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

October 15, 2021

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

Dear Ms. Laatch:

SUBJECT: 2021 Water Quality Monitoring Report

Hydro	FERC Project No.	NATDAM No.	License Article
Grand Rapids	**2433**	**MI00022**	**407**

In accordance with the Order Approving Water Quality Monitoring Plan under Article 407, dated April 7, 1999, Wisconsin Public Service Corporation (WPS) is submitting water quality monitoring data collected during the 2021 monitoring season at the Grand Rapids Hydroelectric project for your review and comment.

At the Grand Rapids facility, WPS is required to ensure that flow releases from the Grand Rapids Project maintain the state standards listed below except when the river flow in the Menominee River is less than the 95 percent exceedance flow or when natural conditions prohibit attainment of the standards:

(1) Monthly average temperatures downstream of the Grand Rapids Dam shall be no greater than those listed below:

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

(2) Temperature downstream of the Grand Rapids Project Dam shall not exceed 89°F at any time.

(3) DO concentrations downstream of the project powerhouse must not be less than 5.0 milligrams per liter (mg/L) at any time.

(4) Maintain pH within the range of 6.0 to 9.0, with no change greater than 0.5 units outside the estimated natural seasonal maximum and minimum.

Water quality monitoring was conducted upstream and downstream of the powerhouse from June 1 through September 30. A photo showing the monitoring locations can be found in Figure 1. Monitoring for DO, temperature, and pH was conducted continuously on an hourly basis using portable water quality monitoring equipment manufactured by YSI, Inc. The instrumentation was cleaned and calibrated according to manufacturer specification at least once every 14 days during the monitoring period. A post deployment calibration was conducted to determine the extent of calibration drift. Raw data was adjusted assuming a linear degradation of calibration based upon a post calibration of the equipment. The water quality monitoring equipment used to monitor DO has an accuracy of +/- 0.1 mg/l, per the manufacturer.

No deviations from the dissolved oxygen, pH or temperature water quality standards were observed at the upstream or downstream monitoring locations. During the 2021 monitoring season DO levels were continuously above 6.0 mg/l, pH levels fluctuated between a low of 7.7 standard units (s.u.) and a high of 8.5 s.u., and all daily average temperatures were below the applicable standard for the respective month. At no time did water temperatures exceed the License maximum temperature of 89°F. Attached for your review are spreadsheets containing the water quality monitoring data in tabular and graphical format. For your convenience, a spreadsheet containing a comparison of the upstream and downstream monitoring data is included. Please note that WPS initiated a drawdown of the impoundment on September 11, 2021 to support maintenance of spillway gates. No adverse impacts to water quality were observed during the drawdown period.

Future Monitoring

Water quality monitoring at the facility is scheduled to occur in 2024 and every five years thereafter for the term of the License.

Please review the enclosed data and provide any comments you may have within 30 days of this letter. Should you have any questions or concerns, feel free to call me at (920) 433-1833.

Sincerely,

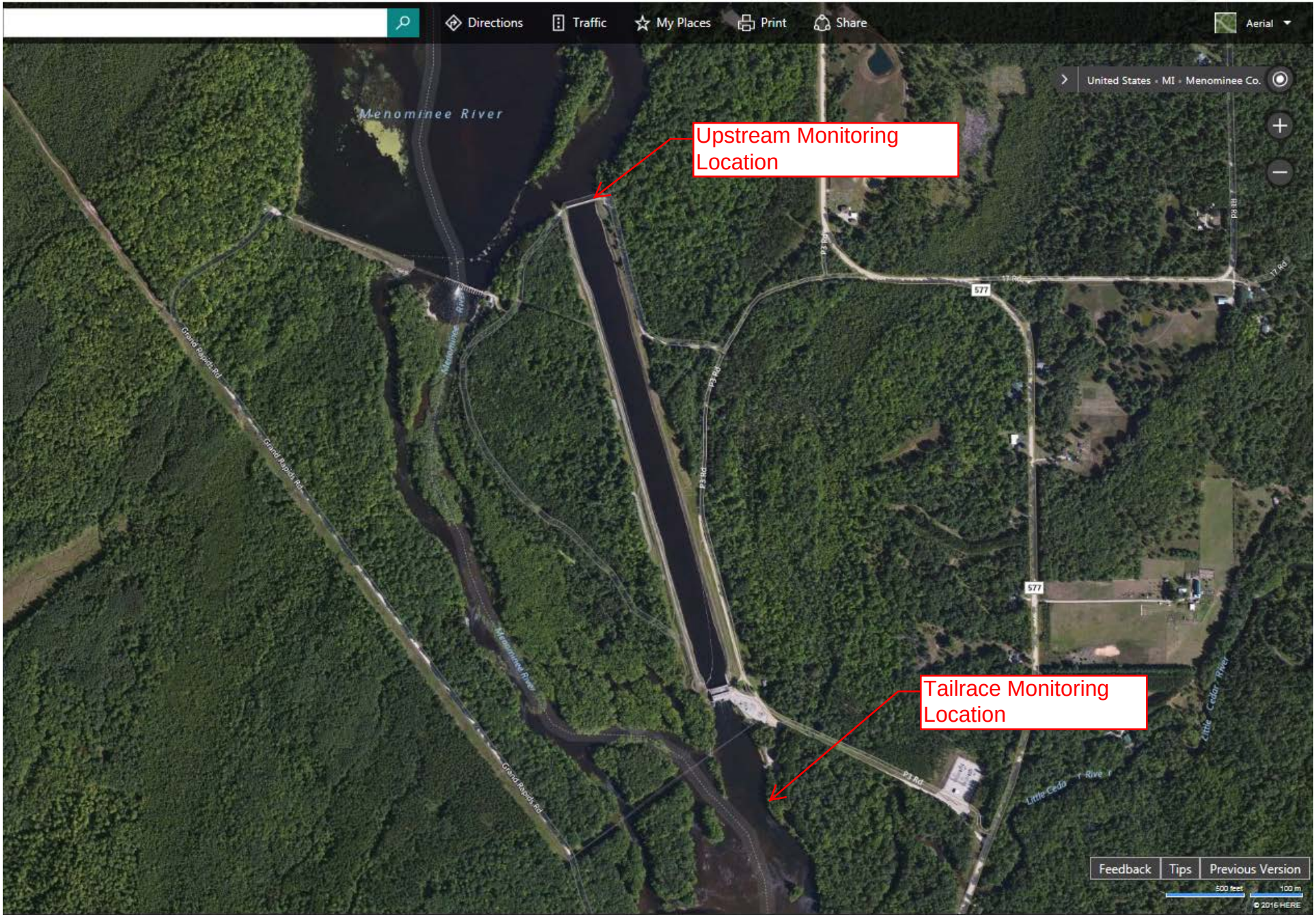
Mark Metcalf

Mark Metcalf
Principal Environmental Consultant

Enc. 2021 Water quality monitoring data (7 spreadsheets)

cc: Mr. Bill Bosacki
Mr. Mike Grisar

Figure 1 - Grand Rapids Hydroelectric Project - Water Quality Monitoring Locations



Upstream Monitoring Location: Approx. 45 21'49", 87 39' 9"

Tailrace Monitoring Location: Approx. 45 21'10", 87 38' 53"