

December 22, 2005

Mr. Dan P. Stinnett, Field Supervisor  
U.S. Fish and Wildlife Service  
1 Federal Drive  
BHW Federal Building  
Fort Snelling, MN 55111-4056

SUBJECT: BIOLOGICAL ASSESSMENT FOR MONTICELLO NUCLEAR GENERATING  
PLANT LICENSE RENEWAL REVIEW (TAC NO. MC6441)

Dear Mr. Stinnett:

The U.S. Nuclear Regulatory Commission (NRC) has prepared the enclosed biological assessment (BA) (Enclosure 1) to evaluate whether the proposed renewal of the Monticello Nuclear Generating Plant (Monticello) operating license, for a period of an additional 20 years, would have adverse effects on listed species. The proposed action (license renewal) is not a major construction activity. Monticello, a single nuclear unit plant, is located in the City of Monticello in Wright County, Minnesota, on the south bank of the Mississippi River, 30 miles northwest of the Twin Cities metropolitan area.

By letter dated June 3, 2005, the NRC requested that the U.S. Fish and Wildlife Service (FWS) provide lists of Federally listed endangered or threatened species, and information on protected, proposed, and candidate species, as well as any designated critical habitat, that may be in the vicinity of Monticello and its associated transmission line rights-of-way. The FWS responded to the NRC request on July 13, 2005, and indicated that two threatened species, the bald eagle (*Haliaeetus leucocephalus*) and the gray wolf (*Canis lupus*), and one endangered species, the Higgins' eye pearlymussel (*Lampsilis higginsii*), be considered for potential impacts of license renewal and operation.

This BA provides an evaluation of the potential impact of renewing the Monticello operating license for an additional 20 years of operation on two Federally listed threatened species and one Federally listed endangered species with the potential to occur within the vicinity of the Monticello site or along its associated transmission line corridors.

The NRC staff has determined the license renewal for Monticello may affect, but is not likely to adversely affect, the bald eagle; it will have no effect on the gray wolf or the Higgins' eye pearlymussel.

D. Stinnett

-2-

We are requesting your concurrence with our determination. In reaching our conclusion, the NRC staff relied on information provided by the applicant, on research performed by the NRC staff, and on information from FWS (including current listings of endangered species provided by the FWS). If you have any questions regarding this BA or the staff's request, please contact Ms. Jennifer Davis, Environmental Project Manager, at 301-415-3835 or by e-mail at [jxd10@nrc.gov](mailto:jxd10@nrc.gov).

Sincerely,  
/RA/  
Rani Franovich, Branch Chief  
Environmental Branch B  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket No.: 50-263

Enclosure: As stated

cc w/encl.: See next page

D. Stinnett

-2-

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# **Biological Assessment**

**Monticello Nuclear Plant  
License Renewal Review  
Docket Number  
50-263**

**December 2005**

**U.S. Nuclear Regulatory Commission  
Rockville, MD**

## 1.0 Introduction

The U.S. Nuclear Regulatory Commission (NRC) issues operating licenses for domestic nuclear power plants in accordance with the provisions of the Atomic Energy Act of 1954 (AEC 1954), as amended, and NRC implementing regulations. The purpose and need for the proposed action (that is, renewal of an operating license) is to provide an option that allows electric power generation to continue beyond the term of the current nuclear power plant operating license, so future generating needs can be met if the operator and State regulatory agencies pursue that option.

Northern States Power Company (NSP), which is a wholly owned utility operating subsidiary of Xcel Energy Inc. (Xcel Energy), has exclusive right to the energy generated by Monticello Nuclear Generating Plant (Monticello). Nuclear Management Company, LLC (NMC) operates and maintains Monticello on behalf of NSP. NMC is the licensee for the purposes of its current operating license (OL) and an applicant for the renewal of the OL. NMC has prepared an environmental report (ER) in conjunction with its application for renewal of the Monticello operating license, as provided for by the following NRC regulations:

- Title 10, *Energy*, Code of Federal Regulations (CFR) Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," Section 54.23, "Contents of Application — Environmental Information" (10 CFR 54.23).
- Title 10, *Energy*, CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," Section 51.53, "Postconstruction Environmental Reports," Subsection 51.53(c), "Operating License Renewal Stage" [10 CFR 51.53(c)].

The NRC is reviewing an application submitted by NMC (the applicant) for the renewal of the operating license for Monticello for a period of an additional 20 years. There will be no major construction, refurbishment, or replacement activities associated with this action. This biological assessment examines the potential effects of the continued operation of Monticello on three Federally-listed species that could occur within the Monticello site, near the site, or along its associated transmission line rights-of-way (ROWs) pursuant to Section 7(a)(2) of the Endangered Species Act.

In a letter dated June 3, 2005 (NRC 2005a), the NRC requested that the U.S. Fish and Wildlife Service (FWS) provide lists of Federally listed endangered or threatened species, and information on protected, proposed, and candidate species, as well as any designated critical habitat, that may be in the vicinity of Monticello and its associated transmission line ROWs. The FWS responded (FWS 2005a) to the NRC request on July 13, 2005, and indicated that the Federally threatened bald eagle (*Haliaeetus leucocephalus*) and gray wolf (*Canis lupus*) and the endangered Higgin's eye pearlmyssel (*Lampsilis higginsii*) be considered for potential impacts of license renewal and operation.

## **2.0 Proposed Action**

The proposed action is the renewal of the operating license for Monticello. Monticello is located in southeastern Minnesota on the southern bank of the Mississippi River, approximately 22 mi southeast of St. Cloud, Minnesota, and 30 mi northwest of Minneapolis-St. Paul, Minnesota. The area within 6 mi of Monticello, Minnesota (see Figure 1), includes portions of Wright and Sherburne counties which are primarily agricultural (NMC 2005). The current operating license for Monticello expires September 8, 2010. NMC has submitted an application to the NRC to renew this operating license for an additional 20 years of operation (until September 8, 2030). The renewed license, if issued, would be effective from the date of issuance until 20 years after the expiration date of the current operating license.

## **3.0 Environmental Setting**

### **3.1 Aquatic Resources**

The principal aquatic resource in the vicinity of Monticello is the Mississippi River, which is the source and receiving body of the water for the Monticello cooling system. The main aquatic habitats on the Monticello site are the cooling-system discharge canal and Mississippi River. The transmission lines that are within scope of the license renewal review for Monticello cross several streams and rivers. The Monticello-Parkers Lake line crosses Otter Creek, County Ditch #9, Crow River, Rush Creek, and Elm Creek; while the Monticello-Sherburne County-Coon Creek line crosses the Mississippi River, Elk River, St. Francis River, Tibbits Brook, Trott Brook, and the Rum River.

The Monticello plant facilities are located on the southern bank of the Mississippi River in Wright County at Mississippi River Mile (RM) 900. Near Monticello, the Mississippi River is broad and turbulent. The average river velocity varies from about 1.5 to 2.5 ft/s. The river 1.5 mi upstream to 1.5 mi downstream of the plant loses 10 ft in elevation, resulting in rapids and current velocities that exceed 4.9 ft/sec (NMC 2005). The main channel of the Mississippi River is approximately 980 ft wide in the vicinity of the Monticello site. This portion of the river is also shallow, averaging about 6.2 ft deep (Knutson et al. 1976). Within backwaters and protected shoreline areas, the river is less than 2 ft deep with silt and mud substrates, whereas the main channel substrates consist of gravel, rubble, and boulders with some sand (Afzal et al. 1975).

A number of physical and chemical stresses have caused major changes and modifications to the aquatic resources within the Upper Mississippi River Basin. Dams, and six associated headwater reservoirs, occur on the Mississippi River between its headwaters at Lake Itasca and St. Anthony Falls Lock and Dam (RM 854) near the Twin Cities. Since there are no locks on these headwater dams, the river is not used for commercial navigation above the Twin Cities (NMC 2005). The Mississippi River in Minnesota is used for a variety of purposes, including drinking water, industrial use, irrigation, recreation, tourism, and conservation.

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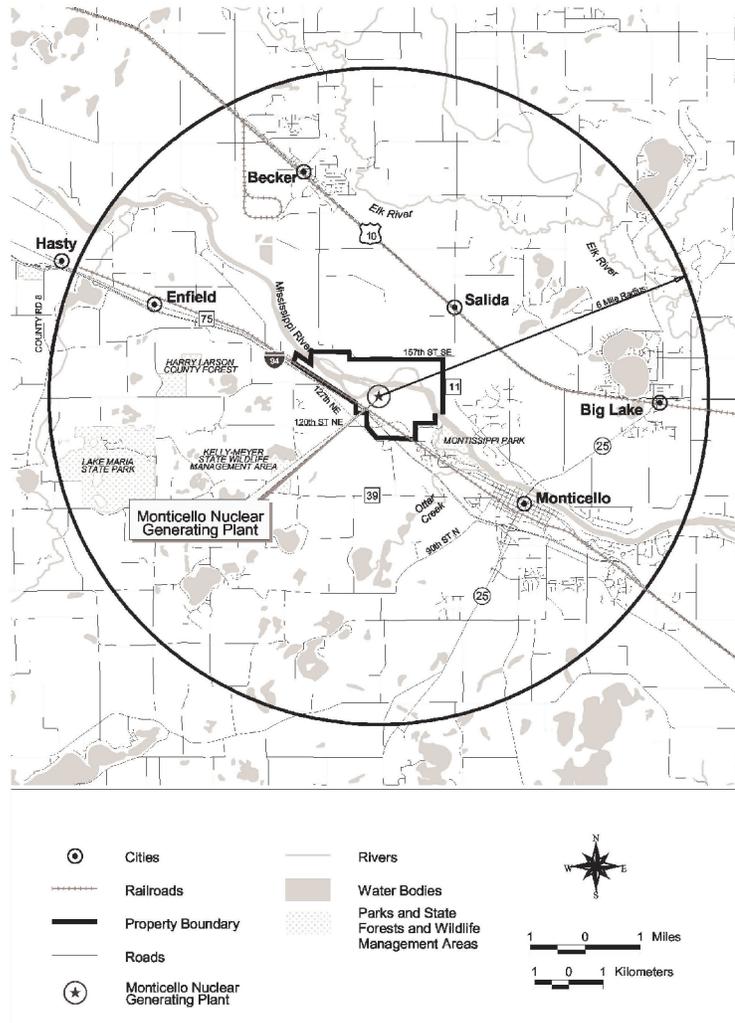


Figure 1. Location of Monticello

Despite the modifications and multiple competing uses of the Upper Mississippi River, the overall fish biodiversity has been persistent and resilient (USGS 1999). Impacts to the river include urban, industrial, and agricultural contaminants; steam modification; water diversions; land use changes; dredging; shoreline modifications; and wetland delineations and modifications (Weitzell et al. 2003; Genet and Chirhart 2004). In Minnesota, 75 species of fish have been reported within the upper portion of the Mississippi River (Hatch and Schmidt 2004). Fifty-one species have been collected by electroshocking and seining within the Monticello site vicinity since sampling began during pre-operational years (NSP 2004). The fish community in the Monticello area has remained about the same since before the plant became operational, with only minor variations occurring between areas upstream and downstream from the Monticello

discharge (NSP 2004). Among the 27 species collected by electroshocking, the major species include the shorthead redhorse (*Moxostoma macrolepidotum*), silver redhorse (*M. anisurum*), common carp (*Cyprinus carpio*), smallmouth bass (*Micropterus dolomieu*), northern hog sucker (*Hypentelium nigricans*), white sucker (*Catostomus commersoni*), channel catfish (*Ictalurus punctatus*), and walleye (*Sander vitreus*) (NSP 2004). Forty-four species have been collected in seining samples since 1970. The major species collected include the sand shiner (*Notropis stramineus*), spotfin shiner (*Cyprinella spiloptera*), bluntnose minnow (*Pimephales notatus*), and bigmouth shiner (*N. dorsalis*) (NSP 2004).

The spotfin and sand shiners are the major forage fish species in the area (NSP 2004). Common game species included the smallmouth bass, black crappie (*Pomoxis nigromaculatus*), yellow perch (*Perca flavescens*), and walleye. Other sport fish include northern pike (*Esox lucius*), common carp, and black bullhead (*Ameiurus melas*) (Amish et al. 1978). A commercial fishery does not occur near Monticello (Amish et al. 1978).

The major primary producers within the Monticello area are periphyton, which contribute an estimated 60 to 82% of the primary production in the Monticello area (Amish et al. 1978). Peak periphyton production occurs in summer. Phytoplankton in the Upper Mississippi River is dominated by diatoms and green algae, and contributes 18 to 40% of the primary productivity in the Monticello area (Amish et al. 1978). The macrophytes found in the immediate area near Monticello include the American pondweed (*Potamogeton nodosus*), sago pondweed (*Stuckenia pectinatus*), and antifever fontinalis moss (*Fontinalis antipyretica*). The macroscopic green alga (*Cladophora glomerata*) also occurs in the area. Overall, a low abundance of macrophytes occurs in the Monticello area due to high currents and shifting sand and gravel substrates (Amish et al. 1978).

Near Monticello, the zooplankton community is comprised of protozoans, rotifers, cladocerans, and copepods (Afzal et al. 1975; Amish et al. 1978).

The most abundant groups of benthic macroinvertebrates near Monticello include oligochaetes (aquatic annelid worms), mayflies, caddisflies, aquatic beetles, midges, black flies, aquatic snails, and fingernail clams (Amish et al. 1978). The non-channel areas of the Upper Mississippi River consistently support more benthic macroinvertebrate species than the main channel area (USGS 1999). This was also noted near Monticello where 66 genera of macroinvertebrates were collected in the backwaters, while only 24 genera were collected from the main channel (Amish et al. 1978).

The Upper Mississippi River contains a rich assemblage of freshwater mussels. Historically, as many as 50 species of mussels have been documented from the Upper Mississippi River, but only 30 species have been reported in recent surveys. Many are rare (i.e., listed as endangered, threatened, or of special concern by one or more states [USGS 1999]). The freshwater mussels within the Upper Mississippi River have been adversely impacted by activities such as collection for the pearl button and cultured pearl industries, siltation (associated with agriculture, poor land management, and impoundments), pollution from

agriculture and industrial chemicals, establishment and maintenance of the navigation channel, dams, loss of appropriate fish host species, and competition from exotic species, particularly the zebra mussel (*Dreissena polymorpha*) (USGS 1999; Weitzell et al. 2003).

The range of some mussel species has been expanding above St. Anthony Falls (located at RM 854, 46 mi downstream of Monticello), as fish (hosts for mussel glochidia [the parasitic larvae of native freshwater mussels]) can now circumnavigate the two navigation locks at this location (Kelner and Davis 2002). About 13 mussel species currently occur upstream of St. Anthony Falls (MNDNR 2003a). Only six species were recently collected above Coon Rapids Dam (RM 866): white heelsplitter (*Lasmigona complanata*), giant floater (*Pyganodon grandis*), plain pocketbook (*Lampsilis cardium*), fatmucket (*L. siliquoidea*), black sandshell (*Ligumia recta*), and pink heelsplitter (*Potamilus alatus*) (Kelner and Davis 2002). No information on mussel species within the immediate area of Monticello is available.

The zebra mussel became established in the Upper Mississippi River by 1992 and has continued to spread throughout the river system. Its increase causes a decline among many native mussels, as it can out-compete native species for oxygen and food and is so prolific that it can smother native mussel beds (FWS 2001b). To date, known populations of the zebra mussel within the Mississippi River have not been found above the Twin Cities area (St. Anthony Falls Lock and Dam) (MNDNR 2005). They were not present between RM 854 and RM 848 (Pool 1), and were found to be sparse between RM 848 and RM 797 (Pools 2 and 3) (Kelner and Davis 2002). Similarly, the Asiatic clam (*Corbicula fluminea*), another invasive mollusc species that has caused condenser tube clogging problems at power plants, has not been found above the Twin Cities area of the Mississippi River (MNDNR 2003a).

### 3.2 Terrestrial Resources

The Monticello site is approximately 2150 acres, and has roughly 2 mi of shoreline on the north and south banks of the Mississippi River in Wright and Sherburne Counties (NMC 2005). The Monticello site is located in a region dominated by rivers, streams, and lakes (NMC 2005). Land use within the region is primarily agricultural; therefore, natural deciduous climax vegetation communities previously found within the city limits of Monticello have been reduced to remnant patches of maple (*Acer* spp.), basswood (*Tilia americana*), elm (*Ulmus* spp.), oak (*Quercus* spp.), and hackberry (*Celtis occidentalis*). These patches are restricted mostly to larger river islands and small isolated pockets along the river banks (AEC 1972).

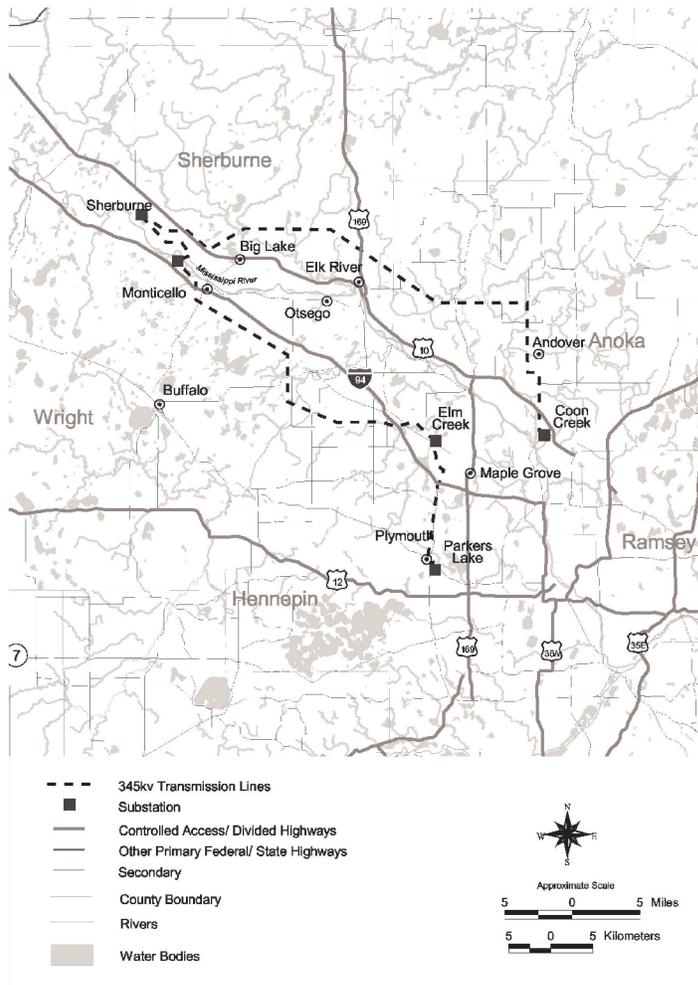
The Upper Mississippi River near the Monticello site supports a variety of plant and animal species that are typical of free-flowing, upper Midwestern rivers (NMC 2005). In general, facilities in use at the Monticello site are located on previously cultivated areas and consist of early-succession forbs and grasses. Upland forests on the Monticello site are predominantly northern pin oak (*Quercus ellipsoidalis*), green ash (*Fraxinus pennsylvanica*), basswood, and prickly ash (*Zanthoxylum americanum*). Forested wetlands on the northeast bank of the river and the river islands include American elm (*Ulmus americana*), box elder (*Acer negundo*), silver maple (*Acer saccharinum*), cottonwood (*Populus deltoides*), and black willow (*Salix nigra*) (MCBS 1998).

Mammals typical of the area and identified within the Monticello site include white-tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), red squirrel (*Tamiasciurus hudsonicus*), grey squirrel (*Sciurus carolinensis*), short-tailed shrew (*Blarina brevicauda*), southern red-backed vole (*Clethrionomys gapperi*), meadow vole (*Microtus pennsylvanicus*), mice (*Peromyscus* spp.), plains pocket gopher (*Geomys bursarius*), white-tailed jackrabbit (*Lepus townsendii*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), eastern fox squirrel (*Sciurus niger*), eastern chipmunk (*Tamias striatus*), American mink (*Mustela vison*), weasels (*Mustela frenata*, *M. erminea*, and *M. nivalis*), and striped skunk (*Mephitis mephitis*) (AEC 1972; NMC 2005).

Furthermore, the Sherco Environmental Monitoring and Ecological Studies Program (NMC 2005) identified 99 avian species over a ten-year monitoring period during breeding season road transects surveys and in a floodplain near the Monticello site. The most abundant species observed during these surveys were mourning dove (*Zenaida macroura*), cliff swallow (*Petrochelidon pyrrhonota*), barn swallow (*Hirundo rustica*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), vesper sparrow (*Pooecetes gramineus*), red-winged blackbird (*Agelaius phoeniceus*), common grackle (*Quiscalus quicula*), American goldfinch (*Carduelis tristis*), and house sparrow (*Passer domesticus*). Game species commonly harvested within the vicinity of Monticello are ruffed grouse (*Bonasa umbellus*), grey partridge (*Perdix perdix*) and ring-necked pheasant (*Phasianus colchicus*) (NMC 2005). Waterfowl commonly encountered along the river shoreline are Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), and wood duck (*Aix sponsa*). Grassland/woodland ecotone avian species include eastern meadowlark (*Sturnella magna*), western meadowlark (*Sturnella neglecta*), American robin, blue jay (*Cyanocitta cristata*), eastern bluebird (*Sialia sialis*), northern flicker (*Colaptes auratus*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*) (NMC 2005).

In its Environmental Report, the applicant identified seven transmission lines that emanate from the Monticello site. The two transmission lines installed as a direct result of initial construction and operation of the Monticello site (and are, therefore, within the scope of the license renewal environmental report) are the Monticello-Coon Creek 345-kV line and the Monticello-Parkers Lake 345-kV line (AEC 1972), and are pertinent to this analysis (see Figure 2 and Table 1). These transmission lines are expected to remain a permanent part of the regional transmission system even after the decommissioning of Monticello.

## MONTICELLO 345-KV TRANSMISSION CORRIDORS



**Figure 2.** Monticello Transmission Lines

**Table 1.** Monticello Transmission Line Rights-of-Way

<b>Substation</b>	<b>No. of Lines</b>	<b>kV</b>	<b>Approximate Distance (mi)</b>	<b>Corridor</b>	<b>Corridor Width (ft)</b>	<b>Corridor Area (ac)</b>
Sherburne County	1	345	43.1	Monticello-Coon Creek	Varies from 125 to 240	749.7
Elm Creek	1	345	37.1	Monticello-Parkers Lake	Varies from 165 to 240	957

Source: Xcel 2005

Xcel Energy is responsible for maintenance on transmission line ROWs for Monticello's owner (NSP) and operator (NMC). Xcel Energy implements specific programs for ensuring continued operation of its transmission lines, continued compatibility of land uses on the transmission corridors, and environmentally sound maintenance of the corridors (NMC 2005). The Xcel Energy program for conductor and tower maintenance includes monthly fixed-wing aerial patrols for the 345-kV lines and annual helicopter patrols on all lines in the system (NMC 2005). Xcel Energy's vegetation management in ROWs is focused on reducing risk to transmission lines by keeping corridors free of tall-growing vegetation. Low-growing trees, shrubs, and grasses are encouraged by selectively removing tall-growing trees and brush. Qualified line-clearance tree trimmers manually cut and prune using approved mechanical equipment, such as hydro-axes, and selective application of approved herbicides (NMC 2005). Approved herbicides are applied in strict compliance with all Federal, state, and local laws and regulations. Similarly, tall trees typically located just off the right-of-way that have a high probability of failure and sufficient height to make contact with the conductors and/or structures are pruned or cut as appropriate. Vegetation control cycles vary based on line voltage and vegetation conditions, but typically occur on intervals from 2 to 8 years.

#### **4.0 Assessment of Federally Listed Species and Critical Habitat**

Three Federally listed species are evaluated in this biological assessment because of their proximity to Monticello or its associated transmission lines (Table 2). No Federally designated candidate species, nor critical habitat for any threatened or endangered species, exist at the Monticello site or along the associated transmission corridors (NMC 2005; FWS 2005a).

**Table 2.** Terrestrial and Aquatic Species Listed as Endangered or Threatened by the U.S. Fish and Wildlife Service and that Occur or Potentially Occur Within the Monticello Site or the Associated Transmission Line Rights-of-Way

Scientific Name	Type	Common Name	Federal Status	Counties
<i>Lampsilis higginsii</i>	Invertebrate	Higgins' eye pearlymussel	Endangered	Hennepin
<i>Haliaeetus leucocephalus</i>	Bird	bald eagle	Threatened	Anoka, Hennepin, Sherburne, Wright
<i>Canis lupus</i>	Mammal	gray wolf	Threatened	Sherburne

Source: FWS 2005a

### Higgins' Eye Pearlymussel (*Lampsilis higginsii*)

The Federally listed endangered Higgins' eye pearlymussel is only found in the Mississippi River, St. Croix River in Wisconsin, the Wisconsin River, and the Rock River in Illinois. It may be present within Hennepin County over 45 river miles (RM) downstream of the Monticello site (FWS 2005a). It has not been reported from Sherburne or Wright counties where Monticello is located. The Higgins' eye pearlymussel spawns in late summer, but larvae are retained in the marsupia until they are released during the following spring or summer (FWS 2003). The Higgins' eye pearlymussel most frequently occurs in medium to large rivers with current velocities of about 0.5 to 1.5 ft/sec and in depths of 3 to 20 ft, with firm, coarse sand or mud-gravel substrates (FWS 2000, 2001a).

No critical habitat has been designated for the Higgins' eye pearlymussel. However, ten Essential Habitat Areas (EHAs) for the Higgins' eye pearlymussel occur within the Upper Mississippi River watershed. EHAs are locations known to contain reproducing populations of the Higgins' eye pearlymussel in association with a healthy and diverse unionid community (e.g., mussel beds) (FWS 1998). No EHAs occur within the Mississippi River drainage close to Monticello. The most upstream EHA is at Whiskey Rock, Iowa, at Mississippi RM 656, which is downstream from Lock and Dam 8. Monticello is located some 240 RM upstream. The closest EHA for the Higgins' eye pearlymussel occur in the St. Croix River (Hornbach 2004), which flows into the Mississippi River at RM 811 about 89 mi downstream from Monticello.

Suitable fish hosts for the glochidia (larvae) include freshwater drum (*Aplodinotus grunniens*), largemouth bass (*Micropterus salmoides*), black crappie, yellow perch, sauger (*Sander canadensis*), and walleye; while marginal fish hosts include northern pike, bluegill (*Lepomis macrochirus*), and green sunfish (*L. cyanellus*) (FWS 2003).

In 2000-2001, an empty Higgins' eye pearlymussel shell was found in Upper Pool 3 of the Mississippi River (the area below Lock and Dam 3 in the area where the St. Croix River enters the Mississippi River at RM 811 (Kelner and Davis 2002). In 2000, 200 specimens of Higgins'

eye pearlymussel were relocated from Pool 14 of the Mississippi River to Upper Pool 2 and 3 (Kelner and Davis 2002). The transplanted mussels are over 50 RM downstream of Monticello. Reintroductions of the Higgins' eye pearlymussel into the rivers from which it has been extirpated have been conducted since 2000, but it is too early to determine the success of these reintroductions (FWS 2003).

The FWS (FWS 2000) has determined that the continuation of the current operation and maintenance activities of the 9-ft navigation channel in the Mississippi River for another 50 years would jeopardize the continued existence of the Higgins' eye pearlymussel. Two of the EHAs for the Higgins' eye pearlymussel, both located in Wisconsin, are located within the navigation channel (FWS 2000). However, the major adverse effect would be associated with continuing upstream transport of zebra mussels by barge traffic. Currently, there are no effective ways to control established populations of zebra mussels at the scale required to eliminate their threat to the Higgins' eye pearlymussel (FWS 2003).

Coon Rapids Dam, located over 5 mi downstream of where Rum River enters the Mississippi River relative to the plant, serves as a faunal barrier to upstream migration of mussels via their host fish (Kelner and Davis 2002).

The Higgins' eye pearlymussel is not known to occur further upstream than Pool 2 of the Mississippi River, which is mostly located downstream from the Twin Cities area (Kelner and Davis 2002; Hornbach 2004) over 50 RM downstream of Monticello. Therefore, potential impacts from the operation of Monticello are too far removed to adversely affect the species. The Monticello cooling-water intake and discharge are closely monitored under the National Pollutant Discharge Elimination System (NPDES) program. NPDES permit limits are reviewed on a regular basis by the Minnesota Pollution Control Agency to ensure the protection of aquatic biota, including fish species that can serve as hosts for the glochidia of the Higgins' eye pearlymussel. Additionally, there are no plans to conduct refurbishment or construction at Monticello.

On the basis of the negligible anticipated impacts of the cooling-water intake and discharge on the Higgins' eye pearlymussel and its current distribution, the NRC staff concludes that continued operation of Monticello over the 20-year license renewal project will have no effect on the Higgins' eye pearlymussel.

### **Bald Eagle (*Haliaeetus leucocephalus*)**

One active bald eagle nest is known from the Monticello site. The nest is located on Beaver Island in the Mississippi River north-northwest of the Monticello power block. Beaver Island is wholly within the Monticello site. During the June 2005 site audit, the NRC staff observed an eagle perched next to the nest. Subsequent discussions with the NMC biologist confirm that this is an active nest (NRC 2005b).

During the June 2005 site audit, the NRC staff also observed an additional nest on a transmission tower located on the Monticello-Coon Creek 345 kV line. Again, discussions with the NMC biologist also confirm that this also is an active nest (NRC 2005b).

NMC has adopted the Minnesota Department of Natural Resources Management Guidelines for Bald Eagle Breeding Areas, and the U.S. Fish and Wildlife Service (FWS) Northern States Bald Eagle Recovery Plan (MNDNR 2003b) recommendations for protecting individual occupied and active nest sites. Additionally, on April 19, 2002, Xcel Energy entered into a memorandum of understanding (MOU) which establishes procedures and policies to avoid avian injuries or fatalities on company property (Xcel Energy et al. 2002).

The nest on Beaver Island is located approximately 1000 feet north-northwest from the Monticello power block in which the majority of site activity occurs. Activities that might affect nesting success, such as landscape alterations and construction, would be outside both the Primary and Secondary Protective Zones as defined by the MNDNR management guidelines. The licensee does not engage in any burning or forest maintenance activities within these zones and physical security requirements ban unauthorized human entry and low flying aircraft over company property on both sides of the Mississippi River. Additionally, the island properties located within the river system (e.g. Beaver Island) are posted against trespassing. There is no vehicular access to these areas except by boat; however, unauthorized access by boat would result in action by the site security force.

The majority of adverse human activities would also be restricted throughout the year in the Tertiary zone (660 feet to 1/4 mile from the nest), with restrictions on landscape alterations and burning. The fact that the station predates the construction of the nest, and that the station has been in almost continuous operation during past nesting activity, strongly suggests that the activities associated with Monticello operation are not likely to adversely affect bald eagles using the nest. In fact, the limitations on unauthorized access, the relatively pristine nature of the majority of the 2,150 acre site, the roughly two miles of undeveloped shoreline on the north and south banks of the river (with the exception of the area of the plant), and the warm water discharge that attracts and concentrates fish for foraging, particularly during the winter, suggests that the Monticello site could be considered beneficial to the species.

The nest located on the transmission tower along the Monticello-Coon Creek 345kV line is located in an area of limited public access. Periodic line maintenance for vegetative control is performed, on average, every 4 years and consists of the removal of danger trees on either side of the ROW and the clearing of vegetative growth under the lines that could come within close proximity of the conductors (NMC 2005). Such line maintenance is achieved by selective tree removal along the edges of the transmission corridor that could pose a danger if toppled into the line and selectively removing potentially tall-growing trees and brush in the actual ROW. The area where the Monticello-Coon Creek line nest is located is relatively open and poses little line risk due to danger trees; therefore, future removal of large trees along the margins of the transmission lines is unlikely. Additionally, because of the eagle nest, selective vegetative clearing activities within the ROW is restricted to summer, which is outside the critical period of 10 February to 1 May, as defined in the MNDNR management guidelines.

The remoteness of the Monticello-Coon Creek nest site, and the timing of infrequent vegetative maintenance leads the staff to conclude that continued plant operation is not likely to adversely affect the bald eagle nest site on the Monticello-Coon Creek transmission line.

Lehman (2001) summarized the literature regarding raptor electrocutions on power lines, and emphasized that nearly all electrocutions in the United States occur on comparatively low-voltage distribution lines supplying individual users and businesses, not transmission lines. The spacing of conductors on transmission towers is typically greater than the wingspan of raptors, and therefore, electrocutions are highly unlikely.

There are no known reports of bald eagle collisions with the Monticello transmission lines or other Monticello structures. Xcel Energy has a program in place to install flight diverters on its transmission lines to reduce potential for avian collisions and has entered into a MOU with the FWS and MNDNR to develop and implement an avian protection plan (Xcel Energy et al. 2002). The MOU requires that any injuries or mortalities to bald eagles associated with transmission line collisions would be reported to the MNDNR. The requirement to report all onsite raptor mortalities and any bald eagle injuries or mortalities to MNDNR is part of NMC's procedures.

Based on the location of the onsite nest relative to the power block, the remoteness of the nest on the Monticello-Coon Creek transmission line, NMC's commitment to follow the MNDNR Management Guidelines for Bald Eagle Breeding Areas and the FWS Northern States Bald Eagle Recovery Plan, the actual potential for disturbance during nesting/breeding, either from the Monticello site activities or from ROW maintenance, is highly unlikely. The potential for bald eagle electrocutions and collisions is also highly unlikely. Consequently, the NRC staff has determined that renewal of the Monticello operating license for an additional 20 years is not likely to adversely affect the bald eagle at the Monticello site or the associated transmission lines.

### **Gray Wolf (*Canis lupus*)**

The gray wolf was listed in Minnesota as Federally endangered in 1974 as a result of human persecution and reduced prey availability. Gray wolves in Minnesota were reclassified from endangered to threatened in 1978, to allow for special regulation under Section 4(d) of the Act. Since 1977, gray wolf populations in Minnesota have expanded. Population recovery goals of 1250 to 1400 individuals have been achieved, with populations at or above that level since the late 1970s (FWS 2005b). Today, wolves live in areas with higher road and human densities than previously believed to be suitable for wolf survival. Wolves continue to disperse to areas in west-central and east-central Minnesota (just north of Minneapolis/St. Paul), North and South Dakota, and Wisconsin (FWS 2005b). Potential impacts to the Federally-threatened gray wolf include direct destruction of the habitat from land-disturbing activities on site, and routine vegetation maintenance practices on site and along the transmission corridors. However, NMC has not identified any land-disturbing activities that would be undertaken for license renewal (NMC 2005). As gray wolf populations recover, it is likely that they may traverse the transmission corridors of interest to the license renewal of Monticello. Gray wolves have not been sighted in the Monticello area or on the Monticello site to date. It is possible that if the population of gray wolves continues to increase, the species may use the Monticello site sometime in the future. However, activities associated with future plant operations would not be detrimental to the species.

Vegetation management may improve habitat quality for prey items important to the gray wolf. In fact, the maintenance of a large tract of undeveloped property associated with the site, closed to the public, with no hunting pressure, may in fact be beneficial to the species. However, continued high density development around the plant site will likely preclude the species from the area.

For these reasons, the NRC staff has determined that continued operation of Monticello over the 20-year license renewal period will have no effect on the gray wolf.

## **5.0 Conclusions**

The NRC staff has evaluated the potential impacts of an additional 20 years of continued Monticello operation on two Federally listed threatened species and one Federally listed endangered species with the potential to occur within the vicinity of the Monticello site or along its associated transmission line corridors. Although the Federally protected bald eagle is known to use the Monticello site and associated transmission corridors, NMC and Xcel Energy have developed and implemented procedures to protect the species and important habitat.

The NRC staff has determined that license renewal for Monticello may affect, but is not likely to adversely affect, the bald eagle; and will have no effect on the gray wolf or the Higgins' eye pearlymussel.

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