ORIGINAL

Wisconsin Electric
POWER COMPANY

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

(414) 221-2345

February 26, 1996

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

RE: Brule Hydroelectric Project FERC 2431-008
Article 405 - Final Water Quality Monitoring Plan

Dear Ms. Cashell

Article 405 of the new license issued for the Brule project on August 29, 1995, required Wisconsin Electric to submit within 180 days of license issuance a plan to monitor dissolved oxygen (DO) and temperature of the Brule River immediately downstream of the Brule Dam for a period of five years from the date of license issuance and for one year every five years thereafter, as well as operating procedures to address water quality conditions which deviate from limits listed on pages 25 of the order to issue license for the Brule project.

In addition, the Plan is to include the following:

1. A copy of the licensee's solicitation of comments from 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 additional 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 agencies.
Appendix 2 Resource agencies' comments on Wisconsin Electric's draft plan.
Appendix 3 Wisconsin Electric's responses to Agencies' comments.

A copy of this filing is being served on the agencies specified in Article 405 and listed in copy list below. A proof of service is included. If you have any questions about this plan, please call me at (414) 221-2413.

Sincerely,

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

cc: Mr. Robert Rosenberger, WDNR
Mr. Jim Fossum, USFWS
Mr. Gary Whelan, MDNR
Mr. James Grant, MDEQ
Mr. Tom Papsidero, FERC

Attachments
G:\BU_DATA\FO\PSBAN10\WORDWIN\SALMONA\WATERMON.DOC

9603040306

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 26th day of February 1996.

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

Brule - FERC Project No. 2431-008

Wisconsin Electric Power Company
February 26, 1996

Final Water Quality Monitoring and Mitigation Plan for the Brule Hydroelectric Project FERC License # 2431- 008

I. Monitoring Plan

- ***Monitoring locations/ equipment :***
  Continuous monitoring of temperature and dissolved oxygen will occur at two locations; in the plant's tailrace along the south bank, approximately 100 ft. downstream (approximately 50 ft. downstream of the current canoe portage put-in path), and upstream near the old USGS gauging station location on the Brule River (Station 04060993 was moved upstream 3.0 miles in April, 1994, to its current location). While there are two significant tributaries providing water to the Brule flowage, the Brule tributary is more readily accessible for monitoring instrument installation and maintenance. Continuous recording instruments will be used.

  As in previous monitoring efforts conducted by the company, the instruments will be cleaned and calibrated weekly. The DO measurements will be air calibrated per the manufacturer's specification while temperature will be checked with a thermometer. The instruments would be deployed for seven to ten days maximum. The calibrations will be rechecked upon retrieval as is now the routine. The company will seek to achieve a goal of 70 % accuracy (plus or minus 1.0 mg/l) for each unattended monitoring period.

- ***Monitoring Schedule:***
  Annual monitoring will commence no later than June 1, in both locations and will terminate on or about September 30. This schedule will be maintained for five years and then once every five years for the duration of the license unless the schedule is revised by FERC upon rehearing.

- ***Data Reporting:***
  As recorded data is being downloaded from the instrument to the computer, data will be screened for compliance by comparing the actual data with the monthly water quality standards for temperature. The duration of the temperature exceedances above the monthly standards will be determined in hours as a percent of the maximum monthly hour totals. Assuming no exceedances are noted, the data will be stored on company computer, backed up with hardcopy printouts. If requested by the agencies, the company would make any data available for review within ten working days.

  Absent special requests, data summaries consisting of data plots or tabularized data for the four month monitoring period will be prepared and filed with FERC and the agencies no later than November 30, of each year. The raw data will be placed on diskette and shared with the agencies as well.

II. Mitigation Plan

- ***Background:***
  It must be noted that continuous monitoring was conducted at the Brule Plant during the summer seasons of 1990, 1993 and 1994. As it turned out, 1990 represented a low flow year while the summers of 1993 and 1994 were indicative of above average to average flow years, respectively. In no case did dissolved oxygen or temperature conditions in the tailrace violate the stipulated standards. Thus, no remedial measures have been required or tested at this site.

- ***Detection and Notification:***
  Since data downloading occurs weekly, it is possible that periods of low dissolved oxygen may not be detected for a maximum of seven 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 in the Brule river). 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 mitigative actions as soon as possible but no later than within one day of discovery.

- ***Mitigative Measures (intentional spilling):***
  WE proposes to mitigate low DO levels caused by project operation and detected by the required monitoring below the Brule project by passing water 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 above the spillway has been shown to be above the stratification elevation of the low DO water known to exist in the Brule impoundment. 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 channel 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 Michigan 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 Brule 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 Mitigation Plan***
  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.

APPENDIX 1

WISCONSIN ELECTRIC

DRAFT WATER QUALITY MONITORING

AND MITIGATION PLAN

AS SUBMITTED TO AGENCIES

Wisconsin Electric
POWER COMPANY

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

(414) 221-2345

December 20, 1995

Mr. Robert Rosenberger
FERC Project Manager,
WDNR
Industrial Parkway, Box
16
Marinette, WI 54143

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

Mr. Gary Whelan, MDNR
Stevens T. Mason
Building
P.O. Box 30028
Lansing, MI 48909

Gentlemen:

RE: Proposed Water Quality Monitoring and Mitigation Plan
Brule Hydroelectric Project, FERC License # 2431-008

The purpose of this correspondence is two-fold : as required by Article 405 of the license issued August 29, 1995 for the subject project, we are forwarding for your review and comment, our proposed water quality monitoring plan. As is also required by Article 405, 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 have been compromised.

The license stipulates that this plan be implemented no later than August 29, 1997. Since it makes little sense to commence what, in essence, is a warm weather monitoring program at the end of summer, we are proposing that the initial year of monitoring commence no later than June 1, 1997. Your timely response to this request by January 22, 1996, 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 Hayen

Rita L. Hayen, P.E.
Project Engineer, Hydrolicensing

cc: Angela Tornes, NPS

Salmona\BRLWQLIC.DOC

Proposed Water Quality Monitoring and Mitigation Plan for the Brule Hydroelectric Project FERC License # 2431- 008

I. Monitoring Plan

- Monitoring locations/ equipment :
  Continuous monitoring of temperature and dissolved oxygen will occur at two locations; in the plant's tailrace along the south bank, approximately 100 ft. downstream (approximately 50 ft. downstream of the current canoe portage put-in path), and upstream near the old USGS gauging station location on the Brule River (Station 04060993 was moved upstream 3.0 miles in April, 1994, to its current location). While there are two significant tributaries providing water to the Brule flowage, the Brule tributary is more readily accessible for monitoring instrument installation and maintenance. Continuous recording instruments will be used.

  As in previous monitoring efforts conducted by the company, the instruments will be cleaned and calibrated weekly. The instruments would be deployed for seven to ten days maximum. The calibrations will be rechecked upon retrieval as is now the routine.

- Monitoring Schedule:
  Annual monitoring will commence no later than June 1, in both locations and will terminate on or about September 30. This schedule will be maintained for five years and then once every five years for the duration of the license unless the schedule is revised by FERC upon rehearing.

- Data Reporting:
  As recorded data is being downloaded from the instrument to the computer, data will be screened for compliance with water quality standards. Assuming no exceedances are noted, the data will be stored on company computer, backed up with hardcopy printouts. If requested by the agencies, the company would make any data available for review within ten working days.
  Absent special requests, data summaries consisting of data plots or tabularized data for the four month monitoring period will be prepared and filed with FERC and the agencies no later than November 30, of each year.

II. Mitigation Plan

- Background:
  It must be noted that continuous monitoring was conducted at the Brule Plant during the summer seasons of 1990, 1993 and 1994. As it turned out, 1990 represented a low flow year while the summers of 1993 and 1994 were indicative of above average to average flow years, respectively. In no case did dissolved oxygen or temperature conditions in the tailrace violate the stipulated standards. Thus, no remedial measures have been required or tested at this site.

- Detection and Notification:
  Since data downloading occurs weekly, it is possible that periods of low dissolved oxygen may not be detected for a maximum of seven days. Upon discovery and verification (e.g. instrument check and recalibration), Michigan Dept. of Environmental Quality (MI DEQ) will be notified 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 in the Brule river). 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 mitigative actions as soon as possible but no later than within one day of discovery.

- Mitigative Measures (intentional spilling):
  WE proposes to mitigate low DO levels caused by project operation and detected by the required monitoring below the Brule project by passing water 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 to operations personnel by field personnel doing the monitoring, pass a minimum of 25 percent of the river flow through the spillway. The water above the spillway has been shown to be above the stratification elevation of the low DO water known to exist in the Brule impoundment. 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 channel 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 Michigan 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 Brule 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).

APPENDIX 2

AGENCIES' RESPONSES TO

WISCONSIN ELECTRIC'S

DRAFT WATER QUALITY MONITORING

AND MITIGATION PLAN

STATE OF MICHIGAN

JOHN ENGLER, Governor
DEPARTMENT OF NATURAL RESOURCES
STEVENS T MASON BUILDING, PO BOX 30028, LANSING MI 48909-7528
MICHAEL D. MOORE, Director

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

February 22, 1996

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

Re: Brule Hydroelectric Project (FERC No. 2431-008)
Comments on Implementation Plans for Articles 405 and 410

Dear Ms. Hayen,

The Michigan Departments of Natural Resources and Environmental Quality have reviewed these plans dated December 20, 1995 and have the following comments:

1) **Overall Comment** - The term "resource agencies" should include Michigan Departments of Natural Resources and Environmental Quality, the Wisconsin Department of Natural Resources and the U.S. Fish and Wildlife Service and their successors. All of these resource agencies should be notified where noted in your plan and be included in all consultation, receive all reports, and review all reports. All correspondence with the State of Michigan on these license articles should be sent to the Chief of Fisheries Division, Department of Natural Resources and the Chief of the Surface Water Quality Division, Department of Environmental Quality.

2) **Article 405 - Water Quality Monitoring and Mitigation Plan**

a) Page 2, Monitoring Locations and Equipment - The Departments recommend addition of Paint River at the Horserace Rapids as a monitoring site to completely analyze inflow water quality. The water quality of the two inflow streams is generally quite different and must be accounted for in your sampling. While we agree that the Brule River site is more accessible, there certainly is adequate access either from the Horserace Rapids access or via boat from Paint Pond.

DO and temperature data should be validated with an independent measurement system such as a National Bureau of Standards thermometer for temperature and a Winkler analysis for DO at the end of each unattended monitoring period.

The Departments recommend a data quality goal be established for DO values. At minimum, 70% of the DO data should be verified as accurate to within 1 mg/l of the true DO value as determined by a check of meter accuracy at the end of each unattended

monitoring period. Service visits, on a weekly basis, should be scheduled to achieve the proper data quality.

Article 405 of the FERC license also calls for DO and temperature monitoring in the project impoundment and downstream of the Brule dam. Your proposed monitoring includes sampling in the tailwater below the dam and on the Brule River above the impoundment, but not within the impoundment itself. The Departments recommend that reservoir dissolved oxygen and temperature readings should be taken at one meter intervals, in the deepest part of the reservoir, once per week from the May 1 through October 31 period each year.

b) Page 2, Monitoring Schedule - The Departments recommend that temperature should be monitored continuously over the specified period as violations could occur in any season. Dissolved oxygen should be monitored from May to October and during February. These periods will encompass the entire likely warm weather season and the ice covered period when dissolved oxygen values could be in violation of standards.

c) Page 2, Data Reporting - Each hourly value recorded should be compared to the DO standard. Delta Temperature values should be compared instantaneously when and if the license article is changed to include delta Temperature standards.

The Departments request that a computer and hard copy of all of the raw data be provided to us at the time of submittal of the annual water quality report. Additionally, we request quarterly transmittals of the raw data on computer disk along all of the information concerning the calibration of your equipment in that quarter.

d) Page 3, Detection and Notification - The Departments are concerned with your proposal to record DO on an hourly basis and then only having it available when the instruments are periodically downloaded. This means that data that could have indicated that there was a problem would not be downloaded until long after the event occurred. The Departments strongly recommend that these data be recorded and analyzed by the licensee in real time so that data is available to correct current operating conditions. This type of real time monitoring should also be conducted for the temperature upon the Commission requirement that the delta temperature standard is required to be adhered to at this project.

The proposed notification and consultation list is also inadequate. The Chief of Surface Water Quality Division of the Department of Environmental Quality, Chief of Fisheries Division of the Department of Natural Resources, and the Administrator of the Waters Division should all be notified within one working day of any detection of standard violations.

e) Page 3, Mitigative Measures - The Department concurs with the use of spillage as a first step in resolving any short term dissolved oxygen problems in downstream river reaches. However, a solution must be proposed to deal with any dissolved oxygen problem in the immediate tailwater area. Potential solutions which should be evaluated include the installation of aeration equipment in front of the turbine intakes or in the tailwater to increase DO to above the standard. Upon the determination that DO is below the standard then the aeration equipment should be operated until such a time that DO is above the standard.

All installed devices should be evaluated for effectiveness and all uses should be reported in the annual report.

2) Article 410 Purple Loosestrife and Eurasian Water Milfoil Monitoring Plan

a) Page 2, Status of Species in Area - This section is incorrect as Eurasian milfoil has now been detected in Twin Falls Impoundment in Florence County. WDNR personnel detected this species in Twin Falls Impoundment in 1994.

b) Page 3, Monitoring Plan, First Bullet - The survey of shoreline of the Brule Impoundment must include all waters and wetlands within the project boundary to include 1/4 mile downstream of the project powerhouse.

c) Page 3, Monitoring Plan - The Departments recommend that the last week of July and the first week of August should be the typical survey period rather than the period from July 15 and August 15 as suggested in the draft plan. The recommended period will ensure that both plants will be at their maximum blooming and would be the easiest to identify. However, weather conditions each year will be the determining factor when surveys are actually done.

d) Page 3, Monitoring Plan, Bullet 3 - The Departments have the following comments and recommendations for mapping and estimating stand sizes:

i) For purple loosestrife, there should be an estimate of the area of each stand. We recommend the estimation of the overall percent cover and stem densities should be estimated at a minimum of 3 locations within the stand using a meter square frame. At least 10% of each stand should be measured for plant density and an average stem density computed.

ii) For Eurasian milfoil, the perimeter should be marked around each matted area with floating markers. The perimeter should be measured and the identified mat(s) within each area measured for density. Overall mat thickness should be estimated using multiple locations within each mat.

iii) Locations for each species should be permanently marked using a shoreline benchmark with a known GPS coordinate and the actual stands should be delineated on a map using GPS coordinates.

iv) We also recommend using US Agricultural Stabilization and Conservation Service (ASCS) true color aerial photos of the project area to assist in your surveys of the impoundments, if available. The prominent color of purple loosestrife will show up well on photos.

e) Page 3, Monitoring Plan, Bullet 5 - We recommend that you physically removal of all small stands of purple loosestrife when these are found in the annual surveys.

f) Page 3, Monitoring Plan, Bullet 6 - What is your definition of "cooperate"? The Department is willing to provide technical assistance for control and/or elimination of purple loosestrife and/or Eurasian water milfoil. It is our expectation that the licensee would conduct the actual removal of these exotic plants upon the request of the Department.

g) Advisory Sign - We recommend that advisory signs be posted at all access points to the Brule Impoundment that identity these exotic species and document steps to be taken to prevent the spread of these species. The sign should be developed in consultation with the resource agencies.

h) Brochures - When and if these exotic species are found in the project area, we recommend that brochures on the control and spread of these species should be placed at all access points. These brochures should be developed in consultation with the resource agencies.

We appreciate the opportunity to review these plans and look forward to our continued cooperation on these matters. If you have any questions, please contact me.

Sincerely,

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

cc: Mr. Robert Rosenberger, WDNR
Ms. Janet Smith, USFWS
Mr. James Schramm, MHRC
Ms. Monica Gross, RAW
Mr. J. Mark Robinson, FERC
Ms. Angela Tornes, NPS

APPENDIX 3

BRULE HYDROELECTRIC PROJECT FERC NO, 2431-008

LICENSEE RESPONSE TO AGENCY COMMENTS ON DRAFT WATER QUALITY MONITORING AND MITIGATION PLAN

Comment: a) **Page 2, Monitoring Locations and Equipment - The Departments recommend addition of Paint River at the Horserace Rapids as a monitoring site to completely analyze inflow water quality. The water quality of the two inflow streams is generally quite different and must be accounted for in your sampling. While we agree that the Brule River site is more accessible, there certainly is adequate access either from the Horserace Rapids access or via boat from Paint Pond.**

Response: The inclusion of a monitoring location at Horserace Rapids is neither necessary or representative of upstream water quality. In part, this was the reason for not locating a site at this location initially. Locating a station downstream of a rapids will necessarily enhance dissolved oxygen levels. By contrast, previous monitoring on the Brule river upstream of the impoundment more closely resembled "ambient river conditions". In addition, continuous monitoring conducted a the Paint diversion dam in summer, 1995, showed that the water quality upstream of the Horserace Rapids segment was excellent in spite of an extremely warm June. In addition, the area below Horserace Rapids is not routinely accessible by boat. Thus, there is no need to monitor both influent rivers to the Brule impoundment. Adding this station would also significantly increase compliance costs for nil environmental gain.

Comment: **DO and temperature data should be validated with an independent measurement system such as a National Bureau of Standards thermometer for temperature and a Winkler analysis for DO at the end of each unattended monitoring period.**

Response: We believe the current practice of adjusting DO under controlled laboratory conditions to the air/water interface concentration (adjusted for sea level) has served the program well. Using a chemical reaction-based standard such as a Winkler titration introduces its own uncertainties, including operator error and reagent performance. Instrument temperature will be checked against a thermometer during each calibration. One thing for us to keep in mind, for the purposes of the monitoring program, instrument accuracy (± 0.15°C) is such that weekly drifts of 1°C would be highly unlikely and would probably be indicative of instrument malfunction. Therefore, we do not believe that the agency proposal is necessary to assure data quality.

Comment: **The Departments recommend a data quality goal be established for DO values. At minimum 70 % of the DO data should be verified as accurate to within 1 mg/l of the true DO value as determined by a check of meter accuracy at the end of each unattended monitoring period. Service visits, on a weekly basis, should be scheduled to achieve the proper data quality.**

Response: The proposed data quality goal is reasonable and will be adopted in the plan.

Comment: **Article 405 of the FERC license also calls for DO and temperature monitoring in the project impoundment and downstream of the Brule dam. Your proposed monitoring includes sampling in the tailwater below the dam and on the Brule River above the impoundment, but not within the impoundment itself. The Departments recommend that reservoir dissolved oxygen and temperature readings should be taken at one meter intervals, in the deepest part of the reservoir, once per week from the May 1 through October 31 period each year.**

Response: The exact wording of Article 405 is as follows:

Article 405: Within 180 days from the date of issuance of this license, the Licensee shall file with the Commission, for approval, a plan to monitor dissolved oxygen (DO) and temperature of the Brule River immediately downstream of the Brule Dam for a period of five years from the date of license issuance and for one year every five years thereafter. The purpose of this monitoring plan is to ensure that streamflows downstream of the Brule Dam, as measured immediately downstream, maintain the following standards for DO concentration and temperature when river discharges are greater than or equal to the 95 percent exceedence flow : ...

The monitoring plan shall include provisions for (1) monitoring of DO and temperature in the project impoundment and downstream of the Brule dam with the sensor locations and monitoring frequency determined in consultation with the Michigan Department of Natural Resources, the Wisconsin Department of Natural Resources, and the U.S. Fish and Wildlife Service; and (2) the preparation of operating procedures developed in consultation with the Michigan Department of Natural Resources, the Wisconsin Department of Natural Resources, and the U.S. Fish and Wildlife Service to address water quality conditions which deviate from the above limits. (emphasis added)

The thrust of Article 405 is to assure compliance downstream of the project. Previous monitoring at the project has not indicated problems maintaining the DO standard downstream in spite of reservoir stratification conditions. Therefore, we do not believe that there is justification for including weekly profile measurements in the reservoir. However, the company would be willing to conduct the profile measurements as part of its mitigation plan for addressing substandard

DO levels in the tailrace. These measurements would be useful to ascertain conditions which lead to the substandard DO conditions in the tailrace.

Comment: b) **Page 2, Monitoring Schedule - The Departments recommend that temperature should be monitored continuously over the specified period as violations could occur in any season. These periods will encompass the entire likely warm weather season and the ice covered period when dissolved oxygen values could be in violation of standards.**

Response Previous spring, summer, autumn and winter monitoring (primarily during 1990 for spring, autumn and winter) has failed to identify justifications for this expansion of the monitoring period. Therefore, we do not agree with this proposal. In addition, monitoring costs would, at a minimum double, should this recommendation be incorporated in the plan, with no resultant benefit to the environment.

Comment: c) **Page 2, Data Reporting - Each hourly value recorded should be compared to the DO standard. Delta Temperature values should be compared instaneously when and if the license article is changed to include delta Temperature standards.**

The Departments requests that a computer and hard copy of all the raw data be provided to us at the time of submittal of the annual water quality report. Additionally, we request quarterly transmittals of the raw data on computer disk along all of the information concerning the calibration of your equipment in that quarter.

Response: Since the standards for temperature are monthly averages, daily records for both upstream and downstream monitoring locations will be first compared against the monthly standard. The duration of temperature exceedances above the standard will be specified on a monthly basis. Similar calculations for low DO will be made for both locations.

Computer disk and hard copies of all data will be included in the annual report. Unless problems are encountered in any given month, no data will be transmitted to the agencies unless specifically requested in writing. Providing additional data management adds costs to an already costly monitoring program

Mitigation Plan

Comment: d) **Page 3, Detection and Notification - The Departments are concerned with your proposal to record DO on an hourly basis and then only having it available when the instruments are periodically downloaded. This means that data that could have indicated that there was a problem would not be downloaded until long after the event occurred. The Departments strongly recommend that these data be recorded and analyzed by the licensee in real time so that data is available to correct current operating conditions. This type of real time monitoring should also be conducted for the temperature upon the Commission requirement that the delta temperature standard is required to be adhered to at this project.**

Response: The issue is the likelihood of future DO problems occurring at Brule based on the history of monitoring and water quality modeling that has been conducted at this project. The risk for elongated periods of low DO levels occurring in the tailrace are extremely low. While there are real time monitoring systems being manufactured, their performance track record, and maintenance requirements are significant unknowns to us. In addition, the cost to install and test real time monitoring equipment is not warranted by the expected infrequent occurrence of violations. While real time monitoring has its merits, we would prefer to test this technology at another facility where low DO events may be more problematical.

Comment: **The proposed notification and consultation list is also inadequate. The Chief of Surface Water Quality Division of the Department of Environmental Quality, Chief of Fisheries Division of the Department of Natural Resources, and the Administrator of the Waters Division should all be notified within one working day of any detection of standard violations.**

Response: The company firmly believes that communication of matters such as water quality standard violations is best served by single points of contacts within each agency. We recognize the Chief of the Surface Water Quality Divisions in both agencies as the most logical point of contact. Additional points of contacts could only confuse the message and cause unnecessary delays. Any need for additional communication within an agency is appropriately the responsibility of the agency.

Comment: e) **Page 3, Mitigative Measures - The Department concurs with the use of spillage as a first step in resolving any short term dissolved oxygen problems in downstream river reaches. However, a solution must be proposed to deal with any dissolved oxygen problem in the immediate tailwater area. Potential solutions which should be evaluated include the installation of aeration equipment in front of the turbine intakes or in the tailwater to increase DO to above the standard. Upon the determination that DO is below the standard then the aeration equipment should be operated until such a time that DO is above the standard.**

All installed devices should be evaluated for effectiveness and all uses should be reported in the annual report.

Response: We would agree that if continuing low DO problems were to be encountered, we would need to evaluate alternative fixes to the problem. However, we do not agree that there would be a need to immediately correct, sporadic occurring, low DO conditions in the short length of river between the plant and the confluence with the spillway channel, especially when the situation could only be addressed by installing aeration equipment. Such sporadic low DO conditions have little potential to create any lasting significant harm to this short reach of river, and the cost to install and operate such systems is simply not warranted.