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1414 West Hamilton Avenue
PO Box 8
Eau Claire, WI 54702-0008

September 1, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Subject: **Relicensing Study Summary**
Saxon Falls Hydroelectric Project (FERC Project No. 2610)
Superior Falls Hydroelectric Project (FERC Project No. 2587)

Dear Secretary Bose:

Northern States Power Company-Wisconsin (NSPW), d/b/a Xcel Energy, hereby submits its study summary, for the record, regarding the relicensing of the Saxon Falls and Superior Falls hydroelectric projects. On August 19, 2020, the Commission issued an Order ruling that it has jurisdiction over the Gile Flowage (UL20-1) and directed NSPW to submit a license application for said facility no later than 36 months after the issuance of the Order. As such, the enclosed study summary does not include a summary specific to the Gile Flowage.

Should you have any questions, please contact Matthew Miller at 715-737-1353 or matthew.j.miller@xcelenergy.com.

Sincerely,

James M Zyduck Digitally signed by James M Zyduck
Date: 2020.09.01 16:01:07 -05'00'

James M. Zyduck
Director, Hydro Plants

Enclosure: August 2020 Study Summary

cc:

Ms. Cheryl Laatsch – WDNR (via e-mail)
Ms. Angie Tornes – NPS (via e-mail)
Mr. Jim Fossum – RAW (via e-mail)
Ms. Cathy Techtmann – FOG (via e-mail)
Ms. Elle Gulotty – MDNR (via e-mail)
Mr. Shawn Puzen – Mead & Hunt, Inc. (via e-mail)
Mr. Thomas O-Keefe – AWW (via e-mail)
Mr. Bob Stuber – MHRC

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Summary of Study Comments and Responses

Saxon Falls Hydroelectric Project

FERC Project No. 2610

Montreal River
Iron County, Wisconsin
Gogebic County, Michigan

Superior Falls Hydroelectric Project

FERC Project No. 2587

Montreal River
Iron County, Wisconsin
Gogebic County, Michigan

Report prepared for

Xcel Energy®

Eau Claire, Wisconsin

Report prepared by

Mead & Hunt

www.meadhunt.com

August 2020

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1. Study Requests Received From[1]:

- American Whitewater (AW)
- Friends of the Gile Flowage (FOG)
- Michigan Department of Natural Resources (MDNR)
- National Park Service (NPS)
- River Alliance of Wisconsin (RAW)
- Recreational Boaters (Boaters)
- Wisconsin Department of Natural Resources

2. Summary of Study Comments and Action Items

A. Aesthetic Flow Study – AW, FOG, MDNR, NPS

AW Comment(s):

In addition to instream flow needs for recreation, we also request that public access to the river be evaluated and flows for aesthetic enjoyment of both Saxon Falls and Superior Falls be quantified and evaluated.

FOG Comment(s):

We feel that the Montreal River Corridor, including areas connecting those included in the project boundaries should be inventoried, including formal and informal trails, formal and informal access, camping and scenic viewing. The inventory should identify the current use, current conditions, opportunities for public access, education and interpretation, and any impacts that the project might have on them. Aesthetic/culture areas include:

Montreal River Waterfalls
Superior Falls, Saxon Falls, Kimball Falls, Interstate Falls, Peterson Falls, Spring Camp Falls (just south of project boundary, but is noteworthy within the Montreal River System)

Montreal River Historic Sites and Trails
Mouth of the Montreal River: site of a historic Ojibwe Indian Village Site
Flambeau Trail: Historic Native American, fur trade route following the Montreal River from the Mouth of the Montreal River across the Gile Flowage
North Country Trail.

MDNR Comment(s):

Further study of aesthetic considerations and recreational benefits is warranted, and options and alternatives should be weighted in consultation with the resource agencies.

[1] Actual Study Request Letters are enclosed in Appendix 1.

NPS Comment(s):

The aesthetic flow study would describe and evaluate the impacts of project operations on aesthetic flows over the Saxon Falls and Superior Falls waterfalls. The objective of the study is to evaluate aesthetics of a range of flows using representative panels or samples to produce empirical flow evaluation curves and assess the acceptability of flow regimes or mitigation options.

NSPW Response:

NSPW does not believe that aesthetic evaluations of every waterfall on the Montreal River and West Branch of the Montreal River as recommended by FOG are warranted. All waterfalls other than Saxon Falls and Superior Falls lie outside of the hydroelectric project boundaries, are located upstream of the project dams, and are not affected by project operations[2].

NSPW will provide additional information, including photographs, of the section of North Country Trail located on Hwy 122 that travels through the Superior Falls project boundary in the applicable Draft License Application (DLA). No specific aesthetic study of these facilities is planned.

NSPW is proposing to conduct an aesthetic flow study at the Saxon Falls and Superior Falls waterfalls to evaluate aesthetics at different flows. NSPW staff will take representative pictures of each 5 cfs flow[3] (i.e. 5 cfs, 10 cfs, 15 cfs, etc.) (during normal workdays) from designated vantage points at each project and record flow information at the time the pictures are taken during the open water season. This information will be included in the Draft License Application (DLA), allowing relicensing participants to evaluate aesthetics of the waterfalls at a variety of flows. At Saxon Falls the photo points will include one site at the scenic overlook. At Superior Falls, photo points will include one site at the scenic overlook.

B. Aquatic Plant Study – MDNR, WDNR

MDNR Comment(s):

We would support utilizing the point intercept method commonly used in Wisconsin for aquatic monitoring, and other systematic methods of baseline inventory or ongoing monitoring in consultation with the resource agencies.

WDNR Comment(s):

Saxon Falls-In-water plant community data is limited within the project community. The goal of the study is to provide baseline information on the condition of the aquatic plant community in the Saxon Falls Project.

Superior Falls- In-water plant community data is limited within the project boundary. The goal of the aquatic plant study is to provide baseline data on the condition of the aquatic plant community in the Superior Falls Project. Water levels can influence vegetation.

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[2] Waterfalls upstream may be affected by Gile Flowage operations. Those impacts are discussed in Gile Study Summary.

[3] Need to determine how to best accomplish obtaining representative photos.

Methodology-The information collected from this study includes an assessment of the density and diversity of macrophytes, which includes frequencies of occurrence of different plant species, as well as estimates of species richness, abundance, and a maximum depth of plant colonization. The study should be conducted according to WDNR's Recommended Baseline Monitoring of Aquatic Plants in Wisconsin.

NSPW Response:
NSPW will complete a point intercept survey according to the WDNR's Recommended Baseline Monitoring of Aquatic Plants in Wisconsin methodology as part of the Invasive (Aquatic and Terrestrial) Study described in **Section J** below. NSPW will rely on the WDNR to provide the point intercept grid.

C. Assessment of Current Dam Operations – MDNR, WDNR

MDNR Comment(s)
The Licensee should conduct a study of potential impacts of project operations, including operating band and drawdowns of various types across the facilities. Drawdown impacts should include potential effects of drawdowns for maintenance, repair, or inspection, and drawdowns under emergency or extenuating conditions at Saxon and Superior Falls and Gile Flowage.

WDNR Comment(s):
Determine if the project is meeting requirements of minimum flows and run-of-river operations, including documenting how downstream river flows are managed appropriately to limit water level fluctuations. Ensure that the Projects are meeting the intent of run-of-river, and not causing divergence in flows that harm the downstream aquatic ecosystem.

Methodology-Desktop review of existing inflow and outflow data, including an evaluation report of run-of-river and operations requirements.

NSPW Response:
NSPW will complete a desktop review of existing flow data and provide an evaluation report in the DLA. A discussion of the frequency and procedure for planned drawdowns will also be provided in the DLA.

D. Assessment of Minimum Flows and Resource Impacts at the Bypass Channels – RAW, WDNR

RAW Comment(s):
Instream Flow Study-We recommend XE conduct a habitat-based instream flow study in both bypass channels. The flow study should incorporate habitat suitability indices for selected target species. It May be more practical to complete this study in Year 2. The FWS Instream Flow Incremental Methodology, as updated, has historically been a credible method to use for instream flow studies. However, there are other flow/habitat-based methodologies also used for such studies, please consult with the resource agencies.

WDNR Comment(s):

Determine if the project minimum flow of 5 cfs at Saxon Falls, 8cfs and 20 cfs at Superior Falls is providing sufficient flows for the aquatic environment and evaluate additional flows for comparison.

Methodology-In-stream flow study, which includes a description of current habitat conditions within the bypass channel under current operation and flows to determine if the current minimum flows are impacting available habitat, fish, and macroinvertebrate communities. Assess various minimum flow regimes to determine what is appropriate to not have an adverse impact to the resource.

NSPW Response:

NSPW is not proposing to conduct a study within the bypass channels of the Saxon Falls and Superior Falls Projects to evaluate the current minimum flows to determine if the current flows are sufficient to protect aquatic life. The potential to support aquatic habitat is minimal as outlined in **Section E**. See **Section A** for aesthetic minimum flow data collection.

E. Assessment of Riverine and Reservoir Habitat – RAW, WDNR

RAW Comment(s):

We recommend that a biological survey be conducted in both project bypass channels to document aquatic life living there. The goal of the study is to identify what aquatic species, macroinvertebrates, mussels, fish, and other aquatic life are currently living in the bypass channels.

The study methodology used for the biological survey should be one that is standard sampling protocol used by the Wisconsin DNR or Michigan DNR. The agencies likely have guidelines available for use by the utilities in developing the plan of study. The Wisconsin DNR Fish Indices of Biological Integrity and their Macroinvertebrate Indices of Biological Integrity methodologies may help in planning the study. Please consult with the agency staff.

WDNR Comment(s):

Having updated instream and reservoir habitat assessment information is critical for evaluating the effects of the project on the stream ecosystem. It will provide baseline data to current conditions. The data can be used to help guide river management for associated with Saxon Falls, Superior Falls.

Obtaining recent habitat assessment information is critical for future management actions and establishing baseline data. Water level fluctuations due to drawdowns may affect aquatic habitat.

Methodology: The riverine habitat should be evaluated with the WDNR Quantitative Habitat Assessment methodology in wadable stretches of Montreal River at various flows or estimates. We acknowledge that access may be limited due to rocks, and water velocity/whitewater. For the reservoir, WDNR shoreland habitat protocol should be used.

NSPW Response:

NSPW is proposing to conduct a point-intercept vegetation survey and analysis of vegetation along the reservoir shorelines as part of the Invasive Species (Aquatic and Terrestrial) Survey

as discussed in **Section J** below. The point intercept protocol will be modified to provide information on habitat within the reservoir and its shorelines.

Regarding evaluation of the riverine portions of the two projects (bypass reaches), the importance of the two bypass reaches (0.3 miles for Saxon Falls without the falls and 0.1 miles for Superior Falls without the falls) was evaluated by the WDNR in their 1987 biological survey of the lower Montreal River by Dennis K. Scholl Fish Manager of the WDNR (available in Volume II Appendix B of the Superior Falls License Application December 1991). The 1987 study indicates low flows severely limit the potential for establishment of fish species in the Saxon Falls bypass reach, but it also notes even if natural year-round flows were present, the fishery potential would be limited by non-project factors such as the poor diversity of habitat (the stream bottom is 80% bedrock with roughly 20% consisting of gravel rubble and boulders) and there is no aquatic vegetation or the substrate to produce it. For the Superior Falls bypass reach, the 1987 study concluded the stream bottom is 90% bedrock with a very steep gradient and no aquatic vegetation and very little other cover.

The 1987 study also concluded there was limited potential for establishment of invertebrates due to the bedrock substrate and potential high velocity flows and the downstream falls limit any upstream fish migration.

Although, the 1987 study is somewhat dated, any changes to substrate where the predominant substrate is bedrock only change during geologic time scales that cannot occur during the 33 years since the 1987 study was completed. In addition, to the substrate information, the two bypass reaches are most-popular for viewing the falls. As such, the primary project purpose for the two bypass reaches should be aesthetics, not providing aquatic habitat. Therefore, no studies on aquatic habitat in the bypass reaches is being proposed. See **Section A** for aesthetic flow data collection.

F. Assessment of Stream Flows, Channel Dimensions, and Linear Gradient – WDNR

WDNR Comment(s):

The relicensing of Saxon Falls and Superior Fall has the potential to have short term and long-term impacts on the aquatic community of the Montreal River downstream of the impoundment(s). These impacts include, but are not limited to, dewatering and limiting available aquatic habitat in the downstream river channel(s) depending on stream discharge and dam operation. These impacts can vary by season as well as daily. Proper management of the resource will help ensure that adequate flows are available for aquatic life at the proper time and thermal regime.

Methodology-Conduct a study to determine stream morphology downstream of the project at various flows, including width, depth, wetted perimeter and substrate composition. The study should identify any wetlands that are flooded. This should include available aquatic habitat under current operation through flood flow conditions. Quantitative Habitat Assessment

Methodology should be used to document habitat conditions. Refer to existing management efforts (recreation, resource, habitat) to investigate the impacts the proposed project would have.

NSPW Response:
The Saxon Falls and Superior Falls Projects are operated in a run-of-river mode where outflows from the projects are the same as the inflows to the project. The only portion of the two projects under the Licensee's control that are subject to changes in stream flow, channel dimension, and linear gradient are located within the bypass channels between the dam and the powerhouse. NSPW is not proposing a study to assess the minimum flows habitat, and resource impacts in the bypass channels as outlined in **Section E**. No assessment of the stream flows, channel dimensions, or linear gradient downstream of the powerhouse of either project are proposed.

G. Boundary Change Study – MDNR, WDNR

MDNR Comment(s):
The Licensee should conduct a habitat Evaluation Procedure to provide a comparative analysis of habitats provided in the reservoir vs. tailwater and adjacent lands, including changes associated with the proposed revised project boundary.

WDNR Comment(s):
Quantitative assessment of acres of wildlife habitat and surface water that would be modified with a proposed change in the project boundary. This includes impacts to public access and recreational activities.

Desktop evaluation of wetland and riparian habitat. Identify changes in acreage in wetland and habitat as well as changes in acreage and use in recreational features. Additionally, identify if any of the areas to be excluded from the project boundary provide habitat for listed species.

NSPW Response:
NSPW will provide additional information regarding lands to be removed from the project boundary in the DLA. This will include changes to the amount of upland, wetland, and reservoir acres, different types of land cover, and potential impacts to listed species, recreation sites, historic/archaeological sites, etc.

H. Bathymetry Study – MDNR

MDNR Comment(s):
Hydrographic/Bathymetric maps need to be created/updated in order to be of use for understanding drawdown impacts and mitigation. Updated bathymetry should be collected for the three sites.

NSPW Response:
NSPW has proposed to conduct an Invasive (Aquatic and Terrestrial) Study as discussed in **Section J** that will collect data using WDNR's Recommended Baseline Monitoring of Aquatic Plants in Wisconsin methodology. This will involve the collection of water depth information.

Water depth information from the study will be utilized to develop updated bathymetric maps for the projects that will be provided in the DLA.

I. Fishery Study – RAW, MDNR, WDNR

MDNR Comment(s):

Document aquatic resources present in the reservoir and tailwaters, following standardized fisheries methods for stream fishery resources and impoundment fishery resources.
Depict the likely progression and impacts of operating bandwidths on habitat and aquatic organisms using bathymetry, substrate and other habitat variables so that alternatives can be developed and analyzed. Based on these studies the Licensee should document how proposed operations and alternatives minimize negative impacts including drawdowns.

RAW Comment(s):

Fishery data described in the PAD is derived from Wisconsin DNR fish surveys last conducted from 1979-1987. To accurately describe the fish community currently inhabiting the project area and to enable the licensee to prepare an accurate Environmental Report (Exhibit E) for the license application, we recommend that fish community information be updated to include data on species composition and frequency of abundance.

WDNR Comment(s):

Define the diversity and abundance of the fish community within the Saxon Falls and Superior Falls projects.

Seasonal catch per unit effort (CPUE) surveys in the spring, summer, and fall to quantify fish population relative abundance and summary report to document the species available to recreational fishers and general fish community composition.

NSPW Response:

The Saxon Falls and Superior Falls Projects are operated in a run-of-river mode where outflows from the projects approximate inflows and reservoir fluctuations are minimized to the extent possible. While there are no proposed operational changes to the Saxon Falls or Superior Falls projects that would cause new impacts to the existing fishery, FERC is likely to require fisheries studies to provide more current information on the fishery community within each project. NSPW is proposing to conduct catch per unit effort (CPUE) surveys within the reservoirs to quantify fish population relative abundance.

In addition to reservoir surveys, WDNR also requested that trap and fyke netting be completed in the bypassed reach of each Project. A 1987 study indicated that even if natural year-round flows were present within the bypassed reaches the fishery potential would be limited by non-project factors such as the poor diversity of habitat (the stream bottom is 80-90% bedrock and has no aquatic vegetation or other cover). Therefore, no fish surveys within the bypassed reaches are proposed.

The reservoir fishery study will be completed in 2021.

J. Invasive Species (Aquatic and Terrestrial) Study – MDNR, RAW, WDNR

MDNR Comment(s):

Early Detection/Rapid Response. Baseline study to identify native and invasive plant and animal distribution in the project boundary, project waters, and adjacent riparian areas. We would support utilizing the point intercept method commonly used in Wisconsin for aquatic monitoring, and other systematic methods for baseline inventory or ongoing monitoring in consultation with resource agencies. For general overview of the EDRR structure, Safeguarding America's Lands and Waters from Invasive Species, 2016. In order to determine whether a concerning/potential emerging species is established or a candidate for aggressive management, the Licensee must first develop- updated information on the existing community.

RAW Comment(s):

Conduct an aquatic and terrestrial invasive species (ATIS) study in the SAF and SUP flowages and in the riverine sections of the projects. Infestation of project waters with ATIS can substantially degrade the quality of the aquatic habitat for native vegetation and the quality of experience to the recreating public. It is critical to identify what ATIS species are present so they can be removed or controlled before they become infested.

WDNR Comment(s):

The project may influence invasive species that have the potential to directly or indirectly cause economic or environmental harm or harm to human health, including harm to native species, biodiversity, natural scenic beauty and natural ecosystem structure, function or sustainability; harm to long-term genetic integrity of native species; harm to recreational, commercial, industrial, and other uses of natural resources in the state; and harm to the safety or wellbeing of humans including vulnerable or sensitive individuals. -per NR40.

Methodology-Use WDNR Early Detection Early Response Protocols. Additional methodology may be needed for terrestrial species, and other methodologies such as point-intercept may be appropriate if combining this study with other studies.

NSPW Response:

NSPW is proposing to complete an aquatic invasive species survey on the project reservoirs, bypass reach, and tailraces. On the reservoir, a point-intercept survey and a rapid-response survey will be completed according to the existing Cornell Hydroelectric protocols developed in consultation with the WDNR which corresponds with published WDNR protocols.

In the bypass reach and tailwater areas, a rapid-response methodology will be followed and implemented that is safe and corresponds with the published WDNR protocols.

NSPW is also proposing to complete terrestrial aquatic invasive species surveys in areas where project operations have the potential to impact or spread terrestrial invasive species. These include project facilities, recreation sites, the bypass reaches, project tailwater, and project reservoirs. NSPW lands with project facilities or recreation sites, bypass reaches, and project tailwater areas will be surveyed for terrestrial invasive species in conjunction with the aquatic

rapid response survey. The survey will consist of a meandering survey to identify, locate, and define the perimeter of occurrences of terrestrial plant species listed in NR 40. NSPW will monitor the reservoir shorelines by boat while moving slowly along the shoreline for terrestrial invasive species when conducting the reservoir aquatic surveys. In addition to invasive species, an overall characterization of the terrestrial plant composition will be made.

Reporting will include mapping of identified colonies of species listed in NR 40 on an aerial photo background with bathymetric data, estimation of abundance of plants, and a relative density of species in each location. This study will be completed in 2021.

K. Macroinvertebrate Study – MDNR, RAW, WDNR

MDNR Comment(s):

Freshwater mussel, macroinvertebrate and substrate surveys are necessary. Limited freshwater mussel data are available, and while freshwater mussels are often the focus of our discussion of drawdowns, they are not the only group of interest. Other natural resources can and may warrant further protection efforts, including spawning and nursery areas, and areas subject to instability and aggradation during drawdowns.

RAW Comment(s):

We recommend that a biological survey be conducted in both (Saxon Falls & Superior Falls) project bypass channels to document aquatic life living there. The goal of the study is to identify what aquatic species of macroinvertebrates, mussels, fish and other aquatic life are currently living in the bypass channels.

WDNR Comment(s):

Assess the water quality using macroinvertebrate bio-indicators below and above impoundments and within the riverine system.

Saxon Falls and Superior Falls

Wisconsin DNR Guidelines for Collecting Macroinvertebrate Samples from Wadable Streams (2017) and Large River Macroinvertebrate Sampling (2015). Data should be analyzed using the current WDNR WISCALM Guidance. Macroinvertebrates should be collected upstream of the reservoir, in the riverine reach, in the bypass channel, and downstream of the powerhouse in the fully mixed zone.

NSPW Response:

The purpose of the study according to WDNR is to assess water quality with the use of macroinvertebrates as a bio-indicator. NSPW has agreed to complete water quality monitoring of 18 different parameters as described in **Section Q**. Since the Saxon Falls and Superior Falls Projects are operated in a run-of-river mode, there are no new anticipated impacts to macroinvertebrates within the reservoir or downstream of the powerhouse. The data collected in the water quality monitoring study should provide sufficient information to determine water quality in those areas.

L. Montreal River Continuum Study – WDNR

WDNR Comment(s):

Comprehensive assessment of how the three dams work independently and together, as well as the assessment of the impacts to the environment. These studies will provide information for management planning for current and future needs.

Methodology-The project studies should be designed to characterize the Montreal River and reservoir systems. This include an operations and flow study that assess how each project (including Gile Flowage) functions independently and together. Reference the in-stream-flow study requests for each facility above and create a comprehensive flow study that incorporates Gile Flowage, Saxon Falls, Superior Falls, and the Montreal River as a continuum.
Xcel Energy Response:

NSPW Response:

The Saxon Falls and Superior Falls Projects are operated in a run-of-river mode where releases from the projects approximate the inflows to the projects. NSPW is proposing to continue operating the facilities as they are currently operated. This study request duplicates other study requests submitted by WDNR. Studies proposed to be completed by the Licensee will provide sufficient information to evaluate the impact of the projects on the environment. NSPW is not proposing to conduct the Montreal River Continuum Study.

M. Mussel Study – MDNR, RAW, WDNR

MDNR Comment(s):

Freshwater mussel, macroinvertebrate and substrate surveys are necessary. The PAD indicates that the only freshwater mussel data available are from WDNR. Those records are from 1975 and represent two species. We believe recent, comprehensive data (i.e. both qualitative and quantitative surveys for each project should be collected within and outside the reservoirs. MDNR can provide additional comments and guidance on proposed survey methods to understand the community structure, density and diversity of mussels. We believe quantitative survey efforts will be necessary to capture community diversity, as well as reproductive status.

RAW Comment(s):

In coordination with the Wisconsin DNR, Michigan DNR, and FWS conduct a mussel study in the bypass channels, project flowages, and in the riverine sections upstream and downstream of the SAF and SUF projects. The goal of the study is to determine mussel species density and diversity, including characterizing mussel habitat in the river and flowages and bypass channels of the SAF and SUF projects

WDNR Comment(s):

There is limited information on freshwater mussel species in or near the project area. The PAD states that Cylindrical papershell and Eastern Elliptio have been found within the Montreal River and its tributaries in Iron County based on 1975 records from the Wisconsin Mussel Monitoring database. Recent surveys have not been conducted for mussels in this area.

The goal of the study is to determine freshwater mussel density and diversity within the Saxon Falls project and Superior Falls project including characterizing mussel habitat within the project area. The study would provide information on freshwater mussel species present, their diversity, density, and a better understanding of baseline conditions and associated management needs for relicensing.

The operations of the projects could influence the freshwater mussel species located at the study area. The results of the survey will provide essential information to determine if any protection measures, restoration, or enhancements would be necessary as a management requirement associated with the Gile Flowage.

A qualitative and quantitative survey for freshwater mussels should be conducted. One method that can be used is WDNR's Guidelines for Sampling Freshwater Mussels in Wadable Stream. Methodology should be discussed with the Department for nonwadable areas.

NSPW Response:
NSPW will complete the mussel survey outlined above and will follow a protocol which corresponds with the published WDNR protocols. Study implementation will be completed in 2021.

N. Rare and Endangered Species Study

WDNR Comment(s):
Rare plants and animals have been found within, adjacent to, and in habitats similar to the study area. It would be recommended to complete plant and animal surveys for these species to determine if they occur within the study area and to further our understanding of their populations within this area. This will also inform the licensee as to where these plant and animal locations are. The relicensing has the potential to have short-term and long-term impacts on vegetation and animals-in particular, wood turtles and their habitat. Proper management of the resource will help to minimize any adverse impacts associated with the removal restoration and relicensing activities.

Methodology-Using a qualified botanist knowledgeable in area vegetation and specific species, identify, classify, and delineate on a map rare, threatened, or endangered plant species within the project area. Using a qualified biologist or ecologist, conduct presence absence surveys for specific rare, threatened, or endangered species.

NSPW Response:
WDNR conducted Endangered Resource Reviews for the Saxon Falls and Superior Falls Projects. At Saxon Falls two special concern plant species, two threatened plant species, and one special concern bird species was identified. WDNR determined that there was no suitable habitat for the bird species and that all four plant species may be located within the project. At Superior Falls the protected Bald Eagle, a special concern mussel species, and two threatened plant species were identified as being potentially located within the project. The Licensee has proposed to conduct mussel surveys at both projects. This will provide information on the presence or absence of protected mussels. In conjunction with development of the DLA, the Licensee will provide an analysis of the vegetation cover types within the projects and potential

impacts to listed species. If this analysis determines that listed species may be impacted by continuing operations, the Licensee will propose mitigation measures in the DLA to avoid impacts. Mitigation measures may include items such as using the USFWS Step-by-Step Guidance to determine whether proposed activities may impact bald eagles or conducting surveys for threatened and endangered plants prior to conducting ground disturbing or vegetation clearing activities. No specific rare species surveys are being proposed by the Licensee. See **Section S** for discussion of the Wood Turtle study request.

O. Recreation Study – AW, Boaters, FOG, MDNR, WDNR

AW Comment(s):

In addition to instream flow needs for recreation, we also request that public access to the river be evaluated and flows for aesthetic enjoyment of both Saxon Falls and Superior Falls be quantified and evaluated.

Boater Comment(s):

Several recreational boaters requested an evaluation of public access needs for the projects. They included John Burton, Karen Frank, Brian Gulbransen, Doug Heym, Paul Lang, Todd Leigh, Kraig Lund, Christopher O Brien, Jake Ring, Greg, Weiss, Ryan Whipple, Andrew Wians. In general, their comments are summarized by the statement from John Burton below:

As FERC considers study needs for relicensing of the Saxon Falls and Superior Falls Hydroelectric Project, I am requesting a study of instream flow needs for whitewater recreation, and evaluation of public access needs, and options for providing improved access to real-time flow information.

FOG Comment(s)

The Montreal River offers a variety of interdependent water-based recreational activities, requiring consideration as a holistic system. Upstream the 3,138-acre Gile Flowage is prized for unspoiled lake kayaking, island camping, boating, and rugged aesthetic beauty; as well as fishing, shoreline hiking, bird watching, and other uses. These uses depend on management of the Flowage water levels. In turn, outflows from the Gile Flowage help support unique whitewater kayak opportunities downstream on the Montreal River, as well as aesthetics at its many scenic waterfalls. Downstream water-based recreation uses depend, in part, to the management of the Flowage's outflow and drawdown, which also affect the flowage.

We agree with stakeholders representing whitewater kayaking interests that a recreation use study is needed. We strongly support a Recreational Use and Opportunities Study that evaluates the Montreal River as a system recognizing the connectivity of upstream and downstream flows and needs, present and future public outdoor recreation demands, and maintaining and enhancing a quality environmental setting. We would also encourage this study include opportunities for increased public access, handicap accessibility, and environmental protection including the spread of invasive species.

MDNR Comment(s):

Recreational access and experience: The proposed changes in project boundary shift the character of the lands incorporated into the project from riverine/tailwater (including regionally uncommon high-gradient stretches of interest to paddlers) to predominantly reservoir. The benefits to the public arising from the inclusion of these primarily reservoir occupied lands are different from those stemming from tailwater land. One of the primary recreational uses of the Montreal River is kayaking and canoeing. The Licensee should study and document these differences, and if differences are documented the Licensee should retain and enhance recreational amenities especially in the project tailwaters and riverine areas. Independent of this change, the PAD indicates that recreational access is sufficient based on Form 80 Surveys. The amenities for Saxon and Superior are minimal, and the condition of facilities in relation to recreational needs is not well-supported. The PAD outlines intention to enhance the Saxon Falls Scenic Overlook but doesn't thoroughly explain how and why this area is a priority over other project recreational amenities, including amenities that might be added. In the Form 80 survey provided for Saxon, 50% of the use was at an informal site. If additional improvements or new recreation facilities were provided, it is reasonable to expect that more people would utilize them, and that public enjoyment would increase. Further study of aesthetic considerations and recreational benefits is warranted, and options and alternatives should be weighed in consultation with the resource agencies.

RAW Comment(s):

Evaluate the existing condition of recreational facilities and document needed upgrades. Evaluate the condition of the existing recreational facilities. Update the existing recreational brochure (if there is one) or prepare a new one to serve as a guide for the public. Prepare a draft Recreation Plan for the project to be reviewed by the resource agencies and other stakeholders.

WDNR Comment(s):

Evaluate current recreational uses, including opportunities for low flow and high flow events, public access, natural scenic beauty, trails, water sports, and fishing with consideration of the different seasonal uses.

There are many opportunities for fishing wildlife viewing and water sports within the Saxon Falls vicinity, which includes the Saxon Falls boat landing, scenic overlook, and tailwater access.

There are many opportunities for fishing, wildlife viewing, and water sports within the Superior Falls Project vicinity, which includes the North Country Scenic Trail, canoe take-out, scenic overlooks, and tailwater fishing area.

Methodology-Desktop assessment, including a review of the State of Wisconsin 2019-2023 Statewide Comprehensive Outdoor Recreation Plan (SCORP, released in March 2019, public surveys and existing recreational sites. This includes assessment of current uses, level of use, evaluation for additional recreational features.

NPS Comment(s):

The comprehensive recreation study that the NPS proposes involves a detailed condition assessment and inventory of project and facility related recreation facilities to evaluate whether recreation needs are being met within the proposed project boundaries. These steps are followed by demand analysis which contributes to the overall recreation study: comparing demand to the inventory and condition assessment allows further evaluation of the existing and projected recreation needs within the project and facility areas. This recreation study will comprise the following elements:

(1) Project and Facility Recreational Facility Inventory and Condition Assessment
(2) Project and Facility Recreational Facilities Accessibility Assessment
(3) Project and Facility Recreation Demand Analysis

All developed and dispersed recreation sites within the Saxon Falls and Superior Falls project boundaries should be inventoried, including formal and informal trails, formal, and informal access, and scenic viewing locations. The inventory should identify current use, current conditions, and any impacts that the project might have on these. We recommend consulting NPS, and any stakeholders in developing the survey instruments and protocol. Particular attention should be given to these facilities within the project/facility boundaries:

Saxon Falls Boat Landing
Saxon Falls Scenic Overlook
Saxon Falls Tailwater Access
North Country National Scenic Trail
Superior Falls Canoe Take-out
Superior Falls Scenic Overlook
Superior Falls Tailwater Fishing Area

<u>Existing Facility Inventory, Condition Assessment</u>

The existing facility inventory and condition assessment portion of this recreation study consists of two steps:

Step 1 - Site Inventory

This recreation study will inventory the number and type of components that are provided at the recreation sites listed above. The existing facility inventory should include identification and location of parking spaces, picnic units, boat ladings/ramps, bathrooms camp sites, and other facility components. Trails, including scenic overlook and river access trails, will be inventoried for signage, types of improvements, general widths, substrate (e.g. gravel rock, grass, ramp, etc.) slope, presence and condition of stairs and rails, erosion impacts at access sites, and general trail conditions. Informally created user trails and sites (i.e. sites along shorelines and island that are frequented by recreation users but not identified as FERC designated Project facilities will also be identified and assessed. In addition, shoreline erosion and its impact at the Gile flowage will be identified.

Step 2 - Field Reconnaissance/Condition Assessment
The field reconnaissance should include a physical condition inspection of existing Project recreation facilities and trails, as identified under Step 1. The reconnaissance should also identify observable use patterns and field verify if recreation amenities are constructed and in a condition that serves user needs. User created sites should be identified for observable use and wear patterns.

The following steps should be taken to complete the facilities inventory:

1. *Complete reconnaissance level field research: conduct fieldwork to create a detailed inventory on the conditions of existing recreation facilities and other user created sites within the study area for the recreation study with observable wear patterns.*
2. *Assemble the results and create maps of data collected in the field.*

The condition assessment will be qualitative based on a range of repair/replacement/ maintenance needs to acceptable appearance and function to evaluate the condition of recreation facilities. Photos should be taken of facilities, signs, trailheads, etc., and cataloged based on feature type or location. Other user created sites with observable wear patterns within the project areas should be cataloged for further evaluation within the recreation study.

Existing Facility Accessibility Assessment
Project-related recreation facilities should be assessed for applicable accessibility ADA requirements. The facility inventory assessment and facility accessibility assessment field work should be completed concurrently.

The Recreation Use Demand Component
Step 1 - Observational Survey
Observed recreation use occurring in the project areas based on observational surveys should be used to estimate existing use. Multiple observational surveys should be conducted year-round, with an emphasis on the summer and on holidays. Timing and sampling frequencies should be based on estimated use levels and the surveys should be conducted on different types of days (Weekday, weekend, holiday, op opening of fishing season). The observation data that should be recorded includes vehicle counts, angler counts, boat counts, trail/portage user counts, and day use/picnic area usage.

Step 2 - Visitor Use Questionnaire
A concise questionnaire focusing on visitor use and experience should be fielded at the identified recreation sites when people are present. The survey should be conducted during various days during the survey period including weekdays and weekend as well as holidays. A review of past visitor data should be assessed to determine appropriateness or target survey dates with considerations for current season use patterns and any potential unexpected conditions taken into account. The questionnaire should be crafted to collect information from recreationists about recreation, activity participation, accessibility needs, areas visited, group size, user conflicts, perceived crowding, visitor profile, visual impressions, and satisfaction with or desire for recreational opportunities and facilities in the project areas. The questionnaire should provide an opportunity for visitors to express any potential concerns over the current condition and future

possibilities for recreation and recreation facilities in the project areas. The draft questionnaire should be shared with NPS and other interested stakeholders for comment.

Step 3 - Review of Research Publications and Existing Information
Recent relevant Wisconsin and Michigan-based user preference surveys and other outdoor recreation surveys about recreation demand in the project areas should be gathered and reviewed. These include the most recent state and county recreational management plans identified in the PAD including the Wisconsin and Michigan Statewide Comprehensive Outdoor Recreation Plans (SCORPs) The Applicants should also search for more current surveys that analyze the project and facility areas' outdoor recreation participation rates and growth needs in northern Wisconsin and Michigan to help address how the project recreation facilities are helping to meet the demand of the greater area. Demand and user preference studies at various scales, covering Wisconsin and Michigan, but especially those addressing northern sections of the states, should be reviewed for their applicability to the project areas. Recreation activity and participation trends information should be examined from the existing demand studies and reports.

Step 4 - Assessment of Regional Uniqueness and Significance of the Project Areas' Primary Recreation Opportunities
Regional uniqueness and significance of the project areas' primary recreation opportunities should be evaluated. Site-specific factors that contribute to the uniqueness of the project areas can inform the demand analysis and needs assessment. Where available, information should be gathered for sites including types of designation including water/canoe trail designation, types of recreation opportunities available, visitation statistics (including information on visitor's origin), and general popularity for regional outdoor recreation areas.

Step 5 - Interviews with User Groups and Recreation Providers
Interviews should be conducted with a variety of identified regional and local recreation providers, user groups, and outdoor recreation tourism organizations associated with recreation in the project areas and in the project vicinity. Examples include Friends of the Gile Flowage, American Whitewater members, Friends of the North Country Scenic Trail, and the Chambers of Commerce in Hurley, Wisconsin and Ironwood, Michigan. These entities should be interviewed to gather additional information on current use, user preferences and needs (including instream flows for recreation opportunities within the project areas), existing data, and observations in the project areas for both existing and potential future users.

Step 6 - Regional Demand Assessment
The recreation demand analysis should compare demand with the existing supply of recreation opportunities and use patterns. A gap analysis should be performed by comparing relative demand to supply, with consideration for trends and variations in user groups based on research and forecasts of population growth. By comparing this information to a detailed inventory of existing recreation opportunities and using information gathered in the observational surveys, visitor use questionnaires, structured interviews, and focus groups, it will be possible to determine whether there is a need for modifications to the existing facilities and/or for the development of additional facilities and recreation amenities.

Analysis

The information gathered by the recreation study will assess the suitability of facilities in terms of meeting the changing needs of recreation users in the project areas. The analysis will include developing existing and projected visitor-use estimates, along with existing and projected demand (including unmet demand) for recreational opportunities. The facility and shoreline erosion inventory assessment data collected should be analyzed to identify short and long-term improvement needs over the term of the new license. The recreation demand analysis should provide relevant information about user preferences and needs are related to recreation facilities provided by the project. The draft report should be shared with NPS and other interested stakeholders for comment.

NSPW Response:

NSPW is proposing to complete user counts during the recreation season at recreation sites and facilities listed below. NSPW will also complete an inventory of the following recreation sites to identify existing recreational facilities within the project vicinity and identify update needs.

- Saxon Falls Boat Landing
- Saxon Falls Scenic Overlook
- Saxon Falls Tailwater Access
- North Country National Scenic Trail
- Superior Falls Canoe Take-out
- Superior Falls Scenic Overlook
- Superior Falls Tailwater Fishing Area

The recreational use assessment will utilize a questionnaire distributed to American Whitewater, Friends of the Gile, Friends of the North Country Trail, Iron County Parks and Forestry, Gogebic County Parks and Forestry, Hurley Chamber of Commerce, and Ironwood Chamber of Commerce. It will request information about the types of recreation use at their facilities, any quantitative data they may have about recreation use of their facilities, if they believe their current facilities are adequate, and if they hold any special recreation events that may have attendance records. The study is proposed to be completed in 2020 and 2021.

The DLA will also provide, conceptual recreation designs/options for necessary improvements to existing recreation sites. NSPW plans to fund these recreation improvements as part of the requirements for the new license.

P. Recreation Flow Study – AW, Boaters, FOG, NPS

AW Comment(s):

American Whitewater requests a controlled whitewater flow study on the Montreal River and its major tributary the West Branch Montreal. For these two reaches, the level of public interest and information already on the record renders a Desktop Analysis inadequate to quantify flow dependent recreational opportunities. An intensive study or Level 3 is necessary to inform future license conditions and we request a controlled flow study consistent with methodology established by Whittaker et al. 2005.

- *Montreal West Branch*
  The study area encompasses the West Branch Montreal River from Gile Flowage to Highway 2 as identified in American Whitewater's National Whitewater Inventory.

  American Whitewater completed a survey-based flow study (i.e. study where users self-report flows and respond to an online survey) in 2007 determining that 400-1,000 cfs was the optimal range. While we concluded that a significant population of river users would prefer higher flow releases, we did not evaluate flows greater than 1,000 cfs. We determined that while some individuals have run the river at these higher flows, these opportunities are limited and unlikely to be provided for during a controlled release. Based on the results of our study we proposed an optimum release schedule for a weekend of two releases that would begin with a release of 600 cfs on Saturday Morning at 10 am and until 4 pm, and a second release day of 800-1,000 cfs on Sunday which would begin at 10 am and end at 4 pm. If the release schedule had to be limited to one day, we concluded a flow of 600-800 cfs should be released between 10 am and 4 pm on a Saturday. A limitation of this study was the fact that users self-reported their runs, and in some cases estimating flows and scoring flows that they may not have actually experienced. The study provides a useful starting point, but results need to be confirmed to be used as the basis for protection, mitigation, and enhancement measures for recreation in a new license

- *Montreal Canyon*
  The study area encompasses the Montreal River, commencing at Saxon Falls Tailwater Access and extending downstream to the Superior Falls Take-out adjacent to the Wisconsin Highway 122 bridge as identified in American Whitewater's National Whitewater Inventory. Whitewater; Quietwater has a recommended range of 250-5,000 cfs. The guidebook Paddling Northern Wisconsin recommends a minimum flow of 250-300 cfs. The guidebook Northwoods Whitewater lists 400 cfs as the minimum flow, 1,000 cfs as OK and 5,000 as awesome. Information gathered from guidebooks for the Montreal Canyon, information from the internet flow survey for the West Branch Montreal, and structured interviews with potential participants in a controlled flow study can be used to choose the flows to evaluate in a controlled flow study. Project operations are known to affect whitewater boating on these river segments, and there is a strong recreational demand for using this reach. The objective of this study would be to improve the precision of the estimate flow ranges for whitewater boating using a variety of flows. A qualitative optimal flow range is needed to help refine and inform the development of protection, mitigation, and enhancement measures. A better quantitative evaluation of flow could also help save costs due to generation loss in the future by preventing a higher flow than needed from begin released during post-licensing implementation.

  The controlled flow study will include an evaluation of at least three different flows. Information from guidebooks, the results of the West Branch Montreal study, and structured interviews with boaters that have used this reach will be used to determine the flows to be evaluated. A survey will be distributed after each of the flows to be evaluated. A survey will be distributed after each of the flows as well as a close-out survey. A focus group

discussion will be facilitated after boaters have run each of the flows as well. The controlled flow study could be conducted at a time of year when sufficient flows are available and weather conditions permit. In addition to instream flow needs for recreation, we also request that public access to the river be evaluated and flows for aesthetic enjoyment of both Saxon and Superior Falls be quantified and evaluated.

In addition to instream flow needs for recreation, we also request that public access to the river be evaluated and flows for aesthetic enjoyment of both Saxon Falls and Superior Falls be quantified and evaluated.

Boater Comment(s):
Several recreational boaters requested that a recreation flow study was needed for the projects at the Montreal River Canyon downstream of the Saxon Falls Project. They included John Burton, Karen Frank, Brian Gulbransen, Doug Heym, Paul Lang, Todd Leigh, Kraig Lund, Christopher O Brien, Greg Weiss, Ryan Whipple, and Andrew Wians. In general, their comments are summarized by the statement from John Burton below:

As FERC considers study needs for relicensing of the Saxon Falls and Superior Falls Hydroelectric Project, I am requesting a study of instream flow needs for whitewater recreation, and evaluation of public access needs, and options for providing improved access to real-time flow information.

FOG Comment(s):
We agree with stakeholders representing whitewater kayaking interests that a recreation use study is needed. We strongly support a Recreational Use and Opportunities Study that evaluates the Montreal River as a system recognizing the connectivity of upstream and downstream flows and needs, present and future public outdoor recreation demands, and maintaining and enhancing a quality environmental setting. We would also encourage this study include opportunities for increased public access, handicap accessibility, and environmental protection including the spread of invasive species.

NPS Comment(s):
The purpose of this study (recreation flow study) is to evaluate the impacts of the Projects on existing and potential boating opportunities in the Montreal River.

1. *Below Saxon Falls to Hwy 122 (3.1 miles Montreal River), known to whitewater boaters at "Montreal River Canyon"*

The objective of the study is to determine which flows are preferred by boaters passing through each of the river sections as well as which flows are acceptable and unacceptable.

The recommended study methods are those presented in Flows and Recreation: A Guide to Studies for River Professionals (Whittaker, Shelby and Gangemi 2005). The methods described in the guide are consistent with generally accepted practices in the scientific community. This is a phased approach where the results of a "Level 1" assessment are used to determine whether a

"Level 2" assessment is warranted, while the results of a Level 2 assessment are used to determine whether a "Level 3" assessment is warranted.

NPS believes that the information needed can be collected with a Level 1 Assessment, so costs would be kept minimal. However, the determination whether a level 2 Assessment, flowed by a Level 3 Assessment are needed can only be determined by completing a Level 1 Assessment.

NSPW Response:
This stretch of the Montreal River appears in several comments and is also well-known for its whitewater boating potential. With its notoriety, it appears as though some type of flow release will be requested by FERC.

Based upon that premise, NSPW proposes a desktop boater evaluation study on the Main Branch of the Montreal River between Saxon Falls and the Superior Falls Reservoir. The study will follow a protocol very similar to the protocol adopted by AW in completing a boater evaluation study on the West Branch of the Montreal River in 2007 (See: https://www.americanwhitewater.org/content/Document/fetch/documentid/243).

Although the 2007 study has stated limitations due to the inability to assure the flows being evaluated are the actual measured flows, NSPW intends to improve upon the study methodology by correlating the date of the boating experience with its operations records to provide the actual flow released from the dam and powerhouse during that day. NSPW will reach out to the numerous people that provided comments during the PAD and study request comment period (provided NSPW is able to obtain contact information) along with other local boater individuals that the dam operators regularly communicate with. The contacted individuals will form the evaluation group and similar forms used in previous boater evaluation studies will be used to gather boater input. The boater evaluation study will be completed in 2020 or 2021.

Q. Water Quality Study – WDNR

WDNR Comment(s):
The operation of the dam affects the water quality of the impoundments and downstream resources. The overall goal of the request is to further understand the current water quality conditions of the reservoir and river resources which will help inform management decisions in the future.

Assess and monitor the following water quality parameters:

Total Phosphorus	*Chlorophyll a*	*Dissolved Oxygen (DO)*
Temperature	*Conductivity*	*pH*
Secchi Depth	*Color*	*Total Nitrogen*
Sulfate, Total Mercury	*Iron, Manganese, Sulfide*	*Dissolved Phosphorous*
Nitrate (plus Nitrite)	*Ammonia*	*Chloride*
Bacteria	*Cyanobacteria*	*Total Suspended Solids*
Sediment Accumulation		

Methodology Saxon/Superior-Data should be collected or analyzed using the DNR WISCALM Guidance and surface water grab sampling protocol. For the analytes without state standards, they should be analyzed by mean and median values and reported in a table by date and time annually. Temperature should be evaluated to determine if there are impacts to cold/cool water fish communities. Temperature thermistors should be deployed at a site upstream and of the reservoir in a riverine area, in the bypass channel and in the fully mixed zone downstream of the powerhouse. Water Samples should be collected from 3 sites; at the deep hole within the impoundment, in the bypass channel and in the fully mixed zone downstream of the powerhouse. Dissolved oxygen should be monitored to determine if there are any DO sags downstream of the impoundment in the bypass channel, fully mixed zone downstream of the powerhouse, and in the deep hole of the impoundment. Assess or map sedimentation buildup behind the dam.

NSPW Response:
NSPW will complete the water quality monitoring for the parameters outlined above with the exception of sediment accumulation behind the dam. Previous erosion surveys have not identified significant erosion at either project site. Therefore, sediment that may be accumulating within the projects is outside of the Licensee's control. The water sampling locations will correspond with the published WDNR protocols. Study implementation will be completed in 2021.

R. Wildlife Habitat Study – MDNR, WDNR

MDNR Comment(s):
The Licensee should conduct a Habitat Evaluation Procedure to provide a comparative analysis of habitats provided in the reservoir vs. tailwater and adjacent lands, including changes associated with the proposed revised project boundary.

One benefit FERC identifies in many licensed projects is protection of riparian lands. We want to know whether the same kind, quality, and amount of fish and wildlife habitat is provided by the proposed areas to be included in the project boundary. We regard license conditions which prescribe no-harvest buffers as extremely valuable for both aesthetics and riparian habitat protection. While minimum buffer zones are not a panacea, they can reduce soil erosion, increase recruitment of large woody debris, provide shade and promote healthy shoreline communities.

Given how uncommon the high-gradient tailwater habitats are compared to reservoirs, we expect that protecting these habitats from inappropriate and non-project developments will be especially important. The Licensee should demonstrate why site-specific conditions make the project an exception.

WDNR Comment(s):
Document wildlife presence and diversity, habitat types, and general wildlife and vegetation abundance within the project area. The goal of this study is to evaluate the distribution and composition of vegetation, wildlife, and wildlife habitats, including wetlands, and the effects operations has on those habitats.

Methodology-Using a qualified biologist or ecologist knowledgeable in local vegetation, identify, classify and delineate on a map major vegetation cover types within project area. Existing aerial photography, on the ground surveys, or a combination of the two to identify and map the cover types may be used the biologist/ecologist will record all wildlife present. Ground-truth any remote-sensing mapping efforts and record all wildlife species detected (directly or indirectly) during survey efforts. Describe each cover type by species composition, successional state, and aerial extent (acreage) within the survey area, including invasive species. As an example, the methodology expressed the following reference could be used: https//www.fs.fed.us/research/publications/gtr/gtr_wo89/gtr_wo89.pdf.

NSPW Response:
NSPW will determine the dominant cover type of lands within the projects via a combination of remote-sensing and ground truthing in the field. GIS mapping will be used to determine the areal extent of each cover type and an analysis of the differences in cover types between the lands within the existing and proposed boundaries will be completed. This information will be provided in the DLA.

NSPW is not proposing any changes to the operation of the projects that would impact upland wildlife or upland wildlife habitat. No nexus between the project's operation and wildlife management has been established by the WDNR. Therefore, no wildlife observation surveys are being proposed by NSPW. A terrestrial component was incorporated into the Invasive Species Study discussed in **Section J**.

S. Wood Turtle Study – WDNR

WDNR Comment(s):
Wood turtles are listed as threatened in Wisconsin and as special concern in Michigan. In an effort to better understand the abundance and distribution of this species, several survey and management efforts are taking place across northern Wisconsin within a number of River systems. Presence/absence surveys, population modelling and natural nest site surveys are three examples of existing work that is being done across the range of this species in Wisconsin, which is primarily the northern on-third of the state. Through previous survey efforts this species is known to occur within the Montreal River, however it is unknown whether surveys for or casual observations of, this species have occurred within the Saxon Falls and Superior Falls project boundaries, in addition to the Gile Flowage. The overall goal of this survey request is to further our knowledge of the distribution of wood turtles within the Montreal River watershed and in Northern WI/MI more broadly. The two main objectives of this study request are to determine if wood turtles are present within the project boundaries of these dams and to determine whether any wood turtle nest sites occur within any of the three project boundaries.

Methodology-Using a qualified biologist or ecologist, two survey protocols are requested:

(1) Presence/absence surveys for wood turtles: Surveys for wood turtles are most effective during spring and early summer, when this species emerges from hibernation and begins breeding activity in terrestrial settings but relatively close to riverbanks. Beginning after ice-out, surveys should be conducted on sunny days when the air temperature is 50-80

degrees Fahrenheit. Depending on the year, local snow/ice conditions and weather, these surveys can typically be conducted from late April to Early June. The survey consists of visual searches within approximately 50 feet of the river's edge where wood turtles can be found basking on days that meet the abovementioned weather criteria. The frequency of these surveys will be dependent on weather conditions, but ideally at least two times per week on non-consecutive days during this timeframe.

(2) *Wood Turtle nesting site surveys: Beginning in early to mid-June, and extending until approximately the first week of July, wood turtle nesting activity can be surveyed by conducting daily searches for adult wood turtles and/or evidence of recent nesting activity in suitable nesting habitat. Suitable nesting habitat includes sand or sand/gravel substrate that is either unvegetated or sparsely vegetated, receives sun exposure for most of the day during late/spring Summer and is within approximately 200 feet of the river's edge. Note that this can include gravel parking areas, roads, or shoulders of paved roads. Many portions of the project boundaries can likely be eliminated from these nesting surveys due to a lack of suitable conditions for turtle nesting.*

NSPW Response:

The State of Wisconsin conducted Endangered Resource Reviews for each of the projects/facilities. The Saxon Falls Project was addressed under ER Log # 19-733 and Superior Falls Project was addressed under ER Log # 19-732.

When conducting endangered resource reviews, WDNR uses a 1-mile buffer from the project area for terrestrial species and a 2-mile buffer from the project area for aquatic species such as the wood turtle. No wood turtles were identified within the 2-mile buffer of the Saxon Falls Project or Superior Falls Project boundaries. Under the Wood Turtle Species Guidance, if there is not a wood turtle element occurrence (within the project area or 2-mile buffer) no additional screening is required. While there are known wood turtle element occurrences on the upper portions of the Montreal River and its tributaries, the WDNR has not established a nexus to wood turtles being present within the Saxon Falls or Superior Falls Projects or being impacted by their operation. The Licensee is not proposing wood turtle surveys at the Saxon Falls or Superior Falls Projects.

TABLE 1: Study Commitments and Timing

Commitment	Explanation	Time of Implementation
Aesthetic Flow Study	Collect photos during open water season	2021
	Include photos and corresponding flows in DLA	2022
Aquatic Plant Study (Completed as part of Invasive Study)	Obtain point intercept locations from the WDNR	2020
	Complete Study as listed above	2021

Commitment	Explanation	Time of Implementation
	Include in DLA	2022
Assessment of Current Dam Operations	Review flow and elevation data	2021
	Include in DLA	2022
Assessment of Minimum Flows and Resource Impacts in Bypass Channels (Bypass Channel Study)	Not proposing to complete this study except for waterfall aesthetics	N/A
Assessment of Riverine and Reservoir Habitat	Information requested for the reservoir in this study request will be provided in Invasive Study	2021
Assessment of Stream Flows, Channel Dimensions, and Linear Gradient	Not proposing to complete this study	N/A
Boundary Change Study	Analyze differences of lands in proposed and existing project boundaries	2021
	Add analysis to DLA	2022
Bathymetry Study	Obtain bathymetry information from Invasive Study	2021
	Create bathymetric map and include in DLA	2022
Fishery Study	Work out study protocol	2020
	Complete study as outlined above	2021
	Include in DLA	2022
Invasive Study (Aquatic and Terrestrial)	Obtain point intercept grid from the WDNR	2020
	Complete study as outlined above	2021
	Include in DLA	2022
Macroinvertebrate Study	Not proposing to complete study	N/A

Commitment	Explanation	Time of Implementation
Montreal River Continuum Study	Not proposing to complete this study	N/A
Mussel Study	Work out survey locations	2020
	Complete study as outlined above	2021
	Include in DLA	2022
Rare and Endangered Species Study	Evaluate cover types within project to determine potential rare species impacts	2021
	Include evaluation of rare species impacts in DLA	2022
Recreation Use	Finalize study protocol based upon previous study protocols developed in consultation with WDNR, NPS, and RAW	2020
	Complete recreation site inventory of NSPW sites as stated above	2021
	Develop and send out questionnaire	2021
	Include in DLA	2022
Recreation Flow Study	Work out study protocol and complete interviews	2020-2021
	Include in DLA	2022
Water Quality Study	Work out study protocol	2020
	Complete water quality monitoring as described above	2021
	Provide data in DLA	2022
Wildlife Habitat Study	Assess cover type information	2021
	Include cover type/habitat information in DLA	2022
Wood Turtle Study	Not proposing to complete this study due to lack of wood turtle in WDNR ER Reviews	N/A

Appendix 1.

Study Request Letters

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Northern States Power Company	)	Docket No. 2587
Eau Claire, Wisconsin	)	Superior Falls Project
	)	
	)	Docket No. 2610
	)	Saxon Falls Project

COMMENTS OF AMERICAN WHITEWATER ON THE PRE-APPLICATION DOCUMENT AND STUDY REQUEST

I. INTRODUCTION

American Whitewater hereby files comments pursuant to 18 CFR §16.8(b)(5) on the Pre-Application Document filed by Northern States Power Company for a new license for the Superior Falls Project, FERC Project No. 2587 and Saxon Falls Project, FERC Project No. 2610 (hereafter Projects),[1] located on the Montreal River in Iron County and Gogebic County, Wisconsin. In addition, we request a study of Integrated Analysis of Recreational Flows and River Access. American Whitewater has a documented interest in recreational opportunities on this river dating back more than 30 years and these opportunities are directly impacted by project operations and have a project nexus. In addition to recreation, we have a strong interest in resource protection including fishery resources and riparian habitat. Our individual members who live in the region, and value the river for the recreational opportunities and its natural resources, have also filed several comments on this docket.

II. STATEMENT OF INTEREST

American Whitewater is a national non-profit 501(c)(3) river conservation organization founded in 1954 with approximately 50,000 supporters, 6,000 dues-paying members, and 100 local-based affiliate clubs, representing whitewater enthusiasts across the nation. American Whitewater's mission is to protect and restore America's whitewater rivers and to enhance opportunities to enjoy them safely. The organization is the primary advocate for the preservation and protection of whitewater rivers throughout the United States, and connects the interests of human-powered recreational river users with ecological and science-based data

[1] Notice of Intent / Pre-Application Document of Northern States Power Company - Wisconsin for the Superior Falls Project, et al. under P-2587. FERC eLibrary Submittal 20191230-5284, <https://elibrary.ferc.gov/idmws/search/intermediate.asp?link_file=yes&doclist=14825475>.

to achieve the goals within its mission. Our vision is that our nation's remaining wild and free-flowing rivers stay that way, our developed rivers are restored to function and flourish, that the public has access to rivers for recreation, and that river enthusiasts are active and effective river advocates. A significant percentage of American Whitewater members live in Wisconsin, Minnesota, and Michigan and make use of the recreational opportunities available on the Montreal River and its two major branches.

American Whitewater has extensive experience in hydropower relicensing. We were a founding member and currently Chair the Hydropower Reform Coalition. We work with our coalition partners, state and federal agencies, tribes, and licensees to represent the public interest in hydropower relicensing. We have actively participated in more than 100 relicensing proceedings nationally, more than any other non-governmental organization. In the Midwest we were active stakeholders in several relicensing efforts including the following: Black River, Hatfield Dam (FERC P-10805); Chippewa River, Jim Falls (FERC P-2491); Fox River, Badger-Rapide Croche (FERC P-2677); Menominee River, Little Quinnesec (FERC P-2536); Otonagon River, Bond Falls (FERC P-1864); Paint River, Lower Paint (P-2072); Peshtigo River, Johnson Falls (FERC P-2522); Pine River, Pine (FERC P-2486); Red River, Gresham (P-2484); St. Louis River, Cloquet (P-2363); Wisconsin River, Grandfather Falls (P-1966); and Wisconsin River, Rhinelander (P-2161).

As part of the Superior Falls and Saxon Falls relicensing on the Montreal River, American Whitewater has a direct interest in river and riparian conservation and resource protection, appropriate public access to the river that protects resource values, and instream flows for the benefit of fishery resources, river and riparian condition, and recreation.

Many articles and guidebook descriptions speak to the exceptional quality of the whitewater in the section of river between the powerhouse for the Saxon Falls Project and the reservoir for the Superior Falls Project. In a 1981 article published in the *American Whitewater Journal*, Matt Kuckuck described the Montreal Canyon (beginning at the Saxon Falls Powerhouse) as "by far the most commonly paddled" of the sections of the Montreal River with "continuous easy rapids in a deep, very powerful, conglomerate gorge."[2] In *Whitewater; Quietwater: A Guide to the Wild Rivers of Wisconsin, Upper Michigan, and Northeast Minnesota*, Bob Palzer describes the Montreal Canyon as "a fantastically beautiful gorge with high, sheer cliffs on both sides of the river."[3] In his book *Northwoods Whitewater*, Jim Rada begins his description with the

[2] At page 17. Kuckuck, M. 1981. Matt Kuckuck's Best of the South Shore Part II. American Whitewater Journal.
[3] At page 91, Palzer, B. and J. Palzer. 1998. Whitewater; Quietwater: A Guide to the Wild Rivers of Wisconsin, Upper Michigan, and Northeast Minnesota. Menasha Ridge Press.

words, "this run is one of the most prized in all the Northwoods."[4] He goes on to describe the impacts of the Project on whitewater recreation. In *Paddling Northern Wisconsin*, Mike Svob, begins his description stating that "everything about the Montreal is spectacular… no other stretch of river in the state is likely to generate such wonderment and delight as this 3.2 miler."[5] The Montreal River and its major tributary, the West Branch, have regional and national significance and have been the site of national and international competitions, including the Pan American Cup races in 1984 and National Wildwater Championships in 1992.

When this Project was last relicensed in 1989, the Environmental Assessment specifically noted that the Project "offers opportunities for canoeing and kayaking" and further stated that "recreational facilities provided by the applicant include… [a] steep stairway that provide[s] access to the tailwater area and downstream whitewater opportunities in the Montreal Canyon."[6] The whitewater resources of this reach are well recognized by the whitewater boating community, known to the licensee, and have been previously recognized by the Commission.

During the summer of 1997, American Whitewater initiated correspondence and spoke with Mark Foyt of Northern States Power to discuss our interest in improved access at the Saxon Falls Powerhouse and improved information on project operations and flows, which is essential for paddlers to understand when water is in the river. While Mr. Foyt made a commitment to improve accessibility to information on Project operations, he indicated that more substantial improvements to whitewater recreation could be addressed when the current license expires in 2019. In 2006, we discussed our plan to conduct a survey of instream flow needs for recreation on the West Branch Montreal River with Robert Olson of Northern States Power to quantitatively evaluate optimal flows using a structural norm approach. At the time, Mr. Olson made no commitment to modify operations in response to our study, noting that the Project was not up for relicensing until 2019 and these issues could be addressed at that time.

In 2014, Northern States Power applied for extension of license term for the Saxon Falls Hydroelectric Project;[7] American Whitewater intervened in the proceeding and while we supported efforts to coordinate the license terms for the Saxon Falls Project (FERC Project

[4] At page 90, Rada, J. 2003. Northwoods Whitewater. Sangfroid Press.
[5] At Page 72, Svob, M. 1998. Paddling Northern Wisconsin: 82 Great Trips by Canoe and Kayak. Wisconsin Tales and Trails, Inc.
[6] At Section F(1)(i) of the Environmental Assessment included in the License Order *Northern States Power Company* 49 FERC 62,269 (1989).
[7] Notice of application accepted for filing, soliciting comments, motions to intervene, and protests re Northern States Power Company under P-2610. (FERC eLibrary Issuance 20140804-3019).

No. 2610) and the Superior Falls Project (FERC Project No. 2587), we expressed concern with the fact that this would further delay an effort to address project impacts on recreation. We requested interim mitigation measures to include additional information on project operations and hydrology to see what possibilities may exist for improving the recreational opportunities at the Projects, improved access at the Saxon Falls Powerhouse, and improved access to real-time flow information for project inflows (i.e. release from Gile Flowage that impacts whitewater recreation on the West Branch Montreal) and flows below the project in the Montreal Canyon. Our request for interim mitigation measures for license extension was denied and the license term was extended.[8] Although this action further delayed an evaluation of project impacts on whitewater recreation and various mitigation measures that could be implemented to address these impacts, the Commission ultimately concluded that our issues "would be more appropriately examined in the context of the relicensing proceeding."[9]

For the reasons described above, American Whitewater has a direct interest in this proceeding and our participation will enable a more complete record to be developed, and will lead to better informed decision making. All future correspondence to American Whitewater should use the contact information provided below.

Thomas O'Keefe
Pacific Northwest Stewardship Director
American Whitewater
3537 NE 87th St.
Seattle, WA 98115
Email: okeefe@americanwhitewater.org
Phone: 425-417-9012

III. COMMENTS

Pursuant to 18 CFR §16.8(b)(5), American Whitewater provides these comments on the Preliminary Application Document organized by sections in the document.[10]

Section 4.1.5

[8] *Northern States Power Company* 149 FERC ¶ 62,090 (2014).
[9] Northern States Power Company 150 FERC ¶ 61,028 (2015).
[10] Notice of Intent / Pre-Application Document of Northern States Power Company - Wisconsin for the Superior Falls Project, et al. under P-2587. FERC eLibrary Submittal 20191230-5284, <https://elibrary.ferc.gov/idmws/search/intermediate.asp?link_file=yes&doclist=14825475>

We appreciate the reference to whitewater rafting, canoeing, kayaking among the recreational activities associated with the project. Given the direct impacts of project operations on whitewater recreation and American Whitewater's long history of engagement on this project, this single mention of the activity in the Preliminary Application Document is insufficient.

Section 4.3.3.2
We understand that the non-licensed Gile Flowage is operated in order to supplement flows on the West Fork of the Montreal River and Northern States Power Company does not propose any changes to current operations. As part of the relicensing process, we have an interest in better understanding the nexus of Gile Flowage releases to project operations including the timing, magnitude, duration, and frequency. We also have an interest in understanding if operation of the Gile Flowage as a non-licensed storage reservoir is appropriate. If Gile Flowage is supporting project operations, it should be included as part of the Projects and operated in a manner that is best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses including recreation.[11] This could include releases from the reservoir for recreation and/or improved forecast information and notification of times when releases or reservoir draw downs that provide opportunities for whitewater boating are expected to occur.

Section 4.8.1.3 Saxon Falls Tailwater Access
The Preliminary Application Document describes this as an "informal recreation site" that "serves as a put-in below the powerhouse for canoers and kayakers wishing to access the Montreal River Canyon." American Whitewater has an interest in understanding the options and costs of improving this access. We appreciate the availability of the flow phone "where boaters can check discharge from the Gile Flowage and the Saxon Falls Dam," but we have received report that this recording is not always updated in a timely manner. It is now standard practice to provide these data in realtime through a website utilizing an API that allows for integration of flow data with boating websites and various apps.

Section 4.8.1.4 Montreal River Canyon
We appreciate the recognition of the Montreal River Canyon as a resource with "unique wild and scenic qualities."

Section 4.8.2 Gile Flowage Existing Recreational Facilities and Opportunities
We agree that there are "many opportunities for… water sports within the vicinity of the Gile Flowage Reservoir," but the description fails to mention whitewater boating that occurs

[11] 16 U.S. Code § 803(a)

downstream of the dam that is directly impacted by regulation of water levels and flow releases from the dam. Whitewater recreation and the impacts of Gile Flowage operations need to be described in more detail in advance of developing a license application.

Section 4.8.3.2 Superior Falls Canoe Take-out
As described, the Superior Falls Canoe Take-out is utilized by boaters who paddle the Montreal Canyon and provides parking for up to two vehicles. American Whitewater requests that the adequacy of this facility be evaluated in consideration of license terms that could be put in place for the next 30-50 years.

Section 4.8.4.1 Recreational Needs Identified in Management Plans, State of Wisconsin
We agree that "recreation amenities provided in the vicinity of the Saxon Falls Project, Gile Flowage, and Superior Falls Project help fulfill [the goals]" outlined in the 2019 to 2023 Statewide Comprehensive Outdoor Recreation Plan (SCORP) for water and shore access for fishing and boating. However, the existing facilities need to be evaluated for their adequacy over the term of a future license. We believe some improvements and upgrades are needed to meet the state's goals.

Section 5.1.7.1 Recreation and Land Use: Saxon Falls Project
We support consideration of real time flow gages that will provide information to the recreating public and provide immediate access to flow information for resource agencies. We agree with the need to inventory and assess recreational facilities and evaluate recreational flow releases. While the licensee proposes to formalize the existing Saxon Falls overlook, "no new recreation facilities or improvements are being proposed."[12] As stated above, we believe the Saxon Falls Tailwater Access needs to be considered for improvements.

Section 5.1.7.2 Recreation and Land Use: Gile Flowage
We support consideration of real time flow gages that will provide information to the recreating public and provide immediate access to flow information for resource agencies. We agree with the need to inventory and assess recreational facilities and evaluate recreational flow releases.

IV. CONCLUSION

It is the Commission's policy with respect to recreational development at licensed

[12] At Page 138, Notice of Intent / Pre-Application Document of Northern States Power Company - Wisconsin for the Superior Falls Project, et al. under P-2587. FERC eLibrary Submittal 20191230-5284, <https://elibrary.ferc.gov/idmws/search/intermediate.asp?link_file=yes&doclist=14825475>.

projects to "seek, within its authority, the ultimate development of [recreational] resources, consistent with the needs of the area to the extent that such development is not inconsistent with the primary purpose of the project."[13] We believe a significant opportunity exists to address whitewater recreation at the Projects.

Please do not hesitate to contact me if you have any additional questions.
Respectfully submitted on June 9, 2020.

Thomas O'Keefe, PhD
American Whitewater

Enclosure:
Study Request: Integrated Analysis of Recreational Flows and River Access

[13] 18 CFR § 2.7

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Northern States Power Company	)	Docket No. 2587
Eau Claire, Wisconsin	)	Superior Falls Project
	)	
	)	Docket No. 2610
	)	Saxon Falls Project

CERTIFICATE OF SERVICE

Pursuant to Rule 2010 of the Commission's Rules of Practice and Procedure, I hereby certify that I have this day caused the foregoing **American Whitewater's Comments on the Pre-Application Document and Study Request for the Superior Falls Project (P-2587) and Saxon Falls Project (P-2610)** to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 9th day of June, 2020.

Carla Miner

Carla Miner
3691 S 3200 W
West Valley City, UT 84119-3553
carla@americanwhitewater.org

Traditional Licensing Process Study Request:
Integrated Analysis of Recreational Flows and River Access

American Whitewater submits the following study request for Integrated Analysis of Recreational Flows and River Access pursuant to 18 CFR §16.8(b)(5).

18 CFR §16.8(b)(5) Unless otherwise extended by the Director of Office of Energy Projects pursuant to paragraph (b)(6) of this section, not later than 60 days after the joint meeting held under paragraph (b)(3) of this section each interested resource agency, and Indian tribe, and member of the public must provide a potential applicant with written comments:

18 CFR §16.8(b)(5)(i) Identifying its determination of necessary studies to be performed or information to be provided by the potential applicant;

American Whitewater requests a controlled whitewater flow study on the Montreal River and its major tributary the West Branch Montreal. For these two reaches, the level of public interest and information already on the record renders a Desktop Analysis inadequate to quantify flow dependent recreational opportunities. An intensive study or Level 3 is necessary to inform future license conditions and we request a controlled flow study consistent with methodology established by Whittaker et al. 2005.[14]

- Montreal West Branch

  The study area econompasses the West Branch Montreal River from Gile Flowage to Highway 2 as identified in American Whitewater's National Whitewater Inventory.[15]

  American Whitewater completed a survey-based flow study (i.e. a study where users self report flows and respond to an online survey) in 2007 determining that 400-1000 cfs was the optimal range. While we concluded that a significant population of river users would prefer higher flow releases, we did not evaluate flows greater than 1000 cfs. We determined that while some individuals have run the river at these higher flows, these opportunities are limited and unlikely to be provided for during a controlled release. Based on the results of our study we proposed an optimum release schedule for a weekend of two releases that would begin with a release of 600 cfs on Saturday morning at 10 am and until 4 pm, and a second release day of 800-1,000 cfs on Sunday, which would begin at 10 am and end at 4 pm. If the release schedule had to be limited to one day we concluded a flow of 600-800 cfs should be released between 10 am and 4

[14] Whittaker, D., B. Shelby, J. Gangemi. 2005. Flows and Recreation: A Guide to Studies for River Professionals. Confluence Research and Consulting.
[15] https://www.americanwhitewater.org/content/River/detail/id/2301/

pm on a Saturday. A limitation of this study was the fact that users self-reported their runs and in some cases estimating flows and scoring flows that they may not have actually experienced. The study provides a useful starting point but results need to be confirmed to be used as the basis for protection, mitigation, and enhancement measures for recreation in a new license.

- Montreal Canyon

  The study area encompasses the Montreal River, commencing at Saxon Falls Tailwater Access and extending downstream to the Superior Falls take-out adjacent to the Wisconsin Highway 122 bridge as identified in American Whitewater's National Whitewater Inventory.[16] Whitewater; Quietwater has a recommended range of 250-5000 cfs.[17] The guidebook Paddling Northern Wisconsin recommends a minimum flow of 250-300 cfs.[18] The guidebook Northwoods Whitwater lists 400 cfs as the minimum flow, 1000 cfs as OK, and 5000 cfs as awesome.[19]

Information gathered from guidebooks for the Montreal Canyon, information from the internet flow survey for the West Branch Montreal, and structured interviews with potential participants in a controlled flow study study can be used to choose the flows to evaluate in a controlled flow study. Project operations are known to affect whitewater boating on these river segments, and there is a strong recreational demand for using this reach. The objective of this study would be to improve the precision of estimate flow ranges for whitewater boating using a variety of flows. A quantitative optimal flow range is needed to help refine and inform the development of protection, mitigation, and enhancement measures. A better quantitative evaluation of flow could also help save costs due to generation loss in the future by preventing a higher flow than needed from being released during post-licensing implementation.

The controlled flow study will include an evaluation of at least three different flows. Information from guidebooks, the results of the West Branch Montreal study, and structured interviews with boaters that have used this reach will be used to determine the flows to be evaluated. A survey will be distributed after each of the flows as well as a close-out survey. A focus group discussion will be facilitated after boaters have run each of the flows as well. The

[16] https://www.americanwhitewater.org/content/River/detail/id/2301/
[17] At Page 90; Palzer, B. 1998. Whitewater; Quietwater: A Guide to the Wild Rivers of Wisconsin, Upper Michigan, and Northeast Minnesota, Eighth Edition. Menasha Ridge Press.
[18] At Page 72, Svob, M. 1998. Paddling Northern Wisconsin: 82 Great Trips by Canoe and Kayak. Wisconsin Tales and Trails, Inc.
[19] At page 90, Rada, J. 2003. Northwoods Whitewater. Sangfroid Press.

controlled flow study could be conducted at a time of year when sufficient flows are available and weather conditions permit.

In addition to instream flow needs for recreation, we also request that public access to the river be evaluated and flows for aesthetic enjoyment of both Saxon Falls and Superior Falls be quantified and evaluated.

18 CFR §16.8(b)(5)(ii) Identifying the basis for its determination;

A clear project nexus exists between project operations and recreational opportunities on the Montreal River and the West Branch Montreal River. The two hydropower Projects regulate allocation, timing, levels and distribution of water flows on the two reaches of the Montreal River of interest for whitewater recreation. This regulation influences the spatial and temporal availability of water for a variety of uses including power generation, fisheries, maintenance or riparian connectivity, and recreation.

18 CFR §16.8(b)(5)(iii) Discussing its understanding of the resource issues and its goals objectives for these resources;

Whitewater boating is a flow-dependent activity that occurs on the Monteral River and its two major branches. The river is of considerable interest to the regional whitewater boating community. The primary objective of this study is to quantitatively define the range of flows for whitewater recreation, and to determine the quality and type of experience that different flows provide. The data are necessary to balance recreation needs with needs for fishery resources, ecological and geomorphic processes, and power generation. Specifically there is a need to design the study to provide evaluative information.Existing information regarding flow-based recreational opportunities is descriptive, which is insufficient to adequately evaluate the needs of river-based recreational opportunities in developing a new license for the project. The study outcome should be quantitative data for minimum and optimum flows for each activity and experience.

An integrated analysis that includes a controlled flow study is required to quantitatively describe flow-dependent recreational opportunities in the Project area. Quantitative information will help establish the role the Project plays in addressing instream flow needs and recreational management goals of the National Park Service and American Whitewater.

18 CFR §16.8(b)(5)(iv) Explaining why each study methodology recommended by it is more appropriate than any other available methodology alternatives, including those identified by the potential applicant pursuant to paragraph (b)(2)(vi) of this section;

License applicants using the Traditional Licensing Process are directed to provide license participants with "detailed descriptions of any proposed studies and the proposed methodologies to be employed."[20] In our review of the Pre-Application Document and subsequent filings on the docket, we found no evidence of proposed studies to determine instream flow needs for recreation.

18 CFR §16.8(b)(5)(v) Documenting that the use of each study methodology recommended by it is a generally accepted practice; and

The methodology we propose is generally accepted practice in federal hydropower licensing proceedings where project operations impact river-based recreation. Our proposal follows the integrated approach of Whittaker et al. (2005).[21] Their approach outlines three "levels" of studies: (1) Level 1 - desktop analysis, (2) Level 2- limited reconnaissance, and (3) Level 3- intensive studies (i.e. controlled flow study). The existence of flow-based recreational opportunities is well documented for this reach making desktop analysis and field reconnaissance unnecessary. For that reason, the applicant should complete Level 3 analysis.

Methods for flow studies to evaluate recreational flow needs at federally-licensed hydropower projects have been peer reviewed.[22] The methodology has been employed in approximately 100 proceedings (e.g. Sultan River, Henry M. Jackson, P-2157)[23] including several reaches with existing commercial use.

18 CFR §16.8(b)(5)(vi) Explaining how the studies and information requested will be useful to the agency, Indian tribe, or member of the public in furthering its resource goals and objectives.
The public has considerable interest in the opportunities for whitewater recreation on the Montreal River. With a history of boating dating back decades, and regional recognition that the river represents a significant potential whitewater resource, a need exists to quantitatively define river-based recreational opportunities. Whitewater boating as a sport has grown substantially in the State of Wisconsin and nationally in the time since the current license was issued, and this trend is predicted to continue. The results of the study will be useful to the public that has an interest in protection, mitigation, and enhancement of recreational opportunities directly impacts by project operations.

[20] 18 CFR §16.8(b)(2)(vi)
[21] Whittaker, D., B. Shelby, J. Gangemi. 2005. Flows and Recreation: A Guide to Studies for River Professionals. Confluence Research and Consulting.
[22] Whittaker, D & B. Shelby. 2002. Evaluating instream flows for recreation: Applying the structural norm approach to biophysical conditions. Leisure Sciences Vol 24(3-4): 363-374.
[23] Henry M. Jackson Hydroelectric Project, FERC Project No. 2157; Filing of Revised Study Plans, FERC eLibrary Accession Number 20060912-5117

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Friends of the Gile Flowage, Inc.
PO Box 227
Montreal, WI 54550

June 8, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington DC. 20426

Electronic Filing

Re: Friends of the Gile Flowage Lake Association Comments on the Pre-application Document and Study Request for the Saxon Falls (P-2610) and Superior Falls (P-2587) Hydroelectric Projects

Dear Secretary Bose:

The Friends of the Gile Flowage, Inc. (FOG), a 501c3 Wisconsin qualified lake association, respectfully submits the following comments on the Pre-application Document (PAD) for the Saxon Falls (P-2610) and Superior Falls (P-2587) Hydroelectric Projects. This includes the Gile Flowage Dam that is currently unlicensed and the 3138 acre Gile Flowage it creates. The Gile Flowage augments water for downstream electrical generation.

The Gile Flowage is one of the last "wild" Laurentian shield lakes in northern Wisconsin with over 20 undeveloped islands and shoreline reminiscent of the Boundary Waters. It is a destination for local residents and transient visitors for lake kayaking, fishing, and boating; as well as an economic driver for Iron County, Wisconsin. The Gile Flowage's outflow supports recreational along the Montreal River "corridor" including whitewater kayaking, fish and wildlife habitats, and aesthetics at its waterfalls and rapids.

As a project stakeholder, FOG is the only organization representing the Gile Flowage. FOG has a 15 year history of Gile Flowage stewardship through its watershed research, lake plans, aquatic invasive species and boater education, island clean-ups, water quality sampling, and fish and wildlife habitat improvement projects. Many of these projects have been done in partnership with Xcel Energy/Northern States Power Company (NPS) which has been a good steward of the Gile Flowage. Our research and resources are available at www.friendsofthegile.org.

In addition to the PAD findings, we feel additional studies are needed given the importance of this relicensing. FOG is submitting three study requests: 1) a study on the impacts of Gile Flowage water level management on shoreline and island erosion and subsequent impacts on habitats, invasive species, recreation, 2) a comprehensive recreation study looking at needs and opportunities for the Montreal River corridor in addition to sections within project boundaries, and 3) a comprehensive aesthetics study on Montreal River corridor in addition to sections within project boundaries. For the latter two studies, if possible we encourage a holistic approach to consider not only sections within the project boundaries, but their connectivity and dependence on adjacent sections of the Montreal River in total for meeting our area's recreational needs and opportunities.

FOG Study Request #1: Impact of Gile Flowage Water Level Management
Based on the Wisconsin Public Service Commission's 1937 order authorizing construction of the Gile Flowage Dam, the maximum pool depth was set at an elevation of 1490'. A minimum outflow from the Gile Dam is 10cfs based on an agreement with the City of Montreal. According to the PAD, there is a "gentleman's agreement" allowing for maximum drawdowns of 15 feet to the elevation of 1475', although in the past NSP has minimized its drawdowns.

The PAD states that NSP is "proposing to continue operating the Gile Flowage in the same manner that it is currently operated." On page 139, the PAD states that "no changes in management will affect these resources", but we are not sure what this means since there are no management criteria or policies presented.

We acknowledge that the Gile Flowage exists to provide supplemental water for power generation and that drawdowns are a necessary management tool. While NPS management has been one of a good steward, we are concerned that not addressing potential impacts of water level management of the Gile Flowage avoids careful consideration of its impacts on shoreline and island erosion that is already occurring. Water level management impacts shoreline and nearshore fish and wildlife habitat, as well as water quality. Water levels influence habitat conditions for invasive species such as curly leaf pond weed, Eurasian water milfoil, and Purple Loosestrife which have already invaded lakes south of the Gile Flowage.

Currently the Gile Flowage's riparian shoreline is owned and managed by Xcel Energy/NSP. This may be one reason why water level management is not addressed in greater detail because impacts would only affect company property. However, this ownership picture is changing with Xcel pursuing potential sale of its riparian properties to adjacent private land owners. If privatization occurs and water level management is not addressed, erosion will be impacting private property and the rights of individual riparian owners.

We feel it would be prudent now to study and address Gile Flowage water level management impacts.

FOG Study Request #2: Recreation Use and Opportunities Study of the Montreal River Corridor
The Montreal River offers a variety of interdependent water-based recreational activities, requiring consideration as a holistic system. Upstream, the 3138 acre Gile Flowage is prized for unspoiled lake kayaking, island camping, boating, and rugged aesthetic beauty; as well as fishing, shoreline hiking, bird watching, and other uses. These uses depend on management of Flowage water levels. In turn, outflows from the Gile Flowage help support unique whitewater kayaking opportunities downstream on the Montreal River; as well as aesthetics at its many scenic waterfalls. Downstream water-based recreation uses depend, in part, to the management of the Flowage's outflow and drawdowns, which also affect the Flowage.

We agree with stakeholders representing whitewater kayaking interests that a recreation use study is needed. We strongly support a Recreational Use and Opportunities Study that evaluates the Montreal River as a system recognizing the connectivity of upstream and downstream flows and needs, present and future public outdoor recreation demands, and maintaining and enhancing a quality environmental setting. We would also encourage this study include opportunities for increased public access, handicap accessibility, and environmental protection including stopping the spread of invasive species.

FOG Study Request #3: Aesthetic Study of the Montreal River System

The West Branch of the Montreal River, the Gile Flowage it creates, and its downstream pairing with East Branch of the Montreal River includes some of the Midwest's most unique scenic and historic resources. These resources not only provide aesthetic beauty and unique habitats, they are an economic driver for tourism for Iron County. Iron County is a limited resource area which ranked 64th out of Wisconsin's 72 counties in per capita income in the 2010 Census.

There are numerous waterfalls on the Montreal River which Iron County is now using as an asset to promote healthy lifestyle recreation and tourism. These include one of Wisconsin's highest at Superior Falls, as well as Saxon Falls, Kimball Falls, Interstate Falls, and Peterson Falls. There is no mention in the PAD about aesthetic flows in regards to these important resources. The 300' deep Montreal River Canyon is currently only accessible by river or via private property. It is a unique Midwest landform whose inaccessibility presents safety issues for river users, but opportunities for future public access and should be addressed.

On page 139, the PAD states NSP's intention to maintain the Gile Flowage's shoreline in natural condition and releases of continuous minimum flow to the West Branch to maintain aesthetics; and that "no proposed operational, reservoir level, minimum flow, or land use changes would cause adverse aesthetic impacts." While we fully support continuation of NSP's stewardship, we feel there is a need to study of the impact of aesthetics on the environmental and economic contributions of the Gile Flowage, especially given that Xcel/NSP's ownership of its undeveloped riparian shoreline may be privatized. The PAD makes only passing mention of the over 20 undeveloped islands within the Gile Flowage. These islands are a critical component of the Flowage's aesthetic value and offer unique recreational opportunities and habitats. Xcel/NSP's current policy does not allow camping on these islands, although this is a common practice creating issues with public sanitation and litter that also must be addressed.

We feel that the Montreal River corridor, including areas connecting those included in the project boundaries be inventoried, including formal and informal trails, formal and informal access, camping, and scenic viewing. The inventory should identify current use, current conditions, opportunities for public access, education and interpretation, and any impacts that the project might have on them. Aesthetic/culture areas include:

Montreal River Waterfalls

- Superior Falls
- Saxon Falls
- Kimball Falls
- Interstate Falls
- Peterson Falls
- Spring Camp Falls (just south of the project boundary, but is noteworthy within the Montreal River system)

Gile Flowage

- Islands
- Scenic rock bluffs

Montreal River Historic Sites and Trails

- Mouth of the Montreal River: site of a historic Ojibwe Indian village site

- Flambeau Trail: Historic Native American, fur trade route following the Montreal River from the Mouth of the Montreal River across the Gile Flowage
- North Country Trail

The project area is also within the Ceded Territory of the Lake Superior Ojibwe. We recommend that the Tribal Historic Preservation Officers of the Bad River Band and Red Cliff Band of the Lake Superior Chippewa Indians be consulted as to tribal historic and cultural resources that may be within the project area that we are not aware of.

PAD Corrections

Finally, we suggest a few corrections to the PAD including:

- Page 55, second paragraph: the West Branch of the Montreal River originates from Island Lake in **Knight** Township.
- Page 96, last sentence: According to a 4/29/2011 letter from County Register of Deeds Bob Traczyk, the Town of Pence Landing is owned by **Iron County.**

Thank you for the opportunity to provide comments on the PAD for the Saxon and Superior Falls Projects and Gile Flowage; and for considering our request three study requests. We look forward to working with the Xcel Energy/NSP, stakeholders, and FERC on this license application.

Please contact me if you have any questions regarding these comments at 715.561.2185 or cathyt220@hotmail.com .

Sincerely,

Cathy Techtmann, President
Friends of the Gile Flowage, Inc.
PO Box 227
Montreal, WI 54550
cathyt220@hotmail.com
Phone: 715.561.2185

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
LANSING

GRETCHEN WHITMER
GOVERNOR

DANIEL EICHINGER
DIRECTOR

June 9, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Electronic Filing

RE: COMMENTS ON PRE-APPLICATION DOCUMENT AND STUDY REQUESTS FOR THE SAXON FALLS (FERC NO. 2610) AND SUPERIOR FALLS (FERC NO. 2587) HYDROELECTRIC PROJECTS

Dear Secretary Bose,

The Michigan Department of Natural Resources (MDNR) has reviewed the Pre-Application Document (PAD), for the Saxon Falls (P-2610) and Superior Falls (P-2587) hydroelectric projects. MDNR is the primary state resource agency charged with the management and protection of Michigan's aquatic public trust resources. We respectfully request study of the current status of the aquatic resources, and anticipated effects of the proposed license provisions on natural resources and recreation. The new license for these projects will influence the Montreal River for 40 years. The MDNR cannot make informed decisions regarding the license without up-to-date information on the natural and public trust resources of the Montreal River system. The Licensee proposes both changing and continuing elements of the existing license, however, the context in which all elements of the existing license occur has changed since the prior license was issued. We focus on updating information through studies, and seek further consideration and consultation in areas where we anticipate the most significant management implications of issuing a new license will occur, including: resource studies to address the proposed change in project boundary, inclusion of the role of Gile Flowage operations, continuation of similar Saxon and Superior Falls operations and mitigation of potential drawdowns, protecting sensitive species and their habitats, addressing aquatic invasive species, and land management, and studies to support appropriate recreational access and user experience.

In addition, MNDR requests clarification of characterizations in the PAD and joint meeting and offers the following comments on the PAD.

Comments on the PAD:

The Licensee has characterized its relicensing request as status quo or non-controversial. We find some of the Licensee's proposals are controversial and are concerned about: accounting for Gile Flowage; adequacy of proposed revised project boundaries and associated project elevations; and balancing public trust interests in light of shifts in resources and recreational needs over the decades since the previous license was issued.

1. Gile Flowage: The Gile Flowage was not fully considered in the original license, and its role must be understood, and therefore studied comprehensively. We agree that Gile Flowage operations are relevant to the ecological health of that flowage, as well as the

system overall. We have very limited data on the effects of project operations on fisheries within the flowage, as well as water quality and other downstream effects. While time and other activities will almost certainly be shown to have imparted gradual changes to resources considered during the original license, including Gile Flowage as part of any new license is necessary and categorically requires reevaluation of many resource areas.

2. Project Boundaries: We request additional information and justification for the elevations the Licensee has presented, which it has used as a basis for significant changes to the project boundary, including removing lands from the project boundary. The Licensee has characterized the elevation changes as correcting an oversight by FERC. The boundary change appears to shift areas included in the project license such that reservoirs may be emphasized over tailwaters, with implications for recreation and resource protection. If allowed, we expect this to have significant effect, and whether it originated as an oversight or not, we want to ensure the license balances the public trust interests in the project.

3. Balancing interest in public trust resources: MDNR is concerned it will be difficult to fully evaluate the project with insufficient biological/ecological/use data. To date, the Licensee has provided primarily desktop reviews of information available from other sources which are not project-specific, updated, nor adequate to understand the implications of either continued project operations nor proposed changes moving forward. MDNR seeks to ensure desirable and feasible conditions for environmental resource protection, mitigation, and enhancement are achieved. To accomplish this more thorough, project-specific and recent information will be required. We anticipate conditions on the ground are not the same as when the prior license was issued, and yet most of our information dates to that time period or earlier. We request studies that will help elucidate where and to what effect conditions on the ground have departed from prior condition and provide the basis for mitigation and enhancements to benefit natural resources and the public.

Study Requests:

The Licensee has proposed no studies, and has not proposed any additional protection, mitigation, or enhancement measures for Saxon Falls, Superior Falls or Gile Flowage. The Licensee states existing information does not identify significant concerns or adverse effects of the projects. MDNR finds that determination problematic due to the lack of updated information. Limited information is provided, particularly recent information on the projects and associated resources. While the Licensee proposes to retain many aspects of the existing license, the context in which these activities occur has likely changed. MDNR does not have necessary information to fully evaluate the license provisions proposed, and whether they are adequately protective of natural resources. MDNR manages fisheries and aquatic resources affected by project operations and is responsible for ensure the public trust interests in the projects are maintained. Recognizing that much of the waters are jointly managed with Wisconsin DNR, we believe consultation on specific methodology is warranted, however we provide some general references to assist in evaluating the scope of MDNR's requests.

Resource Studies:

- **Project Boundary Change**: The Licensee should conduct a Habitat Evaluation Procedure to provide a comparative analysis of habitats provided in the reservoir vs.

tailwater and adjacent lands, including changes associated with the proposed revised project boundary.

  - One benefit FERC identifies in many licensed projects is protection of riparian lands. We want to know whether the same kind, quality, and amount of fish and wildlife habitat is provided by the proposed areas to be included in the project boundary. We regard license conditions which prescribe no-harvest buffers as extremely valuable for both aesthetics and riparian habitat protection. While minimum buffer zones are not a panacea, they can reduce soil erosion, increase recruitment of large woody debris, provide shade and promote healthy shoreline communities.
  - Given how uncommon the high-gradient tailwater habitats are compared to reservoirs, we expect that protecting these habitats from inappropriate and non-project developments will be especially important. The Licensee should demonstrate why site-specific conditions make the project an exception.

- **Gile Flowage Operations**: The Licensee should conduct an environmental assessment of potential operations regimes at Gile. The PAD indicates no operation changes are proposed, but the effects of operations including Gile Flowage have not been fully evaluated, including:
  - Identification of potential mitigation for drawdown if the allowed bandwidth remains as substantial as presently permitted. While the Licensee has not implemented the full drawdown extent allowed in the "gentleman's agreement," effects of both the implemented and allowed drawdown extents must be understood if substantial drawdowns remain an element of the project license. Drawdowns are generally recognized as harmful to aquatic life and pose a significant disturbance and source of degradation which must be justified.
  - Gile Flowage effects on downstream water quality including parameters usually incorporated in 401 Water Quality Cert.
- **Project Operations and Potential Drawdowns**: The Licensee should conduct a study of potential impacts of project operations, including operating band and drawdowns of various types across the facilities. The Licensee has proposed continuing an operating band of 0.5 feet at Saxon Falls during the ice-free season, a minimum elevation at Superior Falls, and summer and winter drawdowns at Gile Flowage to supplement flows. As described in more detail elsewhere, the impact of continuing these operating conditions on aquatic resources should be clarified using updated survey data, and more fully accounting for the role of Gile Flowage. Drawdown impacts should include potential effects of drawdowns for maintenance, repair, or inspection, and drawdowns under emergency or extenuating conditions at Saxon and Superior Falls or Gile Flowage. The licensee should outline the extent to which it anticipates planned drawdowns will be necessary and assist in developing plans for mitigating negative impacts. Currently, Article 403 of each license does not require stranded organism survey and relocation efforts for Saxon or Superior Falls. Knowledge of what occupies the bottomlands, and what dewatering would look like are critical for mitigating the negative effects of potential future drawdowns at all sites.
  - Aquatic Resources Study request: Document aquatic resources present in the reservoir and tailwaters, following standardized fisheries methods, e.g.:
    - Stream Fishery Resources reference:

Wills, Todd C., T. G. Zorn, and A. J. Nuhfer. 2006. Stream Status and Trends Program sampling protocols. Chapter 26 in Schneider, James C. (ed.) 2000. Manual of fisheries survey methods II: with periodic updates. Michigan Department of Natural Resources, Fisheries Special Report 25, Ann Arbor

- Available from http://www.michigandnr.com/PUBLICATIONS/PDFS/ifr/Manual/SMII_Chapter26.pdf

- Impoundment Fishery Resources reference:

Schneider, James C. (ed.) 2000. Manual of fisheries survey methods II: with periodic updates. Michigan Department of Natural Resources, Fisheries Special Report 25, Ann Arbor.

- Available from http://www.michigan.gov/documents/dnr/SMII_Assembled_Doc_2017_final_552610_7.pdf

- Depict the likely progression and impacts of operating bandwidths on habitat and aquatic organisms using bathymetry, substrate and other habitat variables so that alternatives can be developed and analyzed.
- Based on these studies the Licensee should document how proposed operations and alternatives minimize negative impacts, including drawdowns.
- MDNR routinely requests measures to avoid and minimize negative effects of drawdowns. Where and to the extent drawdowns must occur (e.g. within coffer dams, etc.) we propose protective drawdown and refill rates, timing, monitoring, and require stranded organism survey and relocation efforts.
  - Drawdowns are among the most significant acute causes of mortality to freshwater mussels in Michigan's regulated aquatic systems.
  - Where sensitive resources are potentially going to be affected, the use of coffer dams or modified drawdown rate/timing/duration/extent may be warranted.
- Hydrographic/Bathymetric maps need to be created/updated in order to be of use for understanding drawdown impacts and mitigation:
  - The PAD Section 4.3.6.1 indicates a literature search did not yield a bathymetric map for Saxon Falls, and 4.3.6.2 indicates Northern States Power does not have a bathymetric map for Gile Flowage. The map provided in the Appendix 4.3.6.3-1 for Superior Falls flowage dates to ca. 1991 and is not of adequate resolution (photo, or contour interval) to be of much use. Updated bathymetry should be collected for the three sites.
- Freshwater mussel, macroinvertebrate and substrate surveys are necessary. Limited freshwater mussel data are available, and while freshwater mussels are often the focus of our discussion of drawdowns, they are not the only group of interest. Other natural resources can and may warrant further protection efforts, including spawning and nursery areas, and areas subject to instability and aggradation during drawdowns.
  - In Planned and Emergency scenarios, prior identification of nearby potentially stable habitats which could serve as relocation areas is highly beneficial. In addition, prior survey efforts provide the Licensee an opportunity to proactively protect sensitive resources during the planning phases of any maintenance or repair drawdown that may be required.

- **Sensitive species and their habitats**: The Licensee has provided only desktop reviews of data from existing sources, which are useful but also incomplete and often out of date. Recent, local data are necessary.
    - The Licensee does not propose additional freshwater mussel surveys. The PAD indicates that the only freshwater mussel data available are from WDNR. Those records are from 1975 and represent two species. We believe recent, comprehensive data (i.e. both qualitative and quantitative surveys) for each project should be collected within and outside of the reservoirs. MDNR can provide additional comments and guidance on proposed survey methods to understand the community structure, density and diversity of mussels. We believe quantitative survey efforts will be necessary to capture community diversity, as well as reproductive status. Reference for sampling methodology: Strayer and Smith 2003.[1]
    - We request that the Licensee conduct assessments on the biological resources and communities the project and its vicinity via on-the-ground surveys in addition to desktop analysis they have already presented. The PAD frequently states that no data was available, we would like to make sure that the Licensee provides data needed for consultation on project-related impacts.
- **Aquatic invasive species**: Due to their ability to degrade habitats, and the role of developments in promoting disturbance, Licensees have often been asked to assist in monitoring and controlling invasive species. However, licenses have often been overly-narrow in focus, resulting in inefficiency and facilitating the spread of non-targeted invasive species. We propose Early Detection/Rapid Response, along with education and pathway reduction.
    - Early detection/rapid response. Baseline study to identify native and invasive plant and animal distribution in the project boundary, project waters, and adjacent riparian areas. We would support utilizing the point intercept method commonly used in Wisconsin for aquatic monitoring, and other systematic methods for baseline inventory or ongoing monitoring in consultation with resource agencies. For a general overview of the EDRR structure, Safeguarding America's lands and waters from invasive species, 2016[2]. In order to determine whether a concerning/potentially emerging species is established or a candidate for aggressive management, the Licensee must first develop updated information on the existing community.
    - Education and pathway reduction: resources to assist visitors in disposing of potential AIS, durable education materials, Licensee-funded or implemented monitoring efforts for watch-list and other likely emerging invasives, and commitment to control, either in-house or potentially alternative sources such as funding to local cooperative invasive species management groups or

[1] Strayer, D.L., and D.R. Smith. 2003 A guide to sampling freshwater mussel populations. American Fisheries Society Monograph No. 8. American Fisheries Society, Bethesda, Maryland

[2] The U.S. Department of the Interior. 2016. Safeguarding America's lands and waters from invasive species: A national framework for early detection and rapid response, Washington D.C., 55p. Available from: https://www.doi.gov/sites/doi.gov/files/National%20EDRR%20Framework.pdf

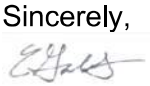
conservation districts e.g. Northwoods CWMA in Wisconsin, and Western Upper Peninsula Invasives Coalition (WePIC) in Michigan.
    - The Licensee has provided only desktop reviews of data from existing sources, which are useful but also incomplete and often out of date. Recent, local data are necessary.
- **Land Management**: The Licensee's proposed land management strategy is unclear. The Licensee should present its proposed land management strategy, including the extent of no-harvest and riparian buffers, as well as timber and land use practices to be allowed or limited. The PAD indicates that the current riparian areas are largely undeveloped, but the Licensee has not described how this would change under the proposed project boundary.

Recreation Study:

- **Recreational access and experience**: The proposed changes in project boundary shift the character of the lands incorporated into the project from riverine/tailwater (including regionally uncommon high-gradient stretches of interest to paddlers) to predominantly reservoir. The benefits to the public arising from the inclusion of these primarily reservoir-occupied lands are different from those stemming from tailwater land. One of the primary recreational uses of the Montreal River is kayaking and canoeing. The Licensee should study, and document these differences, and if differences are documented the Licensee should retain and enhance recreational amenities especially in the project tailwaters and riverine areas. Independent of this change, the PAD indicates that recreational access is sufficient based on Form 80 Surveys. The amenities for Saxon and Superior Falls are minimal, and the condition of existing facilities in relation to recreational needs is not well-supported. The PAD outlines intention to enhance the Saxon Falls Scenic Overlook but doesn't thoroughly explain how and why this area is a priority over other project recreational amenities, including amenities that might be added. In the Form 80 survey provided for Saxon, 50% of use was at an informal site. If additional improvements or new recreation facilities were provided, it is reasonable to expect that more people would utilize them, and that public enjoyment would increase. Further study of aesthetic considerations and recreational benefits is warranted, and options and alternatives should be weighed in consultation with the resource agencies.

Thank you for the opportunity to comment and request studies. If you have any questions or feel additional clarification would help, please feel free to contact me at GulottyE@michigan.gov, or via work cell at 906-282-8300 while the Norway Field Office is closed.

Sincerely,



Elle Gulotty
Resource Analyst
Habitat Management Unit
FISHERIES DIVISION

cc: Matthew J. Miller (NSPW; matthew.j.miller@xcelenergy.com)
Shawn Puzen (Mead and Hunt; shawn.puzen@meadhunt.com)
Nick Utrup (U.S. Fish and Wildlife Service; nick_utrup@fws.gov)
Angie Tornes (National Park Service; Angie_Tornes@nps.gov)
Cheryl Laatch (WDNR; Cheryl.Laatsch@wisconsin.gov)
Bob Stuber (MHRC, stuberbob@gmail.com)
Amira Oun (EGLE; OunA@michigan.gov)
Cathy Techtmann (Friends of the Gile Flowage; cathyt220@hotmail.com)
Allison Werner (RAW; awerner@wisconsinrivers.org)
Jim Fossum (RAW; jfbio@yahoo.com)
George Madison (MadisonG@michigan.gov)
Jessica Mistak (MDNR; Mistakj@michigan.gov)
Kyle Kruger (MDNR; KrugerK@michigan.gov)

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
2984 Shawano Avenue
Green Bay WI 54313-6727

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

June 9, 2020

Federal Energy Regulatory Commission
Kimberly D. Bose, Secretary
888 First Street, N.E.
Washington, DC 20426

Shawn Puzen
FERC Licensing and Compliance Manager
Mead & Hunt, Inc.
1720 Lawrence Drive
De Pere, Wisconsin 54115

Matthew J. Miller
Hydro License Compliance Consultant
Norther States Power Company
1414 W. Hamilton Ave, PO Box 8
Eau Claire, Wisconsin 54702

RE: Wisconsin Department of Natural Resources Comments on Preliminary Application Document for the Saxon Falls Hydroelectric Project P-2610 and Superior Falls Hydroelectric Project P-2587.

Dear Ms. Bose, Mr. Puzen, and Mr. Miller:

The Wisconsin Department of Natural Resources (Department, WDNR) appreciates the opportunity to participate in the process to relicense the Saxon Falls and Superior Falls hydroelectric dams, as proposed in the Preliminary Application Document (PAD). These dams are licensed by FERC under Projects P-2610 and P-2587.

The Saxon Falls Project is located in the Town of Saxon, Iron County, Wisconsin and Ironwood Township, Gogebic County, Michigan. The Superior Falls Project is located in the Town of Saxon, Iron County, Wisconsin and Ironwood Township, Gogebic County, Michigan. The Gile Flowage (UL20) is an unlicensed headwater storage reservoir that provides seasonally uniform streamflow for hydroelectric generation at the downstream Saxon Falls and Superior Falls Projects. The Gile Flowage is located within the towns of Pence and Carey, Iron County, Wisconsin.

The Department has limited information regarding natural resource information associated with the hydroelectric dams and their impoundments. Studies associated with Saxon Falls and Superior Falls relicensing have different purposes, from a short term, long term, and cumulative impact. The Department has carefully considered our responsibilities under the Clean Water Act and Navigable Waters Public Trust Doctrine for the proposed relicensing of Saxon Falls and Superior Falls, and the potential inclusion of Gile Flowage.

We are recommending the following studies be completed. Each study is presented as appropriate for the various alternatives that could be evaluated as part of the comprehensive review and assessment of the project area. Our requests for information and studies focus on the continued operation of the Saxon Falls dam and Superior Falls dam, as well as our information and study requests relating to the inclusion of Gile Flowage.

As Xcel Energy Services Inc. begins to evaluate the array of study requests, and determine their study proposal and next steps, the Department will continue to provide guidance and recommendations.

Please be aware that Scientific Collectors Permits may be required to complete various surveys. Please work with the Department to obtain appropriate permits and approvals prior to the collection of data.

To save time and costs, the Department recommends that studies be combined and that the licensee meet with the stakeholders who have requested studies to explore their options and still achieve desired data collection. We also recommend exploring the use of citizen monitoring groups and organizations.

The licensee should continue to work with the Department to collect resource information and develop study plans and protocols. If new information becomes available through the relicensing process, we reserve the rights to require additional studies to gather appropriate information.

Please direct all inquiries to the Project Managers:

Connie Antonuk, Field Integration Leader, (715) 365-8946, Connie.Antonuk@wisconsin.gov
Cheryl Laatsch, FERC Coordinator, (920) 387-7869, Cheryl.Laatsch@wisconsin.gov

If you have any questions or comments regarding our recommendations, please contact me at 920-387-7869, or Cheryl.laatsch@wisconsin.gov. We look forward to working with you.

Regards,

Cheryl Laatsch
Statewide FERC Coordinator
Wisconsin Department of Natural Resources

Study Request

Relicense of Saxon Falls P-2610

ASSESSMENT OF CURRENT DAM OPERATIONS AT SAXON FALLS

• Goals and Objectives: Determine if the project is meeting the requirements of minimum flows and run-of-river operations; including documenting how downstream river flows are managed appropriately to limit water level fluctuations.

• Relevant DNR Management Goals: Assess the current operations to ensure that the operations are operating at run-of-river flows.

• Existing Information: A minimum flow of 5 cfs or inflow, whichever is less, is released into the bypass reach of the Montreal River immediately below the Saxon Falls Dam during the ice-free season. USGS Gage No. 04029990 is located at the Saxon Falls project, and daily discharge values are provided by the Licensee to the USGS.

• Operation nexus to resource and how informs license: Ensure Saxon Falls is meeting the intent of run-of-river, and not causing divergence in flows that harm the downstream aquatic ecosystem.

• Methodology: Desktop review of existing inflow and outflow data, including an evaluation report of run-of-river and operations requirements.

• Level of Effort and Cost: Staff time is expected to be 20-40 hours at $125 per hour equaling $2,500-$5,000 for data analysis and report.

ASSESSMENT OF MINIMUM FLOW AND RESOURCE IMPACTS AT THE BYPASS CHANNELS AT SAXON FALLS

• Goals and Objectives: Determine if the project minimum flow of 5 cfs is providing sufficient flows for the aquatic environment and evaluate additional flows for comparison.

• Relevant DNR Management Goals: Evaluate the current minimum flow and ensure that the minimum flow does not have an adverse impact on the aquatic resources within the Saxon Falls project boundary.

• Existing Information: A minimum flow of 5 cfs or inflow, whichever is less, is released into the bypass reach of the Montreal River immediately below the Saxon Falls Dam during the ice-free season. USGS Gage No. 04029990 is located at the Saxon Falls project, and daily discharge values are provided by the Licensee to the USGS.

• Operation nexus to resource and how informs license: Ensure Saxon Falls is meeting the intent of run-of-river, and not causing divergence in flows that harm the downstream aquatic ecosystem.

• Methodology: In-stream flow study, which includes a description of current habitat conditions within the bypass channel under current operation and flows to determine if the current minimum flows are impacting available habitat, fish, and macroinvertebrate communities. Assess various minimum flow regimes to determine what is appropriate to not have an adverse impact on the resource.

• Level of Effort and Cost: Staff time is expected to be 20-40 hours of field work at $125 per hour, plus costs for equipment.

ASSESSMENT OF STREAM FLOWS, CHANNEL DIMENSIONS, AND LINEAR GRADIENT AT SAXON FALLS

• Goals & Objective: Determine the impact the proposed project has on the existing stream flows, channel dimensions and linear gradient of Saxon Falls and the Montreal River.

• Relevant DNR Management Goals: The proposed study would investigate the impacts the project would have on the existing stream flows, channel dimensions, and linear gradient of the river. The impacts that the project may cause on the existing stream flows, channel dimensions and linear gradient may alter resources and recreational and developmental management plans for the future.

• Existing Information: Data is limited relating to flow, channel dimensions, and linear gradient impacts within the project boundary.

• Operation nexus to resource and how informs license: The relicensing of Saxon Falls has the potential to have short term and long-term impacts on the aquatic community of the Montreal River downstream of the impoundment. These impacts include, but are not limited to, dewatering and limiting available aquatic habitat in the downstream river channel depending on stream discharge and dam operation. These impacts can vary by season as well as daily. Proper management of the resource will help ensure that adequate flows are available to aquatic life at the proper time and thermal regime.

• Methodology: Conduct a study to determine stream morphology downstream of the project at various flows, including width, depth, wetted perimeter and substrate composition. The study should identify any wetlands that are flooded. This should include available aquatic habitat under current operation through flood flow conditions. Quantitative Habitat Assessment Methodology should be used to document habitat conditions. Refer to existing management efforts (recreational, resource, habitat) to investigate the impacts the proposed project would have.

• Level of Effort and Costs: Staff time is expected to be about 20-40 hours of fieldwork at $125 per hour plus cost of equipment.

ASSESSMENT OF WATER QUALITY AT SAXON FALLS

• Goals & Objectives: Assess and monitor the following water quality parameters:

Total Phosphorus	Color	Ammonia
Chlorophyll-a	Total Nitrogen	Chloride
Dissolved Oxygen (DO)	Sulfate, Total Mercury	Bacteria
Temperature	Iron, Manganese, and/or Sulfide	Cyanobacteria
Conductivity	Dissolved Phosphorus	Total Suspended Solids
pH	Nitrate (plus nitrite)	Sediment Accumulation
Secchi Depth		

• Relevant DNR Management Goals:

Total Phosphorus: One of the primary causes of eutrophication and most widespread pollutant in waterbodies statewide and nationally. Impoundments are unlikely to raise the concentration of phosphorus in the downstream river but play a role in the transformation, such as the ratio of dissolved phosphorus to total phosphorus. Bottom-draw facilities, especially if the impoundment is deep and stratifies, may have the potential to influence the magnitude and timing of phosphorus inputs to the downstream river. Dam operation might influence internal phosphorus loading to the impoundment by affecting the mixing regime as water levels change.

Chlorophyll-a: A measurement of the amount of algae in a waterbody, one of the primary manifestations of eutrophication. As impoundments increase surface area, slow and warm water are likely to produce more chlorophyll-a, per unit phosphorus/nitrogen, than the upstream or downstream river. Impoundments may produce chlorophyll-a in the lake environment that is then passed to the downstream river. Dam operations may have limited ability to control chlorophyll-a, but location of discharge will play a role in the potential to release downstream. Dam operations can reduce chlorophyll-a by reducing water residence times and by artificially mixing the phytoplankton into deep waters below the euphotic zone (resulting in less primary production than expected given nutrient levels). Other tools to reduce nutrient and algal concentrations include flow by-passes, pre-impoundments, scour valves that discharge nutrient-rich hypolimnetic water, and modifications to the operating regime. Drawdown can increase internal nutrient loading by instigating a mixing event.

Dissolved Oxygen: Dissolved oxygen is critical for the health and survival of aquatic organisms. Deep impoundments may stratify and become oxygen depleted in deep water. Impoundments may then cause a decrease in dissolved oxygen in the downstream river, especially if there is bottom withdrawal of a eutrophic impoundment, or an impoundment that stratifies. Additionally, eutrophic impoundments may transform nutrients into organic matter (mainly algae) that then flows into the river, decomposes and reduces oxygen. Dam operations can influence downstream dissolved oxygen by changing/mixing withdrawal location (top versus bottom draw) or aerating discharge before it reenters the downstream riverine environment (among others). Additionally, passing anaerobic waters through turbines or similar precision machinery may also cause damage to the facility's equipment.

Temperature: Temperature regime of a waterbody structures community composition of fish, invertebrates, plants, etc. Temperature also effects rates of chemical reactions, ecosystem productivity and the ability for gasses to dissolve in water. Impoundments can increase water temperatures by slowing water velocity and increasing surface area to absorb solar radiation. Additionally, deep impoundments may cause deep water temperatures to decrease if there is stratification. Dam operations can influence downstream temperature by changing/mixing withdrawal location, top versus bottom draw (among others).

Conductivity: High concentrations of dissolved ions, measured as conductivity, can impair the osmoregulation of organisms with gills and other semipermeable membranes. Sources of elevated conductivity are likely from nonpoint and certain point source discharges. However, conductivity is important for classifying the impoundment and stream and is therefore needed as background information.

pH: pH can control the biologic availability, solubility and speciation of chemicals in water. Although wild rice does well in slightly acidic waters (pH 5.9 – 6.2), even moderately acidic water may irritate the gills of aquatic fish and insects or reduce the hatching success of fish eggs. Eutrophication increases swings in pH during the algal growth and die-off phases. Highly eutrophic impoundments may release high or low pH to the river downstream. In addition, fluctuating water levels can acidify the

impoundment by exposing the waterbody bed to air and then flushing sulfate into the water when lake levels rise again or when it rains. Dam operation probably has very little opportunity to mitigate dramatic pH swings at short time-scales, but operations that cause sufficient changes in water levels may affect pH at a seasonal or interannual time scale.

Secchi Depth: Secchi depth measures water clarity and is a general indicator of waterbody health. The impoundment could affect Secchi depth through its effects on eutrophication and suspended sediments. Dam operations can influence internal nutrient loading and chlorophyll-a, and thus, water clarity.

Color: Color refers to how much colored organic matter is in the water, staining it brown. Water color is important for understanding the ecology of the waterbody. Highly stained waters reduce water clarity, and in turn, can affect algal and plant growth and even fish growth. The impoundment is unlikely to affect color, but color will be important for understanding the ecology of the impoundment.

Total Nitrogen: An oversupply of nitrogen is one of the primary causes of eutrophication. A lack of nitrogen limits wild rice development. Impoundments are unlikely to raise the concentration of nitrogen in the downstream river. Although some planktonic algae can fix atmospheric nitrogen, this amount is likely overwhelmed by the amount of nitrogen coming in from the watershed via tributary streams. Impoundments do play a role in the transformation, such as the ratio of dissolved inorganic nitrogen to organic nitrogen.

Sulfate, Total Mercury: Dam operations can influence the sulfur and ultimately the mercury cycle. In short, long-term drawdowns can eventually lead to increased sulfate runoff when it rains. This acidifies the water and can then enhance methyl mercury concentrations in water and methyl mercury in fish. Sulfate can also be converted to toxic sulfide which affects the mitochondria of plants. When sulfate is high, sulfides are also usually high and therefore toxic to wild rice and other plants. This process has been demonstrated in formation of new reservoirs and in the regulation of existing reservoirs. Impoundments can cause this process to happen. Water levels will need to be managed to prevent increased methyl mercury and high sulfate levels.

Iron, Manganese, and/or Sulfide in Reservoir: These are reducing substances that can have high concentrations in the hypolimnion of reservoirs under anoxic conditions. They use oxygen through their own chemical transformations and can decrease sulfide but can further increase oxygen demand. In addition, iron binds phosphorus under oxic conditions, but releases phosphorus under anoxic conditions. Therefore, reservoirs with high iron could be prone to internal phosphorus loading if they go anoxic in the hypolimnion. Dam operations can impact stratification and mixing, and thus, the concentration of these substances and internal nutrient loading.

Dissolved Phosphorus: An oversupply of phosphorus is one of the primary causes of eutrophication and most widespread pollutant in waterbodies, statewide and nationally. Low phosphorus levels limit wild rice seedling success and development. Impoundments are unlikely to raise the concentration of phosphorus in the downstream river, but play a role in the transformation, such as the ratio of dissolved phosphorus to total phosphorus. Bottom-draw facilities, especially if the impoundment is deep and stratifies, may have the potential to influence the magnitude and timing of phosphorus inputs to the downstream river. For instance, if there is stratification, a bottom-draw facility may discharge highly bioavailable dissolved phosphorus from the hypolimnion to the downstream river contributing to eutrophication issues. Dam operation might influence internal phosphorus loading to the impoundment by affecting the mixing regime as water levels change.

Nitrate (plus nitrite): One of the bioavailable forms of nitrogen, a primary cause of eutrophication. Impoundments are unlikely to raise the concentration of nitrate in the downstream river. Although some planktonic algae can fix atmospheric nitrogen, this amount is likely overwhelmed by the amount of nitrate coming in from the watershed via tributary streams.

Ammonia: One of the bioavailable forms of nitrogen, a primary cause of eutrophication. Impoundments are unlikely to raise the concentration of ammonia in the downstream river. Although bottom-draw facilities, especially if the impoundment is deep and stratifies, may influence the magnitude and timing of ammonia inputs to the downstream river. Dam operations are unlikely to influence ammonia concentration unless there is a bottom draw of a stratified, anoxic impoundment

Chloride: Chloride, at elevated levels is toxic to fish, invertebrates and amphibians. At lower levels, it can negatively affect diversity, productivity, and increase the density of water. Chloride is increasing statewide and nationally in waterbodies that have even small percentages of their watershed in urbanized land use. The impoundment is unlikely to transform or change chloride levels from the incoming tributaries (assuming long-term stable water levels). The major exception being if the shore is heavily developed and there are major applications of road salt or point sources with high chlorides.

Bacteria: Bacterial indicators, such as E. coli, are used to detect the presence of fecal contamination in waterbodies to protect recreational uses. Impoundments are unlikely to increase E. coli in downstream rivers, unless there is heavy recreation (campgrounds, beaches, non-sewered sanitation) on the impoundment.

Cyanobacteria: Harmful algal blooms are of concern for human health, recreation, and fish and aquatic life. High concentrations of chlorophyll-a are often correlated with high concentrations of cyanobacteria and cyanotoxins, but not in all cases. These indicators need to be measured independently for evaluation. As impoundments increase surface area, slow and warm water are likely to produce more chlorophyll-a per unit phosphorus/nitrogen, than the upstream or downstream river. Recent studies of dams across wide geographic areas show that cyanobacterial blooms are more prevalent when dams are drawn down. Temperatures increases, along with water residence times and nutrient concentrations, may support cyanobacteria. Dam operations can influence the likelihood of cyanobacterial blooms.

Total Suspended Solids (TSS): High concentrations of TSS can inhibit visibility for predators, damage gill structure of fishes, and lead to high rates of sedimentation in streams and alter benthic habitat. Impoundments are likely to lower TSS concentrations in the downstream river. In extreme cases where sediment build-up behind a dam structure is high, there may be some chance of increased concentrations of TSS. Dam operation is unlikely to influence TSS unless there is a catastrophic event, draw down or using ash cinders as a sealant.

Sediment Accumulation Behind Dam: Dams trap sediments upstream. Ecological concerns include increasing turbidity upstream and smothering spawning beds in the reservoir and upstream. Sediment build up can also threaten the longevity of the dam itself.

• Existing Information: Limited information is available on water quality data within the Project Boundary. Water clarity from satellite imagery has been performed annually 2010-2016. DO, temperature, water color, and water clarity monitoring were last performed in 2010. Fecal coliform bacteria from untreated waste from upstream cities appeared to be corrected at the time of the 1989 license issuance. There is some water quality information including nutrients and metals data in the Montreal River near and upstream of Hurley, but none near the project boundary.

• Operation nexus to resource and how informs license: The operation of the dam affects the water quality of the impoundment and downstream resources. The overall goal of the request is to further understand the current water quality conditions of the reservoir and river resources which will help inform management decisions in the future.

• Methodology: Data should be collected or analyzed using the DNR WISCALM Guidance and surface water grab sampling protocol. For the analytes without state standards, they should be analyzed by mean and median values and reported in a table by date and time annually. Temperature should be evaluated to determine if there are impacts to cold/cool water fish communities. Temperature thermistors should be deployed at a site upstream of the reservoir in a riverine area, in the bypass channel, and in the fully mixed zone downstream of the powerhouse. Water samples should be collected from 3 sites; at the deep hole within the impoundment, in the bypass channel and in the fully mixed zone downstream of the powerhouse. Dissolved oxygen should be monitored to determine if there are any DO sags downstream of the impoundment in the bypass channel, fully mixed zone downstream of the powerhouse, and in the deep hole of the impoundment. Assess or map sedimentation buildup behind the dam.

• Level of Effort and Costs: Six field days plus with two people $125 per hour plus costs for equipment. Estimated 40 hours for report writing and chemical analysis.

ASSESSMENT OF WILDLIFE AND WILDLIFE HABITAT AT SAXON FALLS

• Goals & Objectives: Document wildlife presence and diversity, habitat types, and general wildlife and vegetation abundance within the project area. The goal of this study is to evaluate the distribution and composition of vegetation, wildlife, and wildlife habitats, including wetlands, and the effects operations of those actions have on wildlife inhabiting those habitats.

• Relevant DNR Management Goals: The Department has responsibility to manage wildlife, including listed species. This information will be beneficial to understanding the current environment and potential needs for resource management associated with Saxon Falls.

• Existing Information: Information is limited. To our knowledge, the PAD does not include any field assessment or survey of wildlife habitat or use.

• Operation nexus to resource and how informs license: The relicensing of Saxon Falls has the potential to have short term and long-term impacts on habitat and wildlife use of affected habitats. Proper management of the resource will help to minimize any adverse impacts associated with the removal, restoration, and relicensing activities.

• Methodology: Using a qualified biologist or ecologist knowledgeable in local vegetation, identify, classify, and delineate on a map major vegetation cover types within project area. Existing aerial photography, on the ground surveys, or a combination of the two to identify and map the cover types may be used. The biologist/ecologist will record all wildlife present.

Ground-truth any remote-sensing mapping efforts, record all wildlife observed (directly or indirectly) and document any terrestrial invasive species detected during survey efforts. Describe each cover type by species composition, successional stage, and aerial extent (acreage) within the survey area, including invasive species. As an example, the methodology expressed in the following reference could be used: https://www.fs.fed.us/research/publications/gtr/gtr_wo89/gtr_wo89.pdf

• Level of Effort and Costs: 80 hours of desktop review, field work, and data summary at an estimated $125 per hour, plus equipment costs.

ASSESSMENT OF RIVERINE AND RESERVOIR HABITAT AT SAXON FALLS

• Goals & Objectives: Define, measure, and assess the stream habitat conditions upstream and downstream of the hydropower facilities. Define, measure, and assess the reservoir habitat, including upstream and downstream of the reservoir.

• Relevant DNR Management Goals: Obtaining recent habitat assessment information is critical for future management actions and establishing baseline data. Water level fluctuations due to drawdowns may affect aquatic habitat.

• Existing Information: Limited information on riverine habitat in the project area. A 1991 survey of the Saxon Falls Project reservoir indicated the shoreline banks varied from regular and steep to irregular and low banked; the shorelines are heavily vegetated with second growth forest up to the water's edge, which is heavily vegetated with aquatic plants.

• Operation nexus to resource and how informs license: Having updated instream and reservoir habitat assessment information is critical for evaluating the effects of the project on the stream ecosystem. It will provide baseline data to current conditions. The data can be used to help guide river management associated with Saxon Falls.

• Methodology: The riverine habitat should be evaluated with the WDNR Quantitative Habitat Assessment methodology in the wadable stretches of Montreal River at various flows or estimates. We acknowledge that access may be limited due to rocks, and water velocity/whitewater. For the reservoir, WDNR shoreland habitat protocol should be used.

• Level of Effort and Costs: 80 hours of field work and 40 hours of data analysis and reporting at $125 per hour, plus equipment costs.

ASSESSMENT OF FISHERIES AT SAXON FALLS

• Goals & Objectives: Define the diversity and abundance of the fish community within the Saxon Falls project.

• Relevant DNR Management Goal: Understand the existing environment. The department manages public water for recreational use, such as fishing, protection and management of species, and overall health of the fishery of the state.

• Existing Information: There is no current fish survey data collected within the past 10 years. The PAD states that the most recent fish collections were performed in 1979 and 1987. According to the WDNR Fish Stocking Database, the WDNR has been routinely stocking the Montreal River from 1972 through 2018. The mouth of the Montreal River to the Saxon Falls Flowage is classified as a warm water stream, and the river upstream of the Saxon Falls Project is classified as a cold water stream. The portion of the Montreal River flowing through the Saxon Falls and Superior Falls Projects is categorized as warm water sport fish community for fish and other aquatic life uses and for general recreation, public health and welfare, and fish consumption uses.

The Saxon Falls Project contains a 15-foot-high by 20-foot-wide main trashrack with 1-inch clear spacing. A search of available literature did not identify any entrainment or mortality information regarding the Project.

• Operation nexus to resource and how informs license: Having current fish survey information will help department staff make informed management decisions regarding the fishery.

• Methodology: Seasonal catch per unit effort (CPUE) surveys in the spring, summer, and fall to quantify fish population relative abundance and summary report to document the species available to recreational fishers and general fish community composition.

• Level of Effort and Costs: One night shoreline electrofishing pass per season (early May, late July, mid-October when water temperatures are between 55-70°F) along entire shoreline (pass speed ≤ 2 mph). Three nights trap/fyke net during spring (when water temperatures are ~40°F) at a single station approximately 500-1,000 feet upstream from powerhouse discharge. 120 hours of fieldwork and 40 hours of data reporting at $125 per hour, plus equipment costs.

MACROINVERTEBRATE SURVEY AT SAXON FALLS

• Goals & Objectives: Assess the water quality using macroinvertebrate bio-indicators below and above the impoundments and within the riverine system.

• Relevant DNR Management Goals: The department is charged with managing the water quality of the waters of the state and meeting designated criteria under the Clean Water Act.

• Existing Information: Limited information exists on the macroinvertebrate community immediately downstream and upstream of the impoundments and within the riverine system.

• Operation nexus to resource and how informs license: Macroinvertebrates are likely impacted by segmentation of the river, and impoundments can impact communities due to changing thermal and/or flow regimes. These bio-indicators are used to assess the health of the resource.

• Methodology: Wisconsin DNR Guidelines for Collecting Macroinvertebrate Samples from Wadable Streams (2017) and Large River Macroinvertebrate Sampling (2015). Data should be analyzed using the current WDNR WISCALM Guidance. Macroinvertebrates should be collected upstream of the reservoir in the riverine reach, in the bypass channel and downstream of the powerhouse in the fully mixed zone.

• Level of Effort and Costs: One day of field work with an estimated 20 hours of field and data analysis at $125 per hour equals $2,500. Lab analysis at state certified lab estimated to cost $1,000. Mobilization, travel, and equipment is estimated at $2,000.

AQUATIC AND TERRESTRIAL INVASIVE SPECIES SURVEY AT SAXON FALLS

• Goals & Objectives: Evaluate the presence/absence of invasive species listed in NR40, including habitat preferences, within the project area.

• Relevant DNR Management Goal: Minimize the transport and establishment of existing invasive species and establish management practices to reduce new invasive species. Compliance with NR40.

• Existing Information: Limited information is available. Banded Mystery Snail (not verified) was observed in 2011, in addition to Narrowleaf Cattail (not verified) and Reed Canary Grass.

• Operation nexus to resource and how informs license: The project may influence invasive species that have the potential to directly or indirectly cause economic or environmental harm or harm to human health, including

harm to native species, biodiversity, natural scenic beauty and natural ecosystem structure, function or sustainability; harm to the long–term genetic integrity of native species; harm to recreational, commercial, industrial and other uses of natural resources in the state; and harm to the safety or wellbeing of humans, including vulnerable or sensitive individuals. – per NR40.

• Methodology: Use WDNR Early Detection Early Response Protocols. Additional methodology may be needed for terrestrial species, and other methodologies such as point-intercept may be appropriate if combing this study with other studies.

• Level of Effort and Costs: 40 hours of field work and reporting at $125 per hour equals $5,000. Mobilization, equipment, and supplies are estimated at $10,000.

AQUATIC PLANT SURVEY AT SAXON FALLS

• Goals & Objectives: The goal of the aquatic plant study is to provide baseline data on the condition of the aquatic plant community in the Saxon Falls Project.

• Relevant DNR Management Goals: The proposed aquatic plant study will provide baseline aquatic plant information to determine if management practices would be needed to enhance the existing aquatic plant community, and overall health of Saxon Falls as a bio indicator. Water levels can influence aquatic vegetation.

• Existing Information: In-water plant community data is limited within the project community. A 1991 survey of the Saxon Falls Project reservoir indicated the shoreline banks varied from regular and steep to irregular and low banked. The shorelines are heavily vegetated with second growth forest up to the water's edge, which is heavily vegetated with aquatic plants. A survey of the shoreline in 2003 indicated the shoreline was essentially stable and well-vegetated with only slight erosion due to animal activity, particularly beaver, and high-water events at the upper end of the flowage.

• Operation nexus to resource and how informs license: The study results will provide baseline aquatic plant data. The data informs the Department of the effects on the surface water resource and would be used to formulate management options. Plant density and diversity of aquatic and native species are important for establishing varies management plans and protecting the resource.

• Methodology: The information collected from this study includes an assessment of the density and diversity of macrophytes, which includes frequencies of occurrence of different plant species, as well as estimates of species richness, abundance, and maximum depth of plant colonization. The aquatic invasive species study should be conducted according to WDNR's Recommended Baseline Monitoring of Aquatic Plants in Wisconsin.

• Level of Effort and Costs: 40 hours of fieldwork and 40 hours of reporting at $125 per hour, plus equipment costs.

MUSSEL STUDY AT SAXON FALLS

• Goals & Objectives: The goal of the study is to determine freshwater mussel density and diversity, including characterizing mussel habitat within the Saxon Falls project area. The study would provide information on freshwater mussel species present, their diversity, density, and a better understanding of baseline conditions and associated management needs for Saxon Falls relicensing.

• Relevant DNR Management Goals: This information will help the resource agencies determine if any best management practices are needed to protect listed species and any management measures to protect or enhancement the existing freshwater mussel population.

• Existing Information: There is limited information on freshwater mussel species in or near the project area. The PAD states that Cylindrical papershell and Eastern elliptio have been found within the Montreal River in Iron County, based on 1975 records from the Wisconsin Mussel Monitoring database. Recent surveys have not been conducted for mussels in this river.

• Operation nexus to resource and how informs license: The operations of the Saxon Falls Project could influence the freshwater mussel species located within the project boundary. The results of the survey will provide essential information to determine if any protection measures, restoration, or enhancements would be necessary as a management requirement associated with the relicensing of the Saxon Falls dam.

• Methodology: A qualitative and quantitative survey for freshwater mussels should be conducted. One method that can be used is WDNR's Guidelines for Sampling Freshwater Mussels in Wadable Stream. Methodology should be discussed with the Department for nonwadeable areas.

• Level of Effort and Cost: An estimate of 40 hours of field work and 40 hours to analyze data and draft a report at an estimated $125 per hour, plus equipment costs.

ASSESSMENT OF RARE AND ENDANGERED SPECIES AT SAXON FALLS

• Goals & Objectives: Rare plants and animals have been found within, adjacent to, and in habitats similar to the study area. It would be recommended to complete plant and animal surveys for these species to determine if they occur within the study area and to further our understanding of their populations within this area. This will also inform the licensee as to where these plant and animal locations are.

• Relevant DNR Management Goals: The Department has responsibility to manage plants and animals, including listed species. This information will be beneficial to understanding the current environment, and potential needs for resource management associated with Saxon Falls. The licensee is also required to follow state Endangered Species laws.

• Existing Information: Rare plants have been found within and adjacent to the study area although surveys have not been completed to our knowledge in 20+ years. Wood turtles have been identified on the Montreal River outside of the project area, but within similar habitat. See page 33 for wood turtle study requests.

• Operation nexus to resource and how informs license: The relicensing of Saxon Falls has the potential to have short term and long-term impacts on vegetation and animals-- in particular, wood turtles and their habitat. Proper management of the resource will help to minimize any adverse impacts associated with the removal, restoration, and relicensing activities.

• Methodology: Using a qualified botanist knowledgeable in area vegetation and specific species, identify, classify, and delineate on a map rare, threatened, or endangered plant species within the project area. Using a qualified biologist or ecologist, conduct presence/absence surveys for specific rare, threatened, or endangered animal species.

• Level of Effort and Cost: 40 hours of desktop review and 40 hours of fieldwork, plus equipment costs.

ASSESSMENT OF RECREATION AT SAXON FALLS

• Goals & Objectives: Evaluate current recreational uses, including opportunities for low flow and high flow events, public access, natural scenic beauty, trails, water sports, and fishing, with consideration for the different seasonal uses.

• Relevant DNR Management Goals: The Department supports a wide array of recreational use. We support the need for recreational use surveys that consider a broad array of users. A quantitative recreational use survey completed within the project boundary will evaluate potential changes associated with any modifications to water levels and operations. Information needs to be gathered in order to understand the current use, and potential future uses.

• Existing Information: There are many opportunities for fishing, wildlife viewing, and water sports within the Saxon Falls Project vicinity, which includes the Saxon Falls boat landing, scenic overlook, and tailwater access.

• Operation nexus to resource and how informs license: Hydro operations, management of impoundments, water level changes, and sufficient public access can have a significant impact on recreational value. Adequate information is necessary to determine what impacts may be occurring from the hydro operations, and what recreational opportunities may be enhanced.

• Methodology: Desktop assessment, including review of the State of Wisconsin 2019 to 2023 Statewide Comprehensive Outdoor Recreation Plan (SCORP), released in March 2019, public surveys, and existing recreational sites. This includes assessment of current uses, level of use, evaluation for additional recreational features.

• Level of Effort and Cost: 40 hours of desktop review and fieldwork at $125 per hour, plus equipment costs.

PROPOSED PROJECT BOUNDARY AT SAXON FALLS

• Goals & Objectives: Quantitative assessment of acres of wildlife habitat and surface water that would be modified with a proposed change in project boundary. This includes impacts to public access and recreational activities.

• Relevant DNR Management Goals: Protection of natural resources and providing public recreational opportunities are part of the Department's mission.

• Existing Information: The current FERC license (issued December 22, 1989) established the Project boundary to include approximately 158 upland acres of which about 129 acres are in Wisconsin and the remaining 49 acres in Michigan. Project lands include the dam, conduit, surge tank, penstocks, and powerhouse. The Licensee is proposing to reduce the acreage within the Project boundary to only include areas required for Project operation and areas upstream of the dam to an elevation of 997.0 feet.

• Operation nexus to resource and how informs license: The riparian areas are critical in protecting water quality and fish and wildlife habitat in the Montreal River system. Recreation and public access, along with natural resource protection are all part of the Public Trust Doctrine in Wisconsin.

• Methodology: Desktop evaluation of wetland and riparian habitat. Identify changes in acreage in wetland and habitat, as well as changes in acreage and use in reactional features. Additionally, identify if any of the areas proposed to be exclude from the project boundary provide habitat for listed species.

• Level of Effort and Cost: 40 hours of desktop review at $125 per hour.

Study Request

Relicense of Superior Falls P-2587

ASSESSMENT OF CURRENT DAM OPERATIONS AT SUPERIOR FALLS

• Goals and Objectives: Determine if the project is meeting the requirements of minimum flows and run-of-river operations; including documenting how downstream river flows are managed appropriately to limit water level fluctuations.

• Relevant DNR Management Goals: Assess the current operations to ensure that the operations are operating at run-of-river flows.

• Existing Information: A minimum flow of 8 cfs is required to be released into the bypass reach of the Montreal River between the Saturday before Memorial Day to October 15 for enhancement of scenic resources. A minimum flow of 20 cfs is required to be released into the bypass reach from 8 am to 8 pm on weekends and holidays during the same timeframe. The PAD also states that this operation mode protects fish spawning in the Project impoundment, riparian vegetation above and below the Project, and recreation opportunities in the Project impoundment.

• Operation nexus to resource and how informs license: Ensure Superior Falls is meeting the intent of run-of-river, and not causing harm to the downstream aquatic ecosystem.

• Methodology: Desktop review of existing inflow and outflow data, including an evaluation report of run-of-river and operations requirements.

• Level of Effort and Cost: Staff time is expected to be 20-40 hours at $125 per hour equaling $2,500-$5,000 for data analysis and report.

ASSESSMENT OF MINIMUM FLOW AND RESOURCE IMPACTS AT THE BYPASS CHANNELS AT SUPERIOR FALLS

• Goals and Objectives: Determine if the project minimum flows of 8 cfs and 20 cfs are providing sufficient flows for the aquatic environment and evaluate additional flows for comparison.

• Relevant DNR Management Goals: Evaluate the current minimum flows and ensure that the minimum flows do not have an adverse impact on the aquatic resources within the Superior Falls project boundary.

• Existing Information: A minimum flow of 8 cfs is required to be released into the bypass reach of the Montreal River between the Saturday before Memorial Day to October 15 for enhancement of scenic resources. A minimum flow of 20 cfs is required to be released into the bypass reach from 8 am to 8 pm on weekends and holidays during the same timeframe. PAD also states that this operation mode protects fish spawning in the Project impoundment, riparian vegetation above and below the Project, and recreation opportunities in the Project impoundment.

• Operation nexus to resource and how informs license: Ensure Superior Falls is meeting the intent of run-of-river, and not causing divergence in flows that harm the downstream aquatic ecosystem.

• Methodology: In-stream flow study, which includes a description of current habitat conditions within the bypass channel under current operation and flows to determine if the current minimum flows are impacting available habitat, fish, and macroinvertebrate communities. Assess various minimum flow regimes to determine what is appropriate to not have an adverse impact on the resource.

• Level of Effort and Cost: Staff time is expected to be 20-40 hours of field work at $125 per hour plus costs for equipment.

ASSESSMENT OF STREAM FLOWS, CHANNEL DIMENSIONS, AND LINEAR GRADIENT AT SUPERIOR FALLS

• Goals & Objective: Determine the impact the proposed project has on the existing stream flows, channel dimensions and linear gradient of Superior Falls and the Montreal River.

• Relevant DNR Management Goals: The proposed study would investigate the impacts the project would have on the existing stream flows, channel dimensions, and linear gradient of the river. The impacts that the project may cause on the existing stream flows, channel dimensions and linear gradient may alter resources and recreational and developmental management plans for the future.

• Existing Information: Data is limited relating to flow, channel dimensions and, linear gradient impacts within the project boundary.

• Operation nexus to resource and how informs license: The relicensing of Superior Falls has the potential to have short term and long-term impacts on the aquatic community of the Montreal River and Lake Superior downstream of the impoundment. These impacts include but are not limited to dewatering and limiting available aquatic habitat in the downstream river channel depending on stream discharge and dam operation. These impacts can vary by season as well as daily. Proper management of the resource will help ensure that adequate flows are available to aquatic life at the proper time and thermal regime.

• Methodology: Conduct a study to determine stream morphology downstream of the project at various flows, including width, depth, wetted perimeter and substrate composition. The study should identify any wetlands that are flooded. This should include available aquatic habitat under current operation through flood flow conditions. Quantitative Habitat Assessment Methodology should be used to document habitat conditions. Refer to existing management efforts (recreational, resource, habitat) to investigate the impacts the proposed project would have.

• Level of Effort and Costs: Staff time is expected to be about 20-40 hours of fieldwork at $125 per hour plus cost of equipment.

ASSESSMENT OF WATER QUALITY AT SUPERIOR FALLS

• Goals & Objectives: Assess and monitor the following water quality parameters:

Total Phosphorus	Color	Ammonia
Chlorophyll-a	Total Nitrogen	Chloride
Dissolved Oxygen (DO)	Sulfate, Total Mercury	Bacteria
Temperature	Iron, Manganese, and/or Sulfide	Cyanobacteria
Conductivity	Dissolved Phosphorus	Total Suspended Solids
pH	Nitrate (plus nitrite)	Sediment Accumulation
Secchi Depth		

• Relevant DNR Management Goals:

Total Phosphorus: One of the primary causes of eutrophication and most widespread pollutant in waterbodies statewide and nationally. Impoundments are unlikely to raise the concentration of phosphorus in the downstream river but play a role in the transformation, such as the ratio of dissolved phosphorus to total phosphorus. Bottom-draw facilities, especially if the impoundment is deep and stratifies, may have the potential to influence the magnitude and timing of phosphorus inputs to the downstream river. Dam operations might influence internal phosphorus loading to the impoundment by affecting the mixing regime as water levels change.

Chlorophyll-a: A measurement of the amount of algae in a waterbody, one of the primary manifestations of eutrophication. As impoundments increase surface area, slow and warm water are likely to produce more chlorophyll-a, per unit phosphorus/nitrogen, than the upstream or downstream river. Impoundments may produce chlorophyll-a in the lake environment that is then passed to the downstream river. Dam operations may have limited ability to control chlorophyll-a, but location of discharge will play a role in the potential to release downstream. Dam operations can reduce chlorophyll-a by reducing water residence times and by artificially mixing the phytoplankton into deep waters below the euphotic zone (resulting in less primary production than expected given nutrient levels). Other tools to reduce nutrient and algal concentrations include flow by-passes, pre-impoundments, scour valves that discharge nutrient-rich hypolimnetic water, and modifications to the operating regime. Drawdown can increase internal nutrient loading by instigating a mixing event.

Dissolved Oxygen: Dissolved oxygen is critical for the health and survival of aquatic organisms. Deep impoundments may stratify and become oxygen depleted in deep water. Impoundments may then cause a decrease in dissolved oxygen in the downstream river, especially if there is bottom withdrawal of a eutrophic impoundment, or an impoundment that stratifies. Additionally, eutrophic impoundments may transform nutrients into organic matter (mainly algae) that then flows into the river, decomposes and reduces oxygen. Dam operations can influence downstream dissolved oxygen by changing/mixing withdrawal location (top versus bottom draw) or aerating discharge before it reenters the downstream riverine environment (among others). Additionally, passing anaerobic waters through turbines or similar precision machinery may also cause damage to the facility's equipment.

Temperature: Temperature regime of a waterbody structures community composition of fish, invertebrates, plants, etc. Temperature also effects rates of chemical reactions, ecosystem productivity and the ability for gasses to dissolve in water. Impoundments can increase water temperatures by slowing water velocity and increasing surface area to absorb solar radiation. Additionally, deep impoundments may cause deep water temperatures to decrease if there is stratification. Dam operations

can influence downstream temperature by changing/mixing withdrawal location, top versus bottom draw (among others).

Conductivity: High concentrations of dissolved ions, measured as conductivity, can impair the osmoregulation of organisms with gills and other semipermeable membranes. Sources of elevated conductivity are likely from nonpoint and certain point source discharges. However, conductivity is important for classifying the impoundment and stream and is therefore needed as background information.

pH: pH can control the biologic availability, solubility and speciation of chemicals in water. Although wild rice does well in slightly acidic waters (pH 5.9 – 6.2), even moderately acidic water may irritate the gills of aquatic fish and insects or reduce the hatching success of fish eggs. Eutrophication increases swings in pH during the algal growth and die-off phases. Highly eutrophic impoundments may release high or low pH to the river downstream. In addition, fluctuating water levels can acidify the impoundment by exposing the waterbody bed to air and then flushing sulfate into the water when lake levels rise again or when it rains. Dam operation probably has very little opportunity to mitigate dramatic pH swings at short time-scales, but operations that cause sufficient changes in water levels may affect pH at a seasonal or interannual time scale.

Secchi Depth: Secchi depth measures water clarity and is a general indicator of waterbody health. The impoundment could affect Secchi depth through its effects on eutrophication and suspended sediments. Dam operations can influence internal nutrient loading and chlorophyll-a, and thus, water clarity.

Color: Color refers to how much colored organic matter is in the water, staining it brown. Water color is important for understanding the ecology of the waterbody. Highly stained waters reduce water clarity, and in turn, can affect algal and plant growth and even fish growth. The impoundment is unlikely to affect color, but color will be important for understanding the ecology of the impoundment.

Total Nitrogen: An oversupply of nitrogen is one of the primary causes of eutrophication. A lack of nitrogen limits wild rice development. Impoundments are unlikely to raise the concentration of nitrogen in the downstream river. Although some planktonic algae can fix atmospheric nitrogen, this amount is likely overwhelmed by the amount of nitrogen coming in from the watershed via tributary streams. Impoundments do play a role in the transformation, such as the ratio of dissolved inorganic nitrogen to organic nitrogen.

Sulfate, Total Mercury: Dam operations can influence the sulfur and ultimately the mercury cycle. In short, long-term drawdowns can eventually lead to increased sulfate runoff when it rains. This acidifies the water and can then enhance methyl mercury concentrations in water and methyl mercury in fish. Sulfate can also be converted to toxic sulfide which affects the mitochondria of plants. When sulfate is high, sulfides are also usually high and therefore toxic to wild rice and other plants. This process has been demonstrated in formation of new reservoirs and in the regulation of existing reservoirs. Impoundments can cause this process to happen. Water levels will need to be managed to prevent increased methyl mercury and high sulfate levels.

Iron, Manganese, and/or Sulfide in Reservoir: These are reducing substances that can have high concentrations in the hypolimnion of reservoirs under anoxic conditions. They use oxygen through their own chemical transformations and can decrease sulfide but can further increase oxygen demand. In addition, iron binds phosphorus under oxic conditions, but releases phosphorus under anoxic conditions. Therefore, reservoirs with high iron could be prone to internal phosphorus loading if they go anoxic in

the hypolimnion. Dam operations can impact stratification and mixing, and thus, the concentration of these substances and internal nutrient loading.

Dissolved Phosphorus: An oversupply of phosphorus is one of the primary causes of eutrophication and most widespread pollutant in waterbodies, statewide and nationally. Low phosphorus levels limit wild rice seedling success and development. Impoundments are unlikely to raise the concentration of phosphorus in the downstream river, but play a role in the transformation, such as the ratio of dissolved phosphorus to total phosphorus. Bottom-draw facilities, especially if the impoundment is deep and stratifies, may have the potential to influence the magnitude and timing of phosphorus inputs to the downstream river. For instance, if there is stratification, a bottom-draw facility may discharge highly bioavailable dissolved phosphorus from the hypolimnion to the downstream river contributing to eutrophication issues. Dam operation might influence internal phosphorus loading to the impoundment by affecting the mixing regime as water levels change.

Nitrate (plus nitrite): One of the bioavailable forms of nitrogen, a primary cause of eutrophication. Impoundments are unlikely to raise the concentration of nitrate in the downstream river. Although some planktonic algae can fix atmospheric nitrogen, this amount is likely overwhelmed by the amount of nitrate coming in from the watershed via tributary streams.

Ammonia: One of the bioavailable forms of nitrogen, a primary cause of eutrophication. Impoundments are unlikely to raise the concentration of ammonia in the downstream river. Although bottom-draw facilities, especially if the impoundment is deep and stratifies, may influence the magnitude and timing of ammonia inputs to the downstream river. Dam operations are unlikely to influence ammonia concentration unless there is a bottom draw of a stratified, anoxic impoundment

Chloride: Chloride, at elevated levels is toxic to fish, invertebrates and amphibians. At lower levels, it can negatively affect diversity, productivity, and increase the density of water. Chloride is increasing statewide and nationally in waterbodies that have even small percentages of their watershed in urbanized land use. The impoundment is unlikely to transform or change chloride levels from the incoming tributaries (assuming long-term stable water levels). The major exception being if the shore is heavily developed and there are major applications of road salt or point sources with high chlorides.

Bacteria: Bacterial indicators, such as E. coli, are used to detect the presence of fecal contamination in waterbodies to protect recreational uses. Impoundments are unlikely to increase E. coli in downstream rivers, unless there is heavy recreation (campgrounds, beaches, non-sewered sanitation) on the impoundment.

Cyanobacteria: Harmful algal blooms are of concern for human health, recreation, and fish and aquatic life. High concentrations of chlorophyll-a are often correlated with high concentrations of cyanobacteria and cyanotoxins, but not in all cases. These indicators need to be measured independently for evaluation. As impoundments increase surface area, slow and warm water are likely to produce more chlorophyll-a per unit phosphorus/nitrogen, than the upstream or downstream river. Recent studies of dams across wide geographic areas show that cyanobacterial blooms are more prevalent when dams are drawn down. Temperatures increases, along with water residence times and nutrient concentrations, may support cyanobacteria. Dam operations can influence the likelihood of cyanobacterial blooms.

Total Suspended Solids (TSS): High concentrations of TSS can inhibit visibility for predators, damage gill structure of fishes, and lead to high rates of sedimentation in streams and alter benthic habitat. Impoundments are likely to lower TSS concentrations in the downstream river. In extreme cases where sediment build-up behind a dam structure is high, there may be some chance of increased concentrations

of TSS. Dam operations are unlikely to influence TSS unless there is a catastrophic event, draw down or using ash cinders as a sealant.

Sediment Accumulation Behind Dam: Dams trap sediments upstream. Ecological concerns include increasing turbidity upstream and smothering spawning beds in the reservoir and upstream. Sediment build up can also threaten the longevity of the dam itself.

• Existing Information: Limited information is available on water quality monitoring data within the project boundary. Satellite derived water clarity was performed annually 2010-2012, and DO, temperature, water color, and water clarity were last measured in 2010.

• Operation nexus to resource and how informs license: The operation of the dam affects the water quality of the impoundment and downstream resources. The overall goal of the request is to further understand the current water quality conditions of the reservoir and river resources which will help inform management decisions in the future.

• Methodology: Data should be collected or analyzed using the DNR WISCALM Guidance and surface water grab sampling protocol. For the analytes without state standards, they should be analyzed by mean and median values and reported in a table by date and time annually. Temperature should be evaluated to determine if there are impacts to cold/cool water fish communities. Temperature thermistors should be deployed at a site upstream of the reservoir in a riverine area, in the bypass channel, and in the fully mixed zone downstream of the powerhouse. Water samples should be collected from 3 sites; at the deep hole within the impoundment, in the bypass channel and in the fully mixed zone downstream of the powerhouse. Dissolved oxygen should be monitored to determine if there are any DO sags downstream of the impoundment in the bypass channel, fully mixed zone downstream of the powerhouse, and in the deep hole of the impoundment. Assess or map sedimentation buildup behind the dam.

• Level of Effort and Costs: Six field days plus with two people $125 per hour, plus costs for equipment. Estimated 40 hours for report writing and chemical analysis.

ASSESSMENT OF WILDLIFE AND WILDLIFE HABITAT AT SUPERIOR FALLS

• Goals & Objectives: Document wildlife presence and diversity, habitat types, and general wildlife and vegetation abundance within the project area. The goal of this study is to evaluate the distribution and composition of vegetation, wildlife, and wildlife habitats, including wetlands, and the effects operations of those actions have on wildlife inhabiting those habitats.

• Relevant DNR Management Goals: The department has responsibility to manage wildlife, including listed species. This information will be beneficial to understanding the current environment, and potential needs for resource management associated with Superior Falls.

• Existing Information: Information is limited. To our knowledge, the PAD does not include any field assessment or survey of wildlife habitat or use.

• Operation nexus to resource and how informs license: The relicensing of Superior Falls has the potential to have short term and long-term impacts on habitat and wildlife use of affected habitats. Proper management of the resource will help to minimize any adverse impacts associated with the removal, restoration, and relicensing activities.

• Methodology: Using a qualified biologist or ecologist knowledgeable in local vegetation, identify, classify, and delineate on a map major vegetation cover types within project area. Existing aerial photography, on the ground surveys, or a combination of the two to identify and map the cover types may be used. The biologist/ecologist will record all wildlife present.

Ground-truth any remote-sensing mapping efforts, record all wildlife observed (directly or indirectly) and document any terrestrial invasive species detected during survey efforts. Describe each cover type by species composition, successional stage, and aerial extent (acreage) within the survey area, including invasive species. As an example, the methodology expressed in the following reference could be used: https://www.fs.fed.us/research/publications/gtr/gtr_wo89/gtr_wo89.pdf

• Level of Effort and Costs: 80 hours of desktop review, field work, and data summary at an estimated $125 per hour, plus equipment costs.

ASSESSMENT OF RIVERINE AND RESERVOIR HABITAT AT SUPERIOR FALLS

• Goals & Objectives: Define, measure, and assess the stream habitat conditions upstream and downstream of the hydropower facilities. Define, measure and assess the reservoir habitat, including upstream and downstream of the reservoir.

• Relevant DNR Management Goals: Obtaining recent habitat assessment information is critical for future management actions and establishing baseline data. Water level fluctuations due to drawdowns may affect aquatic habitat.

• Existing Information: Limited information is available on riverine habitat in the project area. A 1991 survey of the Superior Falls Project reservoir indicated the reservoir shoreline varies from regular and steep to irregular and low banked areas. The shorelines are heavily vegetated with second growth forest and the water's edge is heavily vegetated with aquatic plants. Bank erosion was noted along the upper portion of the impoundment in 1991, some of which was fairly extensive. Many abandoned river channels were also apparent.

• Operation nexus to resource and how informs license: Having updated instream and reservoir habitat assessment information is critical for evaluating the effects of the project on the stream ecosystem. It will provide baseline data to current conditions. The data can be used to help guide river management associated with Superior Falls.

• Methodology: The riverine habitat should be evaluated with the WDNR Quantitative Habitat Assessment methodology in the wadable stretches of Montreal River at various flows or estimates. We acknowledge that access may be limited due to rocks, and water velocity/whitewater. For the reservoir, WDNR shoreland habitat protocol should be used.

• Level of Effort and Costs: 80 hours of field work and 40 hours of data analysis and reporting at $125 per hour, plus equipment costs.

ASSESSMENT OF FISHERIES AT SUPERIOR FALLS

• Goals & Objectives: Define the diversity and abundance of the fish community within the Superior Falls project.

• Relevant DNR Management Goal: Understand the existing environment. The department manages public water for recreational use, such as fishing, protection and management of species, and overall health of the fishery of the state.

• Existing Information: There is no current fish survey data collected within the past 10 years. The PAD states that the most recent fish collections were performed in 1987. According to the WDNR Fish Stocking Database, the WDNR has been routinely stocking the Montreal River from 1972 through 2018. The portion of the Montreal River flowing through the Saxon Falls and Superior Falls Projects is categorized as warm water sport fish community for fish and other aquatic life uses and for general recreation, public health and welfare, and fish consumption uses. The Superior Falls Project contains a 15-foot-high by 23-foot-wide main trashrack with 1-inch clear spacing. The estimated approach velocity at the intake is 0.6 feet per second (fps) at maximum flow through the turbines and less than 0.5 fps under normal conditions.

• Operation nexus to resource and how informs license: Having current fish survey information will help department staff make informed management decisions regarding the fishery.

• Methodology: Seasonal catch per unit effort (CPUE) surveys in the spring, summer, and fall to quantify fish population relative abundance and summary report to document the species available to recreational fishers and general fish community composition.

• Level of Effort and Costs: One night shoreline electrofishing pass per season (early May, late July, mid-October when water temperatures are between 55-70°F) along entire shoreline (pass speed ≤ 2 mph). Three nights trap/fyke net during spring (when water temperatures are between 45°F and 47°F) at a single station approximately 500-1,000 feet upstream from powerhouse discharge. 120 hours of fieldwork and 40 hours of data reporting at $125 per hour, plus equipment costs.

MACROINVERTEBRATE SURVEY AT SUPERIOR FALLS

• Goals & Objectives: Assess the water quality using macroinvertebrate bio-indicators below and above the impoundments and within the riverine system.

• Relevant DNR Management Goals: The department is charged with managing the water quality of the waters of the state and meeting designated criteria under the Clean Water Act.

• Existing Information: Limited information exists on the macroinvertebrate community immediately downstream and upstream of the impoundments and within the riverine system. Most recent data are from 2010.

• Operation nexus to resource and how informs license: Macroinvertebrates are likely impacted by segmentation of the river, and impoundments can impact communities due to changing thermal and/or flow regimes. These bio-indicators are used to assess the health of the resource.

• Methodology: Wisconsin DNR Guidelines for Collecting Macroinvertebrate Samples from Wadable Streams (2017) and Large River Macroinvertebrate Sampling (2015). Data should be analyzed using the current WDNR WISCALM Guidance. Macroinvertebrates should be collected upstream of the reservoir in the riverine reach, in the bypass channel and downstream of the powerhouse in the fully mixed zone.

• Level of Effort and Costs: One day of field work with an estimated 20 hours of field and data analysis at $125 per hour equals $2,500. Lab analysis at state certified lab estimated to cost $1,000. Mobilization, travel, and equipment is estimated at $2,000.

AQUATIC AND TERRESTRIAL INVASIVE SPECIES SURVEY AT SUPERIOR

• Goals & Objectives: Evaluate the presence/absence of invasive species listed in NR40, including habitat preferences within the project area.

• Relevant DNR Management Goal: Minimize the transport and establishment of existing invasive species and establish management practices to reduce new invasive species. Compliance with NR40.

• Existing Information: Limited information is available. Purple Loosestrife monitoring reports have been reported from 1999-2019, with no evidence of Purple Loosestrife since 1998..

• Operation nexus to resource and how informs license: The project may influence invasive species that have the potential to directly or indirectly cause economic or environmental harm or harm to human health, including harm to native species, biodiversity, natural scenic beauty and natural ecosystem structure, function or sustainability; harm to the long−term genetic integrity of native species; harm to recreational, commercial, industrial and other uses of natural resources in the state; and harm to the safety or wellbeing of humans, including vulnerable or sensitive individuals. – per NR40.

• Methodology: Use WDNR Early Detection Early Response Protocols. Additional methodology may be needed for terrestrial species, and other methodologies such as point-intercept may be appropriate if combing this study with other studies.

• Level of Effort and Costs: 40 hours of field work and reporting at $125 per hour equals $5,000. Mobilization, equipment, and supplies are estimated at $10,000.

AQUATIC PLANT SURVEY AT SUPERIOR FALLS

• Goals & Objectives: The goal of the aquatic plant study is to provide baseline data on the condition of the aquatic plant community in the Superior Falls Project. Water levels can influence aquatic vegetation.

• Relevant DNR Management Goals: The proposed aquatic plant study will provide baseline aquatic plant information to determine if management practices would be needed to enhance the existing aquatic plant community, and overall health of Superior Falls as a bio indicator.

• Existing Information: In-water plant community data is limited within the project boundary.

• Operation nexus to resource and how informs license: The study results will provide baseline aquatic plant data. The data informs the Department of the effects on the surface water resource and would be used to formulate management options. Plant density and diversity of aquatic and native species are important for establishing varies management plans and protecting the resource.

• Methodology: The information collected from this study includes an assessment of the density and diversity of macrophytes, which includes frequencies of occurrence of different plant species, as well as estimates of species richness, abundance, and maximum depth of plant colonization. The aquatic invasive species study should be conducted according to WDNR's Recommended Baseline Monitoring of Aquatic Plants.

• Level of Effort and Costs: 40 hours of fieldwork and 40 hours of reporting at $125 per hour, plus equipment costs.

MUSSEL STUDY SUPERIOR FALLS

• Goals & Objectives: The goal of the study is to determine freshwater mussel density and diversity, including characterizing mussel habitat within the Superior Falls project area. The study would provide information on freshwater mussel species present, their diversity, density, and a better understanding of baseline conditions and associated management needs for Superior Falls relicensing.

• Relevant DNR Management Goals: This information will help the resource agencies determine if any best management practices are needed to protect listed species; and any management measures to protect or enhancement the existing freshwater mussel population.

• Existing Information: There is limited information on freshwater mussel species in or near the project area. The PAD states that Cylindrical papershell and Eastern elliptio have been found within the Montreal River in Iron County, based on 1975 records from the Wisconsin Mussel Monitoring database. Recent surveys have not been conducted for mussels in this river.

• Operation nexus to resource and how informs license: The operations of the Superior Falls Project could influence the freshwater mussel species located within the project boundary. The results of the survey will provide essential information to determine if any protection measures, restoration, or enhancements would be necessary as a management requirement associated with the relicensing of the Superior Falls dam.

• Methodology: A qualitative and quantitative survey for freshwater mussels should be conducted. One method that can be used is WDNR's Guidelines for Sampling Freshwater Mussels in Wadable Stream. Methodology should be discussed with the Department for nonwadeable areas.

• Level of Effort and Cost: An estimate of 40 hours of field work and 40 hours to analyze data and draft a report at an estimated $125 per hour, plus equipment costs.

ASSESSMENT OF RARE AND ENDANGERED SPECIES AT SUPERIOR FALLS

• Goals & Objectives: Rare plants and animals have been found within, adjacent to, and in habitats similar to the study area. It would be recommended to complete plant and animal surveys for these species to determine if they occur within the study area and to further our understanding of their populations within this area. This will also inform the licensee as to where these plant and animal locations are.

• Relevant DNR Management Goals: The Department has responsibility to manage plants and animals, including listed species. This information will be beneficial to understanding the current environment, and potential needs for resource management associated with Superior Falls. The licensee is also required to follow state Endangered Species laws.

• Existing Information: Rare plants have been found within and adjacent to the study area although surveys have not been completed to our knowledge in 20+ years. Wood turtles have been identified on the Montreal River outside of the project area, but within similar habitat. See page 33 for wood turtle study requests.

• Operation nexus to resource and how informs license: The relicensing of Superior Falls has the potential to have short term and long-term impacts on vegetation and animals-- in particular, wood turtles and their habitat. Proper management of the resource will help to minimize any adverse impacts associated with the removal, restoration, and relicensing activities.

• Methodology: Using a qualified botanist knowledgeable in area vegetation and specific species, identify, classify, and delineate on a map rare, threatened, or endangered plant species within the project area. Using a

qualified biologist or ecologist, conduct presence/absence surveys for specific rare, threatened, or endangered animal species.

• Level of Effort and Cost: 40 hours of desktop review and 40 hours of fieldwork, plus equipment costs.

ASSESSMENT OF RECREATION AT SUPERIOR FALLS

• Goals & Objectives: Evaluate current recreational uses, including opportunities for low flow and high flow events, public access, natural scenic beauty, trails, water sports, and fishing, with consideration for the different seasonal uses.

• Relevant DNR Management Goals: The Department supports a wide array of recreational use. We support the need for recreational use surveys that consider a broad array of users. A quantitative recreational use survey completed within the project boundary will evaluate potential changes associated with any modifications to water levels and operations. Information needs to be gathered in order to understand the current use, and potential future uses.

• Existing Information: There are many opportunities for fishing, wildlife viewing, and water sports within the Superior Falls Project vicinity, which includes the North Country National Scenic Trail, canoe take-out, scenic overlooks, and tailwater fishing area.

• Operation nexus to resource and how informs license: Hydro operations, management of impoundments, water level changes, and sufficient public access can have a significant impact on recreational value. Adequate information is necessary to determine what impacts may be occurring from the hydro operations, and what recreational opportunities may be enhanced.

• Methodology: Desktop assessment, including review of the State of Wisconsin 2019 to 2023 Statewide Comprehensive Outdoor Recreation Plan (SCORP), released in March 2019, public surveys, and existing recreational sites. This includes assessment of current uses, level of use, evaluation for additional recreational features.

• Level of Effort and Cost: 40 hours of desktop review and fieldwork at $125 per hour, plus equipment costs.

PROPOSED PROJECT BOUNDARY AT SUPERIOR FALLS

• Goals & Objectives: Quantitative assessment of acres of wildlife habitat and surface water that would be modified with a proposed change in project boundary. This includes impacts to public access and recreational activities.

• Relevant DNR Management Goals: Protection of natural resources and providing public recreational opportunities are part of the Department's mission.

• Existing Information: The current FERC license (issued January 19, 1995) established the Project boundary to include 353.6 acres of which 212.6 acres are located in Wisconsin and the remaining 141 acres are in Michigan. Project lands include the dam, conduit, surge tank, penstocks, powerhouse, substation, canoe and kayak take-out, parking area, Superior Falls Scenic overlook, and tailrace fishing area. The Licensee is proposing to reduce the acreage within the Project boundary to only include areas required for Project operation and areas upstream of the dam to an elevation of 740.0 feet.

• Operation nexus to resource and how informs license: The riparian areas are critical in protecting water quality and fish and wildlife habitat in the Montreal River system. Recreation and public access, along with natural resource protection are all part of the Public Trust Doctrine in Wisconsin.

• Methodology: Desktop evaluation of wetland and riparian habitat. Identify changes in acreage in wetland and habitat, as well as changes in acreage and use in reactional features. Additionally, identify if any of the areas proposed to be exclude from the project boundary provide habitat for listed species.

• Level of Effort and Cost: 40 hours of desktop review at $125 per hour.

Study Request

Gile Flowage (UL20, WBIC 2942300)

ASSESSMENT OF MINIMUM FLOW, DRAWDOWNS, AND RESOURCE IMPACTS AT GILE FLOWAGE

• Goals and Objectives: Determine if the project minimum flow of 10 cfs, a maximum drawdown of 15 feet (or elevation of 1475.0'), and drawdowns during the summer and winter are providing sufficient flows and environment for aquatic resources.

• Relevant DNR Management Goals: The management of the resource to minimize and ensure that the aquatic environment is maintained in a healthy state, including protection of rare and listed species. Consideration for impacts to wildlife that will be hibernating would be adversely affected by drawdowns. Sediment loading impacts from frequent drawdowns and loss of recreational opportunities, due to limited access, are affected by drawdowns. If a drawdown or refill is performed too quickly, turbid water can flow down river, depending on the water flow rate. Sediment can also settle out at the base of the Gile Flowage dam, creating water quality and habitat issues. Currently, drawdowns during the winter is not in compliance with the Wood Turtle Broad Incidental Take Permit/Authorization. In order for these drawdowns to continue, an individual Incidental Take Permit will be needed.

• Existing Information: The Licensee's records document a "gentleman's agreement" allowing for a maximum drawdown of 15 feet or elevation 1475.0'. The Gile Flowage was created to augment river flows during summer and winter low-flow periods at the downstream Saxon Falls and Superior Falls Projects. Both Projects are heavily dependent upon flow augmentation from the Gile Flowage during these low-flow periods. A minimum flow of 10 cfs has historically been passed in accordance with an agreement with the Village of Montreal. A block in the bottom of the sluice gate is used to ensure 10 cfs of flow is maintained at all times.

• Operation nexus to resource and how informs license: Ensure Gile Flowage is meeting the intent of augmenting river flows during low-flow periods, and not causing harm to the downstream aquatic ecosystem. Additionally, provide further detail on how hydroelectric operations are dependent upon these drawdowns and this flow.

• Methodology: Evaluate the current minimum flow, maximum drawdown, and summer and winter drawdowns. Habitat should be evaluated with the Quantitative Habitat Assessment Methodology downstream of the impoundment at various flows and tied to a cfs discharge. Provide a copy of Chapter 31 approval and operation plan that permits the drawdowns and the minimum flow. Provide any additional documentation supporting this "gentleman's agreement" and any WDNR protocols analyzing it. Install of water level sensors to record changes in water levels and flows within 15 minute increments, with the intent of documenting the frequency and degree of water level fluctuations throughout the year.

• Level of Effort and Cost: Staff time is expected to be 20-40 hours of field work at $125 per hour, plus costs for equipment.

ASSESSMENT OF STREAM FLOWS, CHANNEL DIMENSIONS, AND LINEAR GRADIENT AT GILE FLOWAGE

• Goals & Objective: Determine the impact the proposed project has on the existing stream flows, channel dimensions and linear gradient of the Montreal River downstream of the flowage.

• Relevant DNR Management Goals: The proposed study would investigate the impacts the project would have on the existing stream flows, channel dimensions, and linear gradient of the Montreal River. The impacts that the project may cause on the existing stream flows, channel dimensions and linear gradient may alter any resource, recreational, and developmental management plans for the future.

• Existing Information: There are qualitative habitat assessments associated with fish surveys in the West Fork of the Montreal River downstream (and upstream) of the Gile flowage.

• Operation nexus to resource and how informs license: The potential inclusion of Gile Flowage has the potential to have short term and long-term impacts on the aquatic community of the Montreal River downstream of the impoundment. These impacts include but are not limited to dewatering and limiting available aquatic habitat in the downstream river channel depending on stream discharge. These impacts can vary by season as well as daily. Proper management of the resource will help ensure that adequate flows are available to aquatic life at the proper time and thermal regime.

• Methodology: Conduct a flow study to determine stream morphology downstream of the project at various flows. Including width, depth and wetted perimeter and substrate composition. The study should identify any wetlands that are flooded. This should include available aquatic habitat under current operation through flood flow conditions. Quantitative Habitat Assessment Methodology should be used to document habitat conditions. Refer to existing management efforts (recreational, resource, habitat) to investigate the impacts the proposed project would have.

• Level of Effort and Costs: 40 hours of fieldwork and 40 hours of report writing at $125 per hour, plus equipment costs.

ASSESSMENT OF WATER QUALITY AT GILE FLOWAGE

• Goals & Objectives: Assess and monitor the following water quality parameters:

Total Phosphorus	Secchi Depth	Ammonia
Chlorophyll-a	Color	Chloride
Dissolved Oxygen (DO)	Total Nitrogen	Bacteria
Temperature	Iron, Manganese, and/or Sulfide	Cyanobacteria
Conductivity	Dissolved Phosphorus	Total Suspended Solids
pH	Nitrate (plus nitrite)	

• Relevant DNR Management Goals:

Total Phosphorus: One of the primary causes of eutrophication and most widespread pollutant in waterbodies statewide and nationally. Impoundments are unlikely to raise the concentration of phosphorus in the downstream river but play a role in the transformation, such as the ratio of dissolved phosphorus to total phosphorus.

Chlorophyll-a: A measurement of the amount of algae in a waterbody, one of the primary manifestations of eutrophication. As impoundments increase surface area, slow and warm water are likely to produce more chlorophyll-a, per unit phosphorus/nitrogen, than the upstream or downstream river. Impoundments may produce chlorophyll-a in the lake environment that is then passed to the downstream river.

Dissolved Oxygen: Dissolved oxygen is critical for the health and survival of aquatic organisms. Deep impoundments may stratify and become oxygen depleted in deep water. Impoundments may then cause a decrease in dissolved oxygen in the downstream river, especially if there is bottom withdrawal of a eutrophic impoundment, or an impoundment that stratifies. Additionally, eutrophic impoundments may transform nutrients into organic matter (mainly algae) that then flows into the river, decomposes and reduces oxygen.

Temperature: Temperature regime of a waterbody structures community composition of fish, invertebrates, plants, etc. Temperature also effects rates of chemical reactions, ecosystem productivity and the ability for gasses to dissolve in water. Impoundments can increase water temperatures by slowing water velocity and increasing surface area to absorb solar radiation. Additionally, deep impoundments may cause deep water temperatures to decrease if there is stratification.

Conductivity: High concentrations of dissolved ions, measured as conductivity, can impair the osmoregulation of organisms with gills and other semipermeable membranes. Sources of elevated conductivity are likely from nonpoint and certain point source discharges. However, conductivity is important for classifying the impoundment and stream and is therefore needed as background information.

pH: pH can control the biologic availability, solubility and speciation of chemicals in water. Although wild rice does well in slightly acidic waters (pH 5.9 – 6.2), even moderately acidic water may irritate the gills of aquatic fish and insects or reduce the hatching success of fish eggs. Eutrophication increases swings in pH during the algal growth and die-off phases. Highly eutrophic impoundments may release high or low pH to the river downstream. In addition, fluctuating water levels can acidify the impoundment by exposing the waterbody bed to air and then flushing sulfate into the water when lake levels rise again or when it rains.

Secchi Depth: Secchi depth measures water clarity and is a general indicator of waterbody health. The impoundment could affect Secchi depth through its effects on eutrophication and suspended sediments.

Color: Color refers to how much colored organic matter is in the water, staining it brown. Water color is important for understanding the ecology of the waterbody. Highly stained waters reduce water clarity, and in turn, can affect algal and plant growth and even fish growth. The impoundment is unlikely to affect color, but color will be important for understanding the ecology of the impoundment.

Total Nitrogen: An oversupply of nitrogen is one of the primary causes of eutrophication. A lack of nitrogen limits wild rice development. Impoundments are unlikely to raise the concentration of nitrogen in the downstream river. Although some planktonic algae can fix atmospheric nitrogen, this amount is likely overwhelmed by the amount of nitrogen coming in from the watershed via tributary streams. Impoundments do play a role in the transformation, such as the ratio of dissolved inorganic nitrogen to organic nitrogen.

Sulfate, Total Mercury: Sulfate can also be converted to toxic sulfide which affects the mitochondria of plants. When sulfate is high, sulfides are also usually high and therefore toxic to wild rice and other plants. This process has been demonstrated in formation of new reservoirs and in the regulation of

existing reservoirs. Impoundments can cause this process to happen. Water levels will need to be managed to prevent increased methyl mercury and high sulfate levels.

Iron, Manganese, and/or Sulfide in Reservoir: These are reducing substances that can have high concentrations in the hypolimnion of reservoirs under anoxic conditions. They use oxygen through their own chemical transformations and can decrease sulfide but can further increase oxygen demand. In addition, iron binds phosphorus under oxic conditions, but releases phosphorus under anoxic conditions. Therefore, reservoirs with high iron could be prone to internal phosphorus loading if they go anoxic in the hypolimnion.

Dissolved Phosphorus: An oversupply of phosphorus is one of the primary causes of eutrophication and most widespread pollutant in waterbodies, statewide and nationally. Low phosphorus levels limit wild rice seedling success and development. Impoundments are unlikely to raise the concentration of phosphorus in the downstream river, but play a role in the transformation, such as the ratio of dissolved phosphorus to total phosphorus.

Nitrate (plus nitrite): One of the bioavailable forms of nitrogen, a primary cause of eutrophication. Impoundments are unlikely to raise the concentration of nitrate in the downstream river. Although some planktonic algae can fix atmospheric nitrogen, this amount is likely overwhelmed by the amount of nitrate coming in from the watershed via tributary streams.

Ammonia: One of the bioavailable forms of nitrogen, a primary cause of eutrophication. Impoundments are unlikely to raise the concentration of ammonia in the downstream river.

Chloride: Chloride, at elevated levels is toxic to fish, invertebrates and amphibians. At lower levels, it can negatively affect diversity, productivity, and increase the density of water. Chloride is increasing statewide and nationally in waterbodies that have even small percentages of their watershed in urbanized land use. The impoundment is unlikely to transform or change chloride levels from the incoming tributaries (assuming long-term stable water levels). The major exception being if the shore is heavily developed and there are major applications of road salt or point sources with high chlorides.

Bacteria: Bacterial indicators, such as E. coli, are used to detect the presence of fecal contamination in waterbodies to protect recreational uses. Impoundments are unlikely to increase E. coli in downstream rivers, unless there is heavy recreation (campgrounds, beaches, non-sewered sanitation) on the impoundment.

Cyanobacteria: Harmful algal blooms are of concern for human health, recreation, and fish and aquatic life. High concentrations of chlorophyll-a are often correlated with high concentrations of cyanobacteria and cyanotoxins, but not in all cases. These indicators need to be measured independently for evaluation. As impoundments increase surface area, slow and warm water are likely to produce more chlorophyll-a per unit phosphorus/nitrogen, than the upstream or downstream river.

Total Suspended Solids (TSS): High concentrations of TSS can inhibit visibility for predators, damage gill structure of fishes, and lead to high rates of sedimentation in streams and alter benthic habitat. Impoundments are likely to lower TSS concentrations in the downstream river. In extreme cases where sediment build-up behind a dam structure is high, there may be some chance of increased concentrations of TSS.

• Existing Information: One permitted point-source municipal discharge from the city of Montreal sewer treatment plant is located 0.8 miles downstream of the Gile Flowage Dam. Water clarity has been measured annually 2010-2019. Metals were measured in 2011. Nutrients, cations and anions, low level metals, dissolved

organic carbon, and flow data were collected as part of the watershed study on the West fork of the Montreal River at Center Drive SWIMS # 10022049. Fish surveys were conducted at South and Center Drive.

• Operation nexus to resource and how informs license: The overall goal of the request is to further understand the current water quality conditions of the flowage and riverine resources which will help inform management decisions in the future. Ensure compliance of state water quality standards and how operations are meeting those standards.

• Methodology: Data should be collected or analyzed using the DNR WISCALM Guidance and surface water grab sampling protocol. For the analytes without state standards, they should be analyzed by mean and median values and reported in a table by date and time annually.

• Level of Effort and Costs: Six field days plus with two people $125 per hour plus costs for equipment. Estimated 40 hours for report writing and chemical analysis.

ASSESSMENT OF WILDLIFE AND WILDLIFE HABITAT AT GILE FLOWAGE

• Goals & Objectives: Document wildlife presence and diversity, habitat types, and general wildlife and vegetation abundance within the project area. The goal of this study is to evaluate the distribution and composition of vegetation, wildlife, and wildlife habitats, including wetlands, and the effects operations of those actions have on wildlife inhabiting those habitats.

• Relevant DNR Management Goals: The Department has responsibility to manage wildlife, including listed species. This information will be beneficial to understanding the current environment, and potential needs for resource management associated with Gile Flowage.

• Existing Information: Information is limited. To our knowledge, the PAD does not include any field assessment or survey of wildlife habitat or use.

• Operation nexus to resource and how informs license: The proposal of licensing Gile Flowage has the potential to have short term and long-term impacts on habitat and wildlife use of affected habitats. Proper management of the resource will help to minimize any adverse impacts associated with the removal, restoration, and licensing activities.

• Methodology: Using a qualified biologist or ecologist knowledgeable in local vegetation, identify, classify, and delineate on a map major vegetation cover types within project area. Existing aerial photography, on the ground surveys, or a combination of the two to identify and map the cover types may be used. The biologist/ecologist will record all wildlife present.

Ground-truth any remote-sensing mapping efforts, record all wildlife observed (directly or indirectly) and document any terrestrial invasive species detected during survey efforts. Describe each cover type by species composition, successional stage, and aerial extent (acreage) within the survey area, including invasive species. As an example, the methodology expressed in the following reference could be used: https://www.fs.fed.us/research/publications/gtr/gtr_wo89/gtr_wo89.pdf

• Level of Effort and Costs: 80 hours of desktop review, field work, and data summary at an estimated $125 per hour, plus equipment costs.

ASSESSMENT OF RIVERINE AND RESERVOIR HABITAT AT GILE FLOWAGE

• Goals & Objectives: Define, measure and assess the existing habitat conditions downstream of the flowage. Define, measure and assess the existing reservoir habitat, including upstream and downstream of the flowage. Determine if degradation is occurring and if resources are affected.

• Relevant DNR Management Goals: Obtaining habitat assessment information is critical for current and future management actions and establishing baseline data. Water level fluctuations due to drawdowns often affect aquatic habitat; impacts of drawdowns on the resource should be assessed.

• Existing Information: Qualitative habitat evaluations were completed at Center and South Drive as part of a fish survey. Flow data were collected when water samples were collected at Center Drive.

• Operation nexus to resource and how informs license: Having updated habitat assessment information is critical for evaluating the effects of the project on the reservoir and downstream ecosystem. It will provide baseline data to current conditions and assist with management recommendations of any current or future needs. The data can be used to help guide water resource management associated with Gile Flowage.

• Methodology: The reservoir and riverine habitat should be evaluated with the WDNR Quantitative Habitat Assessment methodology within the flowage and in the wadable stretches of Montreal River at various flows or estimates. For the reservoir, WDNR shoreland habitat protocol should be used.

• Level of Effort and Costs: 40 hours of field work, and 40 hours of data analysis at $125 per hour, plus equipment costs.

MACROINVERTEBRATE SURVEY AT GILE FLOWAGE

• Goals & Objectives: Assess the water quality using macroinvertebrate bio-indicators downstream of the flowage.

• Relevant DNR Management Goals: The department is charged with managing the water quality of the waters of the state and meeting designated criteria under the Clean Water Act.

• Existing Information: Limited information exists on the macroinvertebrate community within the flowage.

• Operation nexus to resource and how informs license: Macroinvertebrates are likely impacted by segmentation of the river, and impoundments can impact communities due to changing thermal and/or flow regimes. These bio-indicators are used to assess the health of the resource.

• Methodology: Collect a wadable macroinvertebrate sample downstream of the flowage using Wisconsin DNR Guidelines for Collecting Macroinvertebrate Samples from Wadable Streams (2017). Data should be analyzed using the current WDNR WISCALM Guidance.

• Level of Effort and Costs: One day of field work with an estimated 20 hours of field and data analysis at $125 per hour equals $2,500. Lab analysis at state certified lab estimated to cost $1,000. Mobilization, travel, and equipment is estimated at $2,000.

AQUATIC AND TERRESTRIAL INVASIVE SPECIES SURVEY AT GILE FLOWAGE

• Goals & Objectives: Evaluate the presence/absence of invasive species listed in NR40, including habitat preferences within the flowage area.

• Relevant DNR Management Goal: Minimize the transport and establishment of existing invasive species and establish management practices to reduce new invasive species. Compliance with NR40.

• Existing Information: The WDNR Lakes and AIS Mapping Tool identified three invasive invertebrate species in the Gile Flowage: the prohibited spiny water flea (Bythotrephes cederstroemi), first identified in 2003, the restricted Chinese mystery snail (Cipangopaludina chinensis), first identified in 2004, and the restricted banded mystery snail (Viviparus georgianus), first identified in 2011. The WDNR developed a flier to assist in early detection of aquatic invasive species. The Iron County Land and Water Conservation Department noted the spiny water flea was identified in the West Fork of the Montreal River downstream of the Gile Flowage dam for the first time in 2018. Purple Loosetrife was also found in 2018.

• Operation nexus to resource and how informs license: The project may influence invasive species that have the potential to directly or indirectly cause economic or environmental harm or harm to human health, including harm to native species, biodiversity, natural scenic beauty and natural ecosystem structure, function or sustainability; harm to the long−term genetic integrity of native species; harm to recreational, commercial, industrial and other uses of natural resources in the state; and harm to the safety or wellbeing of humans, including vulnerable or sensitive individuals. – per NR40.

• Methodology: Use WDNR Early Detection Early Response Protocols. Additional methodology may be needed for terrestrial species, and other methodologies such as point-intercept may be appropriate if combing this study with other studies.

• Level of Effort and Costs: 40 hours of field work and reporting at $125 per hour equals $5,000. Mobilization, equipment, and supplies are estimated at $10,000.

AQUATIC PLANT SURVEY AT GILE FLOWAGE

• Goals & Objectives: The goal of the aquatic plant study is to provide baseline data on the condition of the aquatic plant community in the Gile Flowage. Water levels can influence aquatic vegetation.

• Relevant DNR Management Goals: The proposed aquatic plant study will provide baseline aquatic plant information to determine if management practices would be needed to enhance the existing aquatic plant community, and overall health of Gile Flowage as a bio indicator.

• Existing Information: Data is limited on aquatic plant survey data within the flowage area.

• Operation nexus to resource and how informs license: The study results will provide baseline aquatic plant data. The data informs the department of the effects on the surface water resource and would be used to formulate management options. Plant density and diversity of aquatic and native species are important for establishing varies management plans and protecting the resource.

• Methodology: The information collected from this study includes an assessment of the density and diversity of macrophytes, which includes frequencies of occurrence of different plant species, as well as estimates of species richness, abundance, and maximum depth of plant colonization. The aquatic invasive species study should be conducted according to WDNR's Recommended Baseline Monitoring of Aquatic Plants in Wisconsin.

• Level of Effort and Costs: 40 hours of fieldwork and 40 hours of reporting at $125 per hour, plus equipment costs.

MUSSEL STUDY AT GILE FLOWAGE

• Goals & Objectives: The goal of the study is to determine freshwater mussel density and diversity, including characterizing mussel habitat within the Gile Flowage.The study would provide information on freshwater mussel species present, their diversity, density, and a better understanding of not only baseline conditions and associated management needs for Gile Flowage.

• Relevant DNR Management Goals: This information will help the resource agencies determine if any best management practices are needed to protect listed species; and any management measures to protect or enhancement the existing freshwater mussel population.

• Existing Information: There is limited information on freshwater mussel species in or near the project area. The PAD states that Cylindrical papershell and Eastern elliptio have been found within the Montreal River and its tributaries in Iron County, based on 1975 records from the Wisconsin Mussel Monitoring database. Recent surveys have not been conducted for mussels in this area.

• Operation nexus to resource and how informs license: The operations of the Gile Flowage Project could influence the freshwater mussel species located at the study area.. The results of the survey will provide essential information to determine if any protection measures, restoration, or enhancements would be necessary as a management requirement associated with the Gile Flowage.

• Methodology: A qualitative and quantitative survey for freshwater mussels should be conducted. One method that can be used is WDNR's Guidelines for Sampling Freshwater Mussels in Wadable Stream. Methodology should be discussed with the Department for nonwadeable areas.

• Level of Effort and Cost: An estimate of 40 hours of field work and 40 hours to analyze data and draft a report at an estimated $125 per hour, plus equipment costs.

ASSESSMENT OF RARE AND ENDANGERED SPECIES AT GILE FLOWAGE

• Goals & Objectives: Rare plants and animals have been found within, adjacent to, and in habitats similar to the study area. It would be recommended to complete plant and animal surveys for these species to determine if they occur within the study area and to further our understanding of their populations within this area. This will also inform the licensee as to where these plant and animal locations are. Currently, drawdowns during the winter is not in compliance with the Wood Turtle Broad Incidental Take Permit/Authorization. In order for these drawdowns to continue, an individual Incidental Take Permit will be needed.

• Relevant DNR Management Goals: The Department has responsibility to manage plants and animals, including listed species. This information will be beneficial to understanding the current environment, and potential needs for resource management associated with Gile Flowage. The licensee is also required to follow state Endangered Species laws.

• Existing Information: Rare plants have been found within and adjacent to the study area although surveys have not been completed to our knowledge in 50+ years. The wood turtle has been observed on the outlet south of the Gile Flowage. See page 33 for wood turtle study requests. Wild rice is known to grow in the sub-impoundment north of Knight Road. In 2019 the water control structure used to regulate water levels in the sub-impoundment was removed. Water levels are now regulated by the dam.

• Operation nexus to resource and how informs license: The proposed inclusion of Gile Flowage has the potential to have short term and long-term impacts on vegetation and animals-- in particular, wild rice, wood turtles, and their habitat. Unstable water levels during the growing months of wild rice (May-August) can

dramatically impact wild rice success. Proper management of the resource will help to minimize any adverse impacts associated with removal, restoration, and licensing activities.

• Methodology: Using a qualified botanist knowledgeable in area vegetation and specific species, identify, classify, and delineate on a map rare, threatened, or endangered plant species. Using a qualified biologist or ecologist, conduct presence/absence surveys for specific rare, threatened, or endangered animal species.

• Level of Effort and Cost: 40 hours of desktop review and 40 hours of fieldwork, plus equipment costs.

ASSESSMENT OF RECREATION AT GILE FLOWAGE

• Goals & Objectives: Evaluate current recreational uses, including opportunities for low flow and high flow events, public access, natural scenic beauty, trails, water sports, and fishing, with consideration for the different seasonal uses.

• Relevant DNR Management Goals: The Department supports a wide array of recreational use. We support the need for recreational use surveys that consider a broad array of users. A quantitative recreational use survey completed within the proposed project boundary will evaluate potential changes associated with any modifications to water levels and operations. Information needs to be gathered in order to understand the current use, and potential future uses.

• Existing Information: There are many opportunities for fishing, wildlife viewing, and water sports within the Gile Flowage vicinity, which includes multiple boat landings and a park.

• Operation nexus to resource and how informs license: Hydro operations, management of impoundments, water level changes, and sufficient public access can have a significant impact on recreational value. Adequate information is necessary to determine what impacts may be occurring from the hydro operations, and what recreational opportunities may be enhanced.

• Methodology: Desktop assessment, including review of the State of Wisconsin 2019 to 2023 Statewide Comprehensive Outdoor Recreation Plan (SCORP), released in March 2019, public surveys, and existing recreational sites. This includes assessment of current uses, level of use, evaluation for additional recreational features.

• Level of Effort and Cost: 40 hours of desktop review and fieldwork at $125 per hour, plus equipment costs.

STUDY REQUEST FOR SAXON FALLS, SUPERIOR FALLS, GILE FLOWAGE – WOOD TURTLE SURVEYS

Goals & Objectives: Wood turtles are listed as Threatened in Wisconsin, and as Special Concern in Michigan. In an effort to better understand the abundance and distribution of this species, several survey and management efforts are taking place across northern WI within a number of different river systems. Presence/absence surveys, population modelling and natural nest site surveys are three examples of existing work that is being done across the range of this species in Wisconsin, which is primarily the northern one-third of the state. Through previous survey efforts, this species is known to occur within the Montreal River, however it is unknown whether surveys for, or casual observations of, this species have occurred within the Saxon Falls and Superior Falls project boundaries, in additional to the Gile Flowage. The overall goal of this survey request is to further our knowledge of the distribution of wood turtles within the Montreal River watershed and in Northern WI/MI more broadly. The two main objectives of this study request are to determine if wood turtles are present within the project boundaries of these dams and to determine whether any wood turtle nest sites occur within any of the three project boundaries.

• Relevant DNR Management Goals: The Department has responsibility to manage wildlife, which includes the wood turtle. This survey study will be beneficial to understanding the current environment and potential needs for resource management associated within the Saxon Falls and Superior Falls project boundaries, in addition to the Gile Flowage. Two of the main threats to wood turtles across their range are: 1. Adult mortality due to vehicle collisions 2. Predation of eggs and hatchlings at nest sites, resulting in poor recruitment in many river systems. Wood turtles are particularly susceptible to nest predation due to their tendency to nest colonially and nest in the same location every year, providing a pattern that is recognizable by nest predators, such as raccoon and fox. In an effort to improve recruitment, the Department has employed several strategies to protect existing nest sites and create protected artificial nest sites. If any natural nest sites are found within the current or proposed project boundaries, the Department will work with the licensee to protect these nest sites from predation as well as from negative human-related impacts.

• Existing Information: Information is limited within the Saxon Falls and Superior Falls project boundaries, in additional to the Gile Flowage. To our knowledge, the PAD does not include any field assessment or survey of wildlife habitat or use. Wood turtle surveys have taken place along the Montreal River in Wisconsin, but to the best of our knowledge, this work has been largely limited to areas upstream of US Hwy 2. These surveys have shown that there is a breeding population of wood turtles present within the Montreal River. It is unknown what survey work has been completed on the Michigan side.

• Operation nexus to resource and how informs license: The relicensing of Saxon Falls and Superior Falls, in addition to the potential inclusion of Gile Flowage, have the potential to have short term and long-term impacts on wood turtles and habitat use. Proper management of the resources will help to minimize any adverse impacts associated with the restoration and relicensing activities. Examples of possible impacts to wood turtles are related to seasonal water level fluctuations during vulnerable life history stages, both upstream and downstream. If nest sites are present downstream of these dams, increasing downstream water levels during the period following egg laying in June until hatchling emergence in August/September could cause nest failure if nests become submerged for extended periods of time. Depending on timing, winter drawdowns could have impacts on wood turtles upstream of the dam if the water level is lowered to a point where overwintering turtles are exposed to the elements due to low water levels where they are hibernating.

• Methodology: Using a qualified biologist or ecologist, two survey protocols are requested: (1) Presence/absence surveys for wood turtles and (2) Wood turtle nesting site surveys.

1. Presence/absence surveys for wood turtles: Surveys for wood turtles are most effective during spring and early summer, when this species emerges from hibernation and begins breeding activity in terrestrial settings but relatively close to riverbanks. Beginning after ice out, surveys should be conducted on sunny days when the air temperature is 50 – 80 degrees Fahrenheit. Depending on the year, local snow/ice conditions and weather, these surveys can typically be conducted from late April – early June. The survey consists of visual searches within approximately 50 feet of the river's edge, where wood turtles can be found basking on days that meet the abovementioned weather criteria. The frequency of these surveys will be dependent on weather conditions, but ideally at least two times per week on non-consecutive days during this timeframe.

2. Wood turtle nesting site surveys: Beginning in early to mid-June, and extending until approximately the first week in July, wood turtle nesting activity can be surveyed by conducting daily searches for adult wood turtles and/or evidence of recent nesting activity in suitable nesting habitat. Suitable nesting habitat includes a sand or sand/gravel substrate that is either unvegetated or sparsely vegetated, receives sun exposure for most of the day during late spring/summer and is within approximately 200 feet of the river's edge. Note that this can include gravel parking areas, roads or shoulders of paved roads. Many portions of the project boundaries can likely be eliminated from these nesting surveys due to a lack of suitable conditions for turtle nesting.

• Level of Effort and Costs: 40-60 hours at $125 per hour, plus equipment costs.

1. Presence/absence surveys for wood turtles, Spring, 2021: Two surveys per week for four weeks (assume 2 hours per survey). These surveys should focus on free-flowing river stretches and the vicinity of each dam.
2. Wood turtle nesting site surveys, Summer 2020: Assess nest site suitability within the project boundary, focusing on free-flowing river stretches. Desktop review followed by ground truthing.
3. Wood turtle nesting site surveys, Spring/Summer, 2021: Daily surveys of suitable nesting sites (if any are found) for four weeks (Assume 1 hour per survey).

STUDY REQUEST FOR SAXON FALLS, SUPERIOR FALLS, GILE FLOWAGE – ASSESSING THE SAXON FALLS, SUPERIOR FALLS, AND MONTREAL RIVER CONTINUUM

• Goals & Objectives: Holistic approach to water levels, drawdowns, aquatic resources of the overall water system.

• Relevant DNR Management Goals: See as previously stated in Saxon Falls and Superior Falls study requests for management goals. The relationships of the three dams working collectively need to be assessed from a holistic and comprehensive manner for resource impacts.

• Existing Information: The Montreal River flows southwesterly for about 3.8 miles from the unnamed body of water until it enters Pine Lake at the southeast shoreline. The Montreal River then flows northerly for another 9.5 miles, at which point it begins to flow northwesterly for an additional 40.2 miles along the Wisconsin and Michigan border while passing through the Saxon Falls Project and Superior Falls Project, until it reaches Oronto Bay in Lake Superior.

The West Fork of the Montreal River is about 26.1 miles in length and originates from Island Lake in Pence Township, Wisconsin. The West Fork of the Montreal River flows north and east for 13.8 miles until it enters

the southern end of Gile Flowage. From there, the West Fork of the Montreal River continues northeast for an additional 12.3 miles until it meets the Montreal River, at which point the Montreal River continues to flow another 17.7 miles before it reaches Oronto Bay.

• Operation nexus to resource and how informs license: Comprehensive assessment of how the three dams work independently and together, as well as the assessment of the impacts to the environment. These studies will provide information for management planning for current and future needs.

• Methodology: The project studies should be designed to characterize the Montreal River and reservoir systems. This includes an operations and flow study that assesses how each project (including Gile Flowage) functions independently and together. Reference the in-stream flow study requests for each facility above and create a comprehensive flow study that incorporates Gile Flowage, Saxon Falls, Superior Falls, and the Montreal River as a continuum.

• Level of Effort and Cost: Estimated 40-60 hours of desktop analysis.

June 8, 2020

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington DC 20426

Re: Preliminary Information Document (PAD) and recommended studies for relicensing the Saxon Falls (SAF) Hydroelectric (hydro) Project (FERC No. 2610), Superior Falls (SUF) Hydro Project (FERC No. 2587), and the associated Gile Storage Reservoir, Montreal River, Iron County, Wisconsin and Gogebic County, Michigan

Dear Secretary Bose:

The River Alliance of Wisconsin (RAW) has reviewed the PADs, dated 12/30/19, for the referenced hydro projects. On 4/9/20, Xcel Energy (XE) and their consultants, Mead and Hunt (M&H), held the initial *Joint Meeting* for relicensing the referenced hydro projects. Due to *Corona Virus* concerns, XE and M&H held the meeting by conference call. XE stated that the required site visit would be scheduled later this summer. The RAW intends to participate in relicensing these projects and we recommend that you seriously consider the environmental studies we recommend as described below. We believe they need to be conducted by the XE or their Consultants to provide FERC staff the necessary information to prepare the draft *Application for License* and *Environmental Assessment* (EA) Although it's not optimum to recommend studies before the agency/stakeholder site inspection, we are making them to comply with the 60-day FERC deadline for stakeholder response (6/9/20).

GENERAL COMMENTS

To satisfy obligations under sections 4(e) and 10(a) of the *Federal Power Act*, as amended, and *Electric Consumers Protection Act*, among legislation, the FERC must give equal consideration to developmental and environmental interests when issuing a new license. Further, when making licensing decisions, the FERC is required to develop measures for the protection of environmental resources and enhancement of recreational facilities to ensure that relicensing is accomplished in the best interest of the general public as well as the Applicant. The FERC licensing process for hydro projects is a public process. The RAW participates in hydro relicensing proceedings as a Non-Governmental Organization. The RAW is a not for profit

RIVER ALLIANCE of WISCONSIN
147 S. Butler Street, Suite 2
Madison, WI 53703
info@wisconsinrivers.org
608.257.2424
wisconsinrivers.org

organization consisting of many stakeholder groups and concerned citizens statewide. Further, through the relicensing process the RAW advocates for river restoration, protection, and enhancement of fish and wildlife species and the habitats upon which they depend, and enhancement of recreational resources at the project within and contiguous to the project boundary. The RAW has a long history of being active in relicensing projects in Wisconsin and the Upper Peninsula of Michigan.

Hydro project information and current operations

XE's information in the PAD describing the hydro projects states the following operational requirements.

Saxon Falls:
-A minimum flow of five cfs or inflow must be released from the dam during the ice-free season.
-A minimum reservoir elevation of 997.0 feet mean sea level (msl) must be maintained ice-out to June 1.
-The reservoir elevation must be maintained within 996.5 to 997 feet msl. June 1 to ice-in.

Superior Falls:
-A minimum flow of 20 cfs must be released from the dam 8:00 a.m. to 8:00 p.m. Memorial Day weekend to October 15.
-A minimum flow of eight cfs must be released from the dam all other times including Memorial Day weekend to October 15.
-The reservoir elevation operational limits must be 739.5 to 740.0 feet msl.

RAW concerns with hydro project operations

1. No minimum flow is released in the bypass channels during the winter which would limit the ability of the aquatic community to be sustained in the channel year-round.

2. Minimum flows released to the bypass channels on a daily basis renders the habitat unstable for sustaining an aquatic community due to fluctuating discharge.

RECOMMENDED STUDIES

1. **Biological survey of the bypass channels.** We recommend that a biological survey be conducted in both project bypass channels to document aquatic life living there.

I. *Describe goals and objectives of each study proposal and information to be obtained.*

The goal of the study is to identify what aquatic species of macroinvertebrates, mussels, fish and other aquatic life are currently living in the bypass channels.

II. *Explain the relevant resource management goal of the agencies or Native American tribes with jurisdiction over the resource to be studies.*

We defer to the resource agencies and/or Native American tribes to comment on that criteria.

III. *If the requestor is not a resource agency, explain any relevant public interest considerations.*

A review of the SAFs and SUFs project operations and the natural hydro graph of the Montreal River in the vicinity of the project show that flow discharge into the bypass channels are subjected to a wide flow variance seasonally and daily. These conditions create very unstable living conditions for aquatic life including fish, macroinvertebrates (e.g. caddisfly, stonefly) and mollusks. In addition, no minimum flow is currently required in the license for release into bypass channels during the winter. The aquatic organisms currently inhabiting the rocky bypass channel habitat is not well documented in the PAD. Therefore, a biological survey is needed in both project bypass channels to document aquatic life living there. We understand that the flow in the Montreal River is naturally "flashy" seasonally. However, we are certain to recommend that any minimum flow associated with the new license provide a more stable habitat to sustain aquatic life. The opportunity to enhance the aquatic community in the bypass channels could be achieved with a more stable minimum discharge year-round.

IV. *Describe existing information concerning the subject of the study proposal and the need for additional information.*

Very little information was presented in the PAD; therefore a biological survey is needed to characterize the current aquatic community in the bypass channels.

V. *Explain any nexus between project operations and effects on the resource to be studied and how the study results would inform the development of license requirements.*

The nexus is that when the projects were built much of the natural flow in the Montreal River was diverted through conduits to the power houses leaving dewatered bypass channels. After that occurred the aquatic community was forced to adjust to a new flow regimen that was not naturally occurring.

VI. Explain *how any study methodology is consistent with generally accepted practice in the scientific community;*

The study methodology used for the biological survey should be one that is *standard sampling protocol* used by the Wisconsin DNR and Michigan DNR. The agencies likely have guidelines available for use by the utilities in developing the plan of study. The Wisconsin DNR *Fish Indices of Biological Integrity* and their *Macroinvertebrate Indices of Biological Integrity* methodologies may help in planning the study. Please consult resource agency staff.

VII. *Describe consideration of level of effort and costs, and why any proposed alternative studies would not be sufficient to meet the stated information need;*

We believe that XE and their Consultants are in a much better position with their well-established contacts with consulting firms to scope out the costs and level of effort for relicensing studies; therefore, we will not comment on this criterion.

2. **Instream Flow study.** Once the aquatic community is characterized in the bypass channels, a strategy/s can be developed to protect and improve the aquatic community over the new license period. Accordingly, we recommend XE conduct a habitat-based instream flow study in both bypass channels. The flow study should incorporate habitat suitability indices for selected target species. It may be more practical to conduct this study in Year 2.

I. *Describe goals and objectives of each study proposal and information to be obtained;*

The goal of the study is to determine what minimum flow will protect and enhance the aquatic community in the bypass channels during each month of the year.

II. *Explain the relevant resource management goal of the agencies or Native American tribes with jurisdiction over the resource to be studies*

We defer to the resource agencies and/or Native American tribes to comment on that criteria.

III. *If the requestor is not a resource agency, explain any relevant public interest considerations;*

Sustaining a healthy aquatic community in the river and bypass channels is heavily dependent on maintaining relatively stable stream flows

IV. *Describe existing information concerning the subject of the study proposal and the need for additional information;*

There are flow records from operations of the projects and there is a record of hydrology described in the PAD. However, no flow/habitat-based study was described in the PAD. This information is needed to develop a minimum flow to protect the aquatic community.

V. *Explain any nexus between project operations and effects on the resource to be studied and how the study results would inform the development of license requirements*

The nexus is that portions of the original river channel were converted to bypass channels when the hydro projects were built. After that occurred the aquatic community was forced to change and adjust to a new flow regimen (i.e. with much less water) that was not naturally occurring.

VI. Explain *how any study methodology is consistent with generally accepted practice in the scientific community;*

The study methodology used should be one that is accepted as credible and valid by the Wisconsin DNR, Michigan DNR and U.S. Fish and Wildlife Service (FWS). The FWS *Instream Flow Incremental Methodology*, as updated, has historically been a credible method to use for instream flow studies. However, there are other flow/habitat-based methodologies also used to for such studies. Please consult with the resource agencies.

VII. *Describe consideration of level of effort and costs, and why any proposed alternative studies would not be sufficient to meet the stated information needs.*

Please reference our statement in Criteria VII. stated above.

Given the beauty of the Montreal River flowing through a wild terrain, some stakeholders have expressed an interest that an *aesthetic flow* be released from the projects. This concern could be evaluated as part of a habitat-based instream flow study.

3. Mussel survey. In consultation with the Wisconsin DNR, Michigan DNR and FWS, conduct a mussel study in the bypass channels, project flowages and in the riverine sections upstream and downstream of the SAF and SUF projects.

I. *Describe goals and objectives of each study proposal and information to be obtained;*

The goal of the study is to determine mussel species density and diversity, including characterizing mussel habitat in the river and flowages and bypass channels of the SAF and SUP projects.

II. *Explain the relevant resource management goal of the agencies or Native American tribes with jurisdiction over the resource to be studies;*

We defer to the resource agencies and/or Native American tribes to comment on that criteria.

III. *If the requestor is not a resource agency, explain any relevant public interest considerations;*

In accordance with the *Public Trust Doctrine*, the mussel community is an aquatic resource that is owned by the public and to be protected by all water resource users, including licensees operating hydro projects. In general, mussels in Wisconsin and Michigan Rivers are in peril. Mussels are an important component of a river system and are sensitive to changes in flow discharge in the tailwater of a dam and to water level fluctuations in a reservoir. Mussels are not very mobile and can be easily adversely affected by hydro operations in terms of species diversity and relative abundance within the zone of fluctuating flow and fluctuating water levels. There is also good reason for a mussel study to document the presence of any state or federal threatened or endangered species that may occur in the project area. Without this knowledge, it is not possible to develop protection strategies for the mussels.

IV. *Describe existing information concerning the subject of the study proposal and the need for additional information;*

Very little information about mussel species and distribution in the area of the projects was stated on the PAD, apparently because there is not much data available. To accurately describe the mussel community currently inhabiting the project area and to enable the licensee to prepare an accurate environmental report (Exhibit E) for the license application, we

recommend that a mussel survey be conducted in the project impoundments, main river, and in the bypass channels.

V. *Explain any nexus between project operations and effects on the resource to be studied and how the study results would inform the development of license requirements*
The nexus is that the mussels live in habitat directly affected by the day to day operation of the hydro projects. Since mussels exhibit slow mobility, they are sensitive to changes in flow changes and water levels. The hydro projects have profoundly affected the natural flow of the Montreal River, especially in the bypass channels.

VI. Explain *how any study methodology is consistent with generally accepted practice in the scientific community;*

The study methodology used should be one that is accepted as credible and valid by the Wisconsin DNR, Michigan DNR and FWS mussel experts. The Wisconsin DNR has available "*Guidelines for sampling freshwater mussels in wadable streams*" which can help XE develop a plan of study. Michigan DNR likely has similar guidelines.

VII. *Describe consideration of level of effort and costs, and why any proposed alternative studies would not be sufficient to meet the stated information needs.*

Please reference our statement in Criteria VII. Stated above.

4. Aquatic and terrestrial invasive species study (ATIS). Conduct an ATIS study in the SAF and SUP flowages and in the riverine sections of the projects.

I. Describe goals and objectives of each study proposal and information to be obtained;

Infestation of project waters with ATIS can substantially degrade the quality of the aquatic habitat for native vegetation and the quality of experience to the recreating public. It is critical to identify what ATIS species are present so they can be removed or controlled before they become infested.

II. *Explain the relevant resource management goal of the agencies or Native American tribes with jurisdiction over the resource to be studies.*

We defer to the resource agencies and/or Native American tribes to comment on that criteria.

III.*If the requestor is not a resource agency, explain any relevant public interest considerations;*

Aquatic invasive species (AIS) such as purple loosestrife, Eurasian watermilfoil, and curly-leaf pondweed are invasive wetland plants which out-compete many other valuable wetland plants and can dominate the species composition of a wetland or aquatic macrophyte bed in a few years. Terrestrial invasive plants have the same pattern and can out-compete native vegetation as well. There is little food value for wildlife from purple loosestrife; accordingly, infestation of valuable wetlands by this plant is extremely undesirable and harmful. Eurasian watermilfoil, curly-leaf pondweed, and other AIS can rapidly cause aquatic weed problems and alter fish communities by providing too much refugia leading to overpopulation and/or growth stunting problems in reservoirs and flowages. The objective of a study is to update current information on what ATIS occur in project waters and within the project boundary.

IV. *Describe existing information concerning the subject of the study proposal and the need for additional information;*

It is necessary to document the current environmental setting of the project to update the ATIS information so the licensee, resource agencies and other stakeholders can develop strategies for control/management before infestation become unmanageable.

V. *Explain any nexus between project operations and effects on the resource to be studied and how the study results would inform the development of license requirements*

The nexus is that the ATIS present are living in the aquatic and riparian environment created when the hydro projects were built.

VI. Explain *how any study methodology is consistent with generally accepted practice in the scientific community;*

The study methodology used should be one that is accepted as credible and valid by the Wisconsin DNR and Michigan DNR. The agencies likely have study guidelines available for use by the utilities in developing the plan of study. Please consult resource agency staff.

VII. *Describe consideration of level of effort and costs, and why any proposed alternative studies would not be sufficient to meet the stated information needs.*

RIVER ALLIANCE of WISCONSIN
147 S. Butler Street, Suite 2
Madison, WI 53703
info@wisconsinrivers.org
608.257.2424
wisconsinrivers.org

Please reference our statement under Criteria VII above.

5. Fishery Studies. Conduct fishery surveys in the flowages and riverine sections of the SAF and SUP projects.

I. *Describe goals and objectives of each study proposal and information to be obtained;*

Fishery data described in the PAD is derived from Wisconsin DNR fish surveys last conducted from 1979 – 1987. To accurately describe the fish community currently inhabiting the project area and to enable the licensee to prepare an accurate environmental report (Exhibit E) for the license application, we recommend that fish community information be updated to include data on species composition and frequency of abundance.

II. *Explain the relevant resource management goal of the agencies or Native American tribes with jurisdiction over the resource to be studies;*

We defer to the resource agencies and/or Native American tribes to comment on that criteria.

III. *If the requestor is not a resource agency, explain any relevant public interest considerations;*

The angling public depends on the Wisconsin DNR and Michigan DNR to manage game and nongame fish that are popularly fished in project waters. The DNR needs up to date information to formulate effective game and nongame fish management strategies.

IV. *Describe existing information concerning the subject of the study proposal and the need for additional information;*

Existing information concerning past fishery surveys would be available in Wisconsin DNR and Michigan DNR published and unpublished reports and electronic data bases. Again, the DNR needs up to date information to formulate effective game and nongame fish management strategies.

V. *Explain any nexus between project operations and effects on the resource to be studied and how the study results would inform the development of license requirements*

The nexus is that the aquatic environment created when the hydro projects were built

changed free-flowing riverine habitat in the Montreal River. Now fishery habitat also includes more lake-like habitat with the creation of impoundments (flowages) behind the dams.

VI. Explain *how any study methodology is consistent with generally accepted practice in the scientific community;*

The study methodology used should be in accordance with *standard sampling protocol* (fyke netting, seining, electrofishing techniques) used by the Wisconsin DNR and Michigan DNR. The agencies likely have guidelines available for use by the Utilities in developing the plan of study. The Wisconsin DNR *Fish Indices of Biological Integrity* may help in planning. Please consult resource agency staff.

VII. *Describe consideration of level of effort and costs, and why any proposed alternative studies would not be sufficient to meet the stated information needs.*

Please reference our statement in Criteria VII. Stated above.

6. Recreation Study. Evaluate the existing condition of recreational facilities and document needed upgrades. Evaluate the condition of existing recreational facilities. Update the existing recreational brochure (if there is one) or prepare a new one to serve as a guide for the public. Prepare a draft *Recreation Plan* for the project to be reviewed by the resource agencies and other stakeholders.

I. *Describe goals and objectives of each study proposal and information to be obtained;*

The goal of this study is for the licensee to develop a *Recreational Plan* for the projects. The information generated by the recreational use study will be useful to the understanding of the resource agencies, Native American tribes, and general public in terms of what recreational facilities are present, where they are, what condition they are in, what types of recreation they accommodate and document the need for any new rec. sites that should be developed. The *Recreation Plan* will be an informative document to all parties that participate in relicensing. Further it will provide a plan for the Licensee to implement during the period of the new license.
The draft plan should be available for review by all concerned Stakeholders.

II. *Explain the relevant resource management goal of the agencies or Native American tribes with jurisdiction over the resource to be studies;*

We defer to the resource agencies and/or Native American tribes to comment on that criteria.

III. *If the requestor is not a resource agency, explain any relevant public interest considerations;*

The reservoirs and riverine sections of rivers impounded by hydro projects have long ago become major sources of recreation for the public. The FERC's permission via a license for a Utility to use of a river to generate hydropower mandates that recreational facilities (among many other environmental considerations) be installed within the project boundary and kept in good condition for public use. People are entitled through the *Public Trust Doctrine* to use the reservoirs and riverine sections impounded by dams for recreational use. This includes fishing, boating, hiking picnicking, camping, and other non-consumptive wildlife-oriented use. When a project undergoes relicensing, that is a logical time for XE to do a recreational use study and develop a *Recreational Plan*.

IV. *Describe existing information concerning the subject of the study proposal and the need for additional information;*

It is necessary to for the XE to do a recreational use study in order to prepare a Recreational Plan for the projects. Please consult the resources agencies, city, and county offices and the local lake group for information on public use of the project area. Although there is some information on recreation facilities and use in the PAD, we believe it is inadequate for the license application.

V. *Explain any nexus between project operations and effects on the resource to be studied and how the study results would inform the development of license requirements;*

The flowages impounded by the hydro projects and associated shoreline created opportunities for public use including boating, fishing, picnicking, and wildlife-oriented recreation. Typically, FERC licensed project waters are used heavily by the public.

VI. Explain *how any study methodology is consistent with generally accepted practice in the scientific community;*

The study methodology used should be one that is accepted as credible and valid by the Wisconsin DNR, Michigan DNR and National Park Service. Please consult resource agency staff.

VII. *Describe consideration of level of effort and costs, and why any proposed alternative studies would not be sufficient to meet the stated information needs.*

Please reference our statement in Criteria VII. Stated above.

We recommend that a recreation study and *Recreational Report* also be done for the Gile Flowage. See justification for the study discussed above.

The Gile Flowage, west fork of the Montreal River

Operation of the Gile Flowage Storage Reservoir

-A minimum flow release of 10 cfs is required to be released from the reservoir into the West Branch of the Montreal River.
-The minimum reservoir elevation allowed is 1,475 feet msl and the maximum elevation allowed is 1,490 feet msl.
-The reservoir size is 3,317 acres at full pool at elevation 1,490 ft. msl.
-A 15-foot drawdown is allowed to augment river flow to the SAF and SUF hydro projects located downstream on the Montreal River.

Environmental concerns that are often associated with drawdowns include:

-shoreline erosion problems, especially at recreational use sites
-a dewatered shoreline which can adversely affect growth of aquatic plants and can create unstable habitat for mussels, turtles and other aquatic life by fluctuating water levels
-winter kill of fish if the impoundment is drawn down several feet in winter as the dissolved oxygen levels in the water column can become too low (i.e., less than 5 mg/l)

Relative to the Gile Flowage, we believe these concerns should be evaluated by XE during relicensing to determine the extent, if any, they are occurring at this storage reservoir. In addition, we know drawdown of the Gile Flowage augments flow to the SAF and SUP projects downstream. We request that XE send information to the stakeholders on the monetary value that drawdown contributes to monthly and yearly hydro generation at SAF and SUP. This information should be included in FERC's EA.

We will defer to the resource agencies and the *Friends of the Gile Flowage* on what relicensing studies they deem appropriate for the Gile Flowage.

Please send for our review your **draft** study plans.

We look forward to our participation in relicensing these projects to help accomplish environmental protection and improvement at the projects. If you have questions on our comments, please contact me at (608) 257-2424 (ext. 115). Also, please feel free to call our Hydro Consultant, James Fossum at (507) 429-9129.

Sincerely,

Raj Shukla
Executive Director

Cc: Matt Miller, Xcel Energy, Eau Claire, WI
Shawn Puzen, Mead and Hunt, Inc., Madison, WI
Nick Utrup, US Fish and Wildlife Service, Bloomington, MN
Angela Tornes, National Park Service, Milwaukee, WI
Cheryl Laatch, Wisconsin DNR, WI
Elle Gulotty, Michigan DNR, Norway, MI
Amira Oun Michigan Depart. of Environment, Great Lakes and Energy, Lansing, MI
Bob Stuber, Michigan Hydro Relicensing Coalition, Traverse City, MI
Cathy Techtmann, Friends of the Gile Flowage
James Fossum, *JDFossum Environmental Consulting*, Winona, MN

RIVER ALLIANCE of WISCONSIN
147 S. Butler Street, Suite 2
Madison, WI 53703
info@wisconsinrivers.org
608.257.2424
wisconsinrivers.org

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John C Burton, Baraboo, WI.
I am requesting a study of instream flow needs for whitewater recreation, an evaluation of public access needs, and options for improving access to real-time flow information for the Montreal River. I think it is necessary for the FERC to consider these needs before relicensing Saxon Falls and Superior Falls Hydroelectric Projects. I've paddled this section of the river several times. The canyon is a rare treasure. The long staircase at the put-in below Saxon Falls is potentially very dangerous and there is very little parking at the take-out.

Thank you for your consideration,

John Burton

Karen E Frank, D.D.S., Waterford, MI.
To Whom It May Concern,

Hello my name is Karen Frank. I am a whitewater kayaker who lives in Southeast Michigan. I have traveled numerous times to the Upper Peninsula to enjoy kayaking the Montreal Canyon below Saxon Falls. It is worth the long drive due to its unique beauty and quality whitewater rapids. I have paddled it at flows as low as 720 cfs and as high as 1200 cfs. It is an important recreational opportunity due to its beauty and suitability for a wide range of kayakers (from low intermediates to experts).

As FERC considers study needs for re-licensing of the Saxon Falls and Superior Falls Hydroelectric Project I am requesting a study of instream flow needs for whitewater recreation, an evaluation of public access needs, and options for providing improved access to real-time flow information.

Thank you for your time and consideration.

Sincerely,

Karen E. Frank

Brian Gulbransen, Okemos, MI.
Dear all,
I am writing in regards to the relicensing of the Montreal River Hydropower Projects in northern Michigan/Wisconsin. I am a Professor of Neuroscience at Michigan State University and an avid whitewater kayaker. I have kayaked the Montreal river canyon between Saxon Falls and Lake Superior several times over the past few years and am a strong supporter of increasing the whitewater paddling opportunities on this fantastic river.
The Montreal river canyon is truly unique with beautiful rapids, towering conglomerate walls, and abundant wildlife. I can never believe this amazing place is in the midwest! I have paddled this section several times with my son, who was in middle school at the time and this is one of his favorite sections of whitewater anywhere. I would certainly make the trip north to paddle this section more often if flows were more consistent and if assessing flow rate was more straightforward than calling a hotline and listening to the recording. This recording is not always updated regularly and we have made the long drive up to paddle this section only to find that the level dropped significantly overnight. If flows were more consistent and reporting was online, I think this river would gain much more interest from the whitewater community. I already think this is one of the top whitewater rivers in the midwest and preserving whitewater recreation opportunities should be a priority.
As FERC considers study needs for relicensing of the Saxon Falls Hydroelectric Project I am requesting a study of instream flow needs for whitewater recreation, an evaluation of public access needs, and options for providing improved access to real-time flow information. I believe these needs are justified given the unique quality of the whitewater opportunities in this area that are typically not found in the midwest.
Thank you in advance for considering my request and I hope this information is useful in your decision making process. Please don't hesitate to contact me if I can provide any other information that you might find helpful.

Best,
Brian Gulbransen, PhD

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Doug Heym, Laingsburg, MI.
Hi! My name is Doug Heym and I'm a whitewater recreational kayaker out of Michigan. I've paddled a number of rivers in Michigan and Wisconsin, including rivers in other states. I would paddle more in Michigan/Wisconsin if there were more opportunities. The Montreal canyon section of the Montreal River is a very unique area. I haven't seen any other rivers in the UP or WS that contain these features. The availability of these features to others would certainly justify studies of the river for whitewater recreation.

As FERC considers study needs for relicensing of the Saxon Falls and Superior Falls Hydroelectric Project, I am requesting a study of instream flow needs for whitewater recreation, an evaluation of public access needs, and options for providing improved access to real-time flow information.

While there seems to be adequate parking at the dam put-in, the take out at the bridge above the lower dam could use improvement. In addition, it is hard to drive all that way to paddle when there is not real-time flow data in which to make decisions.

Thanks for your consideration of these comments,

Doug Heym

Todd Leigh, Marquette, MI.
I've been a whitewater kayaker since 1992, and I first kayaked on the Montreal River back in 1996, and paddled both the main canyon and the West Branch at that time. At the time, I was amazed at the unique character of the canyon, which has beautiful conglomerate rock cliffs on both sides of the river, making for a very interesting run. Back then, it was a long way from my home in Chicago to the river, and I didn't return for many years.

Then in 2017, I moved to Marquette MI for retirement, and since then I've paddled the Montreal Canyon every year, often with friends who come up to the UP from down-state to paddle the UP with me. It remains a beautiful and unique river, and one of the great things about it is that, while there are many whitewater rivers in the UP, there are very few that hit the sweet spot of class III difficulty that the Montreal canyon has, with accessible flow information so you can tell when it is running. So I do plan to continue running the Montreal Canyon regularly in the future.

I would also like to be able to paddle the West Branch more regularly... at this time it is hard to do so as there is no real way to know in advance when there will be releases on that section of the river.

As FERC considers study needs for relicensing the Saxon Falls and Superior Falls Projects, some things that would improve the recreational aspects of the canyon for me are:
- a study of instream flow needs for whitewater recreation
- an evaluation of public access needs, as it would be nice to have better access at both the put-in and the take-out
- and options for providing improved access to real-time flow information, as it would be nice to be able to get flow info via a web-app instead of having to call on the phone.

Thank you for considering these issues in the relicensing process.

Hi, my name is Kraig Lund and I live in Lakeville, MN. I've been paddling whitewater for over 18 years, and I first stumbled across the Montreal river/canyon area in 2013. Since first paddling the Montreal Canyon section, I realized it is a very special place. The canyon is beautiful and is chock full of high quality rapids suitable for intermediate level paddlers. This is a rare combination in this area of the country where the majority of whitewater rivers lean towards either the beginner or expert levels.

Since discovering this gem, I've tried to make at least one visit to the river each year. However, catching the river with enough water to paddle has always been an extremely difficult endeavor. Lack of access to real-time data, unpredictable springtime melts, and unscheduled flow changes at the dams coupled with a 4-5 hour drive from the Twin Cities makes visiting the area a gamble when trying to decide where to paddle on a whitewater weekend.

During this relicensing process, I would implore the licensing body to consider recreational aspects such as whitewater paddling. Scheduled releases could be an economic boon to the area as whitewater paddlers from all over the Midwest would flock to this high quality river, particularly if such releases were scheduled in the summer and fall months when finding paddle-able flows in the region can be difficult. Restaurants, lodging, gas stations and other businesses could benefit from such releases. There are many examples around the country and the Midwest to support this assertion – look no further than the Wausau Whitewater Park.

I am asking FERC to consider the following aspects during the relicensing process:

1. Conduct a study to gain a better understanding of instream flow needs for recreation on the Montreal Canyon and West Branch Montreal.
2. Scheduled recreational releases with medium instream flow rate. In a perfect world, several weekends in the summer and fall.
3. Improved access to real-time flow data in the Canyon (below Saxon falls) and on the West Fork of the Montreal, to help with gauging natural springtime and rain-dependent flows
4. Improved put-in and take-out access.

Please consider these recreational aspects during the relicensing process. Public lands and waters should be accessible to everyone and I would love to see this gem of a river managed for everyone, including recreationalists.

Thank you,

Kraig Lund

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Christopher O'Brien, Pulaski, WI.
My name is Christopher O'Brien and I am a whitewater kayaker and instructor from Pulaski, WI. I am writing as FERC considers study needs for relicensing of the Saxon Falls and Superior Falls Hydroelectric Project I am requesting a study of instream flow needs for whitewater recreation, an evaluation of public access needs, and options for providing improved access to real-time flow information. I have been wanting to get up to this beautiful part of the Upper Peninsula of Michigan to kayak and enjoy the Montreal River. I would love to see more paddlers like myself who have not had the opportunity to kayak this river to have more chances to experience it. If given more opportunities to have water levels that make kayaking the Montreal easier at different times of the year. The access to the river for the public is concerning for me as there has been a set of stairs to get to Saxon Falls that could be updated as well as the parking situation at the Superior Falls takeout only has room for 2 vehicles. Please consider recreation opportunities for whitewater kayakers and canoeists in the future. There are people from all over the Midwest that will come to the area to paddle this river if given the opportunities. Thank you for your time!

-Christopher O'Brien

Greg Weiss, Cornucopia, WI.
Hello,

I have been a kayaker and canoeist since 1990 and have paddled the Montreal River canyon and West branch for almost as long. When there is enough water in the river to paddle, it is where we chose to go over any other. It is one of the most diverse, pristine, unusual, and fun rivers that I have ever experienced. This spring I have paddled it 15 times. It never gets old.

As FERC considers study needs for re-licensing of the Saxon Falls and Superior Falls Hydroelectric Project I am requesting a study of in-stream flow needs for whitewater recreation, an evaluation of public access needs, and options for providing improved access to real-time flow information.

Though I understand that the limited water storage ability may preclude regular releases during the drier parts of the summer, a few per season planned ahead of time would be a boon for local businesses.

Thank you for your consideration,

Greg Weiss

Ryan Whipple, Reed City, MI.
Hello, my name is Ryan whipple. Im a dedicated paddler with a love of whitewater and gorgeous scenery , the Montreal river canyon has both and is uniquely beautiful for the midwest . I believe scheduled whitewater releases would be very greatly appreciated and utilized by many paddlers . also a realtime stream flow gauge would be very helpful for people like myself who live a distance away but would gladly make the trip if there was accurate information on river levels.

as FERC considers study needs for relicensing of the Saxon falls and superior falls Hydroelectric project I am requesting a study of in stream flow needs for whitewater recreation, realtime streamflow information, and possible public access improvements .

Thank You ,
Ryan Whipple

Andrew Wians, Eau Claire, WI.
Hello! My name is Andrew Wians from Eau Claire, WI. Even though I don't live in the area, I think it is my duty to speak up for the Midwest gem that is the Montreal Canyon. I frequently travel to the Ironwood area in search of some of the best outdoor recreation opportunities that the Midwest has to offer, whether that's for snowboarding, backpacking, mountain biking, or kayaking.

As relicensing of the Saxon Falls and Superior Falls Hydroelectric Project begins, I think it's important to take into consideration the thoughts and ideas of those who have a strong personal connection with this river and work together to make it the best it can be. I am requesting a study of instream flow needs for whitewater recreation, an evaluation of public access needs, and options for providing improved access to real-time flow information. All of these things would enhance the paddling experience and help to bring more people to this scenic stretch of water.

As you look around our region, and even the country, you can see that outdoor recreation is a booming industry. People like me will travel hours to reach these beautiful places and will end up spending the entire weekend in the communities in which they reside; visiting the local shops and restaurants while there. The Montreal River is a fantastic natural resource, and this is a perfect opportunity to build on the growing outdoor recreation tourism that attracts so many people to the Ironwood area.

Thank you for taking the time to read through my comments. I hope we can work together to make some improvements that benefit everyone!

Appendix 2.

Wood Turtle Species Guidance

Wood Turtle (*Glyptemys insculpta*) Species Guidance

Previously known as *Clemmys insculpta*
Family: Emydidae – the pond turtles

State Status: Threatened (1975 - Endangered; 1982 - Threatened)

State Rank: S3

Federal Status: None

Global Rank: G4

Wildlife Action Plan Mean Risk Score: 4.1

Wildlife Action Plan Area Importance Score: 3

Counties with documented locations of wood turtle in Wisconsin. Source: Natural Heritage Inventory Database, August 2012.

Photo by A.B. Sheldon

Species Information

General Description: The wood turtle is a medium-sized turtle, with a 12-24 cm-long (4.7-9.4 in) carapace (upper shell) (Vogt 1981). The plastron (lower shell) is typically yellow with large black blotches on the lateral edge of each ventral scute (segment). The top of the head and distal (rear) portions of the legs are dark brown, gray, or black. The skin between the scales, in the leg sockets, and on the throat is usually yellow, or occasionally orange. The individual scutes of the carapace possess growth annuli (rings that form concentric circles) that are far more pronounced than on any other Wisconsin turtle. Individuals may vary in these characteristics, and some may differ slightly from this general description.

Similar Species: The Blanding's turtle (*Emydoidea blandingii*) is the only species in Wisconsin that may be mistaken for the wood turtle. Both species have yellow plastrons with black marks on individual scutes and some degree of yellow coloration around the neck. The Blanding's turtle is distinguished by a much brighter yellow that covers the entire lower jaw, whereas the wood turtle lacks the bright yellow chin. Young Blanding's turtles will often have visible growth annuli, but they are much less pronounced than those of the wood turtles. Juvenile and adult Blanding's turtles have a hinged plastron and adults have a smooth, highly domed carapace.

Associated Species: In Wisconsin, the wood turtle may occur in the same water bodies as all other riverine turtle species where their geographic distributions overlap. Snapping turtles (*Chelydra serpentina*) are the most commonly associated turtle species in Wisconsin because of their extensive state distribution.

State Distribution and Abundance: Wood turtles are found from the northern parts of Wisconsin down to Brown, Outagamie, and Winnebago counties, and south to the extreme southwest counties, but are absent from Polk, Pepin, Richland, Waushara, Marquette, and Green Lake counties. Distribution information for this species may not reflect its full extent in Wisconsin because many areas of the state have not been thoroughly surveyed.

Global Distribution and Abundance: The wood turtle occurs in the Midwest in Wisconsin and Michigan, as well as small portions of Minnesota and Iowa. To the east, they are found from the northern tip of Virginia through Maine. They also occur in the Canadian provinces of Ontario, Quebec, New Brunswick and Nova Scotia (Harding 1997).

Diet: Wood turtles are opportunistic feeders with omnivorous tendencies (Harding and Bloomer 1979, Farrell and Graham 1991, Walde et al. 2003). They have been observed eating a wide variety of plant material ranging from various berries and leaves to mushrooms. Wood turtles also eat numerous invertebrates, such as earthworms, insects and mollusks, and vertebrates such as young mice, amphibians and carrion (Harding and Bloomer 1979, Walde et al. 2003).

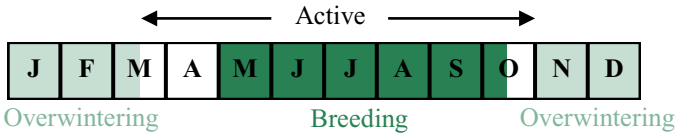
Reproductive Cycle: Mating occurs at various points throughout the active season and has been observed from May until November, but the majority of mating occurs in the fall (Walde et al. 2003). Mating most often takes place from midday to late afternoon and in water at depths of 0.1-1.2 m (0.3-3.9 ft); terrestrial mating has been observed (Ernst 1986, Walde et al. 2003). Females nest from May 20-July 5, with peak nesting activity in mid- to late-June, and select nesting sites that generally consist of sandy river/stream banks or sandbars (Walde et al. 2007, Vogt 1981). Wood turtles also nest in disturbed habitats such as roadsides, agricultural fields, and gravel pits (Thayer et al. 2008). Female wood turtles will "stage" (remain within the vicinity) near nesting areas for several days before they deposit their eggs; staging areas typically possess unaltered natural vegetation such as alder thickets (Walde et al. 2007). Nest-site fidelity has been observed in this species (Walde et al. 2007). In Wisconsin, females lay one clutch per year and some individuals only nest every other year (Ross et al. 1991). Clutch sizes may vary depending on geographic location; a mean of 11 eggs per clutch has

been observed in a Wisconsin population (Ross et al. 1991). Walde et al. (2007) reports incubation times for deposited eggs of 77 days and 86 days in two subsequent years, and this information is similar to other reports (Tuttle and Carroll 1997). Wood turtles reach sexual maturity in 12-20 years (Harding 1997).

Ecology: Wood turtles are more terrestrial in their habits than other aquatic turtles in the upper Midwest, and studies have shown that wood turtles occupy terrestrial habitats in up to 40% of annual observations (Ernst et al. 1994, Harding 1997, Arvisais et al. 2004). Wood turtles are fairly mobile, and will travel an average of 27-115 m (89-377 ft) per move during the non-nesting season (Arvisais et al. 2002). Buech (1995) observed wood turtles in northeastern Minnesota to start basking when the air temperature exceeds stream temperature and begin the more extensive terrestrial part of their year from mid-June to mid-August. A relationship between temperature and stream affinity was observed in a Pennsylvania study where Kaufmann (1992) observed turtles to spend more time in and near streams when air temperatures fell below 68° F. Wood turtles have been observed to travel broad distances during the summer ranging from 4-933 m (13-3061 ft; Kaufmann 1992, Compton et al. 2002, Tuttle and Carroll 2003, Remsberg et al. 2006, as reviewed by Natural Heritage and Endangered Species Program 2007, Jones 2009, Parren 2013). Wilder (unpublished) observed 95% of a turtle population studied in the Wisconsin central sand plains to travel up to 300 m (984 ft) from stream edge. A study in Ontario observed 27% of radio-tracked turtles, mostly female, located between 300-500 m (984-1640 ft) from water (Ontario Wood Turtle Recovery Team 2010). In early spring and late fall, in a Virginia study, wood turtles were observed to remain relatively close to water traveling no further than 60 m (197 ft) from stream edge in one study site and 97% of turtles traveling within 60 m from stream edge in another site (Sweeten 2008).

Reports of average home range sizes vary considerably from < 2.5 acres to > 74.1 acres (reviewed by Arvisais et al. 2002, Remsberg et al. 2006). Arvisais et al. (2002) suggests that home range size increases with increasing study-location latitude, but other studies suggest that large home ranges may indicate poor quality habitat or drought (Remsberg et al. 2006). Similar to habitat selection, a substantial amount of variability has been reported in the size of home ranges among study locations and among individual turtles. Wood turtles tend to return to the same locations within their home ranges (Arvisais et al. 2002, Walde et al. 2007, Parren 2013).

Adult wood turtles typically overwinter at the bottom of flowing streams that possess high oxygen content and do not freeze (Ernst 1986, Graham and Forsberg 1991). Overwintering wood turtles rest near structures such as underwater logs and snags and exposed along streambeds (Graham and Forsberg 1991, Greaves and Litzgus 2007, Greaves and Litzgus 2008). The water depth at which this species overwinters varies geographically, and ranges from 0.3-2.3 m (1.0-7.5 ft) among at sites in Massachusetts, Pennsylvania and Ontario (Ernst 1986, Graham and Forsberg 1991, Greaves and Litzgus 2007, Greaves and Litzgus 2008). Wood turtles in Wisconsin have a maximum active period of March 15 – October 31.



Natural Community Associations (WDNR 2005, WDNR 2009):
Significant: alder thicket, bracken grassland, coldwater streams, coolwater streams, dry prairie, floodplain forest, Great Lakes barrens, northern mesic forest, oak barrens, pine barrens, sand prairie, shrub carr, submergent aquatic (submergent marsh), warmwater rivers, warmwater streams.
Moderate: dry-mesic prairie, ephemeral pond, northern hardwood swamp, northern sedge meadow, northern wet forest, northern wet-mesic forest, oak opening, oak woodland, southern hardwood swamp, southern mesic forest, southern sedge meadow, wet prairie.
Minimal: inland lakes, impoundments/reservoirs.

Habitat: Wood turtles prefer streams or rivers associated with forested riparian corridors (Vogt 1981, Arvisais et al. 2004). Wood turtles do not typically inhabit lakes, ponds or intermittent (e.g., non-permanent) streams. They have been known to travel more than 200 m from their overwintering streams (e.g., Ernst 1986, Arvisais et al. 2002, Compton et al. 2002, Tuttle and Carroll 2003, Breisch 2006, Remsberg et al. 2006, Tingley and Herman 2008, Parren 2013, and Bogaczyk pers. comm.), in some cases travelling as far as 600 m (Kaufmann 1992, Tuttle and Carroll 2005, Behler and Castellano 2005, Jones 2009, Ontario Wood Turtle Recovery Team 2010, Wilder pers. comm., WDNR unpublished data).

Wood turtles are known to use a variety of habitats ranging from closed-canopy forests to much more open areas during their active period, and they can move very long distances away from their overwintering streams. Wood turtles often select "edges" within preferred terrestrial habitats, such as the edge of wooded riparian corridors near open water, wooded upland habitats adjacent to open meadows and fens, or forest openings (Kaufmann 1992, Compton et al. 2002, Arvisais et al. 2004). They also select low-growing alder stands and alder swales associated with rivers or stream banks (Quinn and Tate 1991, Kaufmann 1992, Arvisais et al. 2004). Despite wood turtles' relationship with woodland communities, they typically prefer low to moderate canopy cover at the microhabitat scale (Compton et al. 2002, Arvisais et al. 2004).

Pine plantations can provide some habitat to wood turtles depending on the amount of understory vegetation. Pine plantations are not considered habitat if all of the following conditions are met 1) the stand is in the stem exclusion stage of stand development (this typically occurs after the trees are approximately 25 years of age), 2) the understory is almost completely open/free of understory vegetation (<5% occupied by tree seedlings/saplings, shrubs and/or herbaceous plants) and 3) equipment operators have a clear view within the stand.



Left photo: River where wood turtles have been documented in northern Wisconsin. Ryan Magana, Wisconsin DNR. Right two photos: Wood turtle habitat with river and adjacent sandy bank used for nesting. Richard Staffen, Wisconsin DNR

Wood turtle nesting occurs in well-drained open or sparsely vegetated sandy soils, typically within 61 m (200 ft) of suitable aquatic habitat. Nesting habitats include native dry prairies, moderately sloughing sand banks, agricultural fields, or areas of disturbed sandy soils that support no or sparse ground layer vegetation.

Little is known about the habitat selection of hatchling wood turtles. Existing information indicates that hatchlings begin migrating to water immediately after they emerge from the nest, but individuals vary in how quickly they complete this migration (Tuttle and Carroll 2005). Hatchlings during this time typically excavate and rest in "forms," or small shelters, that often retain the shape of the turtle's shell after it leaves. Forms have been observed in a variety of habitats, such as beneath the basal leaves of plants, mushrooms, and within holes or moss under over-hanging banks (Tuttle and Carroll 2005). After hatchling turtles reach water, they likely spend the majority of their time over the next several years within a few meters of the shoreline (Brewster, unpublished data).

Threats: The wood turtle is uncommon to rare throughout its range, and many populations have declined significantly (Harding and Bloomer 1979, Walde et al. 2003, Daigle and Jutras 2005). Primary causes of population declines include habitat loss and excessive collection by biological supply companies for the pet trade, combined with low recruitment and population sensitivity to adult removal (Harding and Bloomer 1979, Ernst 2001). Populations of long-lived, slow-to-mature species such as wood turtles cannot withstand more than their naturally very low mortality rates (Congdon et al. 1993). Wood turtle populations are particularly sensitive to removal of reproducing adults, and Compton (1999) determined that removal of only two adults annually from a group of 100 individuals would result in extinction of that population in 76 years, and removal of three adult individuals annually would lead to extinction in 50 years.

Road mortality continues to play a significant role in wood turtle declines. Nesting females are often killed on roads as they migrate to and from nesting locations. As natural or artificial open sandy sites become overgrown or planted (often because these areas are not recognized as turtle nesting sites), turtles are being forced to use bridge crossings that increase the likelihood of road mortality (Thayer et al. 2008). Nest predation rates at bridge crossings appear to be near 100%, presumably because nesting is confined to road edges that are small and linear (Steen et al. 2006, T. Thayer pers. comm.). Recent studies show that turtle populations near roads, including wood turtle populations, have male-skewed sex ratios (Steen et al. 2006), which may influence population viability.

Agricultural practices have also been found to have a significant impact on wood turtles, through both habitat destruction and direct mortality (Saumure and Bider 1998, Saumure et al. 2007, Jones 2009, as reviewed by Parren 2013, R. Thiel pers. comm., T. Thayer pers. obs.).

Climate Change Impacts: The effects of climate change are unclear for the wood turtle. Anticipated changes in storm frequency and intensity peak water levels, and other waterway characteristics may threaten the available habitat requirements for basking, cover, food availability, and hibernacula of the wood turtle (WICCI 2011). A potentially longer growing season for agriculture communities may also lead to an increase in adult mortality; putting more negative pressure on population viability (WICCI 2011).

Survey Guidelines: Persons handling wood turtles must possess a valid Endangered and Threatened Species Permit. Conclusive determination of presence or absence of wood turtles is very difficult because of their ability to travel large distances in short time period. In addition, they can be difficult to locate in certain habitats, even by trained biologists with radio-telemetry equipment

(Cochran et al. 2014, Saumure et al. 2007). Therefore, these guidelines are provided only as general survey guidelines and are generally not suitable for regulatory purposes. If surveys are planned for regulatory purposes, survey protocols and surveyor qualifications must first be approved by the Endangered Resources Review Program (see *Contact Information*).

The primary method for detecting this species involves visual encounter surveys (VES) in and adjacent to rivers and streams that support suitable wood turtle habitat (see "Habitat" section). Visual encounter surveys focus on basking turtles along the banks of water bodies possessing suitable aquatic and terrestrial habitat. These surveys can either be conducted on-foot (if access by landowner is granted) or from a canoe. Surveys must be conducted from April through early June on sunny days when temperatures are 50-80° F (Saumure and Bider 1998, Arvisais et al. 2002, Remsberg et al. 2006). Wood turtles can travel long distances from their over-wintering streams, and observations can become particularly difficult in early to mid-June as turtles move further from the water and herbaceous terrestrial vegetation becomes tall and limits observations on the ground (E. Epstein pers. comm., R. Hay pers. obs.). Arvisais et al. (2002) sampled this species effectively in Canada by implementing a four to five person surveying strategy. This included three people walking abreast in terrestrial habitats, out to roughly 10 m from the stream banks, with one or two surveyors canoeing or walking through adjacent aquatic habitat in coordination with terrestrial surveyors. Canoeing/kayaking can improve the efficiency of detecting and surveying suitable habitats, and may allow basking observations on downed trees in the water. Wood turtles' use of downed trees over water for basking appears to vary considerably; they do so commonly in some rivers in northern Michigan (J. Harding pers. comm.), but only occasionally in Wisconsin. Log basking, where wood turtles bask on logs over deeper pools in the river, appears to increase in fall when turtles are back at the water prior to overwintering (R. Hay pers. obs.). Wood turtles often cannot be effectively trapped, negating one of the traditional detection methods for most aquatic turtles.

Surveys for nesting females can also be conducted using VES in suitable wood turtle nesting habitat (see "Habitat" section), but cannot be used to determine species' presence/absence. Nesting surveys should occur from late-May through mid-June at any time of day (Walde et al. 2007). Nesting typically does not occur in the rain, but has been documented to takes place after a rain, making this an ideal time to search for nesting females (Ernst & Lovich 2009). Gravid females are often found resting at the base of small to moderate-sized patches of woody vegetation, such as thickets and clumps of willow or alder.

Summarize results, including survey dates, times, weather conditions, number of detections, detection locations, and behavioral data and submit via the WDNR online report: <http://dnr.wi.gov, keyword "rare animal field report form">

Management Guidelines

The following guidelines typically describe actions that will help maintain or enhance habitat for the species. These actions are not mandatory unless required by a permit, authorization or approval.

This section provides guidance for maintaining, restoring and enhancing habitat for the wood turtle.

Wood turtle habitat often includes a mosaic of various wetland types (wet meadows/shrub-carr and lowland hardwoods) and adjacent forested and semi-forested uplands. Management that maintains a balance of structural diversity (open grasses/sedges, shrubs such as alder and willow, and forest) will provide the appropriate habitat for wood turtles. If shoreline clearing must occur, brush should only be cleared along one side of a stream and preferably in small segments. Maintaining tussock sedges (*Carex stricta*) is also important because it provides a mosaic of open basking structure and cover. In contrast, reed canary grass (*Phalaris arundinacea*) is particularly problematic for wood turtles, especially for hatchlings/juveniles, because the high stem densities impede movement in riparian habitat. Reed canary grass can quickly proliferate after a timber harvest, sometimes to the point of inhibiting tree regeneration, so carefully consider the risks when conducting timber harvest in places where it is present. The tall canopy of this grass also inhibits wood turtle basking beyond early June.

The loss of suitable nesting habitat is one of the most serious threats to wood turtle populations in Wisconsin. Many communal nesting sites have been lost in recent decades to natural succession, tree plantings, or the conversion of open habitat for development (e.g., boat launches, paved parking areas, houses). Riparian habitat should be managed to create small grass openings, mixed grass-shrub, mature speckled alder and willow stands, young age classes, and early succession vegetation types (Buech 1995). Significant management is needed to restore and create nesting habitat away from roadways. Spotted Knapweed (*Centaurea stoebe*), which is an exceedingly noxious and invasive weed in sandy soils, appears to render soils unsuitable for turtle nesting and should be removed (R. Hay pers. obs.). Transportation corridors also may inadvertently provide ideal nesting habitat for females. Management around transportation corridors near riverine habitat should include providing tree shade and dense ground vegetation on the banks and shoulders of roads to discourage nesting females (Buech 1995).

Timber harvests should follow appropriate avoidance measures for this species (see *Avoidance Measures*). Forestry practices that help to maintain sandy openings (i.e., nesting areas) can greatly benefit this species. For any cultivation of land for agricultural or other

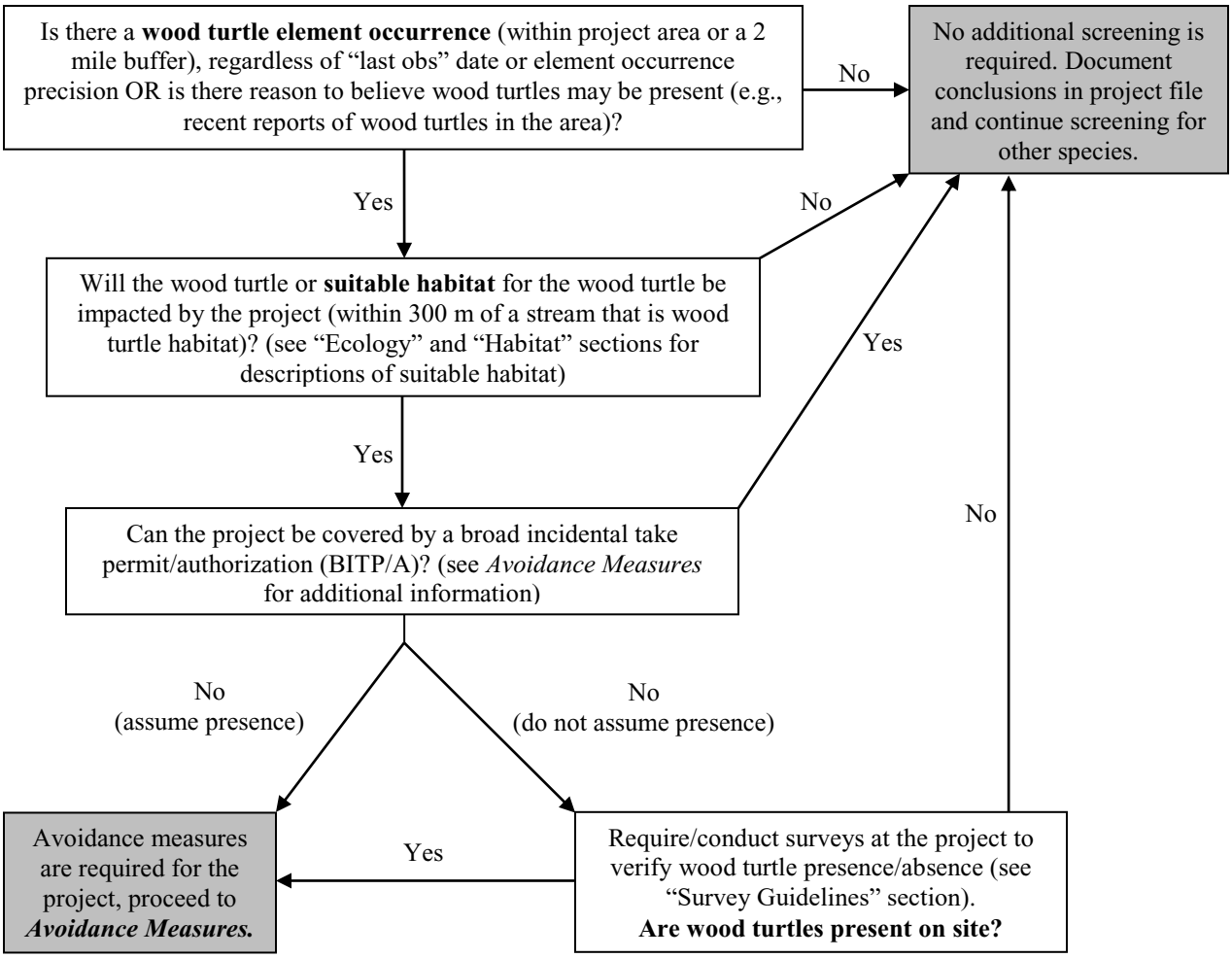
purposes near wood turtle habitat it is recommended to raise the blade height for mowing to a minimum 150 mm and use sickle bar mowers over rotary mowers to reduce wood turtle mortality (as reviewed by Parren 2013).

Road mortality is a major threat to wood turtle populations (Steen et al. 2006), but turtle barriers reduce this impact (Christoffel and Hay 1994). Barriers, when funneled toward and connected to bridges, allow turtles to freely move up and down streams. Permanent barriers should be installed where proposed road projects cross rivers or streams occupied by wood turtles.

Screening Procedures

The following procedures must be followed by DNR staff reviewing proposed projects for potential impacts to this species.

Follow the "Conducting Endangered Resources Reviews: A Step-by-Step Guide for Wisconsin DNR Staff" document (summarized below) to determine if wood turtles will be impacted by a project (WDNR 2012):



Avoidance Measures

The following measures are specific actions typically required by DNR to avoid take (mortality) of state endangered or threatened species per Wisconsin's Endangered Species Law (s. 29.604, Wis. Stats.). These guidelines are typically not mandatory for non-listed species (e.g., special concern species) unless required by a permit, authorization or approval.

According to Wisconsin's Endangered Species Law (s. 29.604, Wis. Stats.), it is illegal to take, transport, possess, process, or sell any wild animal on the Wisconsin Endangered and Threatened Species List (ch. NR 27, Wis. Admin. Code). Take of an animal is defined as shooting, shooting at, pursuing, hunting, catching, or killing.

If *Screening Procedures* above indicate that avoidance measures are required for a project, follow the measures below. If you have not yet read through *Screening Procedures*, please review them first to determine if avoidance measures are necessary for the project.

1. The simplest and preferred method to avoid take of wood turtles is to avoid directly impacting individuals, known wood turtle locations, or areas of suitable habitat (described above in the "Ecology" and "Habitat" sections and in *Screening Procedures*).
2. If suitable habitat cannot be avoided, the following time-of-year restrictions can be used to avoid take in the uplands (note that streambank stabilization typically involves both upland and stream habitats):

   Wood turtle upland buffer areas measured out from a suitable wood turtle stream/river

Dates	Avoidance Area (work cannot occur)	No Restrictions
November 1 – March 14	None (work can occur in all uplands)	all uplands
March 15 – May 14	0 m-75 m (0 ft -246 ft)	> 75 m (>246 ft)
May 15 – September 15	0 m-300 m (0 ft-984 ft)	> 300 m (984 ft)
September 16 – October 31	0 m-75 m (0 ft -246 ft)	> 75 m (>246 ft)

   - The dates in the table above are updated on the DNR website (http://dnr.wi.gov/topic/WildlifeHabitat/Herps.asp) each year based on annual weather conditions.
   - Activities within 100 feet of a suitable wood turtle stream may take place at any time of year if 100% of the harvest area is naturally snow covered.
   - Activities occurring greater than 100 feet from a suitable wood turtle stream may take place at any time of year if 50% or more of the harvest area is naturally snow covered.
3. If impacts cannot be avoided but the No/Low Impact Broad Incidental Take Permit/Authorization (BITP/A; http://dnr.wi.gov/topic/ERReview/ITNoLowImpact.html) can be followed, the project is covered for any unintentional take that may occur.
4. If impacts cannot be avoided but the Common Activities Broad Incidental Take Permit/Authorization (BITP/A; http://dnr.wi.gov/topic/ERReview/ITCommonActivities.html) can be followed, the project is covered for any unintentional take that may occur.
5. If wood turtle impacts cannot be avoided or covered by the No/Low Impact BITP/A or Common Activities BITP/A, please contact the Natural Heritage Conservation Incidental Take Coordinator (see *Contact Information*) to discuss possible project-specific avoidance measures. If take cannot be avoided, an Incidental Take Permit or Authorization is necessary.

Additional Information

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Linked Websites

- Amphibian and reptile exclusion fencing protocols: <http://dnr.wi.gov, key word "exclusion fencing">
- Endangered and Threatened Species Permit: <http://dnr.wi.gov, key word "endangered species permit">
- Incidental Take Permit and Authorization: <http://dnr.wi.gov, key word "incidental take overview">
- Natural Communities of Wisconsin: <http://dnr.wi.gov, key word "natural communities">
- Rare Animal Field Report Form: <http://dnr.wi.gov, key word "rare animal field report form">
- Wisconsin Endangered and Threatened Species: <http://dnr.wi.gov, key word "endangered resources">
- Wisconsin Endangered and Threatened Species Permit: <http://dnr.wi.gov, key word "endangered species permit">
- Wisconsin Initiative on Climate Change Impacts: <http://www.wicci.wisc.edu/>
- Wisconsin Natural Heritage Working List: <http://dnr.wi.gov, key word "Natural Heritage Working List">
- Wisconsin's Wildlife Action Plan: <http://dnr.wi.gov, key word "Wildlife Action Plan">

Funding

- USFWS State Wildlife Grants Program: <http://wsfrprograms.fws.gov/subpages/grantprograms/swg/swg.htm>
- Sadie Nolan Amphibian and Reptile Education and Conservation Memorial Fund
- Wisconsin Natural Heritage Conservation Fund

Contact Information (Wisconsin DNR Species Expert for wood turtle)

- Refer to the Reptiles contact on the Rare Species and Natural Community Expert List

Contact Information

- *Endangered Resources Review Program:* WI Department of Natural Resources, Bureau of Natural Heritage Conservation (DNRERReview@wisconsin.gov)
- *Incidental Take Coordinator:* Rori Paloski, WI Department of Natural Resources, Bureau of Natural Heritage Conservation (608-264-6040, rori.paloski@wi.gov)

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Developed by

- Josh M. Kapfer, primary author
- Gregor W. Schuurman, Rori A. Paloski, W. Matthew Schumaker, editors

Wisconsin Department of Natural Resources
Bureau of Natural Heritage Conservation
PO Box 7921
Madison, WI 53707-7921
http://dnr.wi.gov, keyword "ER"

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