Wisconsin Electric
POWER COMPANY

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

October 29, 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
White Rapids Hydroelectric Project, FERC No. 2357
Article 410- Plan to monitor purple loosestrife and Eurasian water milfoil

Dear Ms. Cashell:

Wisconsin Electric is filing one original and eight additional copies of the plan for Article 410 on monitoring and control of purple loosestrife(Lythrum salicaria) and Eurasian water milfoil (Myriophyllum spicatum) in the project waters annually.

Please find enclosed:

1. Letter from Wisconsin Electric to MDNR, WDNR and USFWS dated September 11, 1997, transmitting the draft plan for both projects;
2. Letters from WDNR dated October 20, 1997, and MDNR dated October 27, 1997, providing comments on our draft plans;
3. Response from Wisconsin Electric to WDNR and to MDNR, respectively;
4. Plan for monitoring purple loosestrife and Eurasian water milfoil at the Chalk Hill Hydroelectric Project;
5. Plan for monitoring purple loosestrife and Eurasian water milfoil at the White Rapids Hydroelectric Project.

Please find enclosed a proof of service on the agencies listed in the copy list below. If you have any questions on this matter, please call me at (414) 221-2413.

Sincerely,

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

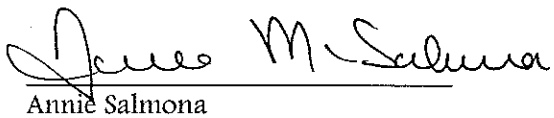
cc: Tom Thuemler, WDNR
Gary Whelan, MDNR
Jim Fossum, USFWS

F:\WINUSER\WINWORD\CHALK410.DOC

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 Wednesday, October 29, 1997.



Annie Salmona
Hydro Licensing
Wisconsin Electric Power Co.

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

Wisconsin Electric
POWER COMPANY

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

(414) 221-2345

September 11, 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. Jim Fossum
U.S. Fish and Wildlife Service
1015 Challenger Court
Green Bay, WI 54311

RE: Chalk Hill Hydroelectric Project FERC No. 2394-006
White Rapids Hydroelectric Project FERC No. 2357-003
Article 410 - Plan to monitor purple loosestrife and Eurasian water milfoil

Dear Agency Representatives:

Please find enclosed Wisconsin Electric's draft plans for Article 410 on monitoring and control of purple loosestrife (Lythrum salicaria) and Eurasian water milfoil (Myriophyllum spicatum) in project waters annually. The Plans are to include :

a) The method of monitoring
b) The frequency of monitoring
c) A provision to cooperate in the control/elimination of these vegetative species if deemed necessary by the agencies, and
d) Documentation of transmission of monitoring data to Michigan and Wisconsin Dept. of Natural Resources (MDNR and WDNR respectively), and U.S. Fish and Wildlife Service (USFWS).

These plans will need to be filed with FERC by November 3, 1997. To that end, I would appreciate your prompt review of these draft plans and your comments by October 20, 1997.

Please call me at (414) 221-2413 or Mr. Noel Cutright at (414) 221-2179 if you have any questions on this matter.

Sincerely,

Rita Hayen

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

Attachments

F:\WINUSER\WINWORD\WHCHEXOT.DOC

PURPLE LOOSESTRIFE AND EURASIAN WATER MILFOIL

DRAFT MONITORING PLAN

Chalk Hill FERC Project No. 2394-006

Wisconsin Electric Power Company
September 11, 1997

Introduction:

Purple loosestrife (Lythrum salicaria) is a perennial wetland plant that was introduced to North America during the early to mid-1800s. Loosestrife is found in wet and moist soil habitats such as marshes, stream and river banks, drainage ditches, ponds and seasonally flooded impoundments. It tolerates changes in soil moisture and temperature, and in this country, has no natural enemies. This gives the plant a competitive advantage over most native wetland plants. Once established, loosestrife can predominate over other plant life in the area. Consequently, purple loosestrife has degraded many prime wetland habitats by significantly reducing the diversity of native vegetation and the associated species of wetland wildlife. Several insects that feed on purple loosestrife have been introduced and are showing promising results in experimental releases. Ultimately, biological methods may control purple loosestrife populations.

Eurasian water milfoil (Myriophyllum spicatum) is a submersed aquatic plant native to Europe, Asia, and Northern Africa. It is one of eight milfoil species found in Wisconsin and the only one that is not native. It spreads by shoots and stolons, but does not rely on seed for reproduction. Green shoots spread when they fragment or break off and float downstream or get carried by other means to other waters. The problem with Eurasian water milfoil stems from its propensity for explosive growth and its incredible ability to regenerate. It can out-compete important native aquatic plant communities and can form huge monocultural stands that diminish certain recreational uses.

Both of these exotic wetland plants have generated considerable attention from natural resource agencies in the Upper Midwest because of the threat they pose to our important native plant and animal communities. Important in any program to minimize spread of these species into new locales is a periodic monitoring program. Detecting early invasions greatly enhances the chances for implementation of a successful control effort.

Status of Species in Area:

Neither species was observed during August 1989 and 1990 aquatic plant surveys conducted on the Chalk Hill project. In general, both species are known from more locations and in higher population densities in southern Wisconsin and Michigan. The Chalk Hill project area does not appear to be a hot spot for either species.

Control Activities:

A variety of control methods have been tried for purple loosestrife. These include pulling, mowing, burning, flooding, disking, applying chemicals, and using insect agents to biologically control loosestrife.

Technologies for controlling Eurasian water milfoil include mechanical (harvesting, hydro-raking, rotavating, hydraulic dredging, and diver-operated suction harvesting), chemical, biological (grass carp, pathogens, allelopathy, and herbivorous insects),

habitat manipulation (bottom barrier, drawdown, and colorants), and physical (hand pulling). Many of these control methods are ineffectual or have specific circumstances where they may be applied effectively. The advantages and disadvantages of any control programs need to be weighted and considered carefully before implementation of a control activity.

Monitoring Plan:

An effective monitoring program for exotics provides the foundation for a sound management program. The following describes Wisconsin Electric 's plan to monitor purple loosestrife and Eurasian water milfoil in Chalk Hill project waters and lands.

- The entire shoreline of the Chalk Hill Impoundment will be visually surveyed by two observers in a boat. All waters and appropriate wetlands within the project boundary also will be surveyed. The Menominee River immediately downstream of the Chalk Hill powerhouse is part of the headwaters of the White Rapids project and is included in the Monitoring Plan for the White Rapids project. Those areas of the impoundment supporting growth of submersed aquatic plants also will be surveyed. The location of these areas supporting submersed aquatic plants were mapped following the aquatic plant surveys conducted in August 1989 and 1990. Any current and readily available true color aerial photos of the project area will be used to assist in detecting areas with purple loosestrife.

- Monitoring will occur annually with the survey typically being conducted between July 25 and August 7 unless weather conditions that would affect peak blooming time dictate otherwise.

- The location of any purple loosestrife plants or Eurasian water milfoil found during the survey will be detailed on a map and the size of the population will be noted.

- For each purple loosestrife stand, the following will be determined: stand area, percent cover, stem density, and plant density. Sampling and measuring methodologies may differ according to stand characteristics but will be sufficiently rigorous to document the character of each stand.

- For each Eurasian water milfoil stand, the following will be determined: stand perimeter, mat density, and overall mat thickness.

- Locations of purple loosestrife and Eurasian water milfoil stands will be permanently marked using a shoreline benchmark with a known Global Position System (GPS) coordinate, and the actual stands will be delineated on a map using GPS coordinates.

- The results of the annual monitoring will be transmitted to the U.S. Fish and Wildlife Service, Wisconsin DNR, and Michigan DNR within 30 days of the survey date. This transmission of monitoring data will be documented by a letter to the Commission on the same date as the results are transmitted to the natural resource agencies.

- As it is advisable to remove all purple loosestrife plants at the earliest stage of an infestation, appropriate steps will be taken by Wisconsin Electric to physically remove any plants at the time of detection.

- Wisconsin Electric will work to control or eliminate purple loosestrife or Eurasian water milfoil on the Chalk Hill project upon the request of the U.S. Fish and Wildlife Service, Wisconsin DNR, or Michigan DNR at any time during the period of the license.

- Wisconsin Electric will post information on purple loosestrife and Eurasian water milfoil identification and prevention of spread on bulletin boards located at Wisconsin Electric's recreation areas. The information used will be that developed by natural resource agencies or other organizations for educational use at water access locations.

- In the year following any discovery of purple loosestrife or Eurasian water milfoil on the Chalk Hill project, brochures describing the control and spread of these species will be placed at Wisconsin Electric's recreation areas on the Chalk Hill project.

PURPLE LOOSESTRIFE AND EURASIAN WATER MILFOIL

DRAFT MONITORING PLAN

White Rapids FERC Project No. 2357-003

Wisconsin Electric Power Company
September 11, 1997

Introduction:

Purple loosestrife (Lythrum salicaria) is a perennial wetland plant that was introduced to North America during the early to mid-1800s. Loosestrife is found in wet and moist soil habitats such as marshes, stream and river banks, drainage ditches, ponds and seasonally flooded impoundments. It tolerates changes in soil moisture and temperature, and in this country, has no natural enemies. This gives the plant a competitive advantage over most native wetland plants. Once established, loosestrife can predominate over other plant life in the area. Consequently, purple loosestrife has degraded many prime wetland habitats by significantly reducing the diversity of native vegetation and the associated species of wetland wildlife. Several insects that feed on purple loosestrife have been introduced and are showing promising results in experimental releases. Ultimately, biological methods may control purple loosestrife populations.

Eurasian water milfoil (Myriophyllum spicatum) is a submersed aquatic plant native to Europe, Asia, and Northern Africa. It is one of eight milfoil species found in Wisconsin and the only one that is not native. It spreads by shoots and stolons, but does not rely on seed for reproduction. Green shoots spread when they fragment or break off and float downstream or get carried by other means to other waters. The problem with Eurasian water milfoil stems from its propensity for explosive growth and its incredible ability to regenerate. It can out-compete important native aquatic plant communities and can form huge monocultural stands that diminish certain recreational uses.

Both of these exotic wetland plants have generated considerable attention from natural resource agencies in the Upper Midwest because of the threat they pose to our important native plant and animal communities. Important in any program to minimize spread of these species into new locales is a periodic monitoring program. Detecting early invasions greatly enhances the chances for implementation of a successful control effort.

Status of Species in Area:

Neither species was observed during August 1989 and 1990 aquatic plant surveys conducted on the White Rapids project. In general, both species are known from more locations and in higher population densities in southern Wisconsin and Michigan. The White Rapids project area does not appear to be a hot spot for either species.

Control Activities:

A variety of control methods have been tried for purple loosestrife. These include pulling, mowing, burning, flooding, disking, applying chemicals, and using insect agents to biologically control loosestrife.

Technologies for controlling Eurasian water milfoil include mechanical (harvesting, hydro-raking, rotavating, hydraulic dredging, and diver-operated suction harvesting), chemical, biological (grass carp, pathogens, allelopathy, and herbivorous insects),

habitat manipulation (bottom barrier, drawdown, and colorants), and physical (hand pulling). Many of these control methods are ineffectual or have specific circumstances where they may be applied effectively. The advantages and disadvantages of any control programs need to be weighted and considered carefully before implementation of a control activity.

Monitoring Plan:

An effective monitoring program for exotics provides the foundation for a sound management program. The following describes Wisconsin Electric 's plan to monitor purple loosestrife and Eurasian water milfoil in White Rapids project waters and lands.

- The entire shoreline of the White Rapids Impoundment will be visually surveyed by two observers in a boat. All waters and appropriate wetlands within the project boundary and the Menominee River for 0.25 mile downstream of the White Rapids powerhouse also will be surveyed. Those areas of the impoundment supporting growth of submersed aquatic plants also will be surveyed. The location of these areas supporting submersed aquatic plants were mapped following the aquatic plant surveys conducted in August 1989 and 1990. Any current and readily available true color aerial photos of the project area will be used to assist in detecting areas with purple loosestrife.

- Monitoring will occur annually with the survey typically being conducted between July 25 and August 7 unless weather conditions that would affect peak blooming time dictate otherwise.

- The location of any purple loosestrife plants or Eurasian water milfoil found during the survey will be detailed on a map and the size of the population will be noted.

- For each purple loosestrife stand, the following will be determined: stand area, percent cover, stem density, and plant density. Sampling and measuring methodologies may differ according to stand characteristics but will be sufficiently rigorous to document the character of each stand.

- For each Eurasian water milfoil stand, the following will be determined: stand perimeter, mat density, and overall mat thickness.

- Locations of purple loosestrife and Eurasian water milfoil stands will be permanently marked using a shoreline benchmark with a known Global Position System (GPS) coordinate, and the actual stands will be delineated on a map using GPS coordinates.

- The results of the annual monitoring will be transmitted to the U.S. Fish and Wildlife Service, Wisconsin DNR, and Michigan DNR within 30 days of the survey date. This transmission of monitoring data will be documented by a letter to the Commission on the same date as the results are transmitted to the natural resource agencies.

- As it is advisable to remove all purple loosestrife plants at the earliest stage of an infestation, appropriate steps will be taken by Wisconsin Electric to physically remove any plants at the time of detection.

- Wisconsin Electric will work to control or eliminate purple loosestrife or Eurasian water milfoil on the White Rapids project upon the request of the U.S. Fish and Wildlife Service, Wisconsin DNR, or Michigan DNR at any time during the period of the license.

- Wisconsin Electric will post information on purple loosestrife and Eurasian water milfoil identification and prevention of spread on bulletin boards located at Wisconsin Electric's recreation areas. The information used will be that developed by natural resource agencies or other organizations for educational use at water access locations.

- In the year following any discovery of purple loosestrife or Eurasian water milfoil on the White Rapids project, brochures describing the control and spread of these species will be placed at Wisconsin Electric's recreation areas on the White Rapids project.

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

October 20, 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 Plan to Monitor Purple Loosestrife and Eurasian Water Milfoil at 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 plans for the White Rapids and Chalk Hill Projects and has the following comments.

It is unclear in the plan, how you are intending to conduct the surveys for the presence of Eurasian Water Milfoil. As this is a submergent aquatic plant, some means other than a visual inspection is needed to check for its presence or absence. We recommend that a routine aquatic macrophyte survey be conducted. Samples of macrophytes should be taken along at least 15 transects per flowage with each transect being 40 feet in length. Transects should be selected based upon location of macrophyte colonies and areas of likely infestation. These transects should be analyzed for presence and approximate abundance of Eurasian Water Milfoil. Each transect should be sampled with a rake in three twelve foot diameter sections. Each section should be sampled in quarters. The first sample should be sampled at a depth of 0 - 0.5 meters below the surface, the second 0.5 -1.5 meters below the surface, the third 1.5 - 3.0 meters below the surface and the fourth beyond 3.0 meters below the surface. This sampling should be conducted in the month of August or September and needs to be done only once every three years. The first sample should take place in 1998.

We concur with the rest of your plans as proposed. 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

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

October 27, 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)
Article 410 Plan Review

The Department of Natural Resources (Department) has reviewed your proposed Article 410 plan concerning purple loosestrife and Eurasian water milfoil monitoring and control. This plan was proposed in your September 11, 1997, letter, which was received by the Department on September 15, 1997. We have the following comments:

1) Page 1, Status of Species in Area - This section should indicate that both species are currently found in the Menominee River system as Eurasian water milfoil have been detected in Twin Falls Impoundment in Florence County, and purple loosestrife have been found in the Sturgeon Falls Impoundment. Both of these locations are upstream of this impoundment.

2) Page 3, Monitoring Plan - The Department has the following comments and recommendations for mapping and estimating stand sizes:

   a) 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.

   b) 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.

c) 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.

d) 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.

The Department appreciates the opportunity to comment on this well done plan and looks forward to working with you to implement it. If you have any questions on this matter, please contact me.

Sincerely,

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

cc: Mr. Thomas Thuemler, WDNR
Ms. Janet Smith, USFWS
Mr. Gary Schnicke, MHRC

Response to Wisconsin DNR:

Comment: It is unclear in the plan, how you are intending to conduct the surveys for the presence of Eurasian Water Milfoil. As this is a submergent aquatic plant, some means other than a visual inspection is needed to check for its presence or absence. We recommend that a routine aquatic macrophyte survey be conducted. Samples of macrophytes should be taken along at least 15 transects per flowage with each transect being 40 feet in length. Transects should be selected based upon location of macrophyte colonies and areas of likely infestation. These transects should be analyzed for presence and approximate abundance of Eurasian Water Milfoil. Each transect should be sampled with a rake in three twelve foot diameter sections. Each section should be sampled in quarters. The first sample should be sampled at a depth of 0-0.5 meters below the surface, the second 0.5 - 1.5 meters below the surface, the third 1.5- 3.0 meters below the surface and the fourth beyond 3.0 meters below the surface. This sampling should be conducted in the month of August or September and needs to be done only once every three years. The first sample should take place in 1998.

Response: The Plan has been modified to include greater detail in how the Eurasian water milfoil survey will be conducted.

Wisconsin Electric believes that the survey methodology being proposed for Eurasian water milfoil, which previously was approved for the Brule project (FERC order dated April 30, 1996 - Project 2431-014), is superior to that recommended by the Wisconsin DNR to meet the primary objective of the survey - early detection of this invasive plant species. if a milfoil stand is located, then appropriate methodologies will be employed to describe the stand. The Departments' proposed methodology is well suited for a routine aquatic macrophyte survey where the presence/absence, frequency, and abundance of various macrophyte species are to be determined. Since this is a targeted survey for a single species, Eurasian water milfoil, it is better to examine all submersed stands of aquatic plants than to spend effort to sample transects on a more quantitative basis. Covering 15 transects of 40 ft lengths and 12 ft widths effectively examines less than 0.2 acre of the 800 + acre Chalk Hill impoundment and 400 + acre White Rapids impoundment.

Early detection of invasive plants can be important in devising possible control strategies. The Plan still entails annual monitoring for both plant species

Response to Michigan DNR:

Comment: 1) Page 1, Status of Species in Area - This section should indicate that both species are currently found in the Menominee River system as Eurasian water milfoil have been detected in Twin Falls Impoundment in Florence County, and purple loosestrife have been found in the Sturgeon Falls Impoundment. Both of these locations are upstream of this Impoundment.

Response: The Plan has been modified to reflect these suggestions.

Comment: 2) Page 3, Monitoring Plan - The Department has the following comments and recommendations for mapping and estimating stand sizes:

a) 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.

Response: The Plan states that stand area, percent cover, stem density, and plant density will be determined for each purple loosestrife stand. The sampling and measuring methodologies must remain flexible because the characteristics of a purple loosestrife stand can vary greatly. The methodology that is effective and efficient for one stand can be completely inappropriate for another stand. The MDNR's recommendation is too specific and therefore may be inappropriate for a stand that may be discovered on either project.

Comment: b) 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.

Response: The Plan states that stand perimeter, mat density, and overall mat thickness will be determined. Again, the methodology used to determine these characteristics will be adapted to best fit field conditions and the particular milfoil stand being examined.

Comment: c) Locations of 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.

Response: The Plan already included this recommendation.

Comment: d) 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.

Response: The Plan already included this recommendation.

PURPLE LOOSESTRIFE AND EURASIAN WATER MILFOIL

MONITORING PLAN

Chalk Hill FERC Project No. 2394-006

Wisconsin Electric Power Company
October 29, 1997

Introduction:

Purple loosestrife (Lythrum salicaria) is a perennial wetland plant that was introduced to North America during the early to mid-1800s. Loosestrife is found in wet and moist soil habitats such as marshes, stream and river banks, drainage ditches, ponds and seasonally flooded impoundments. It tolerates changes in soil moisture and temperature, and in this country, has no natural enemies. This gives the plant a competitive advantage over most native wetland plants. Once established, loosestrife can predominate over other plant life in the area. Consequently, purple loosestrife has degraded many prime wetland habitats by significantly reducing the diversity of native vegetation and the associated species of wetland wildlife. Several insects that feed on purple loosestrife have been introduced and are showing promising results in experimental releases. Ultimately, biological methods may control purple loosestrife populations.

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Both of these exotic wetland plants have generated considerable attention from natural resource agencies in the Upper Midwest because of the threat they pose to our important native plant and animal communities. Important in any program to minimize spread of these species into new locales is a periodic monitoring program. Detecting early invasions greatly enhances the chances for implementation of a successful control effort.

Status of Species in Area:

Neither species was observed during August 1989 and 1990 aquatic plant surveys conducted on the Chalk Hill project. Both species have been found in the Menominee River watershed upstream of the project. Eurasian water milfoil has been found in the Twin Falls and Little Quinnesec Falls impoundments. Purple loosestrife recently was found in the Sturgeon Falls impoundment. In general, both species are known from more locations and in higher population densities in southern Wisconsin and Michigan. The Chalk Hill project area does not appear to be a hot spot for either species.

Control Activities:

A variety of control methods have been tried for purple loosestrife. These include pulling, mowing, burning, flooding, disking, applying chemicals, and using insect agents to biologically control loosestrife.

Technologies for controlling Eurasian water milfoil include mechanical (harvesting, hydro-raking, rotavating, hydraulic dredging, and diver-operated suction harvesting), chemical, biological (grass carp, pathogens, allelopathy, and herbivorous insects), habitat manipulation (bottom barrier, drawdown, and colorants), and physical (hand pulling). Many of these control methods are ineffectual or have specific circumstances where they may be applied effectively. The advantages and disadvantages of any control programs need to be weighted and considered carefully before implementation of a control activity.

Monitoring Plan:

An effective monitoring program for exotics provides the foundation for a sound management program. The following describes Wisconsin Electric 's plan to monitor purple loosestrife and Eurasian water milfoil in Chalk Hill project waters and lands.

- The entire shoreline of the Chalk Hill Impoundment will be visually surveyed by two observers in a boat. All waters and appropriate wetlands within the project boundary also will be surveyed. The Menominee River immediately downstream of the Chalk Hill powerhouse is part of the headwaters of the White Rapids project and is included in the Monitoring Plan for the White Rapids project. Those areas of the impoundment supporting growth of submersed aquatic plants also will be surveyed. The location of these areas supporting submersed aquatic plants were mapped following the aquatic plant surveys conducted in August 1989 and 1990. Any current and readily available true color aerial photos of the project area will be used to assist in detecting areas with purple loosestrife.

- Monitoring will occur annually with the survey typically being conducted between July 25 and August 7 unless weather conditions that would affect peak blooming time of purple loosestrife dictate otherwise.

- The location of any purple loosestrife plants or Eurasian water milfoil found during the survey will be detailed on a map and the size of the population will be noted.

- For each purple loosestrife stand, the following will be determined: stand area, percent cover, stem density, and plant density. Sampling and measuring methodologies may differ according to stand characteristics but will be sufficiently rigorous to document the character of each stand.

- If an Eurasian water milfoil stand is found, the following will be determined: stand perimeter, mat density, and overall mat thickness. The milfoil survey entails two observers in a boat visually searching the water for the presence of water milfoil. Water milfoil typically can be observed either when it is growing at or near the surface or even in moderately deep water (4-6 ft). When milfoil is observed, which is rather frequent in both the Chalk Hill and White Rapids Impoundments, a determination is made as to species, which usually is the native species, northern water milfoil (M. exalbescens). When necessary to handle a specimen for closer examination, a dip net or rake is used to obtain a sample.

- Locations of purple loosestrife and Eurasian water milfoil stands will be permanently marked using a shoreline benchmark with a known Global Position System (GPS) coordinate, and the actual stands will be delineated on a map using GPS coordinates.

- The results of the annual monitoring will be transmitted to the U.S. Fish and Wildlife Service, Wisconsin DNR, and Michigan DNR within 30 days of the survey date. This transmission of monitoring data will be documented by a letter to the Commission on the same date as the results are transmitted to the natural resource agencies.

- As it is advisable to remove all purple loosestrife plants at the earliest stage of an infestation, appropriate steps will be taken by Wisconsin Electric to physically remove any plants at the time of detection.

- Wisconsin Electric will work to control or eliminate purple loosestrife or Eurasian water milfoil on the Chalk Hill project upon the request of the U.S. Fish and Wildlife Service, Wisconsin DNR, or Michigan DNR at any time during the period of the license.

- Wisconsin Electric will post information on purple loosestrife and Eurasian water milfoil identification and prevention of spread on bulletin boards located at Wisconsin Electric's recreation areas. The information used will be that developed by natural resource agencies or other organizations for educational use at water access locations.

- In the year following any discovery of purple loosestrife or Eurasian water milfoil on the Chalk Hill project, brochures describing the control and spread of these species will be placed at Wisconsin Electric's recreation areas on the Chalk Hill project.

PURPLE LOOSESTRIFE AND EURASIAN WATER MILFOIL

MONITORING PLAN

White Rapids FERC Project No. 2357-003

Wisconsin Electric Power Company
October 29, 1997

Introduction:

Purple loosestrife (Lythrum salicaria) is a perennial wetland plant that was introduced to North America during the early to mid-1800s. Loosestrife is found in wet and moist soil habitats such as marshes, stream and river banks, drainage ditches, ponds and seasonally flooded impoundments. It tolerates changes in soil moisture and temperature, and in this country, has no natural enemies. This gives the plant a competitive advantage over most native wetland plants. Once established, loosestrife can predominate over other plant life in the area. Consequently, purple loosestrife has degraded many prime wetland habitats by significantly reducing the diversity of native vegetation and the associated species of wetland wildlife. Several insects that feed on purple loosestrife have been introduced and are showing promising results in experimental releases. Ultimately, biological methods may control purple loosestrife populations.

Eurasian water milfoil (Myriophyllum spicatum) is a submersed aquatic plant native to Europe, Asia, and Northern Africa. It is one of eight milfoil species found in Wisconsin and the only one that is not native. It spreads by shoots and stolons, but does not rely on seed for reproduction. Green shoots spread when they fragment or break off and float downstream or get carried by other means to other waters. The problem with Eurasian water milfoil stems from its propensity for explosive growth and its incredible ability to regenerate. It can out-compete important native aquatic plant communities and can form huge monocultural stands that diminish certain recreational uses.

Both of these exotic wetland plants have generated considerable attention from natural resource agencies in the Upper Midwest because of the threat they pose to our important native plant and animal communities. Important in any program to minimize spread of these species into new locales is a periodic monitoring program. Detecting early invasions greatly enhances the chances for implementation of a successful control effort.

Status of Species in Area:

Neither species was observed during August 1989 and 1990 aquatic plant surveys conducted on the White Rapids project. Both species have been found in the Menominee River watershed upstream of the project. Eurasian water milfoil has been found in the Twin Falls and Little Quinnesec Falls impoundments. Purple loosestrife recently was found in the Sturgeon Falls impoundment. In general, both species are known from more locations and in higher population densities in southern Wisconsin and Michigan. The White Rapids project area does not appear to be a hot spot for either species.

Control Activities:

A variety of control methods have been tried for purple loosestrife. These include pulling, mowing, burning, flooding, disking, applying chemicals, and using insect agents to biologically control loosestrife.

Technologies for controlling Eurasian water milfoil include mechanical (harvesting, hydro-raking, rotavating, hydraulic dredging, and diver-operated suction harvesting), chemical, biological (grass carp, pathogens, allelopathy, and herbivorous insects), habitat manipulation (bottom barrier, drawdown, and colorants), and physical (hand pulling). Many of these control methods are ineffectual or have specific circumstances where they may be applied effectively. The advantages and disadvantages of any control programs need to be weighted and considered carefully before implementation of a control activity.

Monitoring Plan:

An effective monitoring program for exotics provides the foundation for a sound management program. The following describes Wisconsin Electric 's plan to monitor purple loosestrife and Eurasian water milfoil in White Rapids project waters and lands.

- The entire shoreline of the White Rapids Impoundment will be visually surveyed by two observers in a boat. All waters and appropriate wetlands within the project boundary and the Menominee River for 0.25 mile downstream of the White Rapids powerhouse also will be surveyed. Those areas of the impoundment supporting growth of submersed aquatic plants also will be surveyed. The location of these areas supporting submersed aquatic plants were mapped following the aquatic plant surveys conducted in August 1989 and 1990. Any current and readily available true color aerial photos of the project area will be used to assist in detecting areas with purple loosestrife.

- Monitoring will occur annually with the survey typically being conducted between July 25 and August 7 unless weather conditions that would affect peak blooming time of purple loosestrife dictate otherwise.

- The location of any purple loosestrife plants or Eurasian water milfoil found during the survey will be detailed on a map and the size of the population will be noted.

- For each purple loosestrife stand, the following will be determined: stand area, percent cover, stem density, and plant density. Sampling and measuring methodologies may differ according to stand characteristics but will be sufficiently rigorous to document the character of each stand.

- If an Eurasian water milfoil stand is found, the following will be determined: stand perimeter, mat density, and overall mat thickness. The milfoil survey entails two observers in a boat visually searching the water for the presence of water milfoil. Water milfoil typically can be observed either when it is growing at or near the surface or even in moderately deep water (4-6 ft). When milfoil is observed, which is rather frequent in both the Chalk Hill and White Rapids impoundments, a determination is made as to species, which usually is the native species northern water milfoil (M. exalbescens). When necessary to handle a specimen for closer examination, a dip net or rake is used to obtain a sample.

- Locations of purple loosestrife and Eurasian water milfoil stands will be permanently marked using a shoreline benchmark with a known Global Position System (GPS) coordinate, and the actual stands will be delineated on a map using GPS coordinates.

- The results of the annual monitoring will be transmitted to the U.S. Fish and Wildlife Service, Wisconsin DNR, and Michigan DNR within 30 days of the survey date. This transmission of monitoring data will be documented by a letter to the Commission on the same date as the results are transmitted to the natural resource agencies.

- As it is advisable to remove all purple loosestrife plants at the earliest stage of an infestation, appropriate steps will be taken by Wisconsin Electric to physically remove any plants at the time of detection.

- Wisconsin Electric will work to control or eliminate purple loosestrife or Eurasian water milfoil on the White Rapids project upon the request of the U.S. Fish and Wildlife Service, Wisconsin DNR, or Michigan DNR at any time during the period of the license.

- Wisconsin Electric will post information on purple loosestrife and Eurasian water milfoil identification and prevention of spread on bulletin boards located at Wisconsin Electric's recreation areas. The information used will be that developed by natural resource agencies or other organizations for educational use at water access locations.

- In the year following any discovery of purple loosestrife or Eurasian water milfoil on the White Rapids project, brochures describing the control and spread of these species will be placed at Wisconsin Electric's recreation areas on the White Rapids project.

Wisconsin Electric Power Company
Chalk Hill Hydroelectric Project - FERC No. 2394-006
White Rapids Hydroelectric Project - FERC No. 2357-003
Article 410 - Monitoring for purple loosestrife and Eurasian milfoil
Response to Agencies' comments