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FEDERAL ENERGY
REGULATORY COMMISSION

Wisconsin Public Service Corporation
(a subsidiary of WPS Resources Corporation)
600 North Adams Street
P.O. Box 19002
Green Bay, WI 54307-9002

June 17, 1998

N

The Secretary
Federal Energy Regulatory Commission
Mail Code: DLC, HL-11.2
888 1st Street N.E
Washington, DC 20426
Attention: Director, Office of Hydropower Licensing

Dear Secretary:

Project No. 2522-011 - Johnson Falls

Enclosed is the original and eight copies of the Water Quality Monitoring Plan for the Johnson Falls Hydroelectric Project (FERC Project No. 2522) as per Article 407 of the Order Issuing New License dated June 26, 1997.

Documentation of Agency Consultation with responses to the agency comments are included with this submittal.

If you have any questions, please call me at (920) 433-5515 or you can contact Mr. W. A. Bloczynski, Hydro Operations Coordinator, at (715) 539-4016.

Sincerely,

Ronald H Schmidt for

Charles A. Schrock
Vice President - Energy Supply

WAB/jfj

cc - R. A. Lesniak, FERC (Chicago)
W. A. Bloczynski, WPSC (Merrill Hydro)
B. E. Crocker, WPSC (Crivitz)
S. C. Puzen, WPSC (A2)
R. H. Schmidt, WPSC (D2)

Enclosure

FERC - DOCKETED
JUN 19 1998

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Article 407 The licensee shall with the Commission, for approval, a plan to monitor dissolved oxygen (DO), water temperature, and pH of the Peshtigo River upstream and downstream of the Johnson Falls dam.

Water Quality Monitoring Plan

Objective: Implement a system-wide monitoring plan to ensure that flow releases from the project, as measured immediately downstream from the dam, maintain the following standards, except when natural conditions prohibit attainment of the standards: (1) DO concentrations shall not be less than 6.0 milligrams per liter (mg/L) at any time and not less than 7.0 mg/L during the spawning season; (2) water temperature shall not exceed 89 degrees Fahrenheit; and (3) the pH shall be within the range of 6.0 to 9.0, with no change greater than 0.5 units outside the estimated natural seasonal maximum and minimum.

I. Methods

A. The monitoring parameters will include, pH, dissolved oxygen, and temperature. The data will be collected at one hour intervals continuously after the project operation has changed from run-of-river for the months of June, July, August, and September using a Hydrolab Datasonde or equivalent. All instrumentation will be cleaned, downloaded, and calibrated according to manufacturer's specification every 7-10 days during the monitoring period. Calibration information will be recorded in a maintenance log for each piece of equipment.

II. Location of Monitoring

A. The monitoring equipment will be sited directly in the tailwater. The exact placement of the monitoring equipment will be determined through consultation with Wisconsin Department of Natural Resources (WDNR) Water Quality Personnel.

III. Frequency of Survey

A. The monitoring will begin in 1999 and will again be conducted in 2000. Following the 1999 and 2000 data collection, the monitoring will again be conducted in 2004 and be conducted for the remaining term of the license on a five year schedule.

IV. Data Submittal and Review

A. When data is downloaded from the equipment, it will be screened for periods of non-

Article 407 continued:

compliance with state standards. If periods of non-compliance are identified, the WDNR will be notified within five working days. The results of the monitoring will be supplied to the Wisconsin Department of Natural Resources (WDNR) Water Quality personnel and the U. S. Fish and Wildlife Service (USFWS) in a tabular format in an Excel spreadsheet by November 30th of the year in which the monitoring occurred.

B. The agencies will be given 30 days for review of the results of the study. The monitoring results, agency comments and responses to agency comments will be provided to the Federal Energy Commission (FERC) by February 28th of the year following the year in which monitoring occurred.

V. Correction of Potential Problems

A. When data is downloaded from the equipment, it will be screened for periods of non-compliance with state standards. If periods of non-compliance due to project operations at times other than when natural conditions prohibit attainment of the standards, or when the river flow is less than 95 percent exceedance flow, are identified, the WDNR will be notified within five working days. WPSC will consult with agency water quality personnel on strategies to eliminate future occurrences of the periods.

VI. Documentation of Consultation

A. Initial consultation on the design of this plan was conducted with the WDNR on March 23, 1998. Further consultation was solicited from the WDNR and USFWS on May 6, 1998. Requests for agency comments along with responses to agency comments are included in Appendix A.

Appendix A

Documentation of Consultation

Wisconsin Public Service Corporation
(a subsidiary of WPS Resources Corporation)
700 North Adams Street
PO Box 19002
Green Bay, WI 54307-9002

May 6, 1998

Mr. Tom Thuemler
Wisconsin Dept. of Natural Resources
101 N. Ogden Road
Peshtigo, WI 54157

Dear Tom:

Re: Draft Peshtigo River Hydroelectric Projects Water Quality Monitoring Plans

We would appreciate your comments and concerns associated with the enclosed Draft Water Quality Monitoring Plans for the following Peshtigo River Hydroelectric Projects:

Project Name	FERC Project No.
High Falls	2595
Caldron Falls	2525
Johnson Falls	2522
Potato Rapids	2560
Peshtigo	2581
Sandstone Rapids	2546

Could you please provide comments and concerns to me within thirty days of receiving this letter. Thank-you, and I look forward to hearing from you very soon.

Sincerely,

Shawn C. Puzen
Environmental Analyst
(920) 433-1094

vav

Enclosure

Wisconsin Public Service Corporation
(a subsidiary of WPS Resources Corporation)
700 North Adams Street
P.O. Box 19002
Green Bay, WI 54307-9002

May 6, 1998

Mr. Jim Fossum
U.S. Fish and Wildlife Service
1015 Challenger Court
Green Bay, WI 54311

Dear Jim:

Re: Draft Peshtigo River Hydroelectric Projects Water Quality Monitoring Plans

We would appreciate your comments and concerns associated with the enclosed Draft Water Quality Monitoring Plans for the following Peshtigo River Hydroelectric Projects:

Project Name	FERC Project No.
High Falls	2595
Caldron Falls	2525
Johnson Falls	2522
Potato Rapids	2560
Peshtigo	2581
Sandstone Rapids	2546

Could you please provide comments and concerns to me within thirty days of receiving this letter. Thank-you, and I look forward to hearing from you very soon.

Sincerely,

Shawn C. Puzen
Environmental Analyst
(920) 433-1094

vav

Enclosure

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary
William R. Selbig, District Director

Department of Natural Resources
Box 127, 101 N. Ogden Rd.
Peshtigo, Wisconsin 54157
TELEPHONE 715-582-5000
FAX 582-5005

June 2, 1998

IN REPLY REFER TO: 3600

Mr. Shawn Puzen
Wisconsin Public Service Corporation
700 N. Adams
P.O. Box 19002
Green Bay, WI 54307

SUBJECT: Comments on Water Quality Monitoring Plans for the Peshtigo River Hydroelectric Projects (FERC No. 2525, 2522, 2546, 2560, 2581, 2595)

Dear Shawn:

The following are the Wisconsin Department of Natural Resources (WDNR) comments on the draft water quality monitoring plans on the Peshtigo River Hydroelectric Projects that you submitted to us for review.

These plans fall far short of what we had discussed at our consultation meeting on March 23, 1998 on this issue. Because past water quality studies at three of these projects have shown that you are not currently meeting state water quality standards, it is imperative that well thought out intensive monitoring take place at these projects.

Our specific comments by project follow:

Article 409 - Caldron Falls Project FERC No. 2525

The monitoring plan that you have proposed is unacceptable to the WDNR. As mentioned in the order issuing the license for this project, the Caldron Falls Project has not met state water quality standards for dissolved oxygen (DO) in the past. At our March 23, 1998 consultation meeting with you, we discussed the possibility of looking for a solution to the low DO levels in the tailrace of this project prior to starting the water quality monitoring program. We know that a problem exists, further monitoring of this problem will not do much to solve it. A number of possible remedies to the low DO levels were discussed at our consultation meeting. Air or water could be injected into the turbine. Plates could be placed over the lower portion of the penstock intake. Run-of-river flows could be provided through the project during the period when low DO levels are pervasive. Some monitoring would be needed to assess the value of any of these proposed fixes. Once it was felt a solution to the problem was found and implemented, then the monitoring schedule could commence. The WDNR feels that this is the most appropriate way to resolve this issue and assure that state water quality

standards are being met at this project. If a solution to the low DO levels at the Caldron Falls Project cannot be found within two years of FERC's approval of this plan, then the run-of-river mode of operation should be mandated until such time as an alternate fix is found. Run-of-river flows at this project will assure that state water quality standards are being met and the aquatic resources are being protected.

Once a solution to the low DO levels has been found and implemented at the Caldron Falls Project then the following water quality monitoring should be conducted as required by Article 409 of your license..

Monitoring Plan

1. Monitoring Locations/Equipment:

Continuous monitoring of DO, water temperature and pH should occur at two locations; in the tailrace of the project, immediately below the powerhouse, and upstream from the project reservoir in the Peshtigo River. The downstream monitoring site should be located as close to the powerhouse as practical. The WDNR will not allow for a mixing zone to meet the DO, temperature or pH water quality standards, as your proposed plan seems to imply. If the licensee agrees that any violations of water quality standards are due to project operation and are not the result of background water quality, coming into the project, then the upstream sampling site can be eliminated. The exact placement of the water monitoring instruments should be decided in consultation with WDNR water resources staff.

Continuous monitoring instruments should be used. The instruments need to be cleaned and calibrated weekly. The DO measurements need to be air calibrated per the manufacturer's specification and water temperature should be checked with a National Institute of Science and Technology certified thermometer. The DO meter error or drift at the end of an unattended monitoring period needs to be less than 1 mg/l - 70 percent of the time. A maintenance log should be kept on each DO monitoring unit. More frequent service visits shall be scheduled if this criterion is not met.

2. Monitoring Schedule:

Annual monitoring will commence once the Caldron Falls Project switches to a peaking mode of operation each summer and will terminate on or after September 30. This schedule should be maintained for two years and then once every five years for the duration of the license unless the schedule is revised by FERC.

3. Data Reporting

As recorded data is downloaded from the instrument to a computer, data should be screened for compliance with state standards. If any violations of state water quality standards are found, the WDNR should be informed immediately. If violations are found the project should immediately be switched to run-of-river operation. Assuming that no violations are noted, the data should be stored on computer and backed up with a hard copy. If requested by the WDNR, the licensee should make any data available for review within ten working days.

Absent special requests, data summaries consisting of data plots or graphed data for the sampling season should be prepared and filed with FERC and the resource agencies (WDNR and the U.S. Fish and Wildlife Service) no later than December 30, of each year. The raw data should be placed on diskette and provided to the agencies along with this annual report.

Article 406 - High Falls Project FERC No. 2595

The monitoring plan that you have proposed is unacceptable to the WDNR. As mentioned in the order issuing the license for this project, the High Falls Project has not met state water quality standards for dissolved oxygen (DO) in the past. At our March 23, 1998 consultation meeting with you, we discussed the possibility of looking for a solution to the low DO levels in the tailrace of this project prior to starting the water quality monitoring program. We know that a problem exists, further monitoring of this problem will not do much to solve it. You mentioned during our consultation meeting that you could do some monitoring of a minimum flow turbine unit at the project to determine if you could meet state water quality standards by using this unit. Run-of-river flows could be provided through the project during the period when low DO levels are pervasive. Some monitoring would be needed to assess the value of either of these proposed fixes. Once it was felt a solution to the problem was found and implemented, then the monitoring schedule could commence. The WDNR feels that this is the most appropriate way to resolve this issue and assure that state water quality standards are being met at this project. If a solution to the low DO levels at the High Falls Project cannot be found within two years of FERC's approval of this plan, then the run-of-river mode of operation should be mandated until such time as an alternate fix is found. Run-of-river flows at this project will assure that state water quality standards are being met and the aquatic resources are being protected.

Once a solution to the low DO levels has been found and implemented at the High Falls Project then the following water quality monitoring should be conducted as required by Article 406 of your license..

Monitoring Plan

1. Monitoring Locations/Equipment:

Continuous monitoring of DO, water temperature and pH should occur in the tailrace of the project, immediately below the powerhouse. The monitoring site should be located as close to the powerhouse as practical. The WDNR will not allow for a mixing zone to meet the DO, temperature or pH water quality standards, as your proposed plan seems to imply. The exact placement of the water monitoring instruments should be decided in consultation with WDNR water resources staff. The data collected in the tailwater of the Caldron Falls Project, assuming that the water quality monitoring at both projects takes place in the same year, could be used instead of an upstream monitoring location.

Continuous monitoring instruments should be used. The instruments need to be cleaned and calibrated weekly. The DO measurements need to be air calibrated per the manufacturer's specification and water temperature should be checked with a National Institute of Science and Technology certified thermometer. The DO meter error or drift at the end of an unattended monitoring period needs to be less than 1 mg/l - 70 percent of the time. A maintenance log

should be kept on each DO monitoring unit. More frequent service visits shall be scheduled if this criterion is not met.

2. Monitoring Schedule:

Annual monitoring will commence once the High Falls Project switches to a peaking mode of operation each summer and will terminate on or after September 30. This schedule should be maintained for two years and then once every five years for the duration of the license unless the schedule is revised by FERC.

3. Data Reporting

As recorded data is downloaded from the instrument to a computer, data should be screened for compliance with state standards. If any violations of state water quality standards are found, the WDNR should be informed immediately. If violations are found the project should immediately be switched to run-of-river operation. Assuming that no violations are noted, the data should be stored on computer and backed up with a hard copy. If requested by the WDNR, the licensee should make any data available for review within ten working days.

Absent special requests, data summaries consisting of data plots or graphed data for the sampling season should be prepared and filed with FERC and the resource agencies (WDNR and the U.S. Fish and Wildlife Service) no later than December 30, of each year. The raw data should be placed on diskette and provided to the agencies along with this annual report.

Article 407 - Johnson Falls Project FERC No. 2522

The monitoring plan that you have proposed is unacceptable to the WDNR. As mentioned in the order issuing the license for this project, the Johnson Falls Project has not met state water quality standards for dissolved oxygen (DO) in the past. The objective statement of your proposed plan states the wrong water quality standards for this project. The DO and temperature standards that apply to this project are correctly given in Article 407 of the license; DO concentrations shall not be less than 6.0 milligrams per liter (mg/L) at any time and not less than 7.0 mg/L during the spawning season; water temperature shall not be altered from natural background to such an extent that trout populations are adversely affected. At our March 23, 1998 consultation meeting, you felt that the increased minimum flow required at this project will allow you to meet these water quality standards. Once FERC approves your water quality monitoring plan you could start sampling, however if you plan on using the tailwater monitoring at the High Falls Project for the background water quality for the Johnson Falls Project then you would have to wait with the initiation of the water quality monitoring until you can meet compliance at the two upstream projects. The WDNR would also prefer to have all of the water quality monitoring at the six Peshtigo Projects take place during the same calendar years.

Once a solution to the low DO levels occurring at the upstream projects has been found and implemented then the following water quality monitoring should be conducted as required by Article 407 of your Johnson Falls Project license..

Monitoring Plan

1. Monitoring Locations/Equipment:

Continuous monitoring of DO, water temperature and pH should occur in the tailrace of the project, immediately below the powerhouse. The monitoring site should be located as close to the powerhouse as practical. The WDNR will not allow for a mixing zone to meet the DO, temperature or pH water quality standards. The exact placement of the water monitoring instruments should be decided in consultation with WDNR water resources staff. The data collected in the tailwater of the High Falls Project, assuming that the water quality monitoring at both projects takes place in the same year, could be used instead of an upstream monitoring location.

Continuous monitoring instruments should be used. The instruments need to be cleaned and calibrated weekly. The DO measurements need to be air calibrated per the manufacturer's specification and water temperature should be checked with a National Institute of Science and Technology certified thermometer. The DO meter error or drift at the end of an unattended monitoring period needs to be less than 1 mg/l - 70 percent of the time. A maintenance log should be kept on each DO monitoring unit. More frequent service visits shall be scheduled if this criterion is not met.

2. Monitoring Schedule:

Annual monitoring will commence once the Johnson Falls Project switches to a peaking mode of operation each summer and will terminate on or after November 1. Monitoring at this project needs to continue until November 1, as state water quality standards for DO are 7.0 mg/L during the trout spawning season, which occurs in late September and October. If the initial year of sampling shows that DO levels are well above the 7.0 mg/L standard in October, then future years sampling could be terminated at the end of September. This decision should be made by the resource agencies after receiving the annual report for the first year of sampling. Water quality monitoring should be maintained for two years and then once every five years for the duration of the license unless the schedule is revised by FERC.

3. Data Reporting

As recorded data is downloaded from the instrument to a computer, data should be screened for compliance with state standards. If any violations of state water quality standards are found, the WDNR should be informed immediately. If violations are found the project should immediately be switched to run-of-river operation. Assuming that no violations are noted, the data should be stored on computer and backed up with a hard copy. If requested by the WDNR, the licensee should make any data available for review within ten working days.

Absent special requests, data summaries consisting of data plots or graphed data for the sampling season should be prepared and filed with FERC and the resource agencies (WDNR and the U.S. Fish and Wildlife Service) no later than December 30, of each year. The raw data should be placed on diskette and provided to the agencies along with this annual report.

4. Correction of Potential Problems

The proposed plan does not mention how water quality problems would be corrected, if the monitoring shows that these problems are occurring. As mentioned in No. 3 above, if violations are found the Johnson Falls Project and all upstream projects should immediately be switched to run-of-river operation. Run-of-river operation would assure that state standards are being met.

Article 408 - Sandstone Rapids Project FERC No. 2546

The monitoring plan for the Sandstone Rapids Project should include the following items.

Monitoring Plan

1. Monitoring Locations/Equipment:

Continuous monitoring of DO, water temperature and pH should occur in the tailrace of the project, immediately below the powerhouse. The monitoring site should be located as close to the powerhouse as practical. The WDNR will not allow for a mixing zone to meet the DO, temperature or pH water quality standards. The exact placement of the water monitoring instruments should be decided in consultation with WDNR water resources staff. The data collected in the tailwater of the Johnson Falls Project, assuming that the water quality monitoring at both projects takes place in the same year, could be used instead of collecting data at an additional upstream monitoring location.

Continuous monitoring instruments should be used. The instruments need to be cleaned and calibrated weekly. The DO measurements need to be air calibrated per the manufacturer's specification and water temperature should be checked with a National Institute of Science and Technology certified thermometer. The DO meter error or drift at the end of an unattended monitoring period needs to be less than 1 mg/l - 70 percent of the time. A maintenance log should be kept on each DO monitoring unit. More frequent service visits shall be scheduled if this criterion is not met.

2. Monitoring Schedule:

Monitoring should commence once the Sandstone Rapids Project switches to a peaking mode of operation in the summer and terminate on or after September 30. Your proposed plan calling for water quality monitoring to begin in 2004 is unacceptable. Article 408 of your license calls for implementation of the monitoring program within 24 months from the date of license issuance. This means monitoring would have to start in the summer of 1999. The WDNR would support an amendment to your license to allow you to begin water quality monitoring at the Sandstone Rapids Project the same year that monitoring of the upstream projects begins. Water quality monitoring should be repeated once every five years for the duration of the license unless the schedule is revised by FERC.

3. Data Reporting

As recorded data is downloaded from the instrument to a computer, data should be screened for compliance with state standards. If any violations of state water quality standards are found, the WDNR should be informed immediately. If violations are found the project should immediately

be switched to run-of-river operation. Assuming that no violations are noted, the data should be stored on computer and backed up with a hard copy. If requested by the WDNR, the licensee should make any data available for review within ten working days.

Absent special requests, data summaries consisting of data plots or graphed data for the sampling season should be prepared and filed with FERC and the resource agencies (WDNR and the U.S. Fish and Wildlife Service) no later than December 30, of each year. The raw data should be placed on diskette and provided to the agencies along with this annual report.

4. Correction of Potential Problems

The proposed plan does not mention how water quality problems would be corrected, if the monitoring shows that these problems are occurring. As mentioned in No. 3 above, if violations are found the Sandstone Rapids Project and all upstream projects should immediately be switched to run-of-river operation. Run-of-river operation would assure that state standards are being met.

Article 406 - Potato Rapids Project FERC No. 2560

The monitoring plan for the Potato Rapids Project should include the following items.

Monitoring Plan

1. Monitoring Locations/Equipment:

Continuous monitoring of DO, water temperature and pH should occur in the tailrace of the project and above the project's reservoir. Monitoring water quality directly in front of the trash racks at the powerhouse, as proposed in your plan, is unacceptable to the WDNR. Background water quality should be defined as the river's water quality as it enters the project and not the water quality of the impoundment at the powerhouse. The project impoundment has an impact on water quality in the Peshtigo River. This should not be considered as the background water quality of the Peshtigo river entering the project. The tailwater monitoring site should be located as close to the powerhouse as practical. The WDNR will not allow for a mixing zone to meet the DO, temperature or pH water quality standards. The upstream water quality monitoring site should be near the County Trunk Highway D bridge that crosses the Peshtigo River just upstream from the Potato Rapids Flowage. The exact placement of the water monitoring instruments should be decided in consultation with WDNR water resources staff.

Continuous monitoring instruments should be used. The instruments need to be cleaned and calibrated weekly. The DO measurements need to be air calibrated per the manufacturer's specification and water temperature should be checked with a National Institute of Science and Technology certified thermometer. The DO meter error or drift at the end of an unattended monitoring period needs to be less than 1 mg/l - 70 percent of the time. A maintenance log should be kept on each DO monitoring unit. More frequent service visits shall be scheduled if this criterion is not met.

2. Monitoring Schedule:

Monitoring should commence once the upstream projects switch to a peaking mode of operation in the summer and terminate on or after September 30. Your proposed plan calling for water quality monitoring to begin in 2003 is unacceptable. Article 406 of your license calls for implementation of the monitoring program within 24 months from the date of license issuance. This means monitoring would have to start in the summer of 1999. The WDNR would support an amendment to your license to allow you to begin water quality monitoring at the Potato Rapids Project the same year that monitoring of the upstream projects begins. Water quality monitoring should be repeated once every five years for the duration of the license unless the schedule is revised by FERC.

3. Data Reporting

As recorded data is downloaded from the instrument to a computer, data should be screened for compliance with state standards. If any violations of state water quality standards are found, the WDNR should be informed immediately. Assuming that no violations are noted, the data should be stored on computer and backed up with a hard copy. If requested by the WDNR, the licensee should make any data available for review within ten working days.

Absent special requests, data summaries consisting of data plots or graphed data for the sampling season should be prepared and filed with FERC and the resource agencies (WDNR and the U.S. Fish and Wildlife Service) no later than December 30, of each year. The raw data should be placed on diskette and provided to the agencies along with this annual report.

Article 405 - Peshtigo Project FERC No. 2581

The monitoring plan for the Peshtigo Project should include the following items.

Monitoring Plan

1. Monitoring Locations/Equipment:

Continuous monitoring of DO, water temperature and pH should occur in the tailrace of the project and above the project's reservoir. As mentioned in your proposed plan, the WDNR would accept the water quality monitoring data from immediately downstream of the Potato Rapids Project, as the background water quality of the peshtigo River entering the Peshtigo Project. This assumes that both sets of monitoring data are collected at the same time. The WDNR will not allow for a mixing zone to meet the DO, temperature or pH water quality standards. The exact placement of the water monitoring instruments should be decided in consultation with WDNR water resources staff.

Continuous monitoring instruments should be used. The instruments need to be cleaned and calibrated weekly. The DO measurements need to be air calibrated per the manufacturer's specification and water temperature should be checked with a National Institute of Science and Technology certified thermometer. The DO meter error or drift at the end of an unattended monitoring period needs to be less than 1 mg/l - 70 percent of the time. A maintenance log should be kept on each DO monitoring unit. More frequent service visits shall be scheduled if this criterion is not met.

2. Monitoring Schedule:

Monitoring should commence once the upstream projects switch to a peaking mode of operation in the summer and terminate on or after September 30. Your proposed plan calling for water quality monitoring to begin in 2003 is unacceptable. Article 405 of your license calls for implementation of the monitoring program within 24 months from the date of license issuance. This means monitoring would have to start in the summer of 1999. The WDNR would support an amendment to your license to allow you to begin water quality monitoring at the Peshtigo Project the same year that monitoring of the upstream projects begins. Water quality monitoring should be repeated once every five years for the duration of the license unless the schedule is revised by FERC.

3. Data Reporting

As recorded data is downloaded from the instrument to a computer, data should be screened for compliance with state standards. If any violations of state water quality standards are found, the WDNR should be informed immediately. Assuming that no violations are noted, the data should be stored on computer and backed up with a hard copy. If requested by the WDNR, the licensee should make any data available for review within ten working days.

Absent special requests, data summaries consisting of data plots or graphed data for the sampling season should be prepared and filed with FERC and the resource agencies (WDNR and the U.S. Fish and Wildlife Service) no later than December 30, of each year. The raw data should be placed on diskette and provided to the agencies along with this annual report.

If you have any questions regarding these comments please feel free to contact me.

Sincerely,

Thomas F. Thuemler
Regional FERC Coordinator

cc: Greg Sevener - WDNR, Peshtigo
Mary Gansberg - WDNR, NERH
Jim Fossum - U.S. Fish and Wildlife Service

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Johnson Falls Hydroelectric Project
Responses to Wisconsin Department of Natural Resources (WDNR) Water Quality Monitoring Plan Comments

Comments on the Water Quality Monitoring Plan

These plans fall far short of what we had discussed at our consultation meeting on March 23, 1998 on this issue. Because past water quality studies at three of these projects have shown that you are not currently meeting state water quality standards, it is imperative that well thought out intensive monitoring take place at these projects.

Response: It is important to note that WDNR has waived all 401 Water Quality Certification requirements for this project by not responding to WPSC's request within one year. Requesting the operation of the project be changed to run-of-river operation to modify any conditions that may create situations where flow releases are not within state standards is beyond the scope of Article 407. Run-of-river operation is not the most feasible alternative. Requesting run-of-river operation is an issue that should have been included under 401 water quality certification, but was not addressed due to the WDNR's lack of a response to that request. WPSC has had discussions with WDNR personnel about investigating possible remedies to the conditions that have occurred in the past. However, WPSC believes they have remedied conditions of dissolved oxygen below state standards by releasing the minimum flow. Therefore, WPSC is not willing to discuss any additional possible remedies until the scope of the situation can be identified through the proposed water quality monitoring plan.

Article 407 - Johnson Falls Project FERC No. 2522

The monitoring plan that you have proposed is unacceptable to the WDNR. As mentioned in the order issuing the license for this project, the Johnson Falls Project has not met state water quality standards for dissolved oxygen (DO) in the past. The objective statement of your proposed plan states the wrong water quality standards for this project. The DO and temperature standards that apply to this project are correctly given in Article 407 of the license; DO concentrations shall not be less than 6.0 milligrams per liter (mg/L) at my time and not less than 7.0 mg/L during the spawning season; water temperature shall not be altered from natural background to such an extent that trout populations are adversely affected. At our March 23, 1998 consultation meeting, you felt that the increased minimum flow required at this project will allow you to meet these water quality standards. Once FERC approves your water quality monitoring plan you could start sampling, however if you plan on using the tailwater monitoring at the High Falls Project for the background water quality for the Johnson Falls Project then you would have to wait with the initiation of the water quality monitoring until you can meet compliance at the two upstream projects. The WDNR would also prefer to have all of the water quality monitoring at the six Peshtigo Projects take place during the same calendar years.

Response: WPSC will amend the proposed plan to include the proper DO and temperature

standards given in Article 407. WPSC does not feel upstream monitoring is necessary at this time. As outlined in the Final Environmental Impact Statement for the Peshtigo River Multiple Project, based on WPSC tailrace monitoring, project releases meet the 6mg/L minimum DO standard for trout waters, with the exception of occasional episodes in late summer when DO levels fall slightly below this level. The past monitoring was conducted when the project's operating scenario did not include a minimum flow. Therefore, with the institution of a minimum flow, WPSC feels it has already adequately addressed the problem and is proposing a monitoring plan in compliance with Article 407. The objective of Article 407 is to "ensure that flow releases from the project, as measured immediately downstream from the dam," maintain the state standards. At this time WPSC is proposing to only monitor the releases from the dam. If the proposed monitoring indicates levels of dissolved oxygen below the designated standards, WPSC will consult with agency water quality personnel on strategies to eliminate future occurrences of the periods. WPSC also believes that the WDNR request for upstream monitoring is based upon the supposition that the presence of the reservoir is a direct result of project operations or "flow releases" which Article 407 is designed to monitor. WPSC retains the position that the reservoir is an existing feature that produces many benefits, including those for recreation and the fishery and the presence of the reservoir is an issue that is not part of the scope of Article 407. Therefore, the naturally occurring phenomena (stratification) that occurs in the reservoir is not required to be monitored. Only the flow release from the project should be monitored.

The WDNR request for monitoring for all six Peshtigo River Projects to be conducted within the same year is an inappropriate use of financial resources. The continuous monitoring equipment that is proposed to be utilized for the monitoring is quite expensive. Therefore, if the amount of capital investment can reduced by utilizing the same equipment to monitor at different projects by staggering the monitoring schedule, a staggered monitoring schedule is most appropriate as long as it complies with the schedules outlined in the appropriate license articles pertaining to water quality monitoring.

Once a solution to the low DO levels occurring at the upstream projects has been found and implemented then the following water quality monitoring should be conducted as required by Article 407 of your Johnson Falls Project license.

Response: WPSC believes they have already implemented a solution to the DO levels below Caldron Falls and intends to monitor the results by implementing the proposed monitoring plan.

Monitoring Plan

1. Monitoring Locations/Equipment:

Continuous monitoring of DO, water temperature and pH should occur in the tailrace of the project, immediately below the powerhouse. The monitoring site should be located as close to the powerhouse as practical. The WDNR will not allow for a mixing zone to meet the DO, temperature or pH water quality standards. The exact placement of the water monitoring instruments should be decided in consultation with WDNR water resources staff. The data collected in the tailwater of the High Falls Project, assuming that the water quality monitoring at both projects takes place in the same year, could be used instead of an upstream monitoring location.

Response: Continuous monitoring has been proposed for the months of June, July, August and September. For the Johnson Falls monitoring, WPSC has proposed the location of the water quality monitoring equipment be determined through consultation with the WDNR Water Quality personnel. WDNR provides no reason based upon the Wisconsin Administrative Code why it will not allow a mixing zone. WPSC is not aware of any section of the Wisconsin Administrative Code that prohibits a mixing zone. The idea of upstream monitoring to take into account any discharges into the river system upstream is unnecessary because the river upstream from the project is in an undeveloped forested setting which has no recorded point discharges and very little agricultural land. Furthermore, almost the entire shoreline of the Johnson Falls Reservoir is under the ownership of WPSC and is in an undeveloped state with the exception of project facilities and a few residences. There is also no free flowing river between the tailwater of the High Falls Project (FERC Project No. 2595) and the Johnson Falls Reservoir. WPSC also believes that the WDNR request for upstream monitoring is based upon the supposition that the presence of the reservoir is a direct result of project operations or "flow releases" which Article 407 is designed to monitor. WPSC retains the position that the reservoir is an existing feature that produces many benefits, including those for recreation and the fishery and the presence of the reservoir is an issue that is is separate from the objective of Article 407. Therefore, the naturally occurring phenomena (stratification) that occurs in the reservoir is not required to be monitored. Only the flow release from the project should be monitored. WPSC has also allowed for consultation with WDNR on the location of the monitoring transects in its proposed plan.

Continuous monitoring instruments should be used. The instruments need to be cleaned and calibrated weekly. The DO measurements need to be air calibrated per the manufacturer's specification and water temperature should be checked with a National Institute of Science and Technology certified thermometer. The DO meter error or drift at the end of an unattended monitoring period needs to be less than 1 mg/l - 70 percent of the time. A maintenance log should be kept on each DO monitoring unit. More frequent service visits shall be scheduled if this criterion is not met.

Response: Continuous monitoring has been proposed for the months of June, July, August and September. Monitoring will begin in June after the operation mode changes from run-of-river. Through a telephone conversation on June 4, 1998, with Mary Gansberg, WDNR Water Quality, the continuous monitoring devices should be cleaned and calibrated every 7-10 days. Therefore, WPSC is proposing to clean, calibrate and download every 7-10 days. The calibration will be conducted according to manufacturer's specifications and will be recorded in a maintenance log for each piece of equipment.

2. Monitoring Schedule:

Annual monitoring will commence once the Johnson Falls Project switches to a peaking mode of operation each summer and will terminate on or after November 1. Monitoring at this project needs to continue until November 1, as state water quality standards for DO are 7.0 mg/L during the trout spawning season, which occurs in late September and October. If the initial year of sampling shows that DO levels are well above the 7.0 mg/L standard in October, then future years sampling could be terminated at the end of September. This decision should be made by the resource agencies after receiving the annual report for the first year of sampling. Water quality monitoring should be maintained for two years and then once every five years for the duration of the license unless the schedule is revised by FERC.

Response: WPSC has proposed to monitor continuously at one hour intervals from the end of run-of-river operation in June through September. WPSC is aware that the trout spawning season is during September and October of each year. However historically, temperature and dissolved oxygen concentration is not a problem during the Fall months. Monitoring will occur in September, which will provide enough information about October because water temperatures ordinarily decrease from September to October. If there were to be an unseasonably warm October, the trout would not generally be spawning because the spawning season is dependent upon both temperature and the diurnal cycle. Therefore, WPSC believes monitoring in October is unnecessary and is beyond the intent of Article 407 which is to ensure the flows released are within state standards.

WPSC has agreed to monitor in 1999 and 2000. Following the 2000 monitoring, the monitoring will again be conducted on a five year schedule beginning in 2004 and continuing for the remaining term of the license on a five year schedule.

3. Data Reporting

As recorded data is downloaded from the instrument to a computer, data should be screened for compliance with state standards. If any violations of state water quality standards are found, the WDNR should be informed immediately. If violations are found,

the project should immediately be switched to run-of-river operation. Assuming that no violations are noted, the data should be stored on computer and backed up with a hard copy. If requested by the WDNR, the licensee should make any data available for review within ten working days.

Response: As data is downloaded from the monitoring equipment, it will be screened for compliance with state standards. If readings below state standards are identified, the agencies will be contacted within five working days of when the information has been downloaded. The five working days is necessary to obtain the project flow releases, to analyze the information for accuracy, and develop feasible alternatives to correct the conditions. Obtaining all of this information prior to contacting the agencies is necessary for effective consultation on proposed remedies to occur. WPSC has proposed to make data available for review within ten working days if requested by the WDNR.

Absent special requests, data summaries consisting of data plots or graphed data for the sampling season should be prepared and filed with FERC and the resource agencies (WDNR and the U.S. Fish and Wildlife Service) no later than December 30, of each year. The raw data should be placed on diskette and provided to the agencies along with this annual report.

Response: WPSC has proposed to supply all of the recorded monitoring data collected to the WDNR and the U.S. Fish and Wildlife Service (USFWS) in tabular format in an Excel spreadsheet by November 30th of the year in which monitoring occurred. WPSC has also proposed to allow the WDNR and USFWS 30 days to comment upon the results. After the expiration of the 30 days, a copy of the agency comments along with WPSC's responses to agency comments will be provided to FERC by February 28th of the year following the year in which monitoring occurred. WPSC's proposed data submittal schedule provides for both avenues of comment by the agencies and provisions for FERC to settle possible disagreements.

4. Correction of Potential Problems

The proposed plan does not mention how water quality problems would be corrected, if the monitoring shows that these problems are occurring. As mentioned in No. 3 above, if violations are found the Johnson Falls Project and all upstream projects should immediately be switched to run-of-river operation. Run-of-river operation would assure that state standards are being met.

Response: Run-of-river operation is not the most feasible alternative. Requesting run-of-river operation is an issue that should have been included under 401 water quality certification, but was not addressed due to the WDNR's lack of a response to that request. WPSC has had discussions with WDNR personnel about investigating possible remedies to the conditions that have occurred in the past. However,

WPSC believes they have remedied conditions of dissolved oxygen below state standards by releasing the minimum flow. Therefore, WPSC is not willing to discuss any additional possible remedies until the scope of the situation can be identified through the proposed water quality monitoring plan. If evaluation monitoring provides information to indicate water quality is not within the accepted standards beyond the mixing zone at times other than when natural conditions prohibit attainment of the standards, WPSC will reinitiate consultation with the agency water quality personnel on methods to correct periods when the water quality is not within the accepted standards.

The U.S. Fish and Wildlife Service Did Not Comment on the Water Quality Monitoring Plan