ORIGINAL

Wisconsin Electric
POWER COMPANY

231 W. Michigan, P.O. Box 2046, Milwaukee, WI 53201-2046

(414) 221-2345

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FEDERAL ENERGY
REGULATORY COMMISSION

October 30, 1997

Ms. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

RE: Chalk Hill Hydroelectric Project, FERC No. 2394 -014
White Rapids Hydroelectric Project, FERC No. 2357 - 011
Articles 405 and 406 -Final Water Quality Monitoring Plan

Dear Ms. Cashell:

Articles 405 and 406 of the new licenses issued May 7, 1997 for the subject projects, required Wisconsin Electric to submit within 180 days of license issuance, a water quality monitoring plan. As is also required by Articles 405 and 406, Wisconsin Electric is to submit proposed operating procedures that would be implemented should water quality monitoring indicate that water quality standards stipulated in the license be compromised.

In addition, this plan is to include the following:

1. A copy of the licensee's solicitation of comments form the resource management agencies on the draft plan;
2. a copy of the agencies' comments on the draft plan;
3. the licensee's response to these comments.

Wisconsin Electric is hereby filing one original and eight copies of the Plan to the Commission for approval. Several appendices are attached to this document:

Appendix 1	Wisconsin Electric's draft plan as submitted to the agencies
Appendix 2	Agency comments on the draft plan
Appendix 3	Wisconsin Electric's responses to these comments

Enclosed in this filing is a proof of service on the agencies listed in the copy list. Please call me at (414) 221-2413, if you have questions on this matter.

Sincerely,

Rita L. Hayen, P.E.
Project Manager, Hydro Licensing

encl.

cc: Jim Fossum, USFWS
Tom Thuemler, WDNR
Gary Whelan, MDNR
John Suppnick, MDEQ

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Certificate of Service

I hereby certify that I have this day served the foregoing document upon all entities specified in the order to issue license to be consulted on matters related to the Commission filing. Service was done pursuant to Rule 2010 of FERC's Rules of Practice and Procedure 18 CFR, Section 385.2010

Dated this day Thursday, October 30, 1997.

Annie M. Salmona.

Annie Salmona
Hydro Licensing
Wisconsin Electric Power Co.

Annie Salmona
Wisconsin Electric Power Co.
333 W. Everett Street
Milwaukee, WI 53203
(414) 221-4151

Final Water Quality Monitoring Plan

Chalk Hill - FERC Project No. 2394-006 014

White Rapids - FERC Project No. 2357-008 011

Wisconsin Electric Power Company

October 30, 1997

I Continuous Water Quality Monitoring Plan

- Monitoring Locations/Equipment:

Continuous monitoring of temperature and dissolved oxygen (DO) will occur at two locations; upstream of the Chalk Hill plant adjacent to the USGS gauging station #04066003 (Menominee River below Pemene Creek) and at a point approximately 100 yds. downstream of the White Rapids plant in the plant's tailrace. Continuous recording instruments will be used with actual measurements being programmed to occur on the hour (24 measurements per day, per location).

The instrument's probes will be cleaned and calibrated at least once every two weeks, water quality and bio-fouling conditions permitting. Before deployment, the DO probe's measurements will be air calibrated per the manufacturer's specifications while temperature will be checked against a laboratory thermometer. Upon retrieval, all hourly measurements will be scanned for possible violations of the water quality standards as the data are being downloaded from the instruments to the laptop computer. At the end of the downloading process, the instruments' calibration is rechecked per the manufacturer's specifications. The company will seek to achieve an ending calibration error of no more than ± 1.0 mg/l 70% of the time.

- Monitoring Schedule

Article 405 for each plant specifies that the water quality monitoring plan shall, at a minimum, include monitoring for five years, from May 1 through September 30.

Neither the 401 Certificate issued by the State of Michigan nor the FERC order required monitoring for five consecutive years. Since the intent of the water quality monitoring is to verify compliance with State water quality regulations after the change in operation to run of river, WE proposes to monitor for two consecutive years, with the remaining three years of monitoring to be distributed through the remainder of the license term.

However, if water quality standards are violated during these initial two years and require mitigative measures, continuous monitoring shall be continued until a cause for the violation is determined. The need for and timing of monitoring beyond the first two years will be determined in consultation with the resource agencies, and MDEQ in particular. Results of this consultation will be filed with FERC for action.

Continuous monitoring will commence on or about May 1 in both locations of the first full May 1 through September 30 period that occurs, not sooner than 60 days following plan approval by FERC. Monitoring will terminate on September 30. For example, assuming FERC approval of this plan by March 1, 1998, the company would conduct the first year of monitoring in 1998. While every attempt will be made to commence monitoring on or by May 1, the timing and extent of spring runoff may postpone startup. In this case, the agencies will be notified that startup is being delayed. If start up is delayed, the agencies will be notified as close to the start-up date as possible. Startup will occur as soon as conditions permit the safe deployment of instruments.

II Flowage Monitoring Plan

- Monitoring Locations/Equipment

  Surface to bottom measurements of temperature, DO, pH, and conductivity will be taken upstream of the Chalk Hill and White Rapids dams in the deepest region of each flowage. Based on past monitoring efforts, the deepest locations are situated immediately upstream of the spillway sections. A Hydrolab surveyor or equivalent water quality analyzer will be used for the measurements. Secchi depth measurements will also be taken during these surveys, although ice cover and daylight conditions may effect true water column clarity.

- Monitoring Schedule

  As specified in Articles 405 for each plant's license, the vertical profile measurements will be made at 1.0 meter intervals during the months of December, January, February, and March, ice and safety conditions permitting, for the first two years of the water quality monitoring plan to determine whether low DO conditions develop under ice cover in either flowage. These measurements will be taken during the winters of 1998-1999 and 1999-2000 assuming plan approval by March 1, 1998, by FERC, and an initial continuous monitoring period for temperature and DO of May 1 - September 30, 1998.

III Water/Sediment/Fish Monitoring Plan

- Monitoring Locations/Equipment

The once every five years quarterly water quality samples will be collected from three locations; upstream of the Chalk Hill dam at the County Highway Z bridge; downstream of the Chalk Hill dam in the plant's tailrace; and downstream of the White Rapids dam in the plant's tailrace. Ten percent of quarterly (December, May, July, October) samples will be replicated.

The once every 5-year sediment samples will be collected at two locations; from the deepest region of each flowage (roughly in the same general area where the vertical profile measurements were taken). Replicate, spatially separate sediment samples will be collected from each flowage for analysis.

At least ten legal size walleye (greater than 15 inches) and red horse sucker will be collected during early spring from each flowage using trap nets or electrofishing equipment. Also, if present, at least 10 carp will be retained for MDEQ funded analyses. Since the capture of these walleye may be labor intensive, an alternate means may be used. The company would solicit creeled specimens from fishermen. In return, the company will donate $100 to the donor's preferred charity (301(c) recognized) in the donor's name. Fish will be placed on ice until frozen. Edible fish fillets shall be sent to the contracted laboratory to perform the required analyses.

- Monitoring Schedule

The first - once every five year - quarterly water quality sampling will occur coincident with the first year of continuous water quality monitoring to take advantage of committed staff resources.

Similarly, the first sediment samples will be collected during the initial year of monitoring and will be repeated every 5 years.

The fish sampling will be staggered one year behind the quarterly monitoring program to reduce demands on staff. Thus, the initial fish samples would not be collected until spring 1999. A follow-up fish collection and analysis effort would be conducted in 2004.

- Analyses to be Performed

Each replicate water sample shall be analyzed using approved US EPA methods for the following parameters:

Alkalinity, chlorophyll-a[*], *color, dissolved sulfates, pH, hardness, specific conductivity, total ammonia, total dissolved solids, total nitrates, total nitrites, total nitrogen, total organic carbon, total phosphorus, total suspended solids.*

Each replicate sediment sample shall be analyzed using US EPA methods for the following parameters:

[*] Note: While the company will make reasonable efforts to analyze this parameter, we are aware that few area contract laboratories perform this analysis.

Oil and grease, percent volatile solids, total arsenic, total barium, total cadmium, total chromium, total copper, total lead, total manganese, total mercury, total nickel, total nitrogen, total organic carbon, total phosphorus, total selenium, total silver, total zinc, acid volatile sulfides[**], and total PCB.

Whole fish samples shall be analyzed using US EPA methods for the following contaminants:

Dieldrin; DDE; DDD; DDT; mercury; PCB (Arochlors 1242, 1248, 1254, 1260); toxaphene; and the chlordane, dioxin, and dibenzofuran congeners listed in Table 1.

[**] Note: EPA methods exist for acid soluble and acid insoluble sulfides. Non-EPA methods must be used for acid volatile sulfides.

Table 1. Dioxin, dibenzofuran and chlordane congeners to be assayed in fish collected from the Chalk Hill and White Rapids flowages.

Contaminant	Analytical Level of Quantification
CDD	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1.0 ng/kg
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PCDD)	1.0 ng.kg
1,2,3,4,7,8-Hexaxhlorodibenzo-p-dioxin (HxCDD	1.0 ng/kg
1,2,3,6,7,8-HxCDD	1.0 ng/kg
1,2,3,7,8,9-HxCDD	1.0 ng/kg
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.0 ng/kg
OCDD	1.0 ng/kg
CDF	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	1.0 ng/kg
1,2,3,7,8-Pentachlorodibenzofuran (PCDF)	1.0 ng/kg
2,3,4,7,8-PCDF	1.0 ng/kg
1,2,3,4,7,8-Hexachlorodibenzofuran (HXCDF)	1.0 ng/kg
1,2,3,6,7,8-HxCDF	1.0 ng/kg
1,2,3,7,8,9-HxCDF	1.0 ng/kg
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.0 ng/kg
1,2,3,4,7,8,9-HpCDF	1.0 ng/kg
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.0 ng/kg
OCDF	1.0 ng/kg
Chlordane	
Oxychlordane	3 ug/kg
gamma-chlordane	3 ug/kg
trans-Nonachlor	3 ug/kg
alpha-Chlordane	3 ug/kg
cis-Nonachlor	3 ug/kg

IV Reporting

- Continuous Water Quality Monitoring

  All temperature and DO measurements will be scanned upon instrument retrieval and data downloading procedures to determine compliance with the 89°F temperature limit and 5.0 mg/l DO standard. The data will be stored on diskette; will be plotted by week; and will be analyzed after the last data has been collected in September with respect to the mean monthly temperature limits and the 5°F limit between upstream and downstream monitoring locations (reference: Article 405(1) - White Rapids Project).

  A final report to appropriate Michigan, Wisconsin, and federal agency contacts as well as to the commission will be prepared within 60 days of the final measurements. A diskette with all raw data will also be sent to the three agencies.

- Flowage Monitoring (vertical profiles)

  Summary tables of the vertical profile measurements will be filed with appropriate Michigan, Wisconsin, and federal agency contacts, as well as with the Commission by May 1st following the March measurements during each of the two years required by Article 405.

- Quarterly Monitoring Program

  The results of the once every five years quarterly monitoring program will be filed with appropriate Michigan, Wisconsin, and federal agency contacts, as well as

with the Commission, within 120 days following collection of the final quarterly samples (most likely the winter quarter). For example, assuming that the first quarterly sampling program commences May 1998, the summary report would be filed in approximately April 1999.

- Sediment, Fish Contaminant Monitoring Program

The results of these analyses will be filed with appropriate Michigan, Wisconsin, and federal agency contacts, as well as with the Commission, within 90 days of sample collection in the same year(s) the samples were collected.

V Corrective Measures

- Continuous Monitoring Program

Background: It must be noted that continuous monitoring was conducted in this stretch of the Menominee River during the summer seasons of 1990, 1991, and 1992. As it turned out, 1990 represented a low flow year while the summers of 1991 and 1992 were indicative of more average flow years. As our monitoring efforts in 1992 demonstrated, it is very unlikely that either Chalk Hill or White Rapids will cause temperature exceedances or violations of the DO standard. Thus, no corrective measures have been required or tested at this site.

Detection and Notification: Since data downloading would occur at a maximum once every two weeks, it is possible that periods of low dissolved oxygen may not be detected for a maximum of 14 days. Upon discovery and verification (e.g., instrument check and recalibration), Wisconsin Department of Natural Resources, and Michigan Dept. of Environmental Quality (MI DEQ) will be notified within one working day of the time and duration of the problem, and

whether the condition was continuing at time of instrument change out, and whether the condition was caused by upstream disturbances (i.e., if dissolved oxygen levels were below standards at County Z bridge). If upstream conditions are the likely cause of the problem, or if the low dissolved oxygen levels were a transient[1] (e.g., non-recurring) event, no further action on the part of the company would occur unless agreed to by all parties. If plant operation is the suspected cause and if causative actions are likely to persist, the company will initiate corrective actions as soon as possible but no later than within one day of discovery.

Corrective Measures (intentional spilling): WE proposes to mitigate low DO levels caused by project operation and detected by the required monitoring below the Chalk Hill and/or White Rapids projects by passing a portion of the flow for the generator(s) through the spillway. Since there have been no low DO levels detected below the project to date, there is no data available to support any particular methods of low DO mitigation. As a starting point for mitigation of any low DO levels that may be detected in the future, WE will, upon notification (within 24 hours) to operations personnel by field personnel doing the monitoring, pass a minimum of 25 percent of the river flow through the spillway. The water in either flowage has been shown to be well oxygenated through the entire water column. Additionally, passing the water over the spillway will increase the DO level of the water. Mixing the higher DO content water from the spillway with the water from the generators will improve the DO levels.

If spills are required as outlined above, WE will perform real time DO measurements below the confluence of the spillway and the power house tailrace, and perform operational testing to determine what mix of generation and

[1] A transient event is defined as a once every 10 day event where DO levels fall below 5.0 mg/l for at least one hourly measurement period during a 24 hr sampling period.

spill will be required to achieve the minimum required DO levels. This testing will begin in consultation with the WDNR, and MI DEQ as soon as practical. The WDNR, and MI DEQ will be consulted at the beginning of testing of operation scenarios intended to meet the water quality standards. If the low DO conditions subside before the operations testing can be completed, WE will return the non-compliant project to normal operation. Normal tailrace monitoring for DO levels will resume when operations return to normal.

Reporting: The occurrences of non-compliance and summaries of WE responses to these occurrences will be filed with the agencies and FERC within 30 days following detection and resultant mitigation action(s).

Alternative Corrective Measures: If low DO occurrences should become common or protracted, it may become necessary to revise this plan. Any revision to this plan will require agency consultation.

- Vertical Profile Measurements

If the winter vertical profile measurements indicate that portions of either flowage becomes deoxygenated under ice cover, the company will prepare a downstream monitoring plan within 10 working days to determine whether continued operations will cause downstream violations of the 5.0 mg/l DO standard.

APPENDIX 2

WDNR 10/17/97

MDEQ 10/21/97

MDNR 10/28/97

Appendix 1

Wisconsin Electric POWER COMPANY

231 W. Michigan, PO. Box 2046, Milwaukee, WI 53201-2046 (414) 221-2345

September 22, 1997

Mr. Thomas Thuemler
Wisconsin Dept. of Natural Resources
411 Front Street
P.O. Box 127
Peshtigo, WI 54157

Mr. Gary Whelan
Michigan Dept. of Natural Resources
Fisheries Division
530 West Allegan St.
P.O. Box 30446
Lansing, MI 48909

Mr. John Suppnick
Michigan Dept. of Env Quality
Surface Water Quality Division
300 S. Washington Square
P.O. Box 30273
Lansing, MI 48909

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

Gentlemen:

PROPOSED WATER QUALITY MONITORING PLAN
CHALK HILL PROJECT - FERC LICENSE #2394-006
WHITE RAPIDS PROJECT - FERC LICENSE #2357-003

As required by Articles 405 and 406 of the licenses issued May 7, 1997 for the subject projects, we are forwarding for your review and comment our proposed water quality monitoring plan. As is also required by Articles 405 and 406, we are also asking your concurrence with our proposed operating procedures that would be implemented should monitoring indicate that water quality standards that are stipulated in the license be compromised.

The license stipulates that this plan be submitted to the Commission no later than November 3, 1997. We are proposing that the initial year of monitoring commence no later than May 1, 1998. Your timely response to this request by October 24, 1997, will help assure that this schedule is attained.

If you have any questions regarding this plan, please do not hesitate to call me at (414) 221-2413 or Mr. Dave Michaud at (414) 221-2187.

Sincerely,

Rita L. Hayen, P.E.
Project Manager, Hydro Licensing

CC: Mr. Dave Cagon, FERC

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Proposed Water Quality Monitoring Plan

Chalk Hill - FERC Project No. 2394-006

White Rapids - FERC Project No. 2357-003

Wisconsin Electric Power Company
September 1997

I Continuous Water Quality Monitoring Plan

- Monitoring Locations/Equipment:

Continuous monitoring of temperature and dissolved oxygen (DO) will occur at two locations; upstream of the Chalk Hill plant adjacent to the USGS gauging station #04066003 (Menominee River below Pemene Creek) and at a point approximately 100 yds downstream of the White Rapids plant in the plant's tailrace. Continuous recording instruments will be used with actual measurements being programmed to occur on the hour (24 measurements per day, per location).

The instrument's probes will be cleaned and calibrated at least once every two weeks, water quality and bio-fouling conditions permitting. The DO probe's measurements will be air calibrated per the manufacturer's specifications while temperature will be checked against a laboratory thermometer. Instrument measurements will be rechecked upon retrieval as is now the routine. The company will seek to achieve an accuracy goal (plus or minus 1.0 mg/l) for 70% of the measurements made during each unattended monitoring period.

- Monitoring Schedule

Article 405 for each plant specifies that the water quality monitoring plan shall, at a minimum, include monitoring for five years, from May 1 through September 30.

Neither the 401 Certificate issued by the State of Michigan nor the FERC order required monitoring for five consecutive years. Since the intent of the water quality monitoring is to verify compliance with State water quality regulations after the change in operation to run of river, WE proposes to monitor for two consecutive years, with the remaining three years of monitoring to be distributed through the remainder of the license term. The need for and timing of monitoring beyond the first two years will be determined in consultation with the resource agencies, and MDEQ in particular. Results of this consultation will be filed with FERC for action.

Continuous monitoring will commence on or about May 1 in both locations of the first full May 1 through September 30 period that occurs, not sooner than 60 days following plan approval by FERC. Monitoring will terminate on September 30. For example, assuming FERC approval of this plan by March 1, 1998, the company would conduct the first year of monitoring in 1998. While every attempt will be made to commence monitoring on or by May 1, the timing and extent of spring runoff may postpone startup. In this case, the agencies will be notified that startup is being delayed. If start up is delayed, the agencies will be notified as close to the start-up date as possible. Startup will occur as soon as conditions permit the safe deployment of instruments.

II Flowage Monitoring Plan

- Monitoring Locations/Equipment

Surface to bottom measurements of temperature, DO, pH, and conductivity will be taken upstream of the Chalk Hill and White Rapids dams in the deepest region of each flowage. Based on past monitoring efforts, the deepest locations

are situated immediately upstream of the spillway sections. A Hydrolab surveyor or equivalent water quality analyzer will be used for the measurements. Secchi depth measurements will also be attempted during these surveys.

- Monitoring Schedule

As specified in Articles 405 for each plant's license, the vertical profile measurements will be made at 1.0 meter intervals during the months of December, January, February, and March, ice and safety conditions permitting, for the first two years of the water quality monitoring plan to determine whether low DO conditions develop under ice cover in either flowage. These measurements will be taken during the winters of 1998-1999 and 1999-2000 assuming plan approval by March 1, 1998, by FERC.

III Water/Sediment/Fish Monitoring Plan

- Monitoring Locations/Equipment

The once every five years quarterly water quality samples will be collected from three locations; upstream of the Chalk Hill dam at the County Highway Z bridge; downstream of the Chalk Hill dam in the plant's tailrace; and downstream of the White Rapids dam in the plant's tailrace. All quarterly (December, May, July, October) samples will be replicated.

The once every 10-year sediment samples will be collected at two locations; from the deepest region of each flowage (roughly in the same general area where the vertical profile measurements were taken). Replicate sediment samples will be collected from each flowage for analysis.

No more than five walleye (20-22 inches) will be collected during early spring from each flowage using trap nets or electrofishing equipment. Since the capture of these sized fish may be labor intensive, an alternate means may be used. The company would solicit creeled specimens from fishermen. In return, the company will donate $100 to the donor's preferred charity (301(c) recognized) in the donor's name.

Fish will be placed on ice until frozen. Whole fish shall be sent to the contracted laboratory to perform the required analyses.

- Monitoring Schedule

The first - once every five year - quarterly water quality sampling will occur coincident with the first year of continuous water quality monitoring to take advantage of committed staff resources.

Similarly, the first sediment samples will be collected during the initial year of monitoring and will be repeated every ten years.

The fish sampling will be staggered one year behind the quarterly monitoring program to reduce demands on staff. Thus, the initial fish samples would not be collected until spring 1999.

- Analyses to be Performed

Each replicate water sample shall be analyzed using approved US EPA methods for the following parameters:

Alkalinity, chlorophyll-a[*] *, color, dissolved sulfates, pH, hardness, specific conductivity, total ammonia, total dissolved solids, total nitrates, total nitrites, total nitrogen, total organic carbon, total phosphorus, total suspended solids.*

Each replicate sediment sample shall be analyzed using US EPA methods for the following parameters:

Oil and grease, percent volatile solids, total arsenic, total barium, total cadmium, total chromium, total copper, total lead, total manganese, total mercury, total nickel, total nitrogen, total organic carbon, total phosphorus, total selenium, total silver, total zinc, acid volatile sulfides[**] *, and total PCB.*

Whole fish samples shall be analyzed using US EPA methods for the following contaminants:

Dieldrin; DDE; DDD; DDT; mercury; total chlordane; PCB (Arochlors 1242, 1248, 1254, 1260); toxaphene; 2,3,7,8-TCDD; and 2,3,7,8-TCDF.

[*] Note: While the company will make reasonable efforts to analyze this parameter, we are aware that few area contract laboratories perform this analysis.

[**] Note: EPA methods exist for acid soluble and acid insoluble sulfides. Non-EPA methods must be used for acid volatile sulfides.

IV Reporting

- Continuous Water Quality Monitoring

  All temperature and DO measurements will be scanned upon instrument retrieval and data downloading procedures to determine compliance with the 89°F temperature limit and 5.0 mg/l DO standard. The data will be stored on diskette; will be plotted by week; and will be analyzed after the last data has been collected in September with respect to the mean monthly temperature limits and the 5°F limit between upstream and downstream monitoring locations (reference: Article 405(1) - White Rapids Project).

  A final report to appropriate state and federal agency contacts as well as to the commission will be prepared within 60 days of the final measurements.

- Flowage Monitoring (vertical profiles)

  Summary tables of the vertical profile measurements will be filed with appropriate state and federal agency contacts, as well as with the Commission by May 1st following the March measurements during each of the two years required by Article 405.

- Quarterly Monitoring Program

  The results of the once every five years quarterly monitoring program will be filed with appropriate state and federal agency contacts, as well as with the Commission, within 120 days following collection of the final quarterly samples

(most likely the winter quarter). For example, assuming that the first quarterly sampling program commences May 1998, the summary report would be filed in approximately April 1999.

- Sediment, Fish Contaminant Monitoring Program

The results of these analyses will be filed with appropriate state and federal agency contacts, as well as with the Commission, within 90 days of sample collection in the same year(s) the samples were collected.

V Corrective Measures

- Continuous Monitoring Program

Background: It must be noted that continuous monitoring was conducted in this stretch of the Menominee River during the summer seasons of 1990, 1991, and 1992. As it turned out, 1990 represented a low flow year while the summers of 1991 and 1992 were indicative of more average flow years. As our monitoring efforts in 1992 demonstrated, it is very unlikely that either Chalk Hill or White Rapids will cause temperature exceedances or violations of the DO standard. Thus, no corrective measures have been required or tested at this site.

Detection and Notification: Since data downloading would occur at a maximum once every two weeks, it is possible that periods of low dissolved oxygen may not be detected for a maximum of 14 days. Upon discovery and verification (e.g., instrument check and recalibration), Michigan Dept. of Environmental Quality (MI DEQ) will be notified within one working day of the time and duration of the problem, and whether the condition was continuing at time of instrument

change out, and whether the condition was caused by upstream disturbances (i.e., if dissolved oxygen levels were below standards at County Z bridge). If upstream conditions are the likely cause of the problem, or if the low dissolved oxygen levels were a transient (e.g., non-recurring) event, no further action on the part of the company would occur unless agreed to by all parties. If plant operation is the suspected cause and if causative actions are likely to persist, the company will initiate corrective actions as soon as possible but no later than within one day of discovery.

Corrective Measures (intentional spilling): WE proposes to mitigate low DO levels caused by project operation and detected by the required monitoring below the Chalk Hill and/or White Rapids projects by passing a portion of the flow for the generator(s) through the spillway. Since there have been no low DO levels detected below the project to date, there is no data available to support any particular methods of low DO mitigation. As a starting point for mitigation of any low DO levels that may be detected in the future, WE will, upon notification (within 24 hours) to operations personnel by field personnel doing the monitoring, pass a minimum of 25 percent of the river flow through the spillway. The water in either flowage has been shown to be well oxygenated through the entire water column. Additionally, passing the water over the spillway will increase the DO level of the water. Mixing the higher DO content water from the spillway with the water from the generators will improve the DO levels.

If spills are required as outlined above, WE will perform DO measurements below the confluence of the spillway and the power house tailrace, and perform operational testing to determine what mix of generation and spill will be required to achieve the minimum required DO levels. This testing will begin in consultation with the MI DEQ as soon as practical. The MI DEQ will be

consulted at the beginning of testing of operation scenarios intended to meet the water quality standards. If the low DO conditions subside before the operations testing can be completed, WE will return the non-compliant project to normal operation. Normal tailrace monitoring for DO levels will resume when operations return to normal.

Reporting: The occurrences of non-compliance and summaries of WE responses to these occurrences will be filed with the agencies and FERC within 30 days following detection and resultant mitigation action(s).

Alternative Corrective Measures: If low DO occurrences should become common or protracted, it may become necessary to revise this plan. Any revision to this plan will require agency consultation.

- Vertical Profile Measurements

If the winter vertical profile measurements indicate that portions of either flowage becomes deoxygenated under ice cover, the company will prepare a downstream monitoring plan within 10 working days to determine whether continued operations will cause downstream violations of the 5.0 mg/l DO standard.

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APPENDIX 2

WDNR 10/17/97

MDEQ 10/21/97

MDNR 10/28/97

WISCONSIN
DEPT. OF NATURAL RESOURCES

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 16, Industrial Parkway
Marinette, Wisconsin 54143
TELEPHONE 715-732-5500
FAX 732-5540

October 17, 1997

IN REPLY REFER TO: 3600

Rita Hayen
Wisconsin Electric Power Company
231 W. Michigan
P.O. Box 2046
Milwaukee, WI 53201-2046

SUBJECT: Comments on Proposed Water Quality Monitoring Plan for the White Rapids (FERC No. 2357) and Chalk Hill (FERC No. 2394) Hydroelectric Projects

Dear Rita:

The Wisconsin Department of Natural Resources (WDNR) has reviewed the above mentioned proposed plan for the White Rapids and Chalk Hill Projects and has the following comments.

I. **Continuous Water Quality Monitoring Plan**

Monitoring Locations/Equipment - We would prefer to see dissolved oxygen and water temperature meters placed in three locations rather than the two. The three locations being:

1. above Chalk Hill
2. below Chalk Hill
3. below White Rapids

The additional meter below Chalk Hill would help isolate problems if they occur. As seen in the 1990, 91, and 92 monitoring, different flows and temperatures from year to year produce different results. Problems may occur only below Chalk Hill under certain circumstances.

Monitoring Schedule - We feel that at least three consecutive years of continuous dissolved oxygen/water temperature monitoring should occur to verify that these projects are in compliance with state water quality standards. Upon completion of this initial three years of monitoring, and assuming that no water quality problems have been found, then a May 1 through September 30 continuous DO/Temperature monitoring program should be repeated once every five years throughout the course of the license.. If water quality violations are found during any of these future monitoring periods it may result in a change in this monitoring schedule at the discretion of the Wisconsin Department of Natural Resources and/or the Michigan Department of Environmental Quality.

II. **Flowage Monitoring Plan**

Monitoring Locations/Equipment - What does the statement mean that Secchi depth measurements will also be attempted during these surveys? Secchi Disk measurements should be made at the same time as these oxygen/temperature profiles of the flowages are done.

V. **Corrective Measures**

Continuous Monitoring Program - The plan states that upon discovery and verification of low dissolved oxygen levels that the Michigan Department of Environmental Quality will be notified within one working day of the time and duration of the problem. Because any low dissolved oxygen levels would impact the Menominee River, a Wisconsin - Michigan boundary water, we request that the Wisconsin Department of Natural Resources also be notified within the same time period.

The proposal states that if upstream conditions are the likely cause of the problem, or if the low DO levels were transient (non-recurring) events, no further action would occur. We suggest that the term transient (non-recurring) be better defined. Is once every 10 days transient? Is 10 to 20 hours a month transient?

The plan also states that if spills are required to achieve minimum DO levels that the Michigan Department of Environmental Quality would be notified and consulted. We are requesting that you also include in the plan notification of and consultation with the Wisconsin Department of Natural Resources.

Thank you for the opportunity to review these plans and if you have any questions feel free to contact me.

Sincerely,

Thomas F. Thuemler
Regional FERC Coordinator

cc: Jim Fossum - FWS
Gary Whelan - MDNR
Mary Gansberg - NER

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STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: http://www.deq.state.mi.us

RUSSELL J. HARDING, Director

REPLY TO:

SURFACE WATER QUALITY DIVISION
KNAPPS CENTRE
PO BOX 30273
LANSING MI 48909-7773

October 21, 1997

Ms. Rita Hayen
Wisconsin Electric Power Company
231 W. Michigan
P.O. Box 2046
Milwaukee, Wisconsin 53201-2046

Dear Ms. Hayen:

SUBJECT: Proposed Water Quality Monitoring Plan
Chalk Hill Project FERC #2394-006
White Rapids Project FERC # 2357-003

We have reviewed the water quality monitoring plan dated September 22, 1997, as you requested. We approve of this plan if the following changes are made.

The procedures for validating continuous dissolved oxygen data should be clarified. The plan states that "Instrument measurements will be rechecked upon retrieval as is now the routine." This sentence is not sufficient assurance that data will be properly validated upon retrieval. This validation step is vital since DO recording instruments will drift out of calibration over time. The key to data quality is to recalibrate the instrument before this drift is so great as to be unacceptable. In your past work at other projects, validation was successfully achieved by replacing instruments periodically with a freshly calibrated instrument and comparing the last measurement before instrument retrieval, with the first measurement from a freshly calibrated second instrument. This procedure would be acceptable as a validation step but needs to be explained in the plan.

The plan further states that "the company will seek to achieve an accuracy goal (± 1 mg/l) for 70% of the measurements made during each unattended monitoring period." We would like to see this statement changed to "the company will seek to achieve an ending calibration error of no more than ± 1 mg/l 70% of the time."

We concur with the plan to conduct continuous DO and temperature monitoring for two years initially and then distributing the remaining three years, required as a minimum by the license, throughout the remainder of the license term as long as the initial two years do not exhibit any Water Quality Standard violations that need mitigation. If the initial two years of monitoring demonstrate Water Quality Standard violations that require mitigation, then the monitoring should continue indefinitely until the problem is corrected.

Flowage profile measurements should be done whenever continuous DO monitoring is done since these profile measurements are intended to provide data which will serve to explain the DO measured downstream of the impoundments. Therefore, if continuous monitoring does not commence on May 1, 1998, and is delayed until May of 1999, then the flowage profile monitoring plan should also be postponed until May 1, 1999.

Field replication of all quarterly water chemistry samples unnecessarily increases laboratory costs. Replicating 10 percent of water chemistry samples would be adequate. The replicate sediment samples described in the plan from each flowage should be spatially separate samples.

The fish monitoring plan should be modified so as to meet the needs of Michigan's Fish Contaminant Monitoring Program. A minimum ten each of legal walleye (15 inches or greater) and red horse sucker should be collected from each impoundment during 1999. It is not necessary to restrict walleye to the 20-22 inch range as you have proposed. It would be desirable to also collect ten carp for analysis; however, carp have proven difficult to collect in the past. Therefore, we request that any carp inadvertently taken should also be kept and given to our fish contaminant coordinator, Bob Day, for us to analyze. The frequency of fish contaminant sampling can be reduced to once every 20 years beginning with 1999. The parameter list should be expanded to include all TCDD and TCDF congeners, and chlordane isomers as listed in Table 1 below. Edible portion fillets should be analyzed.

Table 1. Additional Contaminants to Test for

Contaminant	Analytical Level of Quantification
CDD	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1.0 ng/kg
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PCDD)	1.0 ng/kg
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin HxCDD)	1.0 ng/kg
1,2,3,6,7,8-HxCDD	1.0 ng/kg
1,2,3,7,8,9-HxCDD	1.0 ng/kg
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	1.0 ng/kg
OCDD	1.0 ng/kg
CDF	
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	1.0 ng/kg
1,2,3,7,8-Pentachlorodibenzofuran (PCDF)	1.0 ng/kg
2,3,4,7,8-PCDF	1.0 ng/kg
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	1.0 ng/kg
1,2,3,6,7,8-HxCDF	1.0 ng/kg
1,2,3,7,8,9-HxCDF	1.0 ng/kg
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.0 ng/kg
1,2,3,4,7,8,9-HpCDF	1.0 ng/kg
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	1.0 ng/kg
OCDF	1.0 ng/kg
Chlordane	
Oxychlordane	3 ug/kg
gamma-chlordane	3 ug/kg
trans-Nonachlor	3 ug/kg
alpha-Chlordane	3 ug/kg
cis-Nonachlor	3 ug/kg

Please contact me if you have any questions.

Sincerely,

John Suppnick
Great Lakes and Environmental Assessment Section
Surface Water Quality Division
517-335-4192

js:ls

cc: Ms. Lois Cashell, FERC
Mr. Gary Whelan, MDNR
Mr. Gerald Saalfeld/WE Chalk Hill/WE White Rapids FERC File, MDEQ

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T MASON BUILDING, PO BOX 30028, LANSING MI 48909-7528

K. L. COOL, Director

REPLY TO:
FISHERIES DIVISION
PO BOX 30446
LANSING MI 48909-7946

Refer to: 4202.2.40I/40j

October 28, 1997

Ms. Rita Hayen
Project Engineer
Hydro Licensing
Wisconsin Electric Power Company
P.O. Box 2046
Milwaukee, WI 53201-2046

Dear Ms. Hayen:

Re: Chalk Hill and White Rapids Hydroelectric Projects (FERC Nos. 2394 and 2357)
Articles 405 and 406 Plan Review

The Department of Natural Resources (Department) has completed its review of the proposed Article 405 and 406 water quality monitoring plan for the above stated projects, as detailed in your September 22, 1997 letter. This letter was received by the Department on September 23, 1997. We have the following comments:

1. Page 1, Monitoring Locations, Paragraph 1 – The Department recommends that three monitoring locations be used to allow a complete analysis of water quality at these projects. The additional site should be added below the Chalk Hill powerhouse to allow for the physical isolation of any water quality problems. Given the year to year variance in temperatures and dissolved oxygen, it is equally likely that there are differences in the way the two impoundments impact water quality depending upon the annual weather patterns. This should be added to this plan.
2. Page 1, Monitoring Locations, Paragraph 2 – The validation procedure is incomplete, as stated. The plan states that "Instrument measurements will be rechecked upon retrieval as is now the routine.". Given the problems that you have had in the past with your equipment, it should be clear to you that DO recording equipment needs to be calibrated prior to them drifting out of acceptable range. We recommend that you use your previous procedure of periodically replacing instruments with newly calibrated instruments and comparing the last measurement before instrument retrieval with that of the first measurement of the new instrument. The accuracy goal should also be changed to being be no more than $\pm$ 1 mg/l 70% of the time. These items should be incorporated into your plan.

3. Page 2, Monitoring Schedule – You state in this paragraph that neither the Section 401 Certificate nor the FERC order requires monitoring for five consecutive years. This is not true, as the Certification requires WEPCo to monitor for five years following license issuance. As one of the authors of the Certification, it was the Certification's intent for you to monitor for five consecutive years, which you agreed to. Your proposal does not follow the language or intent of the Certification and violates the issued Certification. We are willing to accept an initial sampling period of three consecutive years with the final frequency of monitoring to be determined based upon the results of this initial period. If the initial period indicates there are problems, continuous monitoring should continue until the resource agencies (WDNR, MDEQ, USFWS and MDNR) and WEPCo mutually agree that it can be discontinued. If the initial period does not show any problems, then WEPCo should meet with the resource agencies to determine the final sampling frequency. These items should be incorporated into your plan.
4. Page 3, Flowage Monitoring Locations/Equipment – Secchi disk readings should be taken during each impoundment profile sampling bout, not just attempted as you propose. This should be incorporated into your plan.
5. Page 3, Flowage Monitoring Schedule – In addition to proposed winter profiles which are required in the Certification, we recommend that you collect monthly profiles during the period when continuous DO and temperature data is being collected. The profile data are intended to complement the continuous data and will assist in explaining why water quality violations are occurring, if found. These data are also critical to determining the appropriate remedial actions to be taken to correct water quality violations. This should be incorporated into your plan.
6. Page 3, Monitoring Locations/Equipment, Paragraph 2 – Replicate sediment samples should be taken in separate locations in the impoundment. These items should be clarified in your plan.
7. Page 4, Fish Monitoring Plan – We recommend that every fifth year of the license, as stated in the Certification, ten walleyes and ten redhorse suckers should be collected and analyzed for the parameters stated in Appendix A of the Certification. This would make your data collection consistent with Michigan's Fish Contaminant Monitoring Program and consistent with the language and intent of the Certification. This should be clarified in the plan.
8. Page 6, Continuous Water Quality Monitoring – The raw data on a computer disk should also be provided to the resource agencies (WDNR, MDNR, USFWS and MDEQ) along with the final report on an annual basis. This should be clarified in the plan.
9. Page 6, Flowage Monitoring The recommended summertime profile monitoring data should be provided to the resource agencies at the same time as the continuous water quality monitoring. This should be added to your plan.
10. Page 7, Continuous Monitoring Program, Detection and Notification – In addition to MDEQ, the WDNR, USFWS and MDNR should be notified within one day of any water quality violation. WDNR should be notified as they have regulatory authority over water quality in their state along with trustee responsibility for public trust resources. MDNR must be notified as we are the trustee of fish and wildlife resources

of the State of Michigan and have a vested interest in their protection. The USFWS is responsible for federally listed species and has a vested interest in their protection. This should be changed in your plan.

11. Page 8, Continuous Monitoring Program, Detection and Notification – The plan states that if violations are "transient", no actions would be taken. What is your definition of "transient"? We recommend that this term be defined as one 2-hour period that occurs once during a two-week period. If more than two transient violations occur in any one monitoring season, WEPCo should provide for real time reading of the instruments for deployment in the next monitoring year. If violations are persistent (defined as occurring weekly or periodically) at any monitoring locations then WEPCo should provide for real time monitoring of instruments. Without real time monitoring it will be impossible to correct detected violations of water quality standards. The recommended or another agreed upon trigger number of violations must be stated in the plan to properly prompt WEPCo for the installation of real time monitoring to appropriate protect the resources of both states. This should be corrected and clarified in the plan.
12. Page 8, Corrective Measures – Why was 25% of the flow selected? Is there a reason based upon literature or experience why this value was selected? If so, this should be stated in the plan. During all water quality emergencies, water quality monitoring should be done on a real time basis. Consultation on both the monitoring and measures during water quality emergencies, should be done with all of the resource agencies not just MDEQ. These items should be clarified and added to this plan.

With the incorporation of the above comments, the Department can concur with this plan. We appreciate the opportunity to comment on this plan and look forward to implementing it with you. If you have any questions, please contact me.

Sincerely,

Gary E. Whelan
MI DNR FERC Project Coordinator
FISHERIES DIVISION
(517) 373-1280

cc: Mr. Thomas Thuemler, WDNR
Mr. James Fossum, USFWS
Mr. James Grant, MDEQ
Mr. Gary Schnicke, MHRC
Mr. Dell Siler, MDNR

Wisconsin Department of Natural Resources (WDNR), comment letter dated October 17, 1997.

Comments under Section I

Comment: Monitoring Locations/Equipment - We would prefer to see dissolved oxygen and water temperature meters placed in three locations rather than the two. The three locations being:

1.above Chalk Hill
2.below Chalk Hill
3.below White Rapids

The additional meter below Chalk Hill would help isolate problems if they occur. As seen in the 1990, 91 and 92 monitoring, different flows and temperatures from year to year produce different results. Problems may occur only below Chalk Hill under certain circumstances.

Response: While we agree that three monitoring locations could help identify problems that could materialize downstream of Chalk Hill, the results of our 1992 monitoring program showed little in the way of substantive differences in the levels of DO between the Chalk Hill and White Rapids tailraces. In some weeks, DO levels were higher below Chalk Hill than White Rapids, while in other weeks, the reverse was observed. More important to this issue, was the level of DO maintained across both projects during summer, 1992. DO in both tailraces was routinely in the 7.5 to 8.5 mg/l range, well above both states' standard of 5.0 mg/l.

On the other hand, the costs associated with adding a monitoring location in the Chalk Hill tailrace will be substantial. The cost of a new multi-function water quality monitoring instrument and its back up would be at least $8,000 in 1997 dollars. To this must be added additional staff time for calibrating, deploying, retrieving and downloading the instruments. Over the course of this license period, these incremental costs will add significantly to the total cost of this monitoring plan.

Comment: Monitoring Schedule - We feel that at least three consecutive years of continuous dissolved oxygen/water temperature monitoring should occur to verify that these projects are in compliance with state water quality standards. Upon completion of this initial three years of monitoring, and assuming that no water quality problems have been found, then a May 1 through September 30 continuous DO/Temperature monitoring program

should be repeated once every five years through the course of the license. If water quality violations are found during any of these future monitoring periods it may result in a change in this monitoring schedule at the discretion of the Wisconsin Department of Natural Resources and/or the Michigan Department of Environmental Quality.

Response: MDEQ agrees that only two consecutive years of continuous DO and temperature monitoring are necessary assuming no water quality problems are found. Based on monitoring work that has been completed (three summer seasons) and on the fact that neither flowage stratifies significantly with respect to temperature or DO, there simply is no justification for excessive additional monitoring at these projects.

With respect to monitoring after the initial two years of continuous DO and temperature monitoring, WDNR recommends repeating the May 1- September 30 monitoring effort every five years through the duration of the license. This suggested change does not appear to be consistent with WDNR's own practices for other state waters. We are unaware of WDNR implementing such a schedule for any other waterbody, including those undergoing recovery from problems caused by pollution sources that are now controlled. This higher standard is neither justified by the proposed future operation of these projects (run of river) nor historic water quality data.

Comment: Monitoring Locations/Equipment - What does the statement mean that Secchi depth measurements will also be attempted during these surveys? Secchi Disk measurements should be made at the same time as these oxygen/temperature profiles of the flowage are done.

Response: This task has been clarified in the final plan.

Comment: Continuous Monitoring Program - The plan states that upon discovery and verification of low dissolved oxygen levels that the Michigan Department of Environmental Quality will be notified within one working day of the time and duration of the problem. Because any low dissolved oxygen levels would impact the Menominee River, a Wisconsin - Michigan boundary water, we request that the Wisconsin Department of Natural Resources also be notified within the same time period.

The plan also states that if spills are required to achieve minimum DO levels that the Michigan Department of Environmental Quality would be notified and consulted. We are requesting that you also include in the plan notification and consultation with the Wisconsin Department of Natural Resources.

Response: The WDNR has been added to each notification list in the final plan.

Comment: The proposal states that if upstream conditions are the likely cause of the problem, or if the low DO levels were transient (non-recurring) events, no further action would occur. We suggest that the term transient (non-recurring) be better defined. Is once every 10 days transient? Is 10 to 20 hours a month transient?

Response: Wisconsin Electric agrees. However, since we have not actually observed problems at this plan, we hesitate to define the term "transient (non-recurring) events".

As an initial "place holder" definition. We recommend that this term be defined as a "once every 10 day" event where DO levels fall below 5.0 mg/l for at least one hourly measurement period during a 24 hour sampling period. This definition has been inserted into the final plan under section V.

Michigan Department of Environmental Quality (MDEQ), comment letter dated October 21, 1997.

Comment: The procedures for validating continuous oxygen data should be clarified. The plan states that "Instrument measurements will be rechecked upon retrieval as is now the routine." This sentence is not sufficient assurance that data will be properly validated upon retrieval. This validation step is vital since DO recording instruments will drift out of calibration over time. The key to data quality is to re-calibrate the instrument before this drift is so great as to be unacceptable. In your past work at other projects, validation was successfully achieved by replacing instruments periodically with a freshly calibrated instrument and comparing the last measurement before instrument retrieval, with the first measurement from a freshly calibrated second instrument. This procedure would be acceptable as a validation step but needs to be explained in the plan.

The plan further states that "the company will seek to achieve an accuracy goal (±1 mg/l) for 70 % of the measurements made during each unattended monitoring period." We would like to see this statement changed to "the company will seek to achieve an ending calibration error of no more than ±1 mg/l 70 % of the time."

Response: These recommendations have been accommodated by new text in the final plan.

Comment: We concur with the plan to conduct continuous DO and temperature monitoring for two years initially and then distributing the remaining three years, required as a minimum by

the license, throughout the remainder of the license term as long as the initial two years do not exhibit any Water Quality Standard violations that need mitigation. If the initial two years of monitoring demonstrate Water Quality Standard violations that require mitigation, then the monitoring should continue indefinitely until the problem is corrected.

Response: The company concurs.

Comment: Flowage profile measurements should be done whenever contiguous DO monitoring is done since these profile measurements are intended to provide data which will serve to explain the DO measured downstream of the impoundments. Therefore, if continuous monitoring does not commence on May 1, 1998, and is delayed until May of 1999, then the flowage profile monitoring plan should also be postponed until May 1, 1999.

Response: Since the flowage profile measurements are scheduled for the winter months, we do not believe it is as important to these measurements to be coordinated with the initial summer continuous monitoring effort. However, we are not opposed to this recommendation.

Comment: Field replication of all quarterly water chemistry samples unnecessarily increases laboratory costs. Replicating 10 percent of water chemistry samples would be adequate. The replicate sediment samples described in the plan from each flowage should be spatially separate samples.

Response: We concur with these recommendations and have revised the text in the final plan accordingly.

Comment: The fish monitoring plan should be modified as to meet the needs of Michigan's Fish Contaminant Monitoring Program. A minimum ten each of legal walleye (15 inch or greater) and red horse sucker should be collected from each impoundment during 1999. It is not necessary to restrict walleye to the 20-22 inch range as you have proposed. It would be desirable to collect ten carp for analysis; however, carp have proven difficult to collect in the past. Therefore, we request that any carp inadvertently taken should also be kept and given to our fish contaminant coordinator, Bob Day, for us to analyze. The frequency of fish contaminant sampling can be reduced to once every 20 years beginning with 1999. The parameter list should be expanded to include all TCDD and TCDF congeners, and chlordane isomers as listed in Table 1 below. Edible portion fillets should be analyzed.

Response: We concur with these recommendations and have revised the plan accordingly. However, the frequency of the fish contaminant monitoring program has been revised to once every 5 years to match the language in the 401 certification document. Any change to the monitoring frequency will require a 401 amendment.

Michigan Department of Natural Resources (MDNR), comment letter dated October 28, 1997.

Comment: 1. Page 1, Monitoring Locations, Paragraph 1 - The Department recommends that three monitoring locations be used to allow a complete analysis of water quality at these projects. The additional site should be added below the Chalk Hill powerhouse to allow for the physical isolation of any water quality problems. Given the year to year variance in temperatures and dissolved oxygen, it is equally likely that there are differences in the way the two impoundments impact water quality depending upon the annual weather patterns. This should be added to this plan.

Response: Refer to our response to WDNR's comment on page 1 of this appendix.

Comment: 2. Page 1, Monitoring Locations, Paragraph 2 - The validation procedure is incomplete, as stated. The plan states that "Instrument measurements will be rechecked upon retrieval as is now the routine, ". Given the problems that you have had in the past with your equipment, it should be clear to you that DO recording equipment needs to be calibrated prior to them drifting out of acceptable range. We recommend that you use your previous procedure of periodically replacing instruments with newly calibrated instruments and comparing the last measurement before instrument retrieval with that of the first measurement of the new instrument. The accuracy goal should also be changed to being no more than ± 1 mg/l 70% of the time. These items should be incorporated into your plan.

Response: Refer to our response to MDEQ's comment on page 3 of this appendix.

Comment: 3. Page 2, Monitoring Schedule - You state in this paragraph that neither the Section 401 Certificate nor the FERC order requires monitoring for five consecutive years. This is not true, as the Certification requires WEPCo to monitor for five years following license issuance. As one of the authors of the Certification, it was the Certification's intent for you to monitor for five consecutive years, which you agreed to. You proposal does not follow the language or intent of the Certification and violates the issued Certification. We are willing to accept an initial sampling period of three consecutive years with the final frequency of monitoring to be determined based upon

the results of this initial period. If the initial period indicates there are problems, continuous monitoring should continue until the resource agencies (WDNR, MDEQ, USFWS and MDNR) and WEPCo mutually agree that it can be discontinued. If the initial period does not show any problems, then WEPCo should meet with the resource agencies to determine the final sampling frequency. These items should be incorporated into your plan.

Response: This issue of how many years of continuous monitoring should be included in the water quality plan for these facilities was a topic discussed at the September 16, 1997 consultation meeting involving the affected state and federal agencies. All participants at this meeting agreed that two to three years of monitoring at the onset of plan implementation would be sufficient and that the remainder of the "five years" committed to in the State of Michigan's 401 certification document would be spaced out across the rest of the license period. The exact "spacing" would be determined after the initial continuous monitoring had been completed. The MDEQ stated that this approach was acceptable (refer to their October 21, 1997 letter).

Since MDEQ is the state agency charged with the responsibility for issuing 401 certifications as well as overseeing their implementation, we defer to the MDEQ's position on this issue.

Comment: 4. Page 3, Flowage Monitoring Locations/Equipment - Secchi disk readings should be taken during each impoundment profile sampling bout, not just attempted as you propose. This should be incorporated into your plan.

Response: Refer to our response to WDNR's comment, on page 2 of this appendix.

Comment: 5. Page 3, Flowage Monitoring Schedule - In addition to proposed winter profiles which are required in the Certification, we recommend that you collect monthly profiles during the period when continuous DO and temperature data is being collected. The profile data are intended to complement the continuous data and will assist in explaining why water quality violations are occurring, if found. These data are also critical to determining the appropriate remedial actions to be taken to correct water quality violations. This should be incorporated into your plan.

Response: MDNR's request would significantly increase the cost of implementing this plan due to the need to trailer and launch boats which, in turn, requires a two person crew versus the one person who would be visiting the projects at least once

every two weeks to change out the water quality monitoring instruments. Besides, the company has taken numerous vertical profile measurements in both flowages during the pre-licensing studies in 1990-92. At no time, did either flowage exhibit appreciable stratification. Thus, this recommendation provides little in the way of value-added water quality data.

Comment: 6. Page 3, Monitoring Locations/Equipment, Paragraph 2 - Replicate sediment samples should be taken in separate locations in the impoundment. These items should be clarified in your plan.

Response: Refer to our response to MDEQ's comment, on page 4 of this appendix.

Comment: 7. Page 4, Fish Monitoring Plan - We recommend that every fifth year of the license as stated in the Certification, ten walleyes and ten redhorse suckers should be collected and analyzed for the parameters stated in Appendix A of the Certification. This would make your data collection consistent with Michigan's Fish Contaminant Monitoring Program and consistent with the language and intent of the Certification. This should be clarified in the plan.

Response: We have clarified this matter in the final plan.

Comment: 8. Page 6, Continuous Water Quality Monitoring - The raw data on a computer disk should also be provided to the resource agencies (WDNR, MDNR, USFWS and MDEQ) along with the final report on an annual basis. This should be clarified in the plan.

Response: We concur with this recommendation.

Comment: 9. Page 6, Flowage Monitoring. The recommended summertime profile monitoring should be provided to the resource agencies at the same time as the continuous water quality monitoring. This should be added to your plan.

Response: Refer to our response to Comment 5.

Comment: 10. Page 7, Continuous Monitoring Program, Detection and Notification - In addition to MDEQ, the WDNR, USFWS and MDNR should be notified within one day of any water quality violation. WDNR should be notified as they have regulatory authority over water quality in their state along with trustee responsibility for public trust resources. MDNR must be notified as we are the trustee of fish and wildlife resources of the State of Michigan and have a vested interest in their protection. The USFWS is

responsible for federally listed species and has a vested interest in their protection. This should be changed in your plan.

Response: We have made this change in the final plan.

Comment: 11. Page 8, Continuous Monitoring Program, Detection and Modification - The plan states that if violations are "transient", no actions would be taken. What is your definition of "transient"? We recommend that this term be defined as one 2-hour period that occurs once during a two-week period. If more than two transient violations occur in any one monitoring season, WEPCo should provide for real time reading of the instruments for deployment in the next monitoring year. If violations are persistent (defined as occurring weekly or periodically) at any monitoring locations then WEPCo should provide for real time monitoring of the instruments. Without real time monitoring it will be impossible to correct detected violations of water quality standards. The recommended or another agreed upon trigger number of violations must be stated in the plan to properly prompt WEPCo for the installation of real time monitoring to appropriate(ly) protect the resources of both states. This should be corrected and clarified in the plan.

Response: Refer to our response to WDNR's comment of a similar nature on page 3 of this appendix.

Regarding the matter of providing real time monitoring, the company is familiar with the costs associated with providing this capability (approximately $10,000 per monitoring location). If analyses indicate that the operation of either facility is causing violations of the water quality standard on a more frequent manner, then the company could agree that the adoption of a real time monitoring system would have merit.

However, if analyses show that transient conditions are the result of conditions upstream of our projects, then we do not believe we should be required to install this equipment.

What measures should be adopted must be the result of the thoughtful discussions involving all affected agencies and the company called for in Section V of the plan.

Comment: 12. Page 8, Corrective Measures- Why was 25 % of the flow selected? Is there a reason based upon literature or experience why this value was selected? if so, this should be stated in the plan. During all water quality emergencies, water quality

monitoring should be done on a real time basis. consultation on both the monitoring and measures during water quality emergencies , should be done with all of the resource agencies not just MDEQ. These items should be clarified and added to this plan.

Response: Based on limited mitigative investigations we have performed downstream of our Way Dam project, we believe the 25% figure is a reasonable starting point. If in field measurements show that this amount of spillage is insufficient, spillage flows would be incrementally increased until the problem is remedied.