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FEDERAL ENERGY
REGULATORY COMMISSION

September 30, 2003

Magalle Roman Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Subject: Monitoring Results Of The 2003 Survey Of Purple Loosestrife Populations On The White River Flowage (FERC Project No. 2444), the Superior Falls Flowage (FERC Project No. 2557), the Big Falls Flowage (FERC Project No. 2390), The Thornapple Flowage (FERC Project No. 2475) And Lake Hayward (FERC Project No. 2417).

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Dear Ms Salas:

Enclosed is an original and eight copies of the 2003 purple loosestrife monitoring report for the above-mentioned projects as directed by the Federal Energy Regulatory Commission's (Commission) license orders. The license orders requires Northern States Power Company – Wisconsin (d.b.a. Xcel Energy) to perform annual surveys of project shorelines for the presence of purple loosestrife and to file the monitoring results with the Commission.

The above-mentioned flowages were surveyed in August of 2003 and an estimate of purple loosestrife densities were determined and compared to previous years' surveys. The 2003 monitoring results indicated that purple loosestrife presence and abundance were similar to the monitoring results from previous years with the exception of Lake Hayward. Purple loosestrife populations on Lake Hayward have decreased substantially due to the introduction of a beetle, which specifically targets the plant.

If you have any questions in regards to the monitoring results or to this filing, please feel free to give me a call at (715) 839-2692 or Mr. Robert Olson of my staff at (715) 839-1353.

Very truly yours,

Lloyd Everhart
Administrator, Hydro Licensing

Attachment: Purple Loosestrife Monitoring Report

c: Janet Smith (U.S. Fish and Wildlife Service)
Angie Tomes (National Park Service)
Jeff Scheirer (Wisconsin DNR)
Project Files

**Monitoring Results Of Purple Loosestrife Surveys
Performed At The White River, Superior Falls, Big Falls,
Thornapple and Hayward Hydro Projects**

September 30, 2003

Monitoring Results Of Purple Loosestrife Surveys Performed On The White River Flowage, The Superior Falls Flowage, The Big Falls Flowage, The Thornapple Flowage And Lake Hayward.

1.0 Introduction

The operating licenses for the White River, Superior Falls, Big Falls, Thornapple and Hayward hydro projects directed the Licensee to develop a purple loosestrife (Lythrum salicaria) monitoring plan for project shorelines. The plans were developed with input from the Wisconsin Department of Natural Resources (WDNR), the U.S. Fish and Wildlife Service (USFWS) and the National Park Service (NPS). The plans involve annual monitoring of project shorelines during a period of peak purple loosestrife biomass (late July through August). The following report is a summary of the surveys that were performed during the 2003 field season and comparisons made to the results of surveys from previous years.

2.0 Methods

The shorelines of the Big Falls and Thornapple Flowages were surveyed for purple loosestrife on August 13, the Superior Falls and White River Flowages were surveyed on August 28, and Lake Hayward was surveyed on August 29. The survey dates coincided with the time of maximum flowering where purple loosestrife could be easily identified and surveyed for relative abundance. The project lands downstream from the Hayward Hydro Project were also surveyed.

Project shorelines were classified to indicate whether purple loosestrife was absent, present or abundant. Present indicated a light scattering of a few plants over an area, and in most cases, presence was limited to only an individual plant. Abundant indicated a dense growth of numerous plants over an area. Absent indicated that no purple loosestrife plants were present. Using these determinations of infestation, purple loosestrife locations were mapped on bathymetric maps and an estimate of shoreline miles occupied determined using a planimeter. This method overestimates the amount of shoreline where loosestrife is present, as a single dot from a highlighting pen covers a much larger area on the map than the individual plant. However, the method has been used consistently over the survey period and provides for a reliable and consistent means for comparing changes in loosestrife populations from year to year.

3.0 Results

3.1 White River Flowage. Purple loosestrife plants were not found on the shorelines of the White River Flowage. This was similar to the findings from surveys conducted between 1998-2002.

3.2 Superior Falls Flowage. The shorelines of the flowage were absent of any purple loosestrife plants, which was similar to the findings from surveys conducted between

1998-2002. In addition to the purple loosestrife surveys, a survey of flowage waters for Eurasian milfoil (Myriophyllum spicatum) was conducted and no plants were observed.

3.3 Big Falls Flowage. There were no purple loosestrife plants found on the shorelines of the Big Falls Flowage. Again, this was similar to the results of the previous surveys conducted between 1998-2002.

Prior to the 2003 survey, the WDNR requested that Xcel Energy inspect the shorelines for a non-native plant species, water hyacinth (Eichornia crassipes). The species had been potentially introduced into the Flambeau River upstream from the Big Falls Project. An effort was made to look for this species during the 2003 survey. The species was not found on the Big Falls Flowage.

3.4 Thomapple Flowage. A number of purple loosestrife plants were found to be growing on the shorelines of the Thomapple Flowage (*Figure 1*). The majority of plants appear largely concentrated in the wetland area in the middle part of the flowage and in some of the small backwater areas surrounding the flowage. Otherwise, purple loosestrife was present throughout much of the flowage shoreline as scattered pioneering plants. Many of the scattered plants were located on shorelines where lakefront homes and lawns had caused a disturbance to the natural shoreline.

During the 2003 survey, purple loosestrife was found to be present on 2.1 miles of shoreline or 27.1% of the shoreline. Areas of shoreline with populations that were considered abundant were identical to the 0.48 miles observed in the 2002 survey. Purple loosestrife's presence on the flowage in 2003 decreased from 2.52 miles (33.1%) in 2002. A summary of the findings from previous surveys that were performed on the Thomapple Flowage is included below:

<u>Year</u>	<u>Shoreline Miles (Present)</u>	<u>Shoreline Miles (Common)</u>	<u>Shoreline Miles (Abundant)</u>
1998	<i>Shoreline coverage not determined</i>		
1999	2.36	0.27	0.67
2000	1.64	-	0.70
2001	2.52	-	0.67
2002	2.52	-	0.48
2003	2.10	-	0.48

The limited overall change in presence and abundance of loosestrife indicates that the plants have likely reached their peak numbers, which is limited by suitable growing conditions. Many of the pioneering plants don't appear to be exceptionally healthy as the shoreline areas where these plants are located are more upland, with steep shoreline banks, that don't provide suitable growing conditions for abundant loosestrife populations. The wetland areas have greater populations of loosestrife plants. Licensee is not aware of any purple loosestrife control measures being utilized on the Thomapple Flowage.

The Thomapple Flowage was also surveyed for the presence of water hyacinth during the purple loosestrife survey. There were no water hyacinth plants observed.

3.5 Lake Hayward. The presence and abundance of purple loosestrife on Lake Hayward has been reduced significantly from previous years' surveys. Purple loosestrife plants had historically been very prevalent in some shoreline areas on Lake Hayward.

The 2002 survey had found a significant reduction in loosestrife presence and abundance. During the 2002 survey, observations made in some of the areas that have historically been heavily infested with loosestrife, indicated that there were many skeletal remains of loosestrife from previous years, although the abundance of live plants appeared to be significantly reduced. During the 2003 survey, Licensee intensely searched the shoreline for loosestrife plants, as areas that had abundant populations in the past were almost non-existent. A total of five areas on the entire flowage were found to sustain loosestrife. A total of 0.10 miles of shoreline had purple loosestrife present and there were no areas that were classified as abundant. It was obvious that some sort of control program had been implemented on the flowage with a high degree of success.

The following table summarizes the results of surveys performed on Lake Hayward from 1997 to the present.

<u>Year</u>	<u>Shoreline Miles (Present)</u>	<u>Shoreline Miles (Abundant)</u>
1997	0.3	0.70
1998	Shoreline coverage not determined	
1999	1.08	0.25
2000	1.28	0.10
2001	1.13	0.19
2002	0.90	0.07
2003	0.10	0.0

The main areas of purple loosestrife infestation on Lake Hayward have been concentrated in the northwest section of the flowage at the mouth of Smith Lake Creek. This infestation has been reduced to two small areas of purple loosestrife presence. Project lands on the Namekagon River immediately downstream from the Hayward Dam were also surveyed and no loosestrife plants were found.

Licensee's staff contacted several representatives from the WDNR and the NPS to determine whether either of them had implemented a purple loosestrife control program on Lake Hayward. Neither agency had implemented a control program although the NPS was aware of the sharp decline in purple loosestrife populations.

Licensee donated money to the Hayward High School's Environmental Studies class several years ago to initiate a biological control program for purple loosestrife on Lake Hayward. The class cooperated with the WDNR to secure beetles for transplantation on the shoreline. Their efforts appear to have been very successful over the last two

years in significantly reducing the quantity of purple loosestrife present on the shorelines of Lake Hayward.

4.0 Conclusion

Purple loosestrife was not present on the White River Flowage, the Superior Falls Flowage or the Big Falls Flowage. The Thomapple Flowage shorelines are scattered with purple loosestrife plants, although there are heavier densities in a few of the wetland areas where growing conditions are more suitable. The number of pioneering plants appears to be constant from the 2001 and 2002 surveys. The areas around the Thomapple Flowage that have steeper slopes at the shoreline have limited purple loosestrife presence and abundance. The abundant populations found in several areas on the Thomapple Flowage are significant enough that they are a good seed source for spreading to unpopulated shorelines as well as the downstream river sections. It is expected that beetle introduction on the Thomapple Flowage would have a similar result to the introductions on Lake Hayward.

Lake Hayward has experienced a drastic decline in purple loosestrife over the last two years as a result of the introduction of a beetle, which specifically targets the plant. The long-term effectiveness of the beetle's introduction will be determined in subsequent surveys.

H:\references\purpleloosestrife\2003report.doc

LARGE-FORMAT IMAGES

One or more large-format images (over 8 1/2" X 11") go here.
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For Large-Format(s):

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