	6.4	7.2	8.7	7.7	5.9	6.3	7.5	7.3	6.1	6.1	6.3			
200000	6.5	6.7	6.9	8.0	7.7	6.7	7.4	6.4	7.1	5.6	6.0	6.1			
210000	8.0	6.5	6.2	7.5	7.6	6.7	7.2	7.8	7.8	5.3	5.8	5.9			
220000	8.3	7.0	6.6	7.8	6.6	6.5	6.7	6.8	7.7	5.1	5.6	6.0			
230000	8.3	7.5	6.3	7.9	5.7	6.1	5.9	6.1	6.7	5.0	5.7	5.7			
Daily Max	8.3	8.5	8.3	8.7	8.5	7.1	7.7	7.8	7.8	7.1	7.4	6.9	5.7	0.0	0.0
Daily Min	6.5	6.3	5.8	5.4	5.7	5.5	4.5	4.5	4.8	4.3	4.6	5.2	5.1	0.0	0.0
Average	7.3	7.1	6.9	6.9	7.1	6.3	6.3	6.0	6.4	5.8	5.7	6.0	5.3	#DIV/0!	#DIV/0!

Missing data due to power failure  
Below water quality standard

## Metcalfe, Mark W

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**From:** Metcalf, Mark W  
**Sent:** Friday, September 16, 2011 2:57 PM  
**To:** 'Utrup, Nick'; 'Donofrio, Michael C'  
**Cc:** Puzen, Shawn C; Brandt, Edward S; Crocker, Bruce E  
**Subject:** Water quality monitoring - WPSC hydroelectric facilities  
**Attachments:** 20110916 Peshtigo WQM report to agencies.pdf

Good afternoon Nick and Mike,

Attached please find a report on water quality monitoring deviations observed between September 1st and September 12th at WPSC hydroelectric projects located on the Peshtigo River. If you have any questions about the enclosed report, please feel free to contact me.

Thank you,  
Mark

### Mark Metcalf

**Environmental Consultant - Air & Water | Integrys Business Support, LLC**

920-433-1833

920-606-8432 *cell*

920-433-4916 *fax*

[mwmetcalf@integrysgroup.com](mailto:mwmetcalf@integrysgroup.com)

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*Providing support for Integrys Energy Group, Integrys Energy Services, Michigan Gas Utilities, Minnesota Energy Resources, North Shore Gas, Peoples Gas, Upper Peninsula Power Company and Wisconsin Public Service.*



**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

September 16, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards – Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations between September 1<sup>st</sup> and September 12<sup>th</sup>, 2011. Per the monitoring plans, monitoring for dissolved oxygen is being conducted at the Caldron Falls (FERC No. 2525) and Potato Rapids (FERC No. 2560) hydroelectric projects.

At the Caldron Falls upstream monitoring location, WPSC is monitoring water quality at a location near the powerhouse intake approximately 1 meter off the bottom of the reservoir. Deviations from the dissolved oxygen standard were observed during the monitoring period at this monitoring location. The cause of the low dissolved oxygen level is due to a natural stratification of the impoundment. Dissolved oxygen concentrations will continue to be below the water quality standard at this location until the impoundment is no longer stratified. Water quality monitoring data collected between September 1<sup>st</sup> and September 9<sup>th</sup> shows that dissolved oxygen levels are increasing in the epilimnion of the reservoir, indicating that the stratification of the impoundment is starting to break up. No deviations from the license water quality standards were observed downstream of the facility.

At the Potato Rapids Hydroelectric project, WPSC is monitoring water quality upstream of the powerhouse at a location near the powerhouse intake approximately 1 meter off the bottom of the reservoir. Dissolved oxygen concentrations below the water quality standard were observed at this location on September 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup>. The cause of the low readings is unknown. Since August 23<sup>rd</sup>, we have observed a pattern of low dissolved oxygen readings in the morning hours, followed by higher oxygen levels in the afternoon. At the time of the low readings, the facility was operating normally and there were no operational issues which could have caused or contributed to the low readings. No deviations from water quality standards were observed downstream of the facility.



September 16, 2011  
Mr. Donofrio & Mr. Utrup  
Page 2 of 2

There are no other potential deviations from water quality standards to note. Attached for your review is monitoring data from the Caldron Falls headwater and the Potato Rapids headwater monitoring location. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Sincerely,

A handwritten signature in cursive script that reads "Mark Metcalf".

Mark W. Metcalf  
Environmental Consultant – Air & Water  
Telephone: (920) 433-1833

Attach.

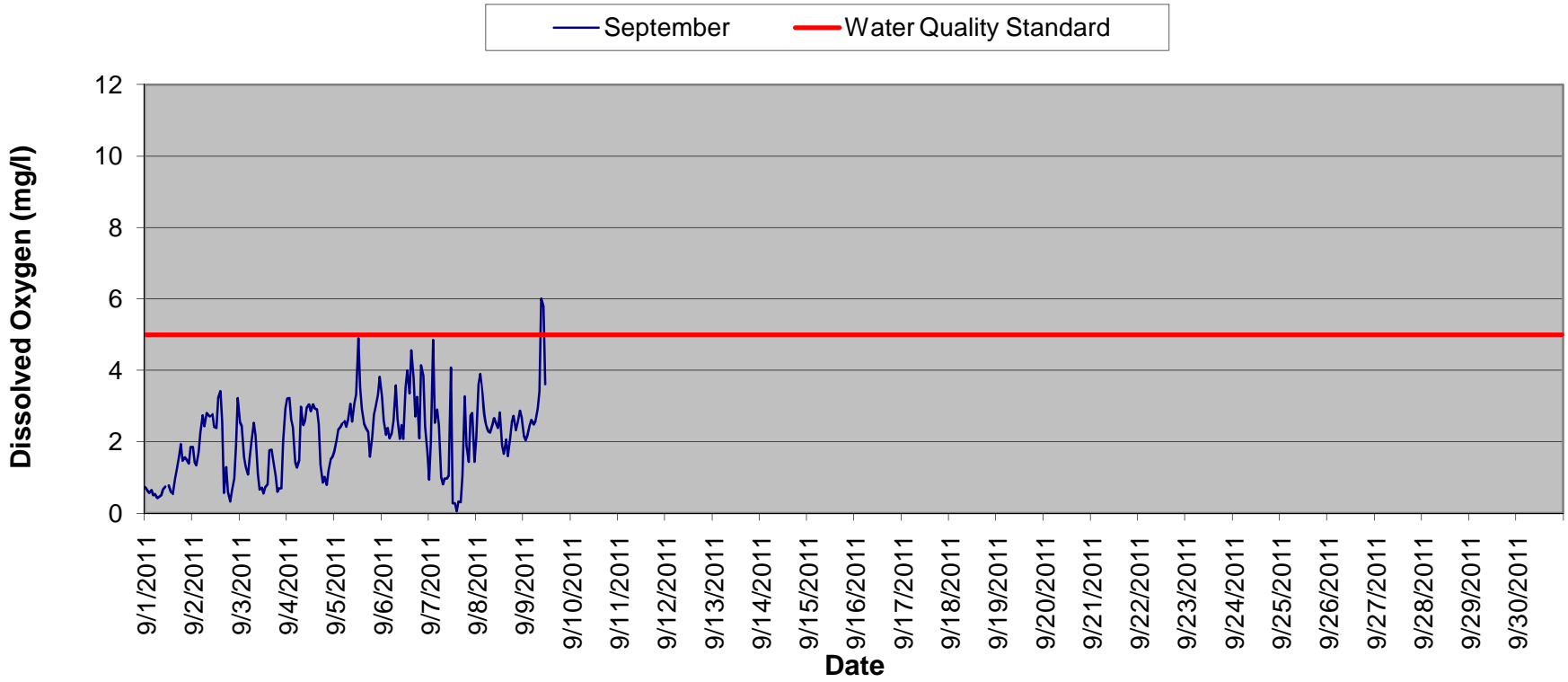
cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

**Attachments**

**Peshtigo River Hydroelectric Projects**

**Water Quality Monitoring Data**

### Caldron Falls Headwater Dissolved Oxygen - September 2011

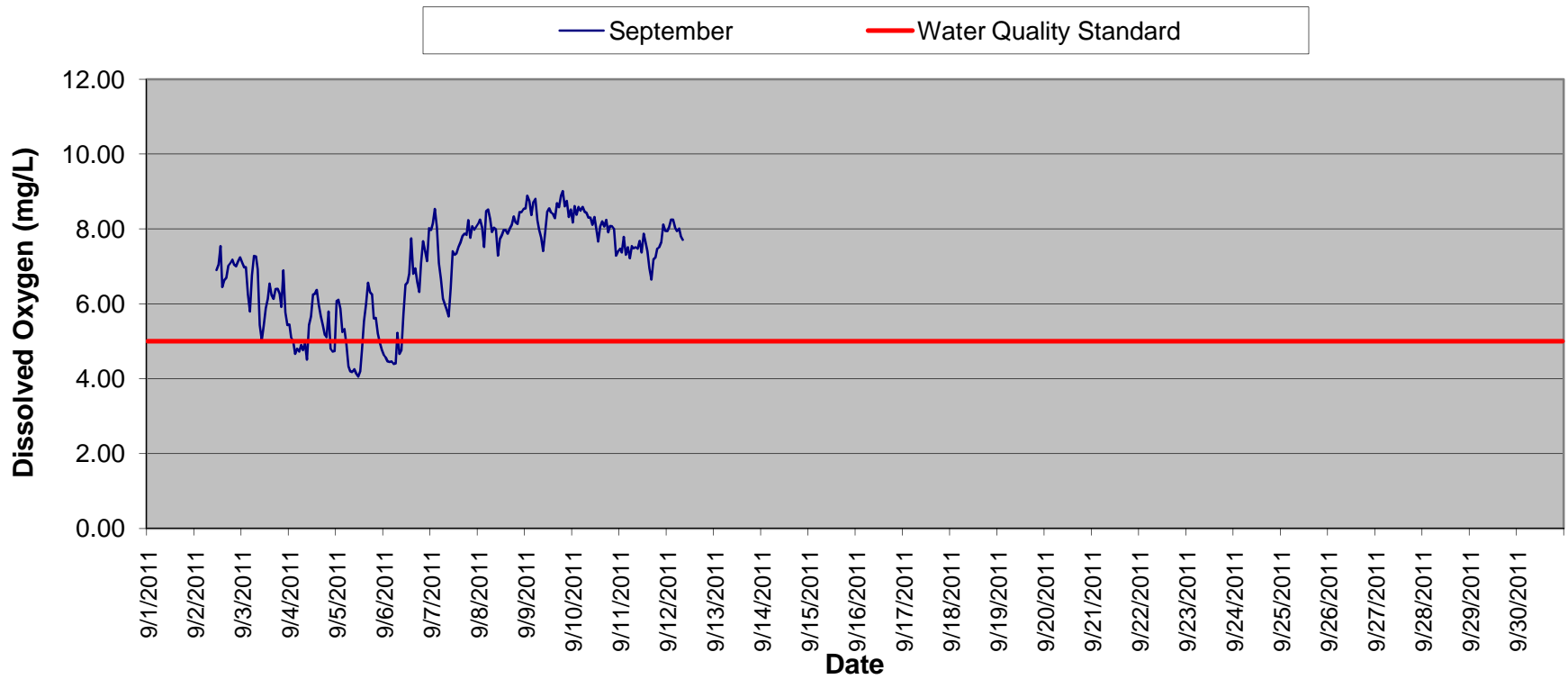


Caldron Falls Headwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	0.7	1.9	2.5	3.2	1.7	3.3	0.9	2.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	0.6	1.4	2.4	3.2	2.0	2.6	2.0	3.6	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	0.6	1.3	1.6	2.6	2.3	2.2	4.8	3.9	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	0.7	1.7	1.3	2.4	2.4	2.4	2.5	3.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	0.5	2.3	1.1	1.4	2.5	2.1	2.9	2.8	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	0.5	2.7	1.6	1.3	2.6	2.2	2.5	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	0.4	2.4	2.0	1.5	2.4	2.6	1.0	2.3	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	0.5	2.8	2.5	3.0	2.6	3.6	0.8	2.3	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	0.5	2.7	2.2	2.5	3.1	2.6	1.0	2.5	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	0.7	2.7	1.1	2.6	2.6	2.1	1.0	2.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	0.8	2.8	0.7	2.9	3.1	2.5	1.0	2.5	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	2.4	2.4	0.7	3.0	3.3	2.1	4.1	2.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	0.8	2.4	0.5	2.9	4.9	3.5	0.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	0.6	3.2	0.7	3.0	3.5	4.0	0.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	0.5	3.4	0.8	2.9	2.9	3.3	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	1.0	2.5	1.8	2.9	2.5	4.6	0.3	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	1.2	0.6	1.8	2.5	2.4	3.8	0.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	1.6	1.3	1.5	1.4	2.3	2.7	1.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	1.9	0.6	1.0	0.9	1.6	3.3	3.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	1.5	0.3	0.6	1.0	2.1	2.1	1.9	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	1.6	0.6	0.7	0.8	2.8	4.1	1.4	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	1.5	1.0	0.7	1.2	3.0	3.9	2.7	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	1.4	1.9	2.0	1.5	3.3	2.4	2.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	1.8	3.2	2.9	1.6	3.8	1.7	1.4	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	1.9	3.4	2.9	3.2	4.9	4.6	4.8	3.9	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	0.4	0.3	0.5	0.8	1.6	1.7	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.9	2.0	1.4	2.2	2.7	2.9	1.7	2.5	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Low readings due to reservoir stratification  
 Missing data due to equipment maintenance

### Potato Rapids Headwater Dissolved Oxygen Summary - September 2011



Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/01/11	08/02/11	08/03/11	08/04/11	08/05/11	08/06/11	08/07/11	08/08/11	08/09/11	08/10/11	08/11/11	08/12/11	08/13/11	08/14/11	08/15/11	08/16/11
0						5.6	6.4	5.8	4.4	5.6	5.5	5.7				7.4
10000						5.5	6.8	5.1	4.5	5.5	5.4	6.7				7.5
20000						5.5	7.0	5.1	4.6	5.5	5.4	7.4				7.4
30000						5.5	6.5	5.1	4.5	5.5	5.0	7.0				7.7
40000						5.5	6.0	5.1	4.5	5.5	5.3	6.9				7.2
50000						5.3	5.9	5.0	4.2	5.4	5.1	6.9				6.9
60000						4.9	5.8	4.9	4.0	5.3	5.3	6.2				6.4
70000						4.8	5.7	4.7	4.0	5.3	5.2	5.5				6.2
80000						4.7	5.7	4.7	4.1	4.9	5.3	5.8				6.4
90000						4.6	5.4	5.3	4.2	5.9	6.1	5.3				6.8
100000						5.6	5.9	6.0	5.6	6.4	6.4	6.4				7.5
110000					6.4	6.0	6.2	6.2	6.1	6.6	6.5	7.2			7.1	7.5
120000					6.4	6.4	6.0	5.6	6.6	6.8	6.0	7.1			7.5	7.5
130000					5.9	6.4	5.5	5.7	6.9	7.1	6.2	6.4			7.4	7.3
140000					5.5	6.5	6.2	5.8	7.0	7.3	6.3	6.7			7.5	7.7
150000					5.6	6.2	6.3	5.7	7.1	7.3	5.9	6.7			7.2	7.5
160000					5.5	5.6	6.3	5.3	6.9	6.8	5.9	6.4			7.1	7.0
170000					5.8	5.5	6.3	6.1	7.1	7.2	5.5	5.8			7.1	7.0
180000					5.8	5.9	6.6	5.3	6.5	6.4	5.8				7.5	6.4
190000					5.7	5.5	6.5	5.8	5.9	6.1	5.8				7.1	6.8
200000					6.0	6.1	5.6	5.9	5.4	6.4	6.3				6.9	6.6
210000					5.6	5.9	5.2	5.3	5.8	5.8	6.9				7.0	7.0
220000					6.1	5.8	6.3	4.8	5.8	5.7	6.8				7.4	6.8
230000					6.3	5.3	5.5	4.5	5.8	5.6	6.8				7.2	7.5
															7.0	7.3
Daily Max	0.0	0.0	0.0	0.0	6.4	6.5	7.0	6.2	7.1	7.3	6.9	7.4	0.0	0.0	7.5	7.7
Daily Min	0.0	0.0	0.0	0.0	5.5	4.6	5.2	4.5	4.0	4.9	5.0	5.3	0.0	0.0	6.9	6.2
Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.9	5.6	6.1	5.4	5.5	6.1	5.9	6.5	#DIV/0!	#DIV/0!	7.2	7.1

Missing data due to power failure  
 Low readings due to stratification of reservoir

Missing data due to equipment setup error

License Minimum Dissolved Oxygen: 5.0 mg/l

Potato Rapids Headwater Dissolved Oxygen Summary - August 2011

Time HHMMSS	08/17/11	08/18/11	08/19/11	08/20/11	08/21/11	08/22/11	08/23/11	08/24/11	08/25/11	08/26/11	08/27/11	08/28/11	08/29/11	08/30/11	08/31/11
0	7.4	7.9	8.3	7.4	8.5	5.8	5.3	5.9	5.2	6.0	4.9	5.5	5.7		
10000	7.6	8.5	8.1	6.2	7.2	6.1	5.0	5.4	5.8	5.9	5.3	5.3	5.4		
20000	7.7	7.2	7.7	6.0	7.4	5.9	5.0	5.4	5.6	5.7	4.8	5.4	5.2		
30000	7.4	6.9	6.4	5.7	7.5	5.9	4.9	5.4	5.2	5.6	4.8	5.3	5.2		
40000	7.2	7.1	6.9	5.8	7.2	5.7	5.1	5.2	5.0	5.7	4.7	5.3	5.1		
50000	6.9	7.8	7.6	5.7	6.6	5.7	4.5	5.0	5.0	5.9	4.7	5.2			
60000	6.7	7.7	6.1	5.7	6.4	5.7	4.6	4.7	4.8	5.7	4.7	5.2			
70000	6.8	7.3	5.8	5.7	5.9	5.5	4.9	4.7	6.9	5.0	4.6	5.2			
80000	7.4	6.7	6.2	5.5	5.7	5.5	7.0	4.5	5.8	4.3	4.6	5.3			
90000	7.5	6.3	6.9	5.7	5.8	6.0	6.5	4.9	5.3	4.9	5.7	6.7			
100000	7.2	7.2	7.2	5.4	6.8	6.8	7.6	5.7	6.3	6.1	5.1	6.2			
110000	7.1	7.3	7.3	6.9	7.2	6.8	7.7	6.4	6.2	7.1	5.9	6.5			
120000	7.6	7.1	7.1	7.5	7.4	7.0	7.1	6.7	7.0	6.3	6.6	6.8			
130000	7.5	7.4	7.8	7.1	7.6	6.5	7.0	6.6	7.4	5.6	6.9	6.9			
140000	7.0	7.4	6.5	7.5	7.5	6.6	6.8	6.6	7.2	6.1	6.9	6.8			
150000	6.7	6.9	6.5	7.1	7.8	7.1	6.9	6.7	7.3	6.4	7.4	6.7			
160000	7.1	7.5	6.7	7.5	7.8	6.5	7.0	6.9	7.1	6.5	6.9	6.8			
170000	6.6	6.5	6.8	8.0	7.8	7.0	6.9	6.9	7.1	6.7	7.2	6.9			
180000	7.2	6.7	6.8	8.6	7.8	6.7	7.2	6.7	7.4	6.2	6.7	6.7			
190000	6.9	6.4	7.2	8.7	7.7	5.9	6.3	7.5	7.3	6.1	6.1	6.3			
200000	6.5	6.7	6.9	8.0	7.7	6.7	7.4	6.4	7.1	5.6	6.0	6.1			
210000	8.0	6.5	6.2	7.5	7.6	6.7	7.2	7.8	7.8	5.3	5.8	5.9			
220000	8.3	7.0	6.6	7.8	6.6	6.5	6.7	6.8	7.7	5.1	5.6	6.0			
230000	8.3	7.5	6.3	7.9	5.7	6.1	5.9	6.1	6.7	5.0	5.7	5.7			
Daily Max	8.3	8.5	8.3	8.7	8.5	7.1	7.7	7.8	7.8	7.1	7.4	6.9	5.7	0.0	0.0
Daily Min	6.5	6.3	5.8	5.4	5.7	5.5	4.5	4.5	4.8	4.3	4.6	5.2	5.1	0.0	0.0
Average	7.3	7.1	6.9	6.9	7.1	6.3	6.3	6.0	6.4	5.8	5.7	6.0	5.3	#DIV/0!	#DIV/0!

Missing data due to power failure  
Below water quality standard

Potato Rapids Headwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0			7.1	5.5	6.1	4.6	8.0	8.2	8.6	8.2	7.5	7.9	0.0	0.0	0.0	0.0
10000			7.0	5.1	6.1	4.6	8.2	8.3	8.9	8.6	7.4	8.0	0.0	0.0	0.0	0.0
20000			7.0	5.0	5.9	4.5	8.5	8.0	8.8	8.4	7.8	8.3	0.0	0.0	0.0	0.0
30000			6.3	4.7	5.3	4.5	8.1	7.5	8.4	8.6	7.3	8.3	0.0	0.0	0.0	0.0
40000			5.8	4.8	5.3	4.5	7.1	8.5	8.7	8.5	7.5	8.0	0.0	0.0	0.0	0.0
50000			6.8	4.7	4.9	4.4	6.7	8.5	8.8	8.6	7.2	7.9	0.0	0.0	0.0	0.0
60000			7.3	4.9	4.3	4.4	6.1	8.3	8.2	8.5	7.5	8.0	0.0	0.0	0.0	0.0
70000			7.3	4.8	4.2	5.2	6.0	7.9	8.0	8.4	7.5	7.8	0.0	0.0	0.0	0.0
80000			6.9	4.9	4.2	4.7	5.9	8.0	7.8	8.3	7.5	7.7	0.0	0.0	0.0	0.0
90000			5.4	4.5	4.3	4.8	5.7	8.0	7.4	8.3	7.5	0.0	0.0	0.0	0.0	0.0
100000			5.0	5.4	4.1	5.7	6.4	7.3	7.9	8.1	7.7	0.0	0.0	0.0	0.0	0.0
110000		6.9	5.4	5.7	4.1	6.5	7.4	7.7	8.5	8.3	7.4	0.0	0.0	0.0	0.0	0.0
120000		7.1	5.9	6.3	4.2	6.6	7.3	7.8	8.6	8.0	7.9	0.0	0.0	0.0	0.0	0.0
130000		7.5	6.1	6.3	4.8	6.8	7.4	8.0	8.4	7.7	7.7	0.0	0.0	0.0	0.0	0.0
140000		6.5	6.5	6.4	5.5	7.8	7.5	8.0	8.4	8.1	7.4	0.0	0.0	0.0	0.0	0.0
150000		6.6	6.2	6.0	6.0	6.8	7.6	7.9	8.3	8.2	6.9	0.0	0.0	0.0	0.0	0.0
160000		6.7	6.1	5.7	6.6	7.0	7.8	8.0	8.7	8.1	6.7	0.0	0.0	0.0	0.0	0.0
170000		7.0	6.4	5.4	6.3	6.6	7.9	8.1	8.6	8.2	7.2	0.0	0.0	0.0	0.0	0.0
180000		7.1	6.4	5.2	6.3	6.3	7.8	8.3	8.9	7.9	7.2	0.0	0.0	0.0	0.0	0.0
190000		7.2	6.3	5.1	5.6	7.1	8.2	8.2	9.0	8.1	7.5	0.0	0.0	0.0	0.0	0.0
200000		7.1	5.9	5.8	5.6	7.7	7.8	8.1	8.6	8.1	7.5	0.0	0.0	0.0	0.0	0.0
210000		7.0	6.9	4.8	5.2	7.4	8.1	8.5	8.8	8.0	7.6	0.0	0.0	0.0	0.0	0.0
220000		7.1	5.8	4.7	5.0	7.1	8.0	8.5	8.3	7.3	8.1	0.0	0.0	0.0	0.0	0.0
230000		7.2	5.4	4.7	4.8	8.0	8.1	8.5	8.5	7.4	8.0	0.0	0.0	0.0	0.0	0.0
Daily Max	0.0	7.5	7.3	6.4	6.6	8.0	8.5	8.5	9.0	8.6	8.1	8.3	0.0	0.0	0.0	0.0
Daily Min	0.0	6.5	5.0	4.5	4.1	4.4	5.7	7.3	7.4	7.3	6.7	0.0	0.0	0.0	0.0	0.0
Average	#DIV/0!	7.0	6.3	5.3	5.2	6.0	7.4	8.1	8.5	8.2	7.5	3.0	0.0	0.0	0.0	0.0

Missing data due to power failure

License Minimum Dissolved Oxygen: 5.0 mg/l





**Wisconsin Public Service Corporation**  
(a subsidiary of WPS Resources Corporation)  
700 North Adams Street  
P.O. Box 19001  
Green Bay, WI 54307-9001

September 23, 2011

Mr. Michael Donofrio  
Wisconsin Department of Natural Resources  
101 N Ogden Rd  
Peshtigo, WI 54157

Mr. Nicholas Utrup  
U.S. Fish & Wildlife Service  
Wisconsin Ecological Services Office  
2661 Scott Tower Drive  
New Franken, WI 54229

Dear Mr. Donofrio and Mr. Utrup:

Re: Notice of Deviations from Water Quality Standards – Peshtigo River Hydroelectric Projects

Pursuant to the water quality monitoring plans for Wisconsin Public Service Corporation (WPSC) hydroelectric facilities along the Peshtigo River, WPSC is providing notice of deviations from the dissolved oxygen water quality standard observed at certain monitoring locations between September 9<sup>th</sup> and September 19<sup>th</sup>, 2011. Per the monitoring plans, monitoring for dissolved oxygen is being conducted at the Caldron Falls (FERC No. 2525) and Johnson Falls (FERC No. 2522) hydroelectric projects.

At the Caldron Falls upstream monitoring location, WPSC is monitoring water quality at a location near the powerhouse intake approximately 1 meter off the bottom of the reservoir. Between September 9<sup>th</sup> and 19<sup>th</sup>, deviations from the dissolved oxygen standard were observed at this monitoring location. Dissolved oxygen levels varied between 1.7mg/l and 8.4 mg/l. The cause of the low dissolved oxygen level is due to a natural stratification of the impoundment. Dissolved oxygen levels have improved significantly since September 1<sup>st</sup>, indicating that the stratification of the reservoir is breaking up. No deviations from the license water quality standards were observed downstream of the facility.

At the Johnson Falls Hydroelectric project, the facility began a planned outage for electrical upgrades on September 7<sup>th</sup>. As a result, all water, except for leakage through the units, is being released through spillway gates. On September 9<sup>th</sup>, the water quality monitor was moved downstream approximately 100' from the tailrace monitoring location in order to keep the monitor in flowing water. On September 10<sup>th</sup>, one hourly reading below the water quality standard of 6.0 mg/l was observed. At the time of the low reading, more than 200 cfs of water was being released through the spillway gates. Given the amount of flow being released through the spillway and that the hourly readings immediately before and after the low reading were above 7.0 mg/l, I am certain that the low reading is not representative of actual river conditions. The likely cause of the low reading is an equipment malfunction.

September 23, 2011  
Mr. Donofrio & Mr. Utrup  
Page 2 of 2

There are no other potential deviations from water quality standards to note. Attached for your review is monitoring data from the Caldron Falls headwater and the Johnson Falls monitoring locations. Should you have any questions or concerns, please do not hesitate to call me at (920) 433-1833.

Sincerely,



Mark W. Metcalf  
Environmental Consultant – Air & Water  
Telephone: (920) 433-1833

Attach.

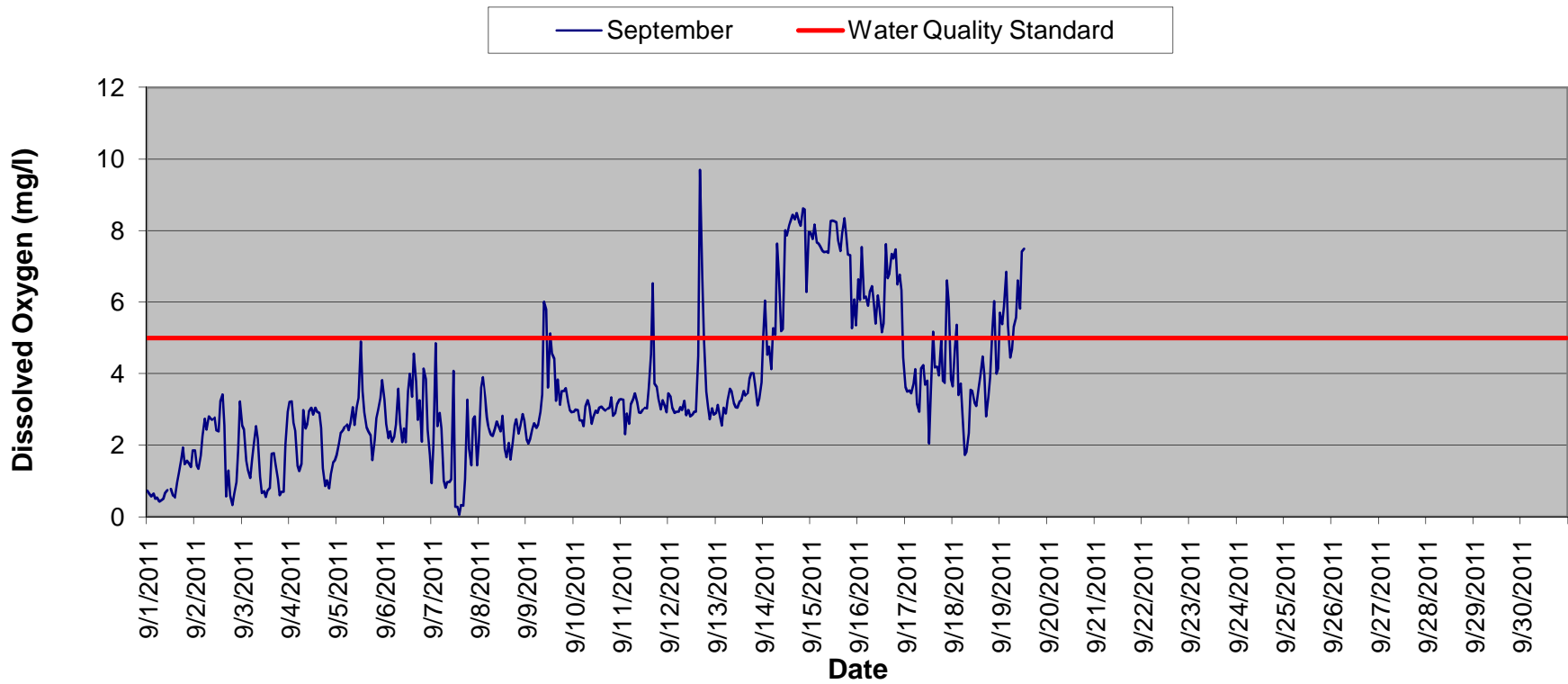
cc: Mr. Shawn Puzen, IBS – D2  
Mr. Bruce Crocker, WPS – D2  
Mr. Ed Brandt, WPS – WM

**Attachments**

**Peshtigo River Hydroelectric Projects**

**Water Quality Monitoring Data**

### Caldron Falls Headwater Dissolved Oxygen - September 2011



Caldron Falls Headwater Dissolved Oxygen Summary - September 2011

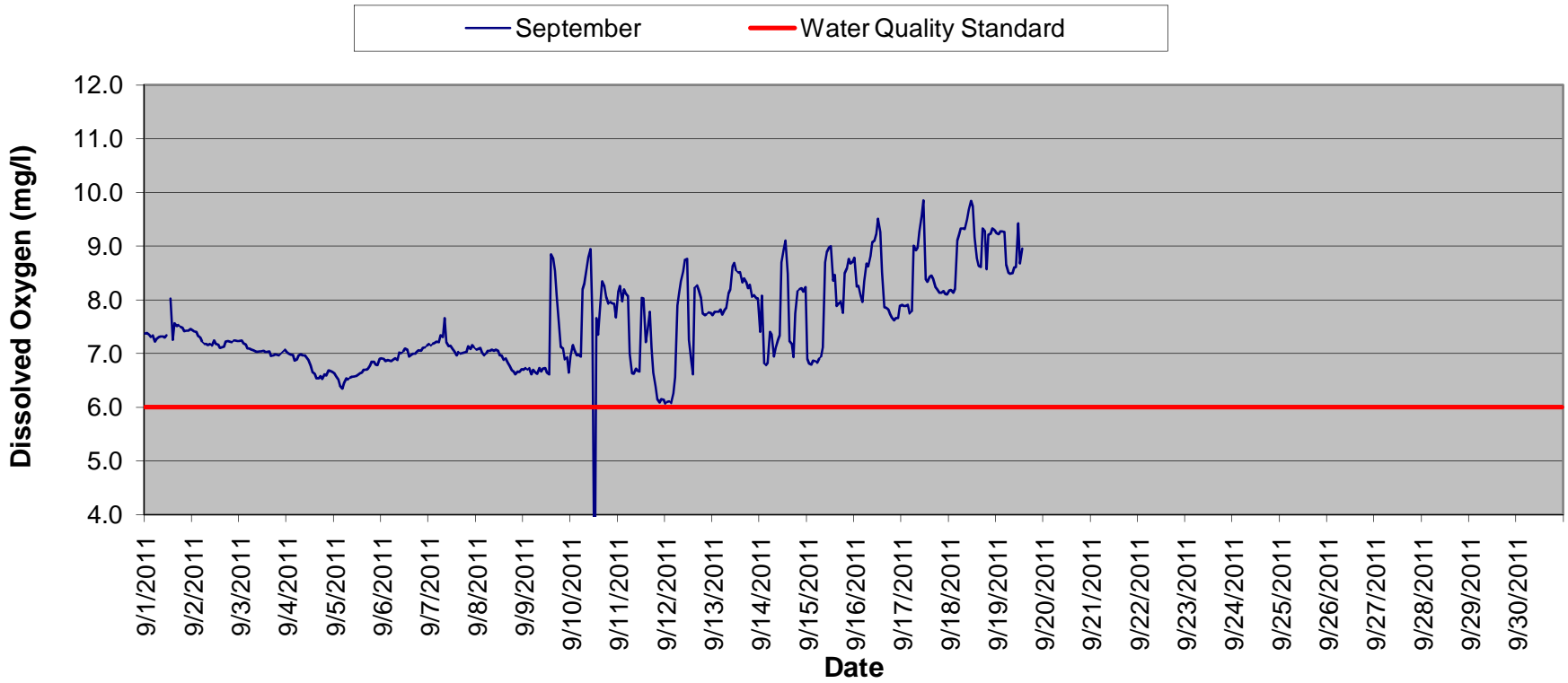
Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	0.7	1.9	2.5	3.2	1.7	3.3	0.9	2.1	2.2	2.9	3.3	3.5	2.9	5.1	7.9	6.6
10000	0.6	1.4	2.4	3.2	2.0	2.6	2.0	3.6	2.0	3.0	3.3	3.4	3.1	6.0	7.8	6.1
20000	0.6	1.3	1.6	2.6	2.3	2.2	4.8	3.9	2.2	3.0	2.3	3.0	2.8	4.5	8.2	7.5
30000	0.7	1.7	1.3	2.4	2.4	2.4	2.5	3.3	2.5	2.7	2.9	2.9	2.5	4.8	7.7	6.1
40000	0.5	2.3	1.1	1.4	2.5	2.1	2.9	2.8	2.6	2.7	2.6	2.9	3.0	4.1	7.6	6.2
50000	0.5	2.7	1.6	1.3	2.6	2.2	2.5	2.5	2.5	2.5	3.2	2.9	2.9	5.3	7.6	5.9
60000	0.4	2.4	2.0	1.5	2.4	2.6	1.0	2.3	2.6	3.1	3.3	3.1	3.3	5.1	7.4	6.3
70000	0.5	2.8	2.5	3.0	2.6	3.6	0.8	2.3	2.9	3.3	3.5	3.0	3.6	7.6	7.4	6.5
80000	0.5	2.7	2.2	2.5	3.1	2.6	1.0	2.5	3.4	3.1	3.2	3.2	3.5	6.8	7.4	6.0
90000	0.7	2.7	1.1	2.6	2.6	2.1	1.0	2.7	6.0	2.6	2.9	2.8	3.2	5.2	7.4	5.4
100000	0.8	2.8	0.7	2.9	3.1	2.5	1.0	2.5	5.8	2.8	2.9	3.0	3.1	5.3	8.3	6.2
110000	0.8	2.4	0.7	3.0	3.3	2.1	4.1	2.4	3.6	3.0	3.0	2.8	3.0	8.0	8.3	5.8
120000	0.8	2.4	0.5	2.9	4.9	3.5	0.3	2.8	5.1	2.9	3.0	2.9	3.2	7.9	8.3	5.2
130000	0.6	3.2	0.7	3.0	3.5	4.0	0.3	1.9	4.6	3.0	3.0	2.9	3.3	8.2	8.2	5.4
140000	0.5	3.4	0.8	2.9	2.9	3.3	0.0	1.7	4.4	3.1	3.6	2.9	3.5	8.3	7.7	7.6
150000	1.0	2.5	1.8	2.9	2.5	4.6	0.3	2.1	3.2	3.0	4.5	4.5	3.4	8.4	7.4	6.7
160000	1.2	0.6	1.8	2.5	2.4	3.8	0.3	1.6	3.8	3.0	6.5	9.7	3.5	8.3	7.9	6.8
170000	1.6	1.3	1.5	1.4	2.3	2.7	1.0	2.1	3.1	3.0	3.7	6.7	3.9	8.5	8.4	7.3
180000	1.9	0.6	1.0	0.9	1.6	3.3	3.3	2.5	3.5	3.0	3.6	5.0	4.0	8.3	7.9	7.2
190000	1.5	0.3	0.6	1.0	2.1	2.1	1.9	2.7	3.5	3.3	3.3	3.5	4.0	8.1	7.3	7.5
200000	1.6	0.6	0.7	0.8	2.8	4.1	1.4	2.3	3.6	2.8	3.0	3.1	3.7	8.6	7.3	6.5
210000	1.5	1.0	0.7	1.2	3.0	3.9	2.7	2.5	3.2	2.9	3.3	2.7	3.1	8.6	5.3	6.8
220000	1.4	1.9	2.0	1.5	3.3	2.4	2.8	2.9	3.0	3.2	3.1	3.0	3.3	6.3	6.1	6.3
230000	1.8	3.2	2.9	1.6	3.8	1.7	1.4	2.7	2.9	3.3	2.9	2.9	3.8	8.0	5.4	4.4
Daily Max	1.9	3.4	2.9	3.2	4.9	4.6	4.8	3.9	6.0	3.3	6.5	9.7	4.0	8.6	8.4	7.6
Daily Min	0.4	0.3	0.5	0.8	1.6	1.7	0.0	1.6	2.0	2.5	2.3	2.7	2.5	4.1	5.3	4.4
Average	0.9	2.0	1.4	2.2	2.7	2.9	1.7	2.5	3.4	3.0	3.3	3.6	3.3	6.9	7.5	6.3

Low readings due to reservoir stratification  
 Missing data due to equipment maintenance

Caldron Falls Headwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	3.6	3.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	3.5	4.8	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	3.5	5.4	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	3.5	3.4	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	3.7	3.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	4.1	2.9	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	3.2	1.7	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	2.9	1.8	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	4.1	2.3	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	4.2	3.6	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	3.7	3.5	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	3.8	3.2	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	2.1	3.1	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	3.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	5.2	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	4.2	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	4.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	4.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	4.9	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	3.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	3.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	6.6	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	6.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	3.8	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	6.6	6.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	2.1	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	4.0	3.7	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

### Johnson Falls Tailwater Dissolved Oxygen - September 2011



Johnson Falls Tailwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/01/11	09/02/11	09/03/11	09/04/11	09/05/11	09/06/11	09/07/11	09/08/11	09/09/11	09/10/11	09/11/11	09/12/11	09/13/11	09/14/11	09/15/11	09/16/11
0	7.4	7.4	7.2	7.0	6.6	6.9	7.2	7.1	6.7	7.0	8.1	6.1	7.7	7.4	6.9	8.8
10000	7.4	7.4	7.2	7.0	6.6	6.9	7.1	7.1	6.7	7.2	8.3	6.1	7.8	8.1	6.8	8.3
20000	7.3	7.4	7.2	7.0	6.5	6.9	7.2	7.1	6.7	7.1	8.0	6.1	7.8	6.8	6.8	8.3
30000	7.3	7.3	7.2	7.0	6.4	6.9	7.2	7.0	6.7	7.0	8.2	6.1	7.8	6.8	6.9	8.1
40000	7.3	7.3	7.1	6.9	6.3	6.9	7.2	7.0	6.6	7.0	8.1	6.3	7.8	6.8	6.9	8.0
50000	7.2	7.2	7.1	6.9	6.5	6.9	7.2	7.0	6.7	6.9	8.1	6.6	7.7	7.4	6.8	8.3
60000	7.3	7.2	7.1	7.0	6.5	6.9	7.3	7.1	6.6	8.2	7.0	7.9	7.8	7.4	6.9	8.7
70000	7.3	7.2	7.1	7.0	6.5	6.9	7.3	7.0	6.6	8.3	6.6	8.1	7.9	6.9	6.9	8.6
80000	7.3	7.2	7.0	7.0	6.6	6.9	7.7	7.1	6.7	8.6	6.6	8.4	8.1	7.1	7.1	8.8
90000	7.3	7.2	7.0	7.0	6.6	7.0	7.2	7.1	6.7	8.8	6.7	8.5	8.2	7.3	8.7	9.1
100000	7.3	7.2	7.0	6.9	6.6	7.0	7.1	7.1	6.7	8.9	6.7	8.7	8.6	7.3	8.9	9.1
110000	7.3	7.2	7.0	6.9	6.6	7.0	7.1	7.1	6.7	7.7	6.7	8.8	8.7	8.7	9.0	9.2
120000		7.2	7.0	6.8	6.6	7.1	7.1	7.0	6.6	1.9	8.0	7.3	8.6	8.9	9.0	9.5
130000	8.0	7.2	7.0	6.7	6.6	7.1	7.0	7.0	6.6	7.7	8.0	6.9	8.5	9.1	8.4	9.3
140000	7.3	7.1	7.0	6.6	6.6	6.9	7.0	6.9	8.9	7.4	7.2	6.6	8.5	8.5	8.5	8.5
150000	7.6	7.1	7.0	6.5	6.7	7.0	7.0	6.9	8.8	7.9	7.4	8.2	8.3	7.2	7.9	7.9
160000	7.5	7.1	7.0	6.5	6.7	7.0	7.0	6.8	8.5	8.4	7.8	8.3	8.4	7.2	7.9	7.9
170000	7.5	7.2	7.0	6.6	6.7	7.0	7.0	6.8	8.1	8.3	7.1	8.2	8.3	6.9	8.0	7.8
180000	7.5	7.2	7.0	6.5	6.8	7.0	7.0	6.7	7.5	8.1	6.6	8.0	8.2	7.8	7.8	7.7
190000	7.5	7.2	7.0	6.6	6.9	7.1	7.0	6.7	7.1	7.9	6.4	7.8	8.3	8.2	8.5	7.7
200000	7.4	7.2	7.0	6.6	6.8	7.1	7.1	6.6	7.1	8.0	6.2	7.7	8.1	8.2	8.6	7.6
210000	7.4	7.2	7.0	6.7	6.8	7.1	7.1	6.7	6.9	7.9	6.1	7.7	8.1	8.2	8.8	7.7
220000	7.4	7.2	7.0	6.7	6.8	7.1	7.2	6.7	6.9	7.9	6.2	7.8	8.0	8.2	8.7	7.7
230000	7.5	7.2	7.1	6.7	6.9	7.1	7.1	6.7	6.6	7.7	6.1	7.8	8.0	8.2	8.7	7.9
Daily Max	8.0	7.4	7.2	7.0	6.9	7.1	7.7	7.1	8.9	8.9	8.3	8.8	8.7	9.1	9.0	9.5
Daily Min	7.2	7.1	7.0	6.5	6.3	6.9	7.0	6.6	6.6	1.9	6.1	6.1	7.7	6.8	6.8	7.6
Average	7.4	7.2	7.1	6.8	6.6	7.0	7.1	6.9	7.1	7.6	7.2	7.5	8.1	7.7	7.9	8.3

License Minimum Dissolved Oxygen: 6.0 mg/l

Low reading on 9/10 is an anomaly. Likely an equipment malfunction.

Powerhouse off-line for scheduled maintenance. All water, except for leakage through units, being released through gates.

Missing data due to equipment maintenance.



Johnson Falls Tailwater Dissolved Oxygen Summary - September 2011

Time HHMMSS	09/17/11	09/18/11	09/19/11	09/20/11	09/21/11	09/22/11	09/23/11	09/24/11	09/25/11	09/26/11	09/27/11	09/28/11	09/29/11	09/30/11
0	7.9	8.2	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10000	7.9	8.2	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20000	7.9	8.1	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30000	7.9	8.2	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40000	7.8	9.1	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50000	7.8	9.2	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60000	9.0	9.3	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70000	8.9	9.3	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80000	9.0	9.3	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90000	9.3	9.5	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100000	9.6	9.7	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110000	9.9	9.8	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120000	8.4	9.7	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130000	8.3	9.2	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140000	8.4	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150000	8.5	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160000	8.4	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170000	8.2	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180000	8.2	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190000	8.1	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200000	8.1	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210000	8.2	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220000	8.1	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230000	8.1	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Max	9.9	9.8	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Min	7.8	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	8.4	9.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Document Content(s)

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