minnesota power

AN ALLETE COMPANY

Via Electronic Filing

September 23, 2019

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

Subject: Grand Rapids Hydroelectric Project (FERC No. 2362)
Prairie River Hydroelectric Project (FERC No. 2361)
Filing of Revised Study Plan for Relicensing Studies

Dear Secretary Bose:

ALLETE, Inc., doing business as Minnesota Power (MP or Applicant), is the Licensee, owner, and operator of the Grand Rapids Hydroelectric Project (FERC No. 2362), and Prairie River Hydroelectric Project (FERC No. 2361), collectively, the "Projects." The Grand Rapids Project is a 2.1 megawatt (MW), run-of-river (ROR) facility located on the Mississippi River in the City of Grand Rapids in Itasca County, Minnesota. The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River, near the City of Grand Rapids in Arbo Township, Itasca County, Minnesota.

The existing Federal Energy Regulatory Commission (FERC) licenses for the Projects expire on December 31, 2023. Accordingly, MP is pursuing a new license for the Grand Rapids Project and a subsequent license for the Prairie River Project pursuant to FERC's Integrated Licensing Process (ILP), as described at 18 Code of Federal Regulations (CFR) Part 5. Although these are separate processes, due to the proximity of the Projects to each other, MP is conducting the processes concurrently with combined documents, meetings, and overall relicensing schedules. In accordance with 18 CFR §5.13 of FERC's regulations, MP is filing is filing the Revised Study Plan (RSP) in support of relicensing the Projects.

Background

On December 13, 2018, MP filed a Pre-Application Document and associated Notice of Intent with FERC to initiate the ILP. FERC issued Scoping Document 1 (SD1) for the Projects on February 7, 2019. SD1 was intended to advise resource agencies, Indian Tribes, non-governmental organizations, and other stakeholders as to the proposed scope of FERC's Environmental Assessment (EA) for the Projects and seek additional information pertinent to FERC's analysis.

On March 6 and 7, 2019, FERC held public scoping meetings in Grand Rapids, Minnesota. During these meetings, FERC staff presented information regarding the ILP and details regarding the study scoping process and how to request a relicensing study, including FERC's study criteria. In addition, FERC staff solicited comments regarding the scope of issues and analysis for the EA. Pursuant to 18 CFR §5.8(d), a public site visit of the Project was conducted on March 6, 2019.

Resource agencies, Indian Tribes, and other interested parties were afforded a 60-day period to request studies and provide comments on the PAD and SD1. The comment period was initiated with FERC's February 11, 2019, notice and concluded on April 12, 2019. FERC issued Scoping Document 2 (SD2) on May 16, 2019, to provide information on the proposed action and alternatives, the environmental analysis process FERC staff will follow to prepare the EA, and a revised list of issues to be addressed in the EA.

In accordance with 18 CFR §5.11, MP developed a Proposed Study Plan (PSP) for the Grand Rapids and Prairie River Projects that was filed with FERC on May 28, 2019. The purpose of the PSP was to present the studies proposed by MP and to address the comments and study requests submitted by resource agencies and other stakeholders. Pursuant to 18 CFR §5.11(e). MP held a PSP Meeting on June 20, 2019, for the purpose of presenting MP's proposed studies and responding to any comments or questions.

Resource agencies and stakeholders were afforded 90 days from the date of the PSP filing (i.e., until August 25, 2019) to provide comments on the PSP. During the comment period, MP received comments from FERC and the Minnesota State Historic Preservation Office (SHPO), both of which were e-filed with FERC. Additionally, MP received a comment letter from the Minnesota Pollution Control Agency (MPCA) on September 9, 2019, after the ILP deadline for comments on the PSP.

Revised Study Plan

In developing this RSP, MP has carefully evaluated and considered agency and stakeholder comments and study requests filed in response to the PAD, SD1, SD2, and the PSP and as discussed during the PSP meeting. MP proposed the following studies in the PSP, six of which have been modified for this RSP based on PSP comments:

Grand Rapids Project

- Water Quality Study (Appendix C)
- Fish Entrainment and Impingement Study (Appendix D)
- Recreation Resources Study (Appendix E)
- Cultural Resources Study (Appendix F)

Prairie River Project

- Water Quality Study (Appendix G)
- Fish Entrainment and Impingement Study (Appendix H)
- Recreation Resources Study (Appendix I)
- Cultural Resources Study (Appendix J)

The Fish Entrainment and Impingement Study for each Project has not been modified. All the other studies have been modified based on PSP comments received.

MP is filing the RSP with FERC electronically and is distributing this letter to the parties listed on the attached distribution list. For parties who have provided an email address, MP is distributing this letter via email; otherwise, MP is distributing this letter via U.S. mail. One paper copy of the RSP is being sent to the Minnesota State Historic Preservation Office. All parties interested in the relicensing process may obtain a copy of the PSP electronically through FERC's eLibrary at https://elibrary.ferc.gov/idmws/search/fercgensearch.asp under docket numbers P-2362 and P-2361 or on MP's website www.mnpower.com/Environment/Hydro. If any stakeholder would like a CD copy of the RSP, please contact me at nrosemore@mnpower.com.

Comments on the RSP must be filed within 15 days which is no later than October 9, 2019. FERC will issue a final Study Plan Determination by October 24, 2019.

Our relicensing team looks forward to working with FERC's staff, resource agencies, Indian Tribes, local governments, non-governmental organizations, and members of the public, in developing license applications for these renewable energy facilities. If there are any questions regarding the RSP or the overall relicensing process for the Projects, please do not hesitate to contact me at (218) 725-2101 or at the email address above.

Sincerely,

Nora Rosemore

Nora Rosemore
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Minnesota Power

Attachments:
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RSP

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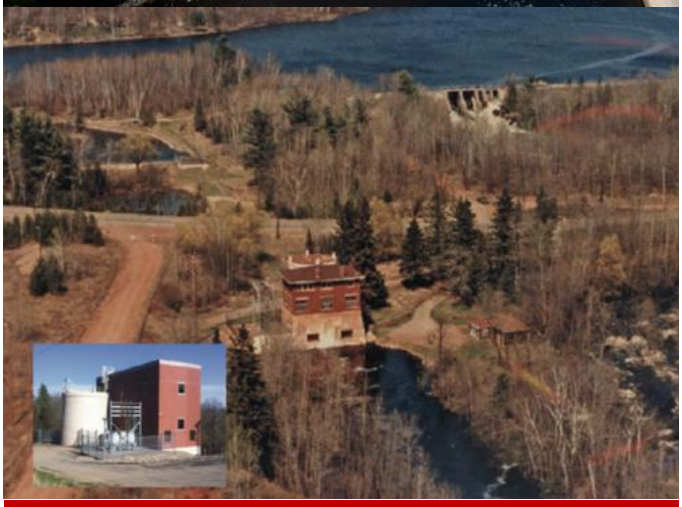

Revised Study Plan

Grand Rapids Hydroelectric Project

(FERC No. 2362)

Prairie River Hydroelectric Project

(FERC No. 2361)

September 23, 2019

Prepared for:
Minnesota Power

Prepared by:
HDR Engineering, Inc.

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List of Acronyms

ALLETE	ALLETE, Inc.
APE	area of potential effects
CFR	Code of Federal Regulations
CRMP	Cultural Resources Management Plans
EA	Environmental Assessment
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
ILP	Integrated Licensing Process
ISR	Initial Study Report
Licensee	Minnesota Power
MP	Minnesota Power
MPCA	Minnesota Pollution Control Agency
MW	megawatt
MWh	megawatt hours
NEPA	National Environmental Policy Act
NGO	non-governmental organizations
NOI	Notices of Intent
PAD	Pre-Application Document
PSP	Proposed Study Plan
ROR	run-of-river
RSP	Revised Study Plan
SD1	Scoping Document 1
SD2	Scoping Document 2
SHPO	State Historic Preservation Office
THPO	Tribal Historic Preservation Office
USC	United States Code
USR	Updated Study Report

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1 Introduction and Background

ALLETE Inc., doing business as Minnesota Power ("MP" or "Licensee"), is the Licensee, owner, and operator of the Grand Rapids Hydroelectric Project (FERC No. 2362) and the Prairie River Hydroelectric Project (FERC No. 2361). The Grand Rapids Project is a 2.1 megawatt (MW), run-of-river (ROR) facility located on the Mississippi River in the City of Grand Rapids in Itasca County, Minnesota. The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River, near the City of Grand Rapids in Arbo Township, Itasca County, Minnesota.

The Grand Rapids Project and Prairie River Project, collectively known as the "Projects," are licensed by the Federal Energy Regulatory Commission ("FERC" or "Commission") under the authority granted to FERC by Congress through the Federal Power Act (FPA), 16 United States Code (USC) §791(a), *et seq.*, to license and oversee the operation of non-federal hydroelectric projects on jurisdictional waters and/or federal land. There are no federal lands associated with the Projects. The Projects previously underwent licensing in the early 1990s, and the current operating licenses for the Projects expire on December 31, 2023. Accordingly, MP is pursuing a new license for the Grand Rapids Project and a subsequent license for the Prairie River Project pursuant to FERC's Integrated Licensing Process (ILP), as described at 18 Code of Federal Regulations (CFR) Part 5. This Revised Study Plan (RSP) is being filed with FERC pursuant to 18 CFR §5.13 and the Process Plan and Schedule included in FERC's February 7, 2019, Scoping Document 1 (SD1). This RSP is also being distributed to the stakeholders and interested parties included in the distribution list attached to the cover letter of this document.

1.1 Study Plan Overview

MP filed a joint Pre-Application Document (PAD) and two separate Notices of Intent (NOI) with FERC on December 13, 2018, to initiate the ILP. The PAD provided a description of the Projects and summarized the existing, relevant, and reasonably available information to assist FERC, resource agencies, Indian Tribes, non-governmental organizations (NGOs), and other stakeholders to identify issues, determine information needs, and prepare study requests.

The National Environmental Policy Act of 1969 (NEPA), FERC's regulations, and other applicable statutes require FERC to independently evaluate the environmental effects of relicensing the Projects and to consider reasonable alternatives to relicensing. At this time, FERC has expressed its intent to prepare a multi-project Environmental Assessment (EA) that describes and evaluates the site-specific and cumulative potential effects (if any) of issuing the new licenses, as well as potential alternatives to relicensing. The EA is being supported by a scoping process to identify issues, concerns, and opportunities for resource enhancement associated with the proposed action. Accordingly, FERC issued SD1 for the Projects on February 7, 2019. SD1 was intended to advise resource agencies, Indian Tribes, NGOs, and other stakeholders as to the

proposed scope of the EA and to seek additional information pertinent to FERC's analysis. As provided in 18 CFR §5.8(a) and §5.8(b), FERC issued a notice of commencement of the relicensing proceeding associated with SD1.

On March 6 and 7, 2019, FERC held public scoping meetings in Grand Rapids, Minnesota. During these meetings, FERC staff presented information regarding the ILP and details regarding the study scoping process and how to request a relicensing study, including FERC's study criteria. In addition, FERC staff solicited comments regarding the scope of issues and analyses for the EA. Pursuant to 18 CFR §5.8(d), a public site visit of the Projects was conducted on March 6, 2019.

Resource agencies, Indian Tribes, and other interested parties were afforded a 60-day period to request studies and provide comments on the PAD and SD1. The comment period was initiated with FERC's February 11, 2019, notice and concluded on April 12, 2019. During the PAD, SD1, and study request comment period, a total of three stakeholders, including FERC, filed letters with FERC providing general comments, comments regarding the PAD, comments regarding SD1, and/or study requests. Copies of the letters filed with FERC are provided in Appendix A of this document.

FERC issued Scoping Document 2 (SD2) on May 16, 2019, to provide information on the proposed action and alternatives, the environmental analysis process FERC staff will follow to prepare the EA, and a revised list of issues to be addressed in the EA.

In accordance with 18 CFR §5.11, MP developed a Proposed Study Plan (PSP) for the Grand Rapids and Prairie River Projects that was filed with FERC on May 28, 2019. The purpose of the PSP was to present the studies proposed by MP and to address the comments and study requests submitted by resource agencies and other stakeholders. Pursuant to 18 CFR §5.11(e). MP held a PSP Meeting on June 20, 2019, for the purpose of presenting MP's proposed studies and responding to any comments or questions.

Resource agencies and stakeholders were afforded 90 days from the date of the PSP filing (i.e., until August 25, 2019) to provide comments on the PSP. During the comment period, MP received comments from FERC and the Minnesota State Historic Preservation Office (SHPO). Additionally, MP received a comment letter from the Minnesota Pollution Control Agency (MPCA) on September 9, 2019. In developing this RSP, MP has carefully evaluated and considered agency and stakeholder comments and study requests filed in response to the PAD, SD1, SD2, and the PSP and as discussed during the PSP meeting. Appendix B includes comment letters on the PSP. MP has incorporated or addressed the comments, as appropriate, within the corresponding study plans as discussed in Section 3.0 of this RSP.

Relicensing participants may file comments on the RSP within 15 days of this filing (i.e., on or before October 9, 2019. MP notes that FERC's ILP regulations require that stakeholders who provide study requests include specific information in the request in order to allow the Licensee, as well as FERC staff, to determine a requested study's appropriateness and relevancy to the Project and proposed action. As described in 18 CFR §5.9(b) of FERC's ILP regulations, and as presented by FERC staff during the

March 6 and 7, 2019 scoping meetings, the required information to be included in a study request is as follows:

(1) Describe the goals and objectives of each study and the information to be obtained (§5.9(b)(1));

This section describes why the study is being requested and what the study is intended to accomplish, including the goals, objectives, and specific information to be obtained. The goals of the study must clearly relate to the need to evaluate the potential effects of the Project on a particular resource. The objectives of the study are the specific types of information that need to be gathered to achieve the study goals.

(2) If applicable, explain the relevant resource management goals of the agencies or Indian Tribes with jurisdiction over the resource to be studied (§5.9(b)(2));

This section must clearly establish the connection between the study request and management goals or resource of interest. A statement by an agency connecting its study request to a legal, regulatory, or policy mandate needs to be included that thoroughly explains how the mandate relates to the study request, as well as the Project's potential impacts.

(3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study (§5.9(b)(3));

This section is for non-agency or Indian Tribes to establish the relationship between the study request and the relevant public or tribal interest considerations.

(4) Describe existing information concerning the subject of the study proposal and the need for additional information (§5.9(b)(4));

This section must discuss any gaps in existing data by reviewing the available information presented in the PAD or information relative to the Project that is known from other sources. This section must explain the need for additional information and why the existing information is inadequate.

(5) Explain any nexus between project operation and effects (direct, indirect, and/or cumulative) on the resource to be studied and how the study results would inform the development of license requirements (§5.9(b)(5));

This section must clearly connect Project operations and potential Project effects on the applicable resource. This section should also explain how the study results would be used to develop protection, mitigation, and enhancement (PM&E) measures that could be implemented under a new FERC license. The PM&E measures can include

those related to any mandatory conditioning authority under Section 401 of the Clean Water Act[1] or Sections 4(e) and 18 of the FPA, as applicable.

(6) Explain how any proposed study methodology is consistent with generally accepted practices in the scientific community or, as appropriate, considers relevant tribal values and knowledge. This includes any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration (§5.9(b)(6));

This section must provide a detailed explanation of the study methodology. The methodology may be described by outlining specific methods to be implemented or by referencing an approved and established study protocol and methodology.

(7) Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs (§5.9(b)(7));

This section must describe the expected level of cost and effort to conduct the study. If there are proposed alternative studies, this section can address why the alternatives would not meet the stated information needs.

1.2 Minnesota Power's Revised Study Plan

MP proposed the following studies in the PSP, six of which have been modified for this RSP based on PSP comments:

Grand Rapids Project

- Water Quality Study (Appendix C)
- Fish Entrainment and Impingement Study (Appendix D)
- Recreation Resources Study (Appendix E)
- Cultural Resources Study (Appendix F)

Prairie River Project

- Water Quality Study (Appendix G)
- Fish Entrainment and Impingement Study (Appendix H)
- Recreation Resources Study (Appendix I)
- Cultural Resources Study (Appendix J)

The Fish Entrainment and Impingement Study for each Project has not been modified. All the other studies have been modified based on PSP comments received.

[1] 33 United States Code (U.S.C.) §1251 *et seq.*

The study plans are attached as Appendices C through J. Each study plan describes:

1. The goals and objectives of the study;
2. The defined study area;
3. A summary of background and existing information pertaining to the study;
4. The nexus between Project operations and potential effects on the resources to be studied;
5. The proposed study methodology;
6. Level of effort, cost, and schedules for conducting the study; and
7. Discussion of alternative approaches.

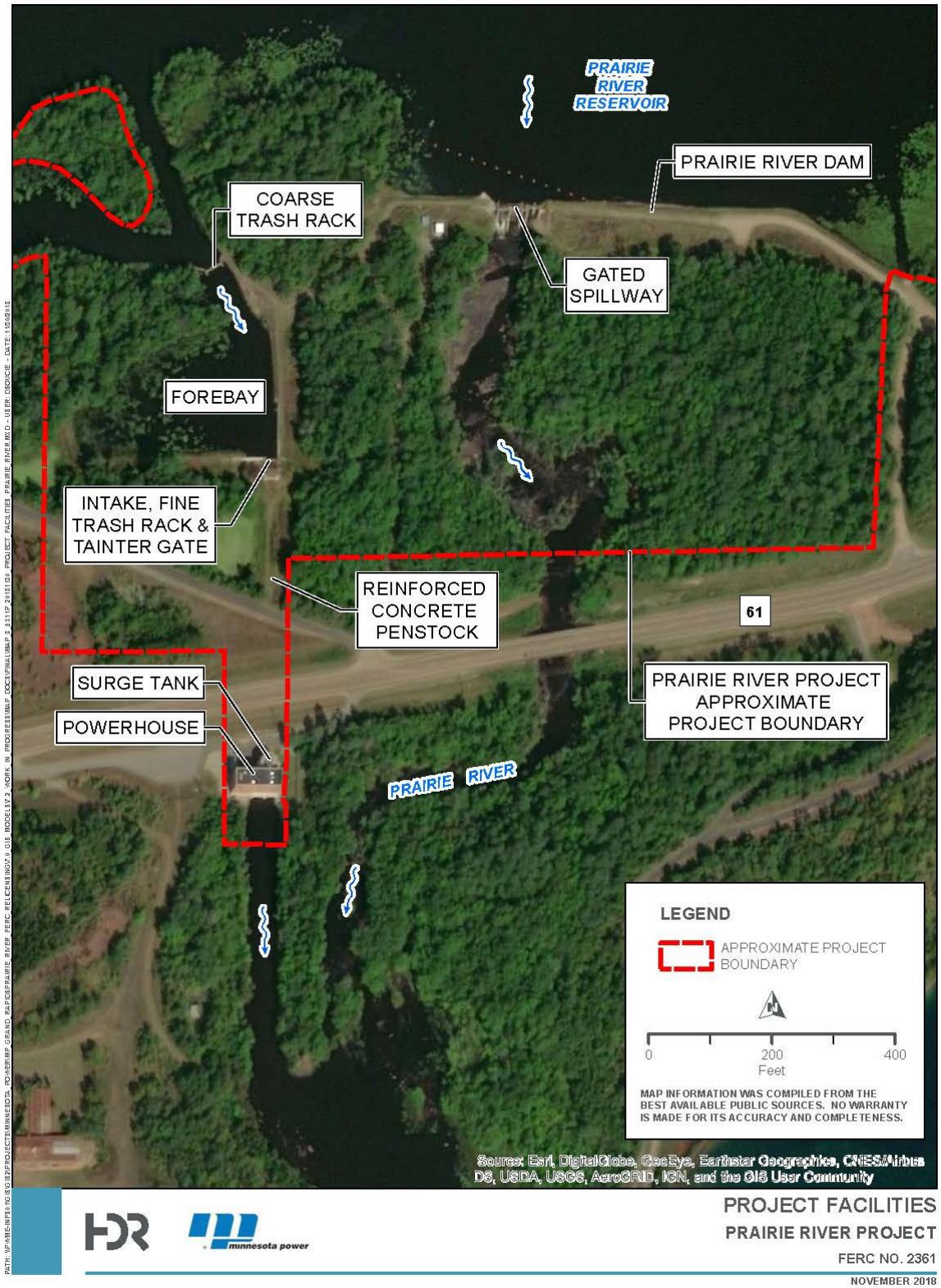
1.3 Project Description and Location

The Grand Rapids Project is a 2.1 MW, ROR facility located on the Mississippi River in the City of Grand Rapids in Itasca County, Minnesota. The Project consists of a 21-foot-high concrete dam; a 465-acre reservoir; a powerhouse containing two generating units; a short transmission line extending from the powerhouse to Blandin Paper Mill; and other appurtenances (Figure 1-1). Original construction on the Project dam started in May of 1901 by the Grand Rapids Power and Boom Company, and the powerhouse came on line in 1902. Blandin Paper Company sold the Project to MP in 2000. The Grand Rapids Project primarily serves to supplement the power supply for Blandin Paper Mill, an important economic asset and employment base in Grand Rapids. The Project generates approximately 6,000 megawatt hours (MWh) of renewable energy annually.

The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River near the City of Grand Rapids in Arbo Township, Itasca County, Minnesota. The Project consists of a 17-foot-high concrete dam; a 1,305-acre reservoir; a forebay; a 450-foot-long by 10-foot-diameter, reinforced-concrete penstock extending from the forebay to a surge tank and on to the powerhouse; a powerhouse with two generating units; and appurtenant facilities (Figure 1-2). The Project dam was constructed in 1920 by the Prairie River Power Company, and MP purchased the Project from Blandin Paper Company in 1982. The Project generates approximately 3,000 MWh of renewable energy annually.

Figure 1-1. Grand Rapids Hydroelectric Project Facilities

Figure 1-2. Prairie River Hydroelectric Project Facilities



2 Execution of the Study Plan

As required by Section 5.15 of FERC's ILP regulations, MP will file an Initial Study Report (ISR), hold a meeting with stakeholders and FERC staff to discuss the initial study results (ISR Meeting), and, if required, prepare and file an Updated Study Report (USR), and convene an associated USR Meeting. MP will submit required study documents to FERC via FERC's eFiling system.

2.1 Process Plan and Schedule

The Process Plan and Schedule, as presented in SD2, is presented in Table 2-1. Gray-shaded milestones are unnecessary if there are no formal study disputes. If the due date falls on a weekend or holiday, the due date is the following business day. Early filings or issuances will not result in changes to these deadlines.

Table 2-1. Process Plan and Schedule

Responsible Party	Pre-Filing Milestone	Date[1]	FERC Regulation
ALLETE	Issue Public Notice for NOI/PAD	12/13/18	5.3(d)(2)
ALLETE	File NOI/PAD with FERC	12/13/18	5.5, 5.6
FERC	Tribal Meetings	1/12/19	5.7
FERC	Issue Notice of Commencement of Proceeding; Issue SD1	2/11/19	5.8
FERC	Prairie River and Grand Rapids Projects Environmental Site Review and Scoping Meetings	3/6/19 & 3/7/19	5.8(b)(viii)
All Stakeholders	PAD/SD1 Comments and Study Requests Due	4/12/19	5.9
FERC	Issue Scoping Document 2	5/27/19	5.10
ALLETE	File PSP	5/27/19	5.11(a)
All Stakeholders	PSP Meeting	6/26/19	5.11(e)
All Stakeholders	PSP Comments Due	8/25/19	5.12
ALLETE	File RSP	9/24/19	5.13(a)
All Stakeholders	RSP Comments Due	10/9/19	5.13(b)
FERC	Director's Study Plan Determination	10/24/19	5.13(c)
Mandatory Conditioning Agencies	Any Study Disputes Due	11/13/19	5.14(a)
Dispute Panel	Third Dispute Panel Member Selected	11/28/19	5.14(d)
Dispute Panel	Dispute Resolution Panel Convenes	12/3/19	5.14(d)(3)

Responsible Party	Pre-Filing Milestone	Date[1]	FERC Regulation
ALLETE	Applicant Comments on Study Disputes Due	12/8/19	5.14(j)
Dispute Panel	Dispute Resolution Panel Technical Conference	12/13/19	5.14(j)
Dispute Panel	Dispute Resolution Panel Findings Issued	1/2/19	5.14(k)
FERC	Director's Study Dispute Determination	1/22/19	5.14(l)
ALLETE	First Study Season	2020	5.15(a)
ALLETE	ISR	10/23/20	5.15(c)(1)
All Stakeholders	ISR Meeting	11/7/20	5.15(c)(2)
ALLETE	ISR Meeting Summary	11/22/20	5.15(c)(3)
All Stakeholders	Any Disputes/Requests to Amend Study Plan Due	12/22/20	5.15(c)(4)
All Stakeholders	Responses to Disputes/Amendment Requests Due	1/21/21	5.15(c)(5)
FERC	Director's Determination on Disputes/Amendments	2/20/21	5.15(c)(6)
ALLETE	Second Study Season	2021	5.15(a)
ALLETE	USR Due	10/23/21	5.15(f)
All Stakeholders	USR Meeting	11/7/21	5.15(f)
ALLETE	USR Meeting Summary	11/22/21	5.15(f)
All Stakeholders	Any Disputes/Requests to Amend Study Plan Due	12/22/21	5.15(f)
All Stakeholders	Responses to Disputes/Amendment Requests Due	1/21/22	5.15(f)
FERC	Director's Determination on Disputes/Amendments	2/20/22	5.15(f)
ALLETE	File Preliminary Licensing Proposal or Draft License Application	8/3/21	5.16(a)
All Stakeholders	Preliminary Licensing Proposal Comments Due	11/1/21	5.16(e)
ALLETE	File Final License Application	12/31/21	5.17
FERC	Issue Public Notice of License Application Filing	1/14/22	5.17(d)(2)

[1]Documents or meetings are due no later than the indicated date. If the due date falls on a weekend or holiday, the deadline is the following business day.

3 Responses to FERC's and Stakeholder Comments on the PSP

Stakeholder comments on the PSP were due August 25, 2019.

Two letters were filed with FERC on the Project dockets during the comment period:

- FERC letter dated August 21, 2019, providing comments on the PSP.
- Minnesota SHPO letter dated August 24, 2019, providing comments on the PSP.

One letter was sent directly to MP after the ILP comment period deadline:

- MPCA letter dated September 9, 2019, providing comments on the PSP.

3.1 FERC Letter dated August 21, 2019

FERC filed comments on the PSP by letter on August 21, 2019. FERC provided comments on the proposed schedule, proposed Water Quality Study, and proposed Cultural Resources Study. MP reviewed FERC's comments and discuss them by topic below:

Proposed Study Schedule

MP will file a report that describes the overall progress and data collected for any studies not complete by the ISR filing. MP has revised the study plans, as applicable.

Water Quality Study

MP has wholly incorporated FERC's comments on the proposed Water Quality Studies with the exception of comment 3(f) regarding calculating the discharge at Prairie River by prorating the flow recorded at the USGS stream gage #05212700 located upstream. Instead, MP will provide flow data as calculated using head and tail water elevations and gate openings. This calculated data is currently used by operations and is more accurate than data derived by prorating flow from the upstream USGS gage. MP has revised the study plan accordingly.

Cultural Resources Study

MP has wholly incorporated FERC's comments on the proposed Cultural Resources Studies and has revised the study plans accordingly.

3.2 SHPO Letter dated August 24, 2019

The Minnesota SHPO filed a comment letter with FERC on August 24, 2019. MP has reviewed the Minnesota SHPO's comments and address them by topic below:

Licensing Proceedings

The Minnesota SHPO requested further clarification regarding the licensing proceedings. MP elected to file a combined PAD, PSP, and RSP due to the proximity of the two Projects. MP is pursuing a new license for the Grand Rapids Project (FERC Project No. 2362) and a subsequent license for the Prairie River Project (FERC Project No. 2361) from FERC. As such, these are two separate relicensing proceedings and the Minnesota SHPO should consider these as separate undertakings by FERC.

APE Consultation

The Minnesota SHPO requested clarification regarding the Projects' area of potential effects (APE). MP has not determined if a modification to the existing APE for the Grand Rapids Project or Prairie River Project is necessary. Given that the issuance of licenses is a new federal undertaking, and as described in Section 7.1 of the Grand Rapids Cultural Resources Study Plan and Prairie River Cultural Resources Study Plan, MP will consult with the Minnesota SHPO and potentially affected Indian Tribes to determine and document the APE for the Projects. MP will provide the Minnesota SHPO and potentially affected Indian Tribes with a map of the proposed APEs during consultation.

Tribal Consultation

The Minnesota SHPO requested clarification of FERC's tribal consultation and outreach. Pursuant to 36 CFR §800(c)(4), FERC has authorized MP to initiate consultation with the Minnesota SHPO, Tribal Historic Preservation Offices (THPOs), and others; however, FERC remains legally responsible for all findings and determinations as outlined in FERC's *Policy Statement on Consultation with Indian Tribes in Commission Proceedings* at 18 CFR § 2.1(c). MP has provided an overview of FERC tribal consultation to date by Project below:

Grand Rapids Project

FERC invited the following tribes to participate in the relicensing process in a letter dated October 12, 2017: Bois Forte Band of Minnesota Chippewa, Minnesota Chippewa Tribe, Leech Lake Band of Minnesota, White Earth Band (Minnesota Chippewa Tribe), Lac du Flambeau Band of Lake Superior Chippewa Indians, Menominee Indian Tribe of Wisconsin, Apache Tribe of Oklahoma, Cheyenne and Arapahoe Tribes of Oklahoma, Upper Sioux Community of Minnesota, Mille Lacs Band of Ojibwe, and Fort Belknap Indian Community of the Fort Belknap Reservation of Montana.

In a letter dated October 17, 2017, the Cheyenne and Arapaho Tribes responded that there are no tribal properties within the Project Boundary, but requested to be contacted

if human remains, ceremonial or cultural objects, historic sites, burial mounds, village or battlefield artifacts are discovered.

In multiple letters dated January 10, 2018, FERC invited the Fond du Lac Band of Lake Superior Chippewa, Grand Portage Band of Chippewa Indians, and Red Lake Band of Chippewa Indians to participate in the relicensing process.

Prairie River Project

FERC invited the following tribes to participate in the relicensing process in a letter dated October 12, 2017: Bois Forte Band of Minnesota Chippewa, Minnesota Chippewa Tribe, Leech Lake Band of Minnesota Chippewa Tribe, White Earth Band (Minnesota Chippewa Tribe), Lac du Flambeau Band of Lake Superior Chippewa Indians, Menominee Indian Tribe of Wisconsin, Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes of Oklahoma, Upper Sioux Community of Minnesota, Mille Lacs Band of Ojibwe, and Fort Belknap Indian Community of the Fort Belknap Reservation of Montana.

In a letter dated October 17, 2017, the Bois Forte Band of Minnesota Chippewa stated they are unaware of any cultural or religious places of interest at the Project. The Bois Forte Band of Chippewa asked to be contacted if any human remains or culturally affiliated artifacts are found.

In a letter dated October 18, 2017, the Cheyenne and Arapaho Tribes responded that there are no tribal properties within the Project Boundary, but requested to be contacted if human remains, ceremonial or cultural objects, historic sites, burial mounds, village or battlefield artifacts are discovered.

In a letter dated November 1, 2017, the Leech Lake Band of Ojibwe responded that there are not any known recorded sites or sites of religious or cultural importance in these areas. The Leech Lake Band of Ojibwe asked to be contacted if any human remains or culturally affiliated artifacts are found.

In multiple letters dated January 10, 2018, FERC invited the Grand Portage Band of Chippewa Indians, the Fond du Lac Band of Lake Superior Chippewa, and Red Lake Band of Chippewa Indians to participate in the relicensing process.

<u>Reconnaissance Surveys</u>

The Minnesota SHPO requested clarification on the proposed Reconnaissance Surveys at both Projects. MP has proposed a Cultural Resources Study at both Projects that includes a Reconnaissance Level Survey (also referred to as a Phase I Survey) of archaeological, historic, and architectural resources within the Projects' APEs. MP notes that the PSP identified the Reconnaissance Level Survey as a Phase IA Survey, however, MP has modified the language to a Phase I Survey to more accurately reflect the scope.

For archaeological resources, the Phase I Survey is intended to determine if sites exist in a particular area and define the vertical and horizontal boundaries of any sites (Minnesota Historical Society 2005). The Phase I Survey can also make preliminary assessments as to a site's archaeological nature (e.g., context, function, condition). A Phase I Survey is intended to gather enough information to allow for reasonable recommendations for more detailed work should it be necessary (Minnesota Historical Society 2005).

For historic and architectural resources, the intention of a reconnaissance level survey is to collect enough data to provide a general understanding of the built environment of an area and to answer any questions posed in the survey scope of work or research design (Minnesota Historical Society 2017). The survey is intended to characterize the properties in relation to historic contexts and makes recommendations for additional intensive survey work (Minnesota Historical Society 2017).

As a component of this Reconnaissance Survey, MP will review existing information on previously reported archaeological, historic, and architectural resources within the Projects' APEs; review previous cultural resources studies that have been conducted in the vicinity of the Projects; determine if additional areas or resources within the APEs require investigation; conduct any necessary field investigations (including subsurface testing); document historic or architectural resources within the APEs; and provide recommendations regarding additional, Intensive Level (also referred to as Phase II) Surveys, if necessary.

Cultural Resources Management Plans

The Minnesota SHPO requested clarification regarding the Cultural Resources Management Plans (CRMP) at each Project. As described in Section 7.4 of both proposed Cultural Resources Study Plans, MP intents to consult with the Minnesota SHPO and potentially affected Indian Tribes and other parties as appropriate to update the existing CRMPs, if necessary. MP anticipates that the CRMPs will be revised, if necessary, in accordance with FERC and the Advisory Council on Historic Preservation's May 20, 2002, *Guidelines for the Development of Historic Property Management Plans for FERC Hydroelectric Projects.*

3.3 MPCA Letter dated September 9, 2019

The MPCA requested that the eutrophication monitoring parameters they originally requested on April 11, 2019, as part of their comments to FERC on the PAD, SD1, and study requests be added to the Prairie River Water Quality Study. MP has not adopted this request as existing monitoring frameworks are adequate to monitor water quality at Prairie Lake.

As stated in the PSP, The MPCA's Mississippi River – Grand Rapids Watershed Monitoring and Assessment Report (MPCA 2018) indicates that the phosphorous levels in Prairie Lake meet the Minnesota State water quality standards (Minnesota statute

7050) and the impaired designation listing was removed from the MPCA 303(d) Impaired Water List in 2018 and further approved by U.S. Environmental Protection Agency on January 28, 2019. The 2018 Report denotes that Prairie Lake and Prairie River (upstream and downstream) typically either meet or exceed Minnesota's water quality standards including Fish IBI, Chloride, Total Phosphorous, Chlorophyll-a, Secchi, Aquatic Life Use, and Aquatic Recreation Use (bacteria). According to the 2018 Report, the Prairie River Reservoir meets the Minnesota water quality standards with good to excellent water quality and has been demonstrating improved water quality over time. The Prairie River Project currently operates in an ROR mode with minimal reservoir fluctuations, and MP is not proposing any substantial modifications in operation. Therefore, the existing water quality at the Project will not be impacted by relicensing and can be expected to continue to meet Minnesota State water quality standards.

4 Study Reports

MP expects to report on the results of studies within the framework afforded by the ISR and associated ISR Meeting; as well as the USR and associated USR Meeting, if required. For any studies that have a longer duration, MP will file a report that describes the overall progress and data collected for the studies if not complete by the ISR filing. MP notes that adverse weather conditions or other circumstances may necessitate modifications to this schedule.

5 Literature Cited

Minnesota Historical Society. 2017. Historic and Architectural Survey Manual. Heritage Preservation Department. Revised June 2017.

Minnesota Historical Society. 2005. SHPO Manual for Archaeological Projects in Minnesota. [Online] URL: https://mn.gov/admin/assets/archsurvey_tcm36-327672.pdf. Accessed: July 30, 2019.

Minnesota Pollution Control Agency (MPCA). 2018. Mississippi River – Grand Rapids Watershed Monitoring and Assessment Report.

Appendix A. Comments on PAD, SD1, and Study Requests

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 0 1 2019

REPLY TO THE ATTENTION OF:

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, Northeast
Washington, District of Columbia 20426

Re: Scoping Document 1, Prairie River and Grand Rapids Hydroelectric Projects, Itasca County, Minnesota, Federal Energy Regulatory Commission Project 2361

Dear Ms. Bose:

EPA appreciates the opportunity to review the document referenced above, dated February 7, 2019. We are providing scoping comments pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act. The Federal Energy Regulatory Commission (FERC) is the lead agency under NEPA. EPA offers comments with the goal of facilitating project efficiency by identifying environmental issues and recommending solutions early in the planning process. We also aim to assist with meeting project goals in a manner that best protects natural resources and human health. Please find EPA's project recommendations enclosed.

The proposal considers relicensing two discrete hydroelectric projects without changes to structures or operations. Both projects operate in run-of-river mode. The Prairie River Project is located on the Prairie River near the township of Arbo. The Grand Rapids Project is located on the Mississippi River near the City of Grand Rapids. Both projects received original licenses in 1965, and current licenses expire on December 31, 2023. The scoping notice states that FERC's current intent is to prepare an environmental assessment (EA), and there is a possibility that an environmental impact statement (EIS) may be required. FERC explains that the current process will satisfy NEPA scoping requirements irrespective of whether FERC issues an EA or EIS.

If you would like to discuss our recommendations, please contact Jen Blonn Tyler, the lead NEPA reviewer for this project, at 312-886-6394 or tyler.jennifer@epa.gov. Please send all future NEPA documents related to this project to Ms. Tyler at the address listed above.

Sincerely,

Kenneth A. Westlake
Chief, NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosure: EPA's Detailed Scoping Comments

ENCLOSURE

EPA'S DETAILED SCOPING COMMENTS ON THE PRAIRIE RIVER AND GRAND RAPIDS HYDROELECTRIC PROJECTS, ITASCA COUNTY, MINNESOTA, FEDERAL ENERGY REGULATORY COMMISSION PROJECT 2361

Resiliency

The National Climate Assessment finds that in the Midwest extreme heat, heavy downpours, and flooding will affect infrastructure and water quality.[1] It is important for the Federal Energy Regulatory Commission (FERC) to consider the current condition and likely integrity of the project's physical infrastructure over the 30 to 50-year term of the proposed new licenses. The project's potential environmental impacts may also change as temperature and precipitation patterns intensify.

Recommendations for the National Environmental Policy Act (NEPA) Document:

- Consider precipitation and temperature trends and modeled future conditions for the project area, which are available in the National Climate Assessment.
- Assess whether the existing project structures are likely to be resilient to changing precipitation and temperature conditions over the life of the licenses.
- Consider whether the projects' environmental impacts may change with increases in average temperatures and increases in the frequency and intensity of precipitation events.
- If needed, incorporate resiliency and adaptation measures or plans. See EPA's Adaptation Resource Center[2] for assistance.

Water Quality

On Jan. 28, 2019, EPA approved Minnesota's 2018 list of impaired waters under Section 303(d) of the Clean Water Act. Prairie River, Prairie Lake, Lower Prairie Lake, Blandin Reservoir, and the stretch of the Mississippi River immediately upstream of Blandin Reservoir are impaired due to mercury in fish tissue. The adjacent portion of the Prairie River is also impaired due to Escherichia coli. [3]

Recommendations for the NEPA Document:

Describe existing water quality conditions and ensure that the proposed project would not harm water quality or delay remediation of current impairments.

Project Boundary

Scoping Document 1 includes a map with proposed project boundaries. The Prairie River Project boundary includes Prairie Lake and Lower Prairie Lake, but it does not include adjacent stretches of the Prairie River. The Grand Rapids Project boundary includes Blandin Reservoir, but it does not include adjacent stretches of the Mississippi River.

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[1] U.S. Global Change Research Program, 2018 Fourth National Climate Assessment, Volume II, available at: https://nca2018.globalchange.gov/

[2] EPA's Climate Adaptation Resource Center, available at: https://www.epa.gov/arc-x

[3] Minnesota 303(d) waters report, available at: https://www.pca.state.mn.us/water/minnesotas-impaired-waters-list.

Recommendations for the NEPA Document:
Extend the project boundary so that includes portions of the Prairie River and the Mississippi River that would be impacted by the decision to issue or not issue a new license. Consider potential impacts to water quality, aquatic species, and other resources when determining the applicable project boundary.

Species and Habitat
Continuing to operate the Prairie River and Grand Rapids Hydroelectric Projects may impact species in the project area.

Recommendations for the NEPA Document:
- Identify all state and federally-listed threatened and endangered species known to occur in the project area.
- Assess potential impacts to threatened and endangered species from the proposed actions.
- Disclose historic impacts on species from the operation of the hydroelectric projects, including fish impingement and entrainment.
- Discuss spacing, materials, and design of trash racks.
- Consider best practices for protecting species. Commit to protective measures where needed, such as upgrading trash racks if warranted.
- Coordinate with the U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources on methodologies for assessing impacts and opportunities to protect species. Describe coordination in the NEPA document.

Invasive Species
The spread of noxious weeds and exotic (non-indigenous) plants is a threat to biodiversity. Many noxious weeds can out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife. Noxious weeds tend to gain a foothold where there is disturbance in the ecosystem. Early recognition and control are essential to stopping the spread of infestation and avoiding future widespread use of herbicides, which could have more adverse impacts on biodiversity and water quality.

Recommendations for the NEPA Document:
- Consider whether issuing new permits would lead to future maintenance activities that could introduce invasive species.
- Prepare or update a vegetation management plan to control invasive species. Include a list of noxious weeds and exotic plants known to exist in the area. Detail a strategy for prevention, early detection of invasion, and control procedures for each species. Provide details in the EA.

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426
April 5, 2019

OFFICE OF ENERGY PROJECTS

Project No. 2361-055 – Minnesota
Prairie River Hydroelectric Project
Project No. 2362-043 – Minnesota
Grand Rapids Hydroelectric Project
Allete, Inc.

Nora Rosemore, Superintendent
Allete, Inc.
30 West Superior Street
Duluth, MN 55802-2093

Reference: Comments on Preliminary Study Plans, Request for Studies, and Additional Information

Dear Ms. Rosemore:

After reviewing the Prairie River and Grand Rapids Hydroelectric Projects' Pre-Application Document, and participating in the scoping meetings held March 6 and 7, 2019, and the environmental site review held on March 6, 2019, we have determined that additional information is needed to adequately assess potential project effects on environmental resources. We have two study requests (enclosed in Schedule A) for cultural resources and botanical resources, and recommend that you consider our comments on two of your preliminary proposed studies (enclosed in Schedule B). We also have additional information needs (enclosed in Schedule C). Please provide the requested additional information when you file your proposed study plan, which must be filed by May 27, 2019, unless otherwise noted.

Please include a master schedule in your proposed study plan that includes the steps for conducting each proposed study (i.e., data collection, data analysis, consultation, and report preparation), the distribution of progress reports, the filing date of the initial study report, and the date of the initial study report meeting. If, based on the study results, you are likely to propose any plans for measures to address project effects, drafts of those plans should be filed with your Preliminary Licensing Proposal (or draft license application).

Project No. 2361-055
Project No. 2362-043

Please note that we may, upon receipt and review of scoping comments/study requests from other entities due April 12, 2019, as well as your proposed study plan, request additional studies or information at a later time.

If you have any questions, please contact Laura Washington at (202) 502-6072, or via e-mail at laura.washington@ferc.gov.

Sincerely,

Janet Hutzel

Janet Hutzel, Chief
Midwest Branch
Division of Hydropower Licensing

Enclosures: Schedule A
Schedule B
Schedule C

Schedule A

Study Requests

After reviewing the information in the Pre-Application Document (PAD), we have identified information that is needed to assess project effects. As required by section 5.9 of the Commission's regulations, we have addressed the seven study request criteria in the study requests that follow.

Botanical Resources Study

§5.9(b)(1) – *Describe the goals and objectives of each study proposal and the information to be obtained.*

The goal of the study is to develop additional information necessary to address the potential effects of project operation and maintenance activities on botanical resources within the project boundary for each project. The results of this study would be used to determine how potential effects can be avoided, minimized, or otherwise mitigated.

The objectives of the botanical resources study are as follows:

1. map and/or confirm vegetation types within the project boundary for each project, including age-class and composition of forested areas;

2. identify and map any rare, threatened, or endangered plant species or potential habitats; and

3. document the presence, abundance, and location of invasive plant species.

§5.9(b)(2) – *If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.*

Not applicable.

§5.9(b)(3) – *If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.*

Sections 4(e) and 10(a) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located, and what conditions should be placed on any license that may be issued. In making its license decision, the Commission must equally consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental values.

The Prairie River and Grand Rapids Projects provide habitat for a variety of plants and animals. An understanding of the botanical resources within the project boundary for each project would provide information on the type, abundance, and location of habitat potentially affected by continued operation and maintenance of the projects. Understanding the projects' effects on botanical resources is relevant to the Commission's public interest determination.

§5.9(b)(4) – *Describe existing information concerning the subject of the study proposal, and the need for additional information.*

In the PAD, Allete, Inc. (Allete) provides a general discussion of vegetation types common to the ecoregion, but omits a substantive discussion of botanical resources at the projects. Therefore, we cannot determine the potential project effects on botanical resources in the project boundary for each project.

§5.9(b)(5) – *Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.*

Project operation and maintenance activities have the potential to disturb botanical resources in the project boundary for each project. This study would assist in identifying plant species and their habitats within the projects and provide baseline information from which to evaluate the effects of continued operation and maintenance of the Prairie River and Grand Rapids Projects on those resources.

§5.9(b)(6) – *Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.*

Field Survey

There would be one field survey at each project with multiple components. The spatial boundaries of the field study area would consist of the project facilities and the riparian corridors at both projects within the project boundary for each project. A general inventory of plants, including any state listed rare, threatened, or endangered botanical species, should be conducted within the study area. Age class, species composition and relative density of any forested understory should be recorded, as well as the presence of snags or old-growth hardwoods with sloughing bark. The invasive species portion of the survey should focus on non-native species, examining disturbed habitats (including areas adjacent to infrastructure and roadside ditches) and natural terrestrial habitats (woodlands, meadows, Prairie River and Grand Rapids shorelines)

where invasive species are observed or likely to occur in the project boundary for each project. The survey should be conducted during the spring and summer months when diagnostic features are most identifiable. Each invasive species occurrence should be mapped with a handheld GPS unit and depicted on an aerial photograph. Data should be recorded for each invasive species occurrence, including species name, GPS location, approximate density, and area of coverage. Representative photos should be taken and general observations should be noted regarding habitat and site conditions, including type and quality.

The methods described above are consistent with accepted methods for conducting botanical resources surveys.

Report Preparation

Allete would prepare a report that summarizes the botanical resources encountered within the project boundary of the projects. The report should include species occurrence data, high-resolution land cover maps, approximate land cover by type and acreage, age class and composition of any forested habitat, and mapping of invasive species. Captioned photographs of typical and/or significant habitat conditions should be included in the report. Documentation of rare, threatened, or endangered species occurrence should be filed with the Commission as privileged.

§5.9(b)(7) – *Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.*

The estimated cost of a reconnaissance-level botanical resources survey and the preparation of a report containing the above criteria is approximately $5,000 for each survey respectively.

Cultural Resources Study

§5.9(b)(1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to determine the potential effects of project operation on archaeological and historic resources that are included in or eligible for the National Register of Historic Places (National Register or historic properties). The survey and study report, including identification of the area of potential effects (APE) for each project,[1] should be developed after consultation with the Minnesota State Historic

[1] For each project, the APE should, at a minimum, include the lands enclosed by

Preservation Officer (Minnesota SHPO), any federally-recognized tribes[2] who have an active interest in the projects, and other interested parties. The specific objectives of the survey and subsequent report are to:

(a) identify the projects' APEs;[3]

(b) after consultation with the Minnesota SHPO and interested Tribes, conduct a Phase I pedestrian field inventory within the APE of each project to locate any historic or archeological resources;

(c) assess the National Register-eligibility of historic resources, including the project themselves, or archaeological resources within each APE;

(d) evaluate the potential effects the projects would have on historic properties; and

(e) assess the condition of the area where any historic and archaeological sites are located for shoreline stability and evidence of erosion.

§5.9(b)(2) – If applicable, explain the relevant resource management goals of the agencies or Indian Tribes with jurisdiction over the resource to be studied.

Not applicable.

§5.9(b)(3) – If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Sections 4(e) and 10(a) of the FPA require that the Commission give equal consideration to all uses of the waterway on which a project is located. When reviewing a proposed action, the Commission must consider the environmental, recreational, fish

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the project boundary including both in-water and on-shore project lands and facilities, and lands or properties outside the project boundary where project operation or other project-related activities may cause changes in the character or use of historic properties, if any historic properties exist.

[2] The tribes which have expressed interest in the projects during initial tribal consultation for the projects include the Cheyenne and Arapaho Tribes, the Bois Forte Band of Chippewa, and the Leech Lake Band of Ojibwe; however, other tribes may express an interest in the future.

[3] The APE for each project should be developed after consultation with the Minnesota SHPO and interested Tribes. Once the APE is defined, please request that the Minnesota SHPO concur with the APE for each project prior to conducting any field surveys within the APE.

and wildlife, and other non-developmental values of the project, as well as power generation and other developmental values.

Cultural resources are resources of particular interests to the public. Preserving and protecting cultural resources provides a venue for understanding our Nation's past and respecting the various cultures of this country. Project operation and maintenance may affect the value and integrity of National Register-eligible historic properties in the vicinity of each project. Ensuring that potential measures associated with cultural resources are analyzed is relevant to the Commission's public interest determination.

Furthermore, pursuant to section 106 of the National Historic Preservation Act (section 106), the licensing of the proposed projects would be a federal undertaking and a license issued by the Commission would permit activities that may "…cause changes in the character or use of historic properties, if any such historic properties exist…" (see 36 CFR part 800.16(d) of the regulations implementing section 106). The Commission must, therefore, comply with section 106, which requires the head of any federal department or independent agency having authority to license an undertaking to take into account the effect of the undertaking on historic properties. In the case of the proposed projects, assessment of historic properties would be conducted in consultation with the Commission, Minnesota SHPO, any tribes which express an interest in the projects, and other interested parties.

§5.9(b)(4) – Describe the existing information concerning the subject of the study proposal, and the need for additional information.

The PAD provides information on archaeological and historic resources identified during previous cultural resources surveys conducted in the early 1990s. However, because the existing information is over 25 years old, there may be unknown historical or archeological sites that may be affected by project operation and maintenance for each project, or the projects themselves may be eligible for the National Register. Allete does not propose to conduct a study to determine the presence of archeological or historic resources in the vicinity of the proposed projects. Due to the potential for cultural resources, a Phase I archaeological survey of the each project's APE is needed to determine the presence of any archaeological or historic sites[4] within each project's APE. If any historic properties are identified, the nature and extent of potential effects and measures to avoid, lesson, or mitigate adverse effects, can be properly determined.

[4] Project facilities should be evaluated to determine if they are eligible for the National Register.

§5.9(b)(5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Section 106 requires that federal agencies take into account the effect of proposed undertakings on any district, site, building, structure, or object that is included in or eligible for the National Register. Operation and maintenance of project facilities could adversely affect historic properties through ground-disturbing activities and cause other indirect adverse effects on historic properties.

A cultural resources survey would provide information on potential cultural resources located within each APE. The subsequent report would provide information on cultural resources that would be potentially eligible for the National Register and any potential effects on historic properties. If there would be an adverse effect on historic properties at either project, an applicant-prepared historic properties management plan (HPMP), would be necessary to avoid, lessen, or mitigate for adverse effects. If an HPMP is needed for either project, the draft and final HPMP should be filed with the preliminary licensing proposal and the final license application, respectively.[5]

§5.9(b)(6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The scope of work that would be required to complete a cultural resources survey and evaluation of each project for National Register-eligibility would be identified through consultation with the Minnesota SHPO, the federally-recognized tribes who have an active interest in the projects, and other interested parties. At a minimum, the study should include a literature review and a Phase I field inventory of each project's APE. Prior to conducting the survey and completing a survey report, the applicant should consult with the Minnesota SHPO and interested Tribes on: (a) appropriateness of the APEs for each project; (b) methods and techniques on how the survey should be conducted at each project; (c) anticipated effects (direct and indirect) on cultural resources; (d) what properties, including the project themselves, are and are not considered eligible for the National Register; and (e) any other relevant details involving

[5] If an HPMP is needed for both projects, each project should have its own separate HPMP.

the surveys and report. All methods used to conduct either additional survey for archaeological sites or for the National Register-eligibility evaluation of sites should conform to the Minnesota SHPO guidelines.[6]

A preliminary report identifying any discovered cultural resources should be completed after the field inventory phase. At a minimum, this report should be reviewed by the Minnesota SHPO, interested Tribes, and the Commission. Allete should seek concurrence with the Minnesota SHPO on its determination of what properties are or are not considered eligible for the National Register. Allete should also seek concurrence with the Minnesota SHPO on what, if any, adverse effects may occur on historic properties as a result of project operation and/or maintenance, or project-related activities.

The evaluation of project effects on cultural resources should include both site-specific effects and indirect effects. The report should also be kept confidential, and filed with the Commission and other consulting parties as "privileged," a non-public document.

If historic properties are identified and would be adversely affected by proposed operation or maintenance of either project or from project-related activities, then an HPMP should be developed after consultation with the Minnesota SHPO, interested Tribes, and other interested parties. When developing an HPMP the generally acceptable practice is to use the "Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines" (*Federal Register*, September 29, 1983, Vol. 48, No. 190, Part IV, pp. 44716-44740) and the Advisory Council on Historic Preservation and Commission's "Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects"[7] (issued May 20, 2002), and consider and/or address the following items:

(a) completion, if necessary, of identification of historic properties, within the project's APE;

(b) continued use and maintenance of historic properties;

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[6] Survey methodology should conform to the guidelines provided at http://www.mnhs.org/shpo/survey/archsurvey.pdf, unless the Minnesota SHPO provides alternative guidance.

[7] This document was issued jointly by the Commission and the Advisory Council on Historic Preservation on May 20, 2002. The document is available at http://www.ferc.gov/industries/hydropower/gen-info/guidelines/hpmp.pdf.

(c) maintenance and operation of the hydroelectric projects according to the Secretary of Interior's "Standards for the Treatment of Historic Properties" (36 C.F.R. Part 68) and applicable National Park Service Preservation Briefs;[8]

(d) treatment of historic properties threatened by project-induced shoreline erosion,[9] other project-related ground-disturbing activities, and vandalism;

(e) identification and evaluation of historic properties, determination of effects, and ways to avoid, minimize, or mitigate adverse effects;

(f) consideration and implementation of appropriate treatment that would minimize or mitigate unavoidable adverse effects on historic properties;

(g) treatment and disposition of any human remains that may be discovered, taking into account any applicable state laws and the Advisory Council on Historic Preservation's "Policy Statement Regarding Treatment of Human Remains and Grave Goods" (September 27, 1988, Gallup, NM);

(h) discovery of previously unidentified properties during project operation;

(i) public interpretation of the historic and archaeological values of the project;

(j) list of activities, including routine repair, maintenance, and replacement in kind at the project not requiring consultation with the Minnesota SHPO; since these activities would have little or no potential to affect historic properties;

(k) procedures to address effects during project emergencies; and

(l) coordination with the Minnesota SHPO, interested Tribes, and any other identified parties during implementation of the HPMP.

§5.9(b)(7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The anticipated cost for the literature review and Phase I archeological survey is between $25,000 and $55,000.

[8] This portion of the HPMP is necessary if the Grand Rapids Project or the Prairie River Project, respectively, is determined to be eligible for the National Register.

[9] Project-induced shoreline erosion does not include shoreline erosion attributable to flood flows or phenomena, such as wind driven wave action, erodible soils, and loss of vegetation due to natural causes.

Schedule B

Comments on Preliminary Study Plans

Based on our review of your preliminary study plans outlined in your Pre-Application Document (PAD), we request the following modifications. Please address our requests in your proposed study plans.

Aquatic Resources

Fish Entrainment and Impingement Study

1. In section 6.2.3.2, of the PAD, *Fish and Aquatic Proposed Studies,* you propose to conduct a desktop fish entrainment and impingement study at each project. To help us better understand how operation of the projects may affect fish populations in the Mississippi River, your study should:

(a) describe the physical characteristics of each of the projects that may influence fish impingement and entrainment rates, including intake location and dimensions, the velocity distribution in front of the intake structure, and the clear spacing between the trashrack bars;

(b) analyze target species (i.e., individual species and guilds/groups) for factors that may influence their vulnerability to entrainment and mortality;

(c) assess the potential for target fish species impingement;

(d) estimate entrainment rates and numbers for target fish species;

(e) estimate turbine passage survival rates and numbers for target fish species; and

(f) describe how existing information and data collected in other studies (e.g., recent Minnesota Department of Natural Resources fish community surveys) would be used to estimate entrainment/impingement and survival rates.

Temperature and Dissolved Oxygen Study

2. In section 6.2.3.2, of the PAD, *Fish and Aquatic Proposed Studies,* you propose to conduct a temperature and dissolved oxygen (DO) study from May through October at each project to determine if the projects are meeting state water quality standards. To help us better understand how operation of the projects may affect temperature and DO in the Mississippi River, your study should:

(a) identify the DO concentration and temperature of water entering each project's intakes;

(b) describe any temporal variations of DO concentration and temperature;

(c) identify the DO and temperature profile within each project reservoir in the vicinity of the intakes; and

(d) describe any changes of DO concentrations and temperature in the river downstream of each project, including the Prairie River Project's bypass reach.

Recreation Resources

Recreation Assessment

3. In section 6.2.7.2, of the PAD, *Recreation and Land Management Proposed Studies,* you propose to conduct a recreational assessment to evaluate current recreational opportunities and potential improvements at each project. However, details of the methodology, analysis of the data, and schedule are not included in the study proposal. Understanding the amount of current and projected future use and how these sites and facilities are managed is essential in determining the adequacy of project recreation facilities to meet current and future recreation needs; and therefore, is relevant to the Commission's public interest determination.

In the absence of recreational use data and facility conditions, we cannot determine that the existing information is adequate for us to assess the adequacy of existing recreation facilities to meet current and future demand. So that we may fully understand and evaluate the effects of continued project operation and maintenance on recreation use at each project, please include the following in your study proposal for recreation resources:

(a) identify the condition of all informal and formal recreation sites and facilities, and identify if they are located within, outside, or partially within the project boundary for each project;

(b) determine the current at each recreation site and/or facility and the projected capacity for those sites and facilities;

(c) identify who owns, operates, and maintains each recreation site and/or facility; and

(d) conduct visitor surveys during the recreation season to determine the adequacy of project recreation facilities and if changes or upgrades to the sites would be needed to meet current or future recreation needs.

Recreation Use Surveys

A schedule should be developed for the distribution of the recreation use surveys. All sampling days should be randomly selected and survey routes should be completed on a rotating basis and at different times of day to account for time-of-day use patterns. These counts should last for at least two hours per site on each day and should be conducted on four (4) days per month which should include two (2) randomly selected weekdays and two (2) randomly selected weekend days. If a month contains a three-day holiday weekend, one (1) day per holiday weekend should be included in addition to the standard survey days. The recreation use survey should occur during the recreation season to capture recreational use occurring while the various project facilities are open to the public.

The recreation use survey should be administered to users to gain user opinions with regard to the existing project recreation facilities and opportunities. The survey should record the number of people in a party, their primary reason (recreational activity) for visiting the project, their perception of level of use, and their opinions with regard to the amount and types of recreation opportunities offered within the project boundary for each project.

Spot Counts

Spot counts should also be conducted on survey days. The spot counts represent short-term counts (approximately 5 minutes per site) and should record the number of vehicles parked at a site/facility and the number of users observed. This information should be statistically analyzed to develop the recreational use figures for each project. Final recreation use for the recreation facilities and sites within each project should be summarized by season and activity type for each site.

Report Preparation

Allete should prepare a report that includes information on the number of recreation days spent at project recreation sites, average number of persons per party, and a determination of the percent of the each facility’s capacity that is currently being utilized. The above information should be entered into spreadsheets for statistical analysis. The collected information should be used to project changes to project recreation demand over the term of any new license, if issued.

Schedule B
Project No. 2361-055
Project No. 2362-043

The report should also include the following for each project:

(a) the location of project recreation facilities in relation to the project boundary, including facilities/amenities that may straddle the project boundary, and a map that identifies each facility;

(b) the types and number of amenities provided at each facility;

(c) identification of entities responsible for the ownership, operation, and maintenance of the formal project recreation facilities;

(d) hours/seasons of operation;

(e) photographs of the facilities;

(f) recreation use figures for each formal recreation site, overall recreational use figures, and projected use figures; and

(g) a compilation of responses to the recreation use survey.

Schedule C

Additional Information

Aquatic Resources

1. Section 5.4.2.1, *Previous Fisheries Surveys and Habitat Assessments,* of the Pre-Application Document (PAD) states that a fish impingement characterization study was performed in 2017 by Allete, Inc. (Allete) at the cooling water intake structure located near the Grand Rapids Project. Please file a copy of this report.

2. Section 5.4.7, *Aquatic Invasive Species,* of the PAD indicates that zebra mussels have been identified in the Blandin Reservoir. The PAD also states that Allete has an internal procedure for aquatic invasive species management to comply with Minnesota Statute's chapter 84D and Minnesota Rule chapter 6216 to prevent the spread of aquatic invasive species. However, no details of this internal procedure were provided with regard to the monitoring or management of zebra mussels. Therefore, please provide details of your aquatic invasive species program/management protocol related to zebra mussels. Additionally, please provide information on the abundance of zebra mussels in the Blandin Reservoir, as well as the location of zebra mussels in relation to the Grand Rapids Project's physical structures and recreational facilities, if available.

3. Section 5.4.8, *Resource Summary,* of the PAD states that Allete currently provides a minimum of 75 cubic feet per second (cfs) flow into the bypass reach downstream of the Prairie River Project during the months of April and May and a minimum of 50 cfs during June to enhance walleye spawning habitat and protect young-of-year from April to June. These flows were established based on an Instream Flow Incremental Methodology (IFIM) study conducted in the bypass reach during the previous licensing process. Please file a copy of the IFIM study report that was used to determine these minimum flows.

Terrestrial Resources

4. In sections 5.4.7, *Aquatic Invasive Species* and 5.6.1.1, *Invasive Plants,* there is reference to an operating procedure for the management of aquatic invasive species. However, there are no details provided with regard to this plan or operating procedure with reference to the monitoring or management of the known aquatic invasive species that you have noted in the project area at the Grand Rapids Project, such as purple loosestrife. Please provide details of your aquatic invasive species program or management protocol with respect to invasive plants for each respective project. In addition, section 5.6.1.1, *Invasive Plants,* also indicates that purple loosestrife has been identified in the Blandin Reservoir. However, there is no historical information the abundance or location of the purple loosestrife. Thus, please provide historical

information on the abundance of purple loosestrife in the Blandin Reservoir, as well as the location of purple loosestrife in relation to the Grand Rapids Project's physical structures and recreational facilities, if available.

Developmental Resources

5. Section 5.6(d)(2)(iii) of the Commission's regulations require, in part, that a PAD must include a detailed description of all existing and proposed project facilities including the composition, dimensions, and configuration of dams, spillways, penstocks, powerhouses, tailraces, and any structure proposed to be included as part of the project; a detailed description of existing and proposed facilities; the reservoir area, gross and usable capacity, and elevation; the number, type and capacities of turbines and generators, and installed (rated) capacity of proposed turbines or generators; transmission line numbers, lengths, voltage, and interconnections (including diagrams); and energy production (estimate of dependable capacity, average annual, and average monthly energy production). The following omissions and inconsistencies/discrepancies are noted between the written project descriptions contained in the PAD and existing project features for both projects.

Prairie River Project

a. The PAD does not provide information on the following project features: (1) the length and height of each dam section of Prairie River Dam; (2) the length and width of the total and each section of the forebay structure including intake, earth dam, fine and coarse trashracks, switchyard/substation, etc.; (3) the length, width, and height of the powerhouse and outlet works/tailrace; (4) dimensions for the surge tank; and (5) length and voltage of the transmission line.

b. The "additional emergency spillway" is incorrectly described as being 169 feet long in the PAD. However, recently available updated Exhibit F drawings (dated 8/18/17 and 10/23/17), show it as 160 feet long.

c. The 10.0-foot-high Tainter Gates' sill elevations are incorrectly described as 1280.2 feet in the PAD. However on the updated Exhibit F drawings, they are shown as 1280.05 feet.

d. The 8.0-foot-high Tainter Gates' sill elevations are incorrectly described as 1283.7 feet in the PAD. However on the updated Exhibit F drawings, they are shown as 1284.0 feet.

e. The PAD provides information on the average annual and average monthly energy production, but not does not provide information of the dependable capacity.

Please resolve the data omissions and discrepancies and submit the requested information in your applicant proposed preliminary licensing proposal (PLP) or draft license application (DLA). Also, all reported elevations within the PAD should be stated with the appropriate vertical datum in the PLP or DLA. Further, please provide a cross section profile of and a detailed discussion on "additional emergency spillway" on the Exhibit F drawings and in the supporting design report, respectively. This should include discussions on activation flood, activation mechanism, protection measures from erosion between the emergency spillway and the main dam, etc. Additionally, the Exhibit F drawings should provide a profile view of the 450-foot-long concrete penstock. The profile view should cover from forebay to the surge tank and should also include Itasca County HWY 61 with elevation details.

Grand Rapids Project

a. The PAD does not provide information on the following: (1) the total length and height of the Blandin Dam and similar dimensions for each dam section; and (2) the length and width of intake and outlet works/tailrace, trashracks, powerhouse, switchyard/substation; and dimensions for the turbine pits and draft tubes.

b. The gated spillway is incorrectly described as consisting of six stop log gates, three slide gates, and one Tainter gate. Per the Supporting Technical Information Document and other data review, there are four stop log gates, two slide gates, and one Tainter gate.

c. Existing Exhibit F-3 drawing shows (section AA) steel sheet pile cut-off walls at upstream and downstream ends. However, no detailed descriptions on these sheet piles are found in the PAD, especially about the downstream sheet pile and the extent of it. In addition, the existing Exhibit F-4 (section BB) does not show this downstream cut-off wall.

d. The elevation of the permanent crest of the dam is incorrectly described as 20.2 feet in the PAD (Table 4.3-1). However, the Exhibit F drawings on record, show the crest elevation of the dam as 1269.2 feet.

e. The PAD provides information on the average annual and average monthly energy production, but not does not provide information of the dependable capacity.

Please resolve the data omissions and discrepancies and submit the requested information in your applicant proposed preliminary licensing proposal (PLP) or draft license application (DLA). Also, all reported elevations within the PAD should be stated with the appropriate vertical datum in the PLP or DLA. Further, please note that all Exhibit F drawings on record are dated from 1990-1991. However after 1991, there were

several upgrades made to various parts of the dam structure including: (1) the replacement two of the six stop log gates on the overflow section with vertical steel lift gates in 2000-2001; and (2) re-grading of the downstream right bank and installation of an erosion matt to stabilize the slope in year 2008, but the filed Exhibit F drawings have not been updated to reflect these and other changes.

MINNESOTA POLLUTION CONTROL AGENCY

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April 11, 2019

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, Northeast
Washington, District of Columbia 20426

RE: Prairie River and Grand Rapids Hydroelectric Projects Scoping Document 1
Federal Energy Regulatory Commission Project Numbers P-2361-055 and P-2362-043

Dear Kimberly Rose:

Thank you for the opportunity to review and comment on Scoping Document 1 for the Prairie River and Grand Rapids Hydroelectric Projects (Projects). The Prairie River Project is located on the Prairie River near Arbo Township, and the Grand Rapids Project is located on the Mississippi river near the City of Grand Rapids. Both Projects are located in Itasca County, Minnesota. These are two discrete Federal Energy Regulatory Commission (FERC) relicensing projects that will not require new power generation structures, increase capacity, dredge and/or fill requirements or other modifications. Regarding matters for which the Minnesota Pollution Control Agency (MPCA) has regulatory responsibility or other interests, the MPCA staff has the following comments for your consideration.

6.0 Request for Information and Studies

Impoundment Bathymetry Survey and Sediment Accumulation and Sediment Contaminant Study
The MPCA requests that Minnesota Power Company/Allete conduct an Impoundment Bathymetry Survey and a Sediment Accumulation and Sediment Contaminant Study. There is relatively little existing information on the sediment accumulation and chemical composition in the impoundments behind the Prairie River and Grand Rapids Dams. Because of the long duration of a FERC license (40 to 50 years), we believe that conducting these studies will help to inform development of the Clean Water Act Section 401 Water Quality Certification for the current relicensing projects, as well as for potential future relicensing activities.

For the survey/study request, the MPCA recommends a total of ten samples be collected, five from each dam/impoundment. Both of the impoundments trap and retain sediments and contribute to a gradual silting-in of the impoundment area directly above the dams. Minnesota Power Company has extensive knowledge and experience at each hydroelectric generation dam/facility and should select specific locations within the impoundments with a history of heavy sediment deposition.

The MPCA recommends the survey/study include parameters and methodologies proposed in previous study plans at similar hydroelectric power generation facilities. All samples should be sent to a certified laboratory for analysis. Sample parameters and methodologies include:

- Characterize physical sediment properties (e.g. size, volume, location);
  - Size - the sediment study will conduct particle size analysis on each sample
  - Volume - estimates of the volume of accumulated sediment will be provided in the bathymetry study

  - Location - the sediment study will document the location where each sample was collected
- Estimate the amount of sediment accumulated;
  - This will be part of the bathymetry study
- Characterize the composition of sediment and provide baseline information necessary to identify potential environmental, human health, and safety concerns;
  - 7 Total Metals (ICP/MS) — Arsenic, Cadmium, Chromium, Copper, Lead, Nickle, Zinc
  - Total Mercury (CVAA)
  - Polycyclic Aromatic Hydrocarbons (GC/MS SIM)—13 specific analytes
  - Polychlorinated Biphenyls Aroclors (GC/ECD)—standard list
  - Organochlorine Pesticides (GC/ECD)—specific analytes)
- Analyze sediment quantity, thickness, and particle composition;
  - Sediment quantity and thickness - this will be part of the bathymetry study
  - Particle composition – the sediment study will conduct particle size analysis on each sample

Additional Recommended Studies

- Monitoring of phosphorus at Prairie Lake. The lake was recently removed from the MPCA 303(d) Impaired Waters List but is still near the threshold so additional monitoring beyond the MPCA's two years of data collection per decade is warranted.
- Assessment of probable effects of climate change on the Projects operation and contingency plans relating to those effects.
- Monitor the Projects aquatic and terrestrial areas for invasive and exotic species and take action to eliminate existing populations, and prevent and/or reduce their spread. This includes ongoing monitoring of zebra mussel activity at the Blandin Dam.
- Identify, protect and/or restore native vegetation ecosystems where they occur or historically occurred on the Projects lands.
- During the ice free season, continuously monitor streamflow in the Prairie River bypass, and work with resource agencies to determine if the bypass minimum flows currently in the license (75 cubic feet per second (cfs) in April & May, and 50 cfs in June) need to be increased to protect aquatic life and downstream resources, within the context of presumed climate change effects and the duration of the new license. The 90th percentile flow rate at the U.S. Geological Survey (USGS) Prairie River gage is approximately 48 cfs, based on data from 1967-2017). Confirm with Minnesota Power, Minnesota Department of Natural Resource and USGS that this metric was used to derive the current minimum flows in the license.

Additional Parameters

The MPCA supports Allete's proposal to conduct temperature and dissolved oxygen studies at each Project from May through October. We would also request monitoring for the following additional parameters at Main Upper Basin Prairie Lake site - 31-0384-02-201:

- Chlorophyll-a
- Secchi disk
- Temperature profiles
- Total phosphorus

This monitoring should be completed at the Main Upper Basin of Prairie Lake three (3) times per year (spring, mid-summer, and fall) every other year. All data must be electronically submitted to the MPCA.

At the end of three monitoring cycles, the data should be examined for temporal trends. The MPCA will discuss with Minnesota Power/Allete if monitoring should continue. These procedures are similar to past license requirements for other FERC projects.

Additional Available Information

- Studies and reports for the Mississippi River - Grand Rapids watershed are at the following website: https://www.pca.state.mn.us/water/watersheds/mississippi-river-grand-rapids
- MPCA Watershed reports
  https://www.pca.state.mn.us/sites/default/files/wq-ws4-50a.pdf
  https://www.pca.state.mn.us/sites/default/files/wq-ws4-50b.pdf
  https://www.pca.state.mn.us/sites/default/files/wq-iw8-08ab.pdf
- One Watershed One Plan information
  http://www.bwsr.state.mn.us/planning/1W1P/1W1P_Fact_Sheet_2018.pdf
  http://www.bwsr.state.mn.us/planning/1W1P/1W1P_Participating_Watersheds_Map.pdf
- The MISSISSIPPI RIVER HEADWATERS RESERVOIRS MASTER PLAN, USACE 2016, should also be referenced as part of the Project and is located here: https://www.mvp.usace.army.mil/Portals/57/docs/Environmental/EA/Mississippi%20River%20Headwaters%20Master%20Plan.pdf?ver=2016-10-11-163650-150

We appreciate the opportunity to review this Project. Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit action(s) by the MPCA. Ultimately, it is the responsibility of the Projects proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions concerning our review of this Scoping Document 1, please contact me by email at Karen.kromar@state.mn.us or by telephone at 651-757-2508.

Sincerely,

Karen Kromar

Karen Kromar
Project Manager
Environmental Review Unit
Resource Management and Assistance Division

KK:mb

cc: Dan Card, MPCA, St. Paul
Bill Wilde, MPCA, St. Paul
Anna Bosch, MPCA, Brainerd
Phil Votruba, MPCA, Brainerd
Amy Adrihan, MPCA, Duluth
Ken Westlake, U.S. Environmental Protection Agency

Appendix B. Comments on PSP

August 24, 2019

Nora Rosemore
Hydro Operations Superintendent
Minnesota Power/ALLETE
30 West Superior Street
Duluth, MN 55802-2093

RE: Minnesota Power/ALLETE Application to Relicense Grand Rapids Hydroelectric Project (FERC No. 2362) and the Prairie River Hydroelectric Project (FERC No. 2361)
Itasca County, Minnesota
SHPO Numbers: 2018-2716 (Grand Rapids) and 2018-2723 (Prairie River)

Dear Ms. Rosemore,

Thank you for the continuing consultation with our office regarding the above project. Information received on June 4, 2019 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 (NHPA) and implementing federal regulations at 36 CFR Part 800.

We last wrote to you on September 6, 2018 following our review of initial information regarding Minnesota Power/ALLETE's proposal to request federal relicensing from the Federal Energy Regulatory Commission (FERC) for both the Grand Rapids and Prairie River Hydroelectric Projects in Itasca County, Minnesota.

Since then, in accordance with 36 CFR 800.2(C)(4), on February 7, 2019, the FERC provided written notification designating Minnesota Power/ALLETE (MP) as the agency's non-federal representative for carrying out informal consultation with our office pursuant to Section 106 of the NHPA.

We have completed a review of your letter dated May 30, 2019, a submittal which included the Proposed Study Plan (PSP) dated May 28, 2019 for the Grand Rapids (FERC No. 2362) and Prairie River (FERC No. 2361) Hydroelectric Projects (Projects) which has been prepared by MP in accordance with the federal agency's requirements for proposed relicensing.

Pursuant to 36 CFR 800.3, it is the responsibility of the federal agency, or delegated agent, to define the undertaking subject to Section 106 review and to initiate consultation process with our office and others. Pursuant to 36 CFR Part 800.4-5, in consultation with our office and others, including Native American tribes, the agency, or delegated agent as in this case, is required to define and document the area of potential effect (APE) for the federal undertaking, identify and evaluate historic properties that may be affected by the proposed federal undertaking (including re-evaluating properties previously determined eligible or ineligible that, due to the passage of time, may be considered incomplete by today's standards) within the defined APE, and to assess adverse effects to historic properties, if any.

Your May 30th letter explains that the PSP has been submitted for purposes of providing our office the opportunity to review and comment on MP's scope of efforts to identify historic properties within the APE for the proposed federal undertaking(s). We understand that MP requests that our office provide concurrence on the "appropriateness of the APE" and on the "adequacy of the proposed historic property identification efforts." We have completed a review of the information presented in the PSP in this regard and this letter serves to provide meaningful comment for MP's consideration moving forward in the Section 106 consultation process for the proposed undertaking(s).

Define Federal Undertaking and Area of Potential Effect (APE)
Based upon information provided to our office up until this point, we understand that, due to the geographic proximity of both of the hydroelectric projects, MP has requested a combined FERC relicensing process for the Projects. We also understand, as presented in Scoping Document 2 (May 16,2019), that FERC intends to prepare a multi-project Environmental Assessment to evaluate probable environmental effects, including cumulative effects, of the proposed action and alternatives, as required by the National Environmental Policy Act (NEPA). Therefore, if we are understanding correctly, the "proposed action" under NEPA is the proposed relicensing of both Projects together. As such, although not clearly articulated in either FERC or MP documents thus far, a resource agency such as ours would understand that we are to consider the two (2) projects combined as a single federal undertaking subject to review and consultation under Section 106 of the NHPA.

Unfortunately, this understanding is complicated by the fact that MP has prepared two (2) separate study plans for each of the Projects, included as Appendix E ("Cultural Resources Study Plan" for Grand Rapids) and Appendix I ("Prairie River Project Cultural Resources Study") of the PSP.

Until further clarification, because they have been presented as 2 separate proposed cultural resources studies, we will consider the Projects as separate federal undertakings until we have received clarification from both FERC and MP. Although the comments and recommendations presented in this letter follow the above assumption, in order to effectively move forward with consultation under Section 106, we request written clarification from either FERC or MP in this regard, providing a clear definition of the federal undertaking in accordance with 36 CFR 800.3(a) and 800.16(y).

Regarding MP's "tentatively proposes" a definition of the Area of Potential Effect (APE) for each Project, and the description is identical in terms of narrative description ("Task 1" on page 3 in each plan):

> *The APE for the Grand Rapids/Prairie River Hydroelectric Project includes all lands and waters within the FERC Project boundary and also lands and properties outside of the Project boundary where Project-related activities that are conducted in compliance with the FERC license may affect historic properties.*

We generally agree with the proposal to include, at a minimum, the FERC Project boundary as a baseline APE for purposes of Section 106 consultation. Unfortunately, aside from the specific reference to FERC Project boundaries which are clearly, although only partially, documented in other parts of the PSP, these APE definitions are fairly general and no further description or map documentation is provided in the respective study plans. Therefore, we are unable to provide specific comment on the proposed APEs included in each study and, following clarification from FERC regarding whether we are to consider the Projects as 1 or 2 federal undertakings, we look forward to additional consultation with MP in order to define and document appropriate APEs taking into consideration the guidance provided in 36 CFR 800.16(d). As a framework future Section 106 consultation, and paraphrasing the APE is defined as:

- the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties; and
- is influenced by the scale and nature of the undertaking.

Defining and documenting the APE is a critical first step in the Section 106 process as it provides the geographic basis for historic property identification efforts and we look forward to participating in consultation to complete this step in the process.

The narrative under Task 1 also indicates that MP will consult with our office and "potentially affected Indian Tribes." It is important to note that, along with our office, consulting parties in the Section 106 process will need to include any party, including Native American tribes with ancestral interest in the APE's geographic area, who

express an interest in the undertaking or concern with the undertaking's potential effects to historic properties. Historic properties include properties identified by tribes as having religious or cultural significance, on or off tribal lands, therefore it is critical that FERC, through its government-to-government consultation with tribes regarding the proposed undertakings, identify and engage the appropriate tribes in consultation. It is our understanding that, unlike delegation to consult with our office and others, this government-to-government consultation cannot be delegated to the applicant for federal assistance. Therefore, moving forward, it will be important for FERC to provide clarification to all consulting parties regarding which tribes have expressed an interest in consultation and will be participating in the Section 106 process.

Identification of Historic Properties

As noted in this letter, additional clarification and documentation will need to be completed as it pertains to the defined federal undertaking(s) and the appropriate APE(s). Until these are clarified, we will only be able to provide very general feedback regarding MP's proposed scope of historic property identification efforts as they have been presented in the PSP. Also, although we appreciate the opportunity to review and comment on these tasks, we feel it is important to clarify that there are no provisions under the Section 106 regulations that require concurrence from our office regarding the agency's, or delegated agent's, definition of the APE or scope for historic property identification efforts.

Our comments, as provided below, pertain to each plan as proposed as we noticed the narratives for Grand Rapids and Prairie River are the same in the PSP.

The proposed scope of historic property identification efforts are described under Section 7.3, Task 3, Section 7.4 Task 4, and Section 8 of the plan. Indication is given that MP proposes to undertake and complete a reconnaissance-level survey within the Project's APE and provides further detail in reference to the Secretary of the Interior's *Standards for Archaeology and Historic Preservation* (Standards), in terms of meeting professional standards for consultants as well as the methodologies for identification of historic properties, and associated state survey guidelines.

We agree that the approach, as described in the PSP, is appropriate as it is generally reflective of contemporary federal historic property survey standards and guidelines, as well as current state guidance. We provide the following recommendations as MP proceeds to finalize the PSP and historic property identification plans for the Projects:

- The state's current survey manuals are entitled "Historic and Architectural Survey Manual" (June 2017) and "SHPO Manual for Archaeological Projects in Minnesota" (July 2005) and are incorrectly cited in the PSP;
- The narrative description for reconnaissance-level survey is reflective of what is defined as a "Phase I" survey in Minnesota and is not intended to include intensive-level survey and evaluation of properties identified as part of Phase I survey as being potentially eligible for listing in the National Register of Historic Places (NRHP);
- Clarification is needed in the PSP that the intent and result of any Phase I reconnaissance-level survey is to develop an appropriate level of historic context (both archaeological and historic) in order to identify properties determined to be either likely, or not likely, NRHP-eligible and therefore either warranting, or not warranting, further intensive-level survey and evaluation;
- Survey of non-archaeological properties should not limited to "properties of architectural significance" as described in the PSP and will need to include any properties, archaeological or historic/architectural, meeting the criteria for listing in the NRHP in any of the following categories: buildings, structures, sites, districts, or objects;
- The survey will need to consider the previously surveyed and evaluated historic properties, including those that may have been determined to be not NRHP eligible due to age at the time of previous

relicensing, or may be defined as incomplete prior evaluations by today's standards;

- Our office is typically not able to provide concurrence with NRHP-eligibility based upon the results of Phase I reconnaissance-level survey;
- We recommend that any properties identified and recommended as warranting further intensive-level survey as part of Phase I surveys, to be evaluated as part of MP's responsibilities under Section 106 and in conformance with 36 CFR 800.4(c);
- As such, clarification is needed as to MP's intent to complete intensive-level survey ("Phase II") of properties determined to warrant additional survey and evaluation during the Phase I survey as it will be critical for the studies to be comprehensive, identify all historic properties (either listed in or eligible for listing in the NRHP) within the APE, in order to fully meet the federal agency's responsibilities under 36 CFR 800.4;
- This historic property identification effort is an essential second step in the Section 106 process, and we will not be able to move forward in subsequent steps in the Section 106 process, including assessment of potential effects, until identification efforts meeting the companion regulatory requirements have been completed and all consulting parties have been given the opportunity to review and comment on the results;
- The referenced Cultural Resources Management Plans (CRMPs) for each Project were approved by FERC in 1995 (Prairie River) and 1996 (Grand Rapids) and it is our opinion that, while these plans are reflective of Section 106 best practices from 25 years ago, they are now considered out-of-date and are not reflective of the current Section 106 regulations (2004) or the guidelines for Historic Properties Management Plans (HPMPs) as agreed to by the FERC and Advisory Council on Historic Preservation in 2002;
- Unless otherwise directed by FERC, we recommend that clarification is provide in the PSP regarding development and implementation of new, replacement HPMPs for each Project; and
- Correction is needed in the narrative under Section 8.0 to clarify that Phase I survey, and preferably Phase II survey as well, not "Phase Ia", will be completed as part of Task 3.

We look forward to continuing Section 106 consultation with FERC and Minnesota Power/ALLETE regarding these Projects. Please feel free to contact me if you have any questions regarding our comment letter and/or would like to discuss next steps in the consultation process. I can be reached at (651) 201-3290 or by e-mail at sarah.beimers@state.mn.us.

Sincerely,

Sarah J. Beimers
Environmental Review Program Manager

Document Content(s)

MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

September 9, 2019

Nora Rosemore
Hydro Operations Superintendent
Minnesota Power
30 West Superior Street
Duluth, MN 55802-2093

Greg Prom
Environmental Compliance Specialist
Minnesota Power
30 West Superior Street
Duluth, MN 55802-2093

RE: Federal Energy Regulatory Commission Relicensing for Prairie River (P-2361) and Grand Rapids (P-2362) Hydroelectric Projects - Request for Additional Monitoring

Dear Nora Rosemore and Greg Prom:

The Minnesota Pollution Control Agency (MPCA) values Minnesota Power and the ongoing partnership between our two organizations to protect water quality in Minnesota. The MPCA submitted a comment letter to the Federal Energy Regulatory Commission (FERC) on April 11, 2019, on Scoping Document 1, and requested additional studies be conducted in connection with the Prairie River and Grand Rapids projects (Project). After our review of the recently submitted Scoping Document 2, it does not appear all recommendations have been incorporated into your project scope.

As you are aware, Prairie Lake was recently removed from the MPCA 303(d) Impaired Waters List due to exceedances of regional eutrophication standards. Monitoring data shows phosphorus levels are very near the threshold for impairment, and additional eutrophication monitoring for total phosphorus, chlorophyll-a and Secchi transparency is recommended to ensure water quality standards continue to be met. As such, MPCA is proposing Minnesota Power include these additional eutrophication monitoring parameters into your existing monitoring plan at a time interval which brackets the MPCA's 10-year monitoring schedule for Prairie Lake.

There is relatively little existing information on the impoundments behind the Prairie River and Grand Rapids Project dams. Because of the long duration of a FERC license (40 to 50 years), we believe that conducting additional monitoring and gathering data will help development a water quality history for the current relicensing project, as well as future relicensing activity.

Recommendations for Additional Monitoring and Parameters:

The MPCA supports Minnesota Power's proposal to conduct temperature and dissolved oxygen analysis at each Project from May through October. We request the additional monitoring for the following parameters at Main Upper Basin Prairie Lake site — 31-0384-02-201 including:

- Chlorophyll-a
- Secchi disk
- Total phosphorus

This monitoring should be completed monthly, June-September in 2020 and 2021. We request data be submitted electronically to the MPCA.

The MPCA appreciates Minnesota Power's ongoing efforts towards water quality protection. Thank you for your consideration of our request. If you have any questions concerning our review of this Project, please contact Bill Wilde by email at william.wilde@state.mn.us or by telephone at 651-757-2825.

Sincerely,

Anna Hotz
Supervisor, Agency Rules Unit
Resource Management and Assistance Division

AH/BW:ds

cc: Anna Bosch, MPCA, Brainerd
Phil Votruba, MPCA, Brainerd
Seth Goreham, MPCA, Brainerd
Jesse Anderson, MPCA, Duluth
Phil Monson, MPCA, St. Paul
Ken Westlake, U.S. Environmental Protection Agency

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D. C. 20426
August 21, 2019

OFFICE OF ENERGY PROJECTS

Project No. 2361-055– Minnesota
Prairie River Hydroelectric Project
Project No. 2362-043– Minnesota
Grand Rapids Hydroelectric Project
Allete, Inc.

VIA FERC Services

Nora Rosemore
Minnesota Power
30 West Superior Street
Duluth, Minnesota 55802-2093

Reference: Staff Comments on the Proposed Study Plan for the Grand Rapids and Prairie River Hydroelectric Projects

Dear Ms. Rosemore:

We have reviewed Allete, Inc.'s (Allete) proposed study plan for the Prairie River and Grand Rapids Hydroelectric Projects filed on May 28, 2019. We provided verbal comments on the proposed study plan during the June 20, 2019 study plan meeting.[1] In addition to the verbal comments, we are providing written comments pursuant to section 5.12 of the Commission's regulations on the proposed schedule, Water Quality, and Cultural Resources studies. We encourage Allete to take those comments into consideration during the development of the revised study plan, which must be filed with the Commission by September 24, 2019.

[1] Allete filed additional information on August 5, 2019 in response to comments provided during the study plan meeting.

Project No. 2361-055
Project No. 2362-043

Comments are provided in the attached Schedule A. If you have any questions, please contact Laura Washington at laura.washington@ferc.gov or (202) 502-6072.

Sincerely,

Janet Hutzel

Janet Hutzel, Chief
Midwest Branch
Division of Hydropower Licensing

Enclosure: Schedule A

SCHEDULE A

Comments on the Proposed Study Plan

Proposed Schedule

1. For the Water Quality and Cultural Resources studies, you state that due to the length of these studies, the final study reports will not be provided in the Initial Study Report, due by October 23, 2020. Instead, you propose to file these reports with the Draft License Application, due by August 3, 2021.

To ensure that information is available for stakeholder review as part of the Initial Study Report, in accordance with section 5.15(c) of the Commission's regulations, Allete, Inc. (Allete) must file a report that describes the overall progress and data collected for these studies, even though the studies may not be complete when the Initial Study Report is filed. Section 5.15(c) also states that an explanation of any variance from the study plan and schedule, if any, must be included in the report.

Water Quality

2. In section 7.0, *Methodology*, Allete proposes to collect water temperature and dissolved oxygen (DO) data on a randomly selected day, twice a month, from May 1, 2020 to September 30, 2020, at each project. As stated in staff's comments on the preliminary study plans, issued April 5, 2019, the proposed study should describe any temporal variations in DO and temperature at the projects. However, the proposal to randomly sample twice a month could yield clustered sampling dates, which may not properly capture seasonal changes in DO and temperature at the projects. Therefore, please modify the sampling schedule to collect data on a biweekly basis over the course of the study period. Additionally, timing of river and bypass reach sampling should coincide with reservoir sampling efforts.

3. In section 7.0, *Methodology*, Allete proposes to collect DO and temperature readings at one meter intervals and record GPS coordinates at each sampling site. However, more information is needed to describe existing conditions and how the operations of the projects may affect water quality. Therefore, using generally accepted practices in the scientific community, please include the following provisions in the revised study plan:

a. For each downstream and bypass reach sampling location, measurements of DO and temperature should be taken at the surface, middle, and bottom of the water column and include corresponding depth measurements.
b. Identify and record the habitat type at each downstream and bypass reach sampling location (i.e., pool, run, riffle, etc.).

c. Include pictures of each sampling location.
d. During each sampling event, record the reservoir surface elevation.
e. During each sampling event for the Grand Rapids Project, record discharge (cubic feet per second) from USGS stream gage #05211000 located near the project.
f. During each sampling event downstream of the Prairie River Project, calculate the prorated discharge (cubic feet per second) from USGS stream gage #05212700 located upstream from the project.[2]
g. During each sampling event in the bypass reach of the Prairie River Project, record the discharge (cubic feet per second) that is being passed into the bypassed reach, along with an explanation of how this discharge was determined.

4. Section 8.0, *Schedule and Deliverables*, provides an outline for the report with section titles, including "Study results" and "Analysis and discussion." However, Allete did not provide any details regarding presentation of results or analysis. Therefore, please include the following in the revised study plan:

a. An analytical summary and graphical representations of the data, including average temperature and DO concentration with associated measures of confidence.
b. A histogram of depth, temperature, and DO within the reservoirs and a graphical representation of any changes of these components over the duration of the study period.
c. A histogram of depth, DO, and temperature content, and a graphical representation of any changes of this component over the duration of the study period for all downstream and bypass reach sampling locations.
d. An appendix to the report that includes all data points used to develop the report (including date and time of collection).

Cultural Resources

5. In the proposed cultural resources studies for the Grand Rapids and Prairie River Projects, Allete proposes a Phase 1A Reconnaissance Survey of the projects' Areas of Potential Effects (APE), consisting of an archival review and a visual survey of the reservoir shoreline, which may include limited shovel testing. However, in a letter filed on August 5, 2019, you clarify that shovel testing would be done in all areas that: (1) have a high archaeological potential; (2) have not been previously surveyed; or (3) where project-related effects have a potential to effect historic properties. The proposed cultural resources study, as described in the August 5, 2019 letter, is consistent with the

[2] Flows from the Prairie River at USGS stream gage #05212700 gage should be prorated to the Prairie River Project location based on the ratio of drainage area between the gaged site and the project site. Methods should be the same as those used in the Pre-Application Document to calculate discharge.

methodology of a Phase I cultural resources survey. A Phase I cultural resources study typically includes: (1) defining the APE though consultation with the State Historic Preservation Officer (Minnesota SHPO) and interested tribes; (2) an archival review; and (3) a survey of the APE with systematic shovel testing in areas with a high potential for archaeological resources. Therefore, please revise the language of the Proposed Study Plan from a "Phase IA" study to a "Phase I" study, and include the methodology of the reconnaissance survey as described in the August 5, 2019 letter and paraphrased above.

6. In Appendixes I and E, Allete states that the cultural resources survey would include the entire APE; however, in *Task 3- Reconnaissance Survey* of appendixes I and E, Allete states that the reconnaissance survey would include a visual survey of the exposed portions of the reservoir shoreline. In order to determine potential project-related effects on historic resources, all historic resources within the entire project APE must be identified. Please revise the study to state that the entire APE, as determined after consultation with the Minnesota SHPO, would be included in the reconnaissance survey.

Document Content(s)

Appendix C. Grand Rapids Project Water Quality Study

Water Quality Study Plan

Grand Rapids Hydroelectric Project

(FERC No. 2362)

September 2019

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1.0 Study Requests

The Federal Energy Regulatory Commission's (FERC or Commission) February 7, 2019, Scoping Document 1 (SD1) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Grand Rapids Hydroelectric Project (Project) relicensing:

- Effects of continued operation of the Projects on water quality (e.g., dissolved oxygen [DO] levels and water temperature)

In Section 6.2.2 of the Pre-Application Document (PAD) (MP 2018), ALLETE, Inc., d/b/a Minnesota Power (MP) proposed to conduct a Water Quality Study to monitor DO and temperature at the Project. FERC filed comments on the proposed Water Quality Study in a letter dated April 5, 2019. In a letter dated April 11, 2019, the Minnesota Pollution Control Agency (MPCA) supported the proposed Water Quality Study and proposed additional parameters to be analyzed.

2.0 Goals and Objectives

The Water Quality Study will collect information and establish recent baseline information on water quality in the vicinity of the Project to further expand on the extensive water quality data that has been collected historically. The study will employ standard methodologies that are consistent with the scope and level of effort of water quality monitoring conducted at hydropower projects in the region. The information collected by this study will be used to determine the Project's potential effects on water quality and provide water quality data sufficient to determine compliance with applicable water quality standards (Minnesota Statute Chapter 7050) and designated uses.

3.0 Resource Management Goals

The State of Minnesota has established water quality standards (Minnesota Statute Chapter 7050) to protect water resources for uses such as fishing, swimming, and other recreation and to sustain aquatic life. These rules are administered by the MPCA, who is the lead 401 Water Quality Certification Agency. The Minnesota Department of Natural Resources (MDNR), Minnesota Board of Soil and Water Resources (BSWR), and local agencies also play a role in water quality protection (MPCA undated).

4.0 Public Interest

FERC and MPCA expressed interest in this study.

5.0 Background and Existing Information

Existing relevant and reasonably available information regarding water quality in the Project vicinity was presented in Section 5.3.7.1 of the PAD (MP 2018). The PAD included historical water quality data collected in the vicinity of the Project including upstream of the Project, downstream of the Project, and within Blandin Reservoir. The data collected ranges from 1990 – 2017. The data generally depicts DO concentrations downstream of Blandin Dam are typically above the minimum state criterion (MPCA 2018).

6.0 Project Nexus

The Project impounds water at Blandin Dam. Operation of the hydropower facility may affect water quality parameters such as DO and temperature in the Project's impoundment and immediate downstream area.

7.0 Methodology

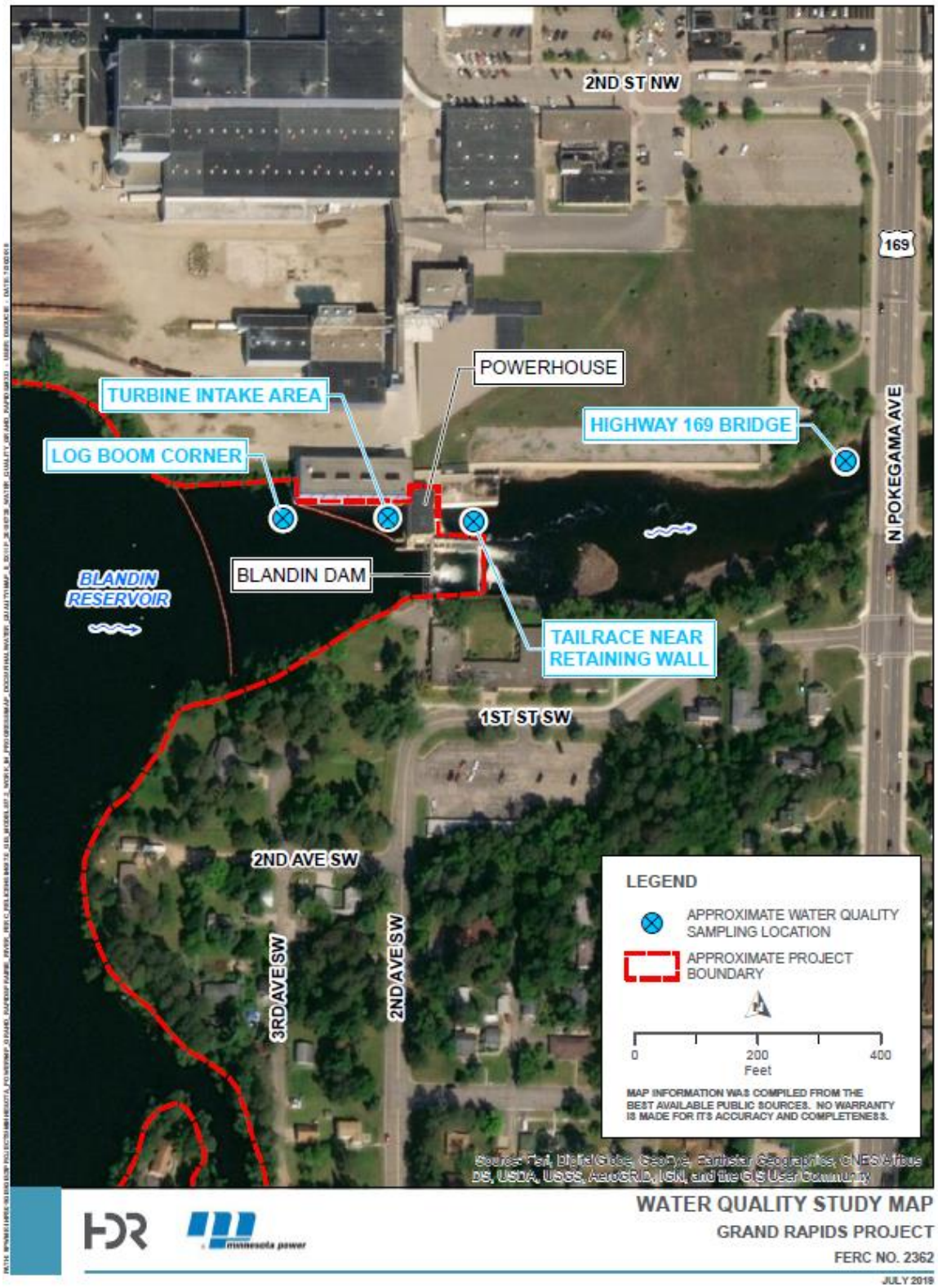
7.1 Water Temperature and DO Monitoring

MP will to monitor DO and water temperature at the following general locations at the Project:

1. Blandin Reservoir – log boom corner;
2. Blandin Reservoir – turbine intake area;
3. Tailrace near retaining wall; and
4. Upstream of Highway 169 Bridge.

These locations are depicted in Figure 7-1.

Figure 7-1
Water monitoring locations at the Grand Rapids Project



Safety concerns related to monitoring device retrieval will be taken into consideration when determining the specific sampling locations. Water quality sampling will be taken with a YSI model 556 portable DO/temperature meter fitted with a DO membrane probe and temperature probe. The meter will be calibrated at the start of the day before the sample sets are collected. The meter will be calibrated according to manufacturer instructions. The calibration method which will be used is an air calibration method in percent (%) saturation. DO and temperature values will be recorded directly from the meter. Care will be taken to insure the DO probe membrane is in working condition and will be replaced as needed.

The upstream dam sampling locations will be collected at 1-meter intervals from surface to bottom of the water column for DO and temperature. For the tailrace area near the retaining wall and upstream of Highway 169 Bridge sampling locations, measurements of DO and temperature will be taken at the surface, middle, and bottom of the water column and include corresponding depth measurements.

All water quality monitoring locations will be georeferenced using Global Positioning System (GPS). These GPS locations will be included in a Geographic Information Systems (GIS) database layer to support the documentation and reporting of collected data.

The DO and water temperature measurements will be collected on a biweekly basis (every other week to avoid data clustering) from May 1, 2020 to September 30, 2020.

Additional information will be documented during the course of the study:

1. Discharge at the Project as recorded at the USGS stream gage #05211000 will be recorded during each sampling event;
2. Identification and recording of the habitat type at the tailrace area near the retaining wall and upstream of Highway 169 Bridge sampling locations (i.e., pool, run, riffle);
3. Pictures will be taken at each sampling location; and
4. Reservoir surface elevation will be recorded during each sampling event.

8.0 Schedule and Deliverables

Results of this study will be summarized in the final study report. MP anticipates that the Water Quality Study Report will include the following elements:

1. Project information and background
2. Study area

3. Methodology
4. Study results
5. Analysis and discussion including:
    - An analytical summary and graphical representations of the data, including average DO concentration and temperature with associated measures of confidence.
    - A histogram of depth, DO, and temperature within the reservoir and a graphical representation of any changes of these components over the duration of the study period.
    - A histogram of depth, DO, and temperature in the downstream reach sampling locations and a graphical representation of any changes of this component over the duration of the study period.
    - An appendix to the report that includes all data points used to develop the report (including date and time of collection).
6. Agency correspondence and/or consultation
7. Literature cited

MP anticipates the monitoring associated with this study will be completed by the end of September 2020. Due to the length of this study, the final study report may not be provided in the Initial Study Report that will be distributed to stakeholders and filed with FERC in October 2020. If the final study report is not complete by the ISR filing, MP will incorporate a description of the overall progress and data collected and will file the final study report as soon as possible. The estimated level of effort for this study is approximately 150 hours. MP estimates that this study will cost approximately $18,000 to complete.

9.0 Discussion of Alternative Approaches

MP has wholly incorporated FERC's August 21, 2019, comments on the PSP. The proposed methods for this study are consistent with accepted professional practices. The overall approach is commonly used in relicensing proceedings and is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC's study requirements under the ILP. No alternative approaches to this study are warranted.

10.0 References

Minnesota Pollution Control Agency (MPCA). 2018. Mississippi River – Grand Rapids Watershed Monitoring and Assessment Report. Published June 2018.

Minnesota Pollution Control Agency (MPCA). Undated. Clean Water Act Section 401 Water Quality Certifications. [Online] URL: https://www.pca.state.mn.us/water/clean-water-act-section-401-water-quality-certifications. Accessed: March 12, 2019.

Minnesota Power (MP). 2018. Pre-Application Document, Volume I of II, Grand Rapids Hydroelectric Project (FERC Project No. 2362) Prairie River Hydroelectric Project (FERC Project No. 2361). Prepared by HDR Engineering, Inc. for Minnesota Power. December 13, 2018.

Appendix D. Grand Rapids Project Desktop Entrainment and Impingement Study

Fish Entrainment and Impingement Study Plan

Grand Rapids Hydroelectric Project

(FERC No. 2362)

September 2019

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1.0 Study Requests

The Federal Energy Regulatory Commission's (FERC or Commission) February 7, 2019, Scoping Document 1 (SD1) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Grand Rapids Hydroelectric Project (Project) relicensing:

- Effects of continued operation of the Project on impingement, entrainment, and turbine-induced fish mortality.

In Section 6.2.3 of the Pre-Application Document (PAD) ALLETE, Inc., d/b/a Minnesota Power (MP) proposed to conduct a desktop entrainment and impingement study at the Project. FERC provided comments on the Fish Entrainment and Impingement Study in their April 5, 2019, PAD comment letter, which have been addressed in this study plan. No other formal comments or study requests were received regarding fish entrainment and impingement.

2.0 Goals and Objectives

The goals and objectives of the Fish Entrainment and Impingement Study are to:

- Describe the physical characteristics of the powerhouse and intake structures including location, dimensions, turbine specifications, trashrack spacing, and field collection of intake velocities that could influence entrainment.
- Describe the local fish community and compile a target species list for entrainment analysis.
- Use intake velocities, trashrack spacing, target fish swim speeds, and other Project specifications to conduct a desktop impingement assessment.
- Conduct a desktop analysis that incorporates the impingement assessment, Project specifications, and hydrology to quantify turbine entrainment and mortality at the Project.

3.0 Resource Management Goals

Multiple agencies have resource management goals relevant to this study. The Minnesota Department of Natural Resources' (MDNR) mission statement is to conserve and manage Minnesota's aquatic resources and associated fish communities for their intrinsic values and long term ecological, commercial, and recreational benefits to the people of Minnesota (MDNR 2019). The waters in the

Grand Rapids Project and Project vicinity are designated by the Minnesota Pollution Control Agency (MPCA) as cool and warm water aquatic life and habitat and wetlands (MPCA 2018).

4.0 Public Interest

FERC expressed interest in this study.

5.0 Background and Existing Information

Existing relevant and reasonably available information regarding the fish community in the Project vicinity was summarized in Section 5.4.2 of the PAD. Studies conducted by Minnesota Department of Natural Resources (MDNR) in Blandin Reservoir from 1973-2012 indicated a dominance of yellow perch (*Perca flavescens*), pumpkinseed (*Lepomis gibbosus*), hybrid sunfish, bluegill (*Lepomis macrochirus*), black bullhead (*Ameiurus melas*), yellow bullhead (*A. natalis*), bowfin (*Amia calva*), shorthead redhorse sucker (*Moxostoma macrolepidotum*), white sucker (*Catostomus commersonii*), largemouth bass (*Microterus salmoides*), smallmouth bass (*Micropterus dolomieu*), rock bass (*Ambloplites rupestris*), northern pike (*Esox lucius*), and black crappie (*Pomoxis nigromaculatus*). Blandin Reservoir has been stocked with Walleye (*Sander vitreus*) and Muskellunge (*Esox masquinongy*) since 1971, by both MDNR and private citizens/sporting groups (MP 2018).

An impingement characterization study was performed in 2017 by MP on the traveling water screen of the cooling water intake structure located near Blandin Dam for compliance with Section 316 (b) of the Clean Water Act (CWA). Fish were collected on several dates from May 2016 to May 2017. The collection was dominated by bluegill and black crappie, followed by yellow perch and largemouth bass (MP 2018).

6.0 Project Nexus

Downstream fish passage through hydroelectric dam intakes and turbines may cause injury or mortality by impingement against trashracks or entrainment through a turbine as a result of Project operations. Entrainment injuries and mortalities can result from fish coming into contact with the turbine blades or other mechanical components and/or pressure changes and cavitation.

7.0 Methodology

A desktop evaluation of the potential for fish impingement, entrainment, and turbine mortality will be performed to achieve the objectives described in Section 2.0. This evaluation will make use of the

extensive amount of existing fish community information, hydrology data, and structural/operational characteristics of the Project to quantify turbine entrainment and mortality for select species. The only potential field component would be to collect intake velocities at the Project depending on the feasibility and safety considerations.

7.1 Task 1 – Consultation with Interested Stakeholders

MP will coordinate with interested stakeholders who express an interest in participating in this study at the Proposed Study Plan (PSP) meeting and through subsequent comments filed on the PSP or the Revised Study Plan (RSP).

7.2 Task 2 – Describe the Physical Characteristics and Water Chemistry Characteristics of the Project that may influence Fish-related Turbine Entrainment, Impingement, and Survival

Physical and operational data for the Project including reservoir surface area, volume, average depth, and retention time will be obtained. Maps and available drawings of the dam and powerhouse may be reviewed to gather information related to total head, intake depth and size, the number, type, orientation, trashrack clear spacing, and other relevant powerhouse/turbine specifications necessary to perform the study. Many of these physical and operational data are summarized in the PAD, although further review of Project drawings may be necessary.

Water quality profile data collected as part of the Water Quality Study will be used to describe reservoir water quality conditions and potential influence on fish entrainment.

7.3 Task 3 – Intake Velocity Data Collection

Velocity measurements and/or the calculated average approach velocity will be completed one foot in front of the existing trashrack structure. If feasible, measurements will be collected using an Acoustic Doppler Current Profiler (ADCP) or similar technology. In the event that approach velocity measurements are not possible due to river flow conditions or safety-related concerns, calculated approach velocities will be used. Calculation of approach velocities will be determined by dimensions/spacing of trash racks, pumping rate, intake width, and water depth.

7.4 Task 4 – Describe the Species Composition of the Existing Fish Community and Select a Subset of these Species for the Entrainment Assessment

Results of the existing fisheries information (MP 2018, MDNR 2018) will be used to describe the fish communities that may be susceptible to turbine entrainment. This is expected to include information

related to spatial and temporal characteristics, life histories, swimming speeds, and avoidance behavior of target fish species larval, juvenile, and adult life stages. A target species list will be compiled for the entrainment assessment that is expected to include species of management concern (fish stocked by MDNR), as well as the dominant species reported by MDNR in Blandin Reservoir from 1973-2012. The expected susceptibility of these species to entrainment based on varying life stage periodicities, abundance at the Project, and potential "cold stress" related entrainment will be included.

7.5 Task 5 – Assess the Potential for Trashrack Exclusion and/or Impingement of the Target Species

Information gathered as part of Tasks 1 through 3 will be used to assess the potential for trashrack exclusion and vulnerability to impingement/entrainment. This will incorporate the trashrack clear spacing, intake velocities, swimming speeds, and body scaling factors. Body scaling factors (documented body width to body length proportions) will be calculated from empirical data to determine minimum lengths of target species physically excluded from the trashrack spacing. Such exclusions will be factored into the individual entrainment and mortality estimates.

7.6 Task 6 – Determine Monthly Turbine Entrainment Rates from Existing Empirical Data and Utilize these Rates to Estimate Monthly Turbine Entrainment for the Target Species using Existing Hydrology and Project Operations

A literature review of turbine entrainment field studies conducted at other hydroelectric projects will be performed to compile entrainment rates for target species. The primary sources of turbine entrainment information may include, but does not have to be limited to, the comprehensive Turbine Entrainment and Survival Database Field Tests prepared by the Electric Power Research Institute (EPRI 1997). For comparing entrainment potential between studied facilities and the Project, the EPRI database includes test data from 43 hydroelectric sites that used full-flow tailrace netting techniques to estimate the number, species, and sizes of fish entrained. Other principal sources of entrainment data include Stone & Webster Environmental Services (1992) and FERC (1995). Monthly entrainment rates will be determined for each of the target species or surrogate/guild representatives available in the literature. Monthly entrainment estimates for each target species will be calculated using the entrainment rate, hydrological, and operational information. Monthly flow duration curves for a representative dry, average, and wet water year will be utilized, in addition to operational parameters, to provide the estimated average and potential range of entrainment. Target fish species abundance data may be incorporated into the entrainment estimates to account for local fish community makeup in relation to the entrainment rates determined from the literature.

7.7 Task 7 – Calculate Turbine Mortality for the Range of Target Species' Sizes Expected to Become Entrained and Apply this to the Monthly Entrainment Estimates

A literature review of turbine mortality field studies conducted at other hydroelectric projects will be performed to compile fish survival rates applicable to the Project. The primary sources of turbine survival information may include, but does not have to be limited to, the comprehensive Turbine Entrainment and Survival Database Field Tests prepared by EPRI (EPRI 1997).

In addition to the literature review, a blade strike analysis will be performed to calculate turbine mortality rates at the Project. It has been suggested that the majority of fish mortalities at low head dams (<100 ft) are caused by fish striking a blade or other component of the turbine unit. Estimates of survival for each target species based on the blade strike analysis and literature review findings will be developed, and these survival estimates will be applied to the entrainment estimates for overall Project assessments.

8.0 Schedule and Deliverables

Results of this study will be summarized in the final study report. MP anticipates that the Fish Entrainment and Impingement Study Report will include the following elements:

- Project information and background
- Study area
- Methodology
- Study results
- Analysis and discussion
- Agency correspondence and/or consultation
- Literature cited

MP anticipates that this study will be completed by July 2020. The study report will be prepared and provided to the applicable parties in conjunction with the Initial Study Report (ISR) that will be distributed to stakeholders and filed with FERC in accordance with FERC's Integrated Licensing Process (ILP) Plan and Schedule. The estimated level of effort for this study is approximately 240 hours. MP estimates that this study will cost approximately $30,000 to complete.

9.0 Discussion of Alternative Approaches

Desktop entrainment and impingement studies are consistent with generally accepted practices in the scientific community. The overall approach is commonly used in relicensing proceedings and is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC study requirements under the ILP. No alternative approaches to this study are warranted.

10.0 References

Electric Power Research Institute (EPRI). 1997 Turbine entrainment and survival database – field tests. Prepared by Alden Research Laboratory, Inc., Holden, Massachusetts. EPRI Report No. TR-108630. October 1997.

Federal Energy Regulatory Commission (FERC). 1995. Preliminary assessment of fish entrainment at hydropower projects, a report on studies and protective measures, volumes 1 and 2 (Paper No. DPR-10). Office of Hydropower Licensing, FERC, Washington, DC.

Minnesota Department of Natural Resources (MDNR). 2018. Fisheries Lake Surveys: Blandin. Online: [URL] https://www.dnr.state.mn.us/lakefind/showreport.html?downum=31053300.

Minnesota Department of Natural Resources (MDNR). 2019. Our Mission. Online: [URL] https://www.dnr.state.mn.us/aboutdnr/mission.html. Accessed: May 23, 2019.

Minnesota Power (MP). 2018. Pre-Application Document, Volume I of II, Grand Rapids Hydroelectric Project (FERC Project No. 2362) Prairie River Hydroelectric Project (FERC Project No. 2361). Prepared by HDR Engineering, Inc. for Minnesota Power. December 13, 2018.

Minnesota Pollution Control Agency (MPCA). 2018. Water Quality Standards. Online [URL]: https://www.pca.state.mn.us/water/water-quality-standards. Accessed on October 4, 2018.

Stone & Webster Environmental Services. 1992. Fish entrainment and turbine mortality review and guidelines. EPRI Report TR-101232. September 1992.

Appendix E. Grand Rapids Project Recreation Resources Study

Recreation Resources Study Plan

Grand Rapids Hydroelectric Project

(FERC No. 2362)

September 2019

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1.0 Study Requests

The Federal Energy Regulatory Commission's (FERC or Commission) February 7, 2019, Scoping Document 1 (SD1) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Grand Rapids Hydroelectric Project (Project) relicensing:

- Adequacy of existing recreational facilities and public access at the Projects to meet current and future recreational demand.

In Section 6.2.7 of the Pre-Application Document (PAD) (MP 2018), ALLETE, Inc., d/b/a Minnesota Power (MP) proposed to conduct a Recreation Resources Study to evaluate current recreational opportunities and potential improvements. FERC filed comments on the proposed Recreation Resources Study Plan in a letter dated April 5, 2019. These comments included the identification of recreation sites and their ownership and conducting recreation use surveys, spot counts, and report preparation.

2.0 Goals and Objectives

The Recreation Resources Study will collect information regarding current recreation use levels and the condition of the existing Project recreation facilities. The goals and objectives of this study are to:

- Gather information on the condition of the MP-managed, FERC-approved recreation facility and identify any need for improvement; and
- Characterize current recreational use and future demand of the MP-managed FERC-approved recreation facility within the Project Boundary.

3.0 Resource Management Goals

The mission of the Minnesota Department of Natural Resources (MDNR) is to work with citizens to conserve and manage the State's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. The recreation facility within the Project contributes to MDNR's goals by providing outdoor recreation opportunities to the public (MDNR 2019).

4.0 Public Interest

FERC has expressed interest in this study.

5.0 Background and Existing Information

Section 5.8.2 of the PAD describes existing information about recreation facilities and opportunities in the Project area. Article 407 of the current FERC license for the Project requires a Recreation Management Plan (RMP) addressing recreational use and needs at the Project. The RMP for the Project was approved by FERC in 1996, amended in 2002, and most recently updated in April 2018, following a public meeting in March 2018. The FERC approved the plan on May 31, 2018.

The Project supports a variety of recreation opportunities. MP manages a FERC-approved canoe self-portage for recreationists. The canoe self-portage trail take-out and signage are located approximately 1,000 feet upstream of the dam on the southwestern bank of Blandin Reservoir, on land owned by the City of Grand Rapids. MP currently assists the City of Grand Rapids in the maintenance of the take-out area of the FERC-approved canoe self-portage trail. The canoe self-portage extends approximately 0.5 miles along the City of Grand Rapids streets and sidewalks to the put-in site at the City of Grand Rapids' Steamboat Park, approximately 0.3 miles downstream of Blandin Dam.

6.0 Project Nexus

The Project currently provides multiple public recreational opportunities. The results of this study, in conjunction with existing information, will be used to inform analysis in the license application regarding potential Project effects on public recreation and to update the existing Recreation Management Plan, if needed.

7.0 Methodology

7.1 Task 1 - Recreation Facility Inventory and Condition Assessment

MP will perform a field inventory to document the existing MP-managed, FERC-approved canoe self-portage trail at the Project. MP will record the following information for the canoe self-portage trail including:

- A description of the type and location of the existing recreation facility (including relationship to Project Boundary);
- Ownership and party responsible for operation and maintenance of the facility;
- The type of recreation provided;
- Hours and season of operation;
- Length and footing materials of any trails;
- Existing facilities, signage, and sanitation;

- The type of vehicular access and parking (if any);
- General observations of site use, condition, and accessibility;
- Suitability of the facility to provide recreational opportunities and access for persons with disabilities (i.e., compliance with current Americans with Disabilities Act standards for accessible design); and
- Photographic documentation of the recreation facility and Global Positioning System (GPS) location.

7.2 Task 2 – Recreational Use Observation

MP will conduct recreational observations at the MP-managed, FERC-approved canoe self-portage trail. These observations will be conducted over two-hour intervals at different times of day on a rotating basis. A designated observer will visit the area over the course of the traditional recreation season (Memorial Day through Labor Day). MP will conduct the observations and surveys using the following schedule:

Month	Survey and Reconnaissance
May	▪ Two weekend days, one during the Memorial Day Weekend ▪ Two randomly selected weekdays
June	▪ Two weekend days ▪ Two randomly selected weekdays
July	▪ Two weekend days, one the weekend following the 4th of July ▪ Two randomly selected weekdays
August	▪ Two weekend days ▪ Two randomly selected weekdays
September	▪ Two weekend days, one during the Labor Day Weekend ▪ Two randomly selected weekdays

The recreational use observations will represent a snapshot-in-time depicting specific user groups and their activities during randomly selected intervals. An observation form will be filled out by the designated observer during scheduled observation times. These observations will include the following information:

- Date and time;
- Observer;
- Weather conditions;
- Number of people observed;

- Observed activities; and
- Pertinent notes.

To estimate the use of the MP-managed, FERC-approved canoe self-portage trail, MP will utilize methods for deriving recreation user day calculations that were developed for use in FERC Form 80 reporting. MP will use the information collected from recreational use observations to determine the adequacy of current recreational opportunities and estimate future recreational demand.

7.3 Task 3 – Recreational Survey

MP will develop a survey to administer to the recreational users observed during the recreational use observations discussed in Section 7.2. The survey will allow respondents to provide survey responses related to recreation at the Project. The survey will be used to gain user opinions with regard to the existing Project recreation facility and opportunities. The survey will record the number of people in a party, their primary reason (recreational activity) for visiting the Project, their perception of level of use, and their opinions with regard to the amount and types of recreation opportunities offered at the FERC-approved recreation facility.

8.0 Schedule and Deliverables

MP intends to conduct the Recreation Resources Study from May 2020 through September 2020. Upon completion of recreational use observations and surveys, the data will be analyzed and the study report will be prepared and provided to applicable parties in conjunction with the Initial Study Report that will be distributed to stakeholders and filed with FERC in accordance with FERC's Integrated Licensing Process (ILP) Plan and Schedule. The estimated level of effort for this study is approximately 170 hours. MP estimates that this study will cost approximately $20,000 to complete.

Results of the facility assessment and recreational use observations and surveys will be summarized in the final study report. MP anticipates that the Recreation Resources Study Report will include the following elements:

- Project information and background
- Study area
- Methodology
- Study results
- Analysis and discussion
- Any agency correspondence and/or consultation
- Literature cited

9.0 Discussion of Alternative Approaches

The methodology proposed in this plan is appropriate for the size and scope of the Project. The proposed methods for this study are consistent with accepted professional practices. The overall approach is commonly used in relicensing proceedings and is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC's study requirements under the ILP. No alternative approaches to this study are warranted.

10.0 References

Minnesota Department of Natural Resources (MDNR). 2019. Conservation Agenda. [Online] URL: https://www.dnr.state.mn.us/conservationagenda/index.html. Accessed: May 23, 2019.

Minnesota Power (MP). 2018. Pre-Application Document, Volume I of II, Grand Rapids Hydroelectric Project (FERC Project No. 2362) Prairie River Hydroelectric Project (FERC Project No. 2361). Prepared by HDR Engineering, Inc. for Minnesota Power. December 13, 2018.

Appendix F. Grand Rapids Project Cultural Resources Study

Cultural Resources Study Plan

Grand Rapids Hydroelectric Project

(FERC No. 2362)

September 2019

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1.0 Study Requests

The Federal Energy Regulatory Commission's (FERC or Commission) February 7, 2019, Scoping Document 1 (SD1) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Grand Rapids Hydroelectric Project (Project) relicensing:

- Effects of continued project operation on properties that are included in or eligible for inclusion in the National Register of Historic Places.

ALLETE, Inc., d/b/a Minnesota Power (MP) did not propose to conduct a Cultural Resources Study in the Pre-Application Document (PAD). FERC requested MP conduct a Cultural Resources Study by letter dated April 5, 2019. No other formal study requests meeting the Integrated Licensing Process (ILP) study criteria were received regarding cultural resources.

2.0 Goals and Objectives

The Cultural Resources Study will identify potential historic properties within the Project's Area of Potential Effects (APE) and assess the potential effects of continued Project operations and maintenance activities on historic and cultural resources, should any be present. The goals and objectives of this study are to:

- Consult with the Minnesota State Historic Preservation Office (SHPO) and potentially affected federally-recognized Indian Tribes to determine if the APE is appropriate for the Project;
- Conduct background research and an archival review;
- Conduct a Phase 1 Reconnaissance Survey (Reconnaissance Survey) of the Project's APE;
- Consult with federally-recognized Indian Tribes to develop and conduct an inventory of properties of traditional religious and cultural importance (often referred to as "traditional cultural properties") within the APE;
- Assess the condition of the area where any historic and archaeological sites are located for shoreline stability and evidence of erosion; and
- If determined necessary, update the Project's Cultural Resources Management Plan (CRMP) in consultation with the Minnesota SHPO and federally-recognized Indian Tribes to include appropriate measures for the management of historic properties within the Project's APE, including specific protection, mitigation and enhancement measures.

3.0 Resource Management Goals

The National Historic Preservation Act of 1966 provided for a network of historic preservation offices in every state to spearhead state preservation initiatives and help carry out the nation's historic preservation program. Minnesota's SHPO was created by state statute in 1969 to provide statewide leadership.

4.0 Public Interest

FERC and the Minnesota SHPO expressed interest in this study.

5.0 Background and Existing Information

Existing relevant and reasonably available information regarding cultural resources in the Project vicinity was presented in Section 5.10 of the PAD (MP 2018). A Phase I survey was conducted in 1994 at the Grand Rapids Project that included survey of the APE and shoreline of Blandin Reservoir. The survey included 104 shovel tests, two of which contained Native American artifacts. One of the sites was concluded to lack contextual integrity because of shoreline erosion at the time and disturbance by modern construction. The other site evidenced extensive subsurface disturbance and also lacked contextual integrity. Neither site met the criteria of eligibility for nomination to the National Register of Historic Places (NRHP).

Evaluation of historic architectural resources was also conducted. The scope of work for this evaluation included a contextual analysis and survey to evaluate the architectural and engineering significance, as well as overall integrity of the Project facilities. The evaluation found that the standing Project structures were ineligible for the NRHP as all the surveyed structures had been significantly compromised or were constructed outside the period of significance.

Article 405 of the current FERC License required the development of a CRMP in consultation with the Minnesota SHPO. The FERC-approved CRMP requires shoreline erosion monitoring and reporting every five years in consultation with the Minnesota SHPO. Per the most recent report filed in 2016, results of the erosion monitoring concluded that no shoreline erosion has occurred or is currently anticipated to occur, as there is no evidence of erosion, slumping, or slope instability around the reservoir shoreline.

6.0 Project Nexus

At present, there is no evidence that archaeological or historic resources are currently being affected by the Project's operations. However, the Project has the potential to directly or indirectly affect historic properties listed or eligible for inclusion in the NRHP.

7.0 Methodology

7.1 Task 1 – APE Determination

Pursuant to the implementing regulations of Section 106 at 36 CFR § 800.4(a), MP will consult with the Minnesota SHPO and potentially affected Indian Tribes, to determine and document the APE for the Project as defined in 36 CFR § 800.16(d). MP tentatively proposes the following APE:

> *The APE for the Grand Rapids Hydroelectric Project includes all lands and waters within the FERC Project boundary and also lands and properties outside of the Project boundary where Project-related activities that are conducted in compliance with the FERC license may affect historic properties.*

7.2 Task 2 – Background Research and Archival Review

MP will conduct background research and an archival review to inform the specific research design and the historic and environmental contexts. MP will review relevant sources of information that may include, but are not necessarily limited to:

- Information on archaeological sites, historic architectural resources, and previous cultural resource studies on file with Minnesota SHPO;
- A review of Minnesota's NRHP listings in proximity to the Project;
- Historic maps and aerial photographs of the APE;
- Relevant documents related to Project construction;
- Relevant information available from local repositories;
- Information on the current and historical environment, including mapped soils, bedrock geology, physiography, topography, and hydrology in the vicinity of the APE;
- Relevant historical accounts of the Project area;
- Relevant management plans for the Project, including approved management plans; and

- Any additional relevant information made available by the Minnesota SHPO, Indian Tribes, or other stakeholders.

7.3 Task 3 – Reconnaissance Survey

A Reconnaissance Survey will be conducted within the Project's APE. The proposed methods for the Reconnaissance Survey take into account the nature and extent of potential effects on historic properties, and the likely nature and location of historic properties within the APE (36 CFR 800.4(b)(1)). The Reconnaissance Survey will be conducted by a qualified cultural resources professional[1] retained by MP and will be in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 Federal Register [FR] 44716, Sept. 1983) and the Minnesota SHPO's *Manual for Archaeological Projects in Minnesota* (Minnesota Historical Society 2005).

The Reconnaissance Survey will include a visual reconnaissance of the APE. Based on the results of the background literature review and field observations, MP or their consultant will identify any geographic areas within the APE that (a) have archaeological potential; (b) have not previously been surveyed; and (c) where Project-related effects (e.g., shoreline erosion) have the potential to adversely affect historic properties (should they be present) that are occurring or have a reasonable potential to occur during the term of a new license. If any such areas of the APE are identified, MP will conduct subsurface testing of those areas in accordance with the methodology as described in the SHPO's *Manual for Archaeological Projects in Minnesota.* MP will consult with the SHPO and other parties regarding the results of the Reconnaissance Survey to determine if additional site evaluations or management measures are recommended. As a component of the reconnaissance survey, the survey will identify properties of architectural significance within the APE and update existing information on architectural resources in the Minnesota SHPO's files.

The Reconnaissance Survey will include a visual reconnaissance of the entire APE, as determined after consultation with the Minnesota SHPO, to identify any previously recorded or unrecorded archaeological and/or historic architectural resources. If archaeological material is observed during the Reconnaissance Survey, a preliminary assessment of the archaeological site will consist of the delineation of site boundaries. The maximum length and width of each site will be measured and recorded and the site's location geo-located. Site dimensions and elevations will be recorded on standardized field forms along with sketch maps of site settings and notations regarding landform, site aspect, temporal affiliations (if possible) and density of observed materials, site condition, any

[1] For this study, a "qualified cultural resources professional" is defined as an individual who meets the Secretary of the Interior's Professional Qualification Standards (48 FR 44738-44739, Sept. 1983).

evidence of Project-related effects, and the nature of site deposits. Site boundaries will be located on Project maps and USGS topographic maps. Based on the judgment of the archaeologist, visual reconnaissance may be augmented by limited subsurface testing (e.g., shovel test pits). The archaeologist will geo-locate, record, and collect any observed artifacts, features, or other pre-contact or historic period cultural material (as appropriate), and any new archaeological sites discovered will be documented on the Minnesota Archaeological Site Form. If any archaeological and/or historic architectural resources are discovered during the Reconnaissance Survey, the condition will be assessed on where the sites are located for shoreline stability and evidence of erosion and document such conditions in the final study report.

Treatment and disposition of any human remains that may be discovered will be managed in a manner consistent with the Native American Graves Protection and Repatriation Act (NAGPRA) (P.L. 101-601; 25 U.S.C. 3001 *et seq*.)[2], and the Council's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (Advisory Council on Historic Preservation [ACHP] 2007). Any human remains, burial sites, or funerary objects that are discovered will at all times be treated with dignity and respect. In the event that any Native American graves and/or associated cultural items are inadvertently discovered, MP will immediately notify the Minnesota SHPO and potentially affected Indian Tribes.

As a component of the Reconnaissance Survey, the survey will identify properties of architectural significance within the APE and update existing information on architectural resources in the Minnesota SHPO's files. This component will be in accordance with the Minnesota SHPO's *Historic and Architectural Survey Manual and Archaeology Survey Manual* (Minnesota Historical Society 2017). The Reconnaissance Survey will document properties of architectural significance using photographs, brief descriptions, condition, and location information. The survey will conduct limited research on the history of the buildings, sites, and features, and complete a survey form for each property. The location will be documented on Project maps and USGS topographic maps.

7.4 Task 4 – Cultural Resources Management Plan

MP will consult with the Minnesota SHPO and potentially affected Indian Tribes, and other parties, as appropriate, to update the existing CRMP, if necessary. The measures provided in the CRMP will

[2] Pursuant to 43 C.F.R. Part 10, NAGPRA applies to human remains, sacred objects, and items of cultural patrimony (described as "cultural items" in the statute) located on federal or tribal lands or in the possession and control of federal agencies or certain museums. Regardless of where cultural items are discovered, the principles described in NAGPRA's implementing regulations will serve as guidance for MP's actions should the remains or associated artifacts be identified as Native American and to the extent such principles and procedures are consistent with any other applicable requirements.

assist MP in managing historic properties within the Project's APE throughout the term of the new license.

The CRMP will be prepared in accordance with the FERC's guidance on cultural resources guidelines promulgated by FERC and the Advisory Council on Historic Places (ACHP) on May 20, 2002. The CRMP will address the following items (ACHP and FERC 2002):

- Identification of the APE for the Project and inclusion of a map or maps that clearly show the APE in relation to the existing and proposed Project Boundary;
- Additional studies to assist in identifying or managing historic properties within the APE;
- Continued use and maintenance of any historic properties;
- Potential effects on historic properties resulting from the continued operation and maintenance of the Project;
- Protection and treatment of historic properties threatened by potential ground-disturbing activities;
- Protection and treatment of historic properties threatened by other direct or indirect Project-related activities, including routine Project maintenance and vandalism;
- The resolution of unavoidable adverse effects on historic properties;
- Treatment and disposition of any human remains that are discovered, taking into account any applicable state laws and the Council's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (ACHP 2007);
- Compliance with the Native American Graves Protection and Repatriation Act (25 U.S.C. §3001), for tribal or federal lands within the Project's APE;
- Provisions for unanticipated discoveries of previously unidentified cultural resources within the APE;
- A dispute resolution process;
- Categorical exclusions from further review of effects;
- Public interpretation of the historic and archaeological values of the Project, if any; and
- Coordination with consulting parties during implementation of the Management Plan.

8.0 Schedule and Deliverables

Based on the results of Task 3, MP will prepare a report on the results of the Phase I Reconnaissance Survey. The report will include: 1) a summary of information obtained through the background research and archival review, 2) maps and descriptions of reported archaeological and historic resources within the Project's APE, 3) an assessment of the APE's archaeological sensitivity and potential, 4) an assessment of significant architectural resources within the APE, and 5) recommendations regarding additional cultural resource studies and/or management measures for identified resources. MP will consult with Minnesota SHPO, Indian Tribes, and other interested parties (as appropriate) regarding the Reconnaissance Survey Report.

MP anticipates this study will be completed by October 2020. Due to the length of this study, the final study report may not be provided in the Initial Study Report (ISR) that will be distributed to stakeholders and filed with FERC in October 2020. If the final study report is not complete by the ISR filing, MP will incorporate a description of the overall progress and data collected and will file the final study report as soon as possible. The estimated level of effort for this study is approximately 320 hours. MP estimates that this study will cost approximately $40,000 to complete.

9.0 Discussion of Alternative Approaches

MP has wholly incorporated FERC's August 21, 2019 comments on the Proposed Study Plan and has responded to Minnesota SHPO's comments in Section 3.2 of the Revised Study Plan. The proposed methods for this study are consistent with accepted professional practices. The overall approach is commonly used in relicensing proceedings and is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC study requirements under the ILP. No alternative approaches to this study are warranted.

10.0 References

Advisory Council on Historic Preservation (ACHP). 2007. Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects. Washington, D.C.

Advisory Council on Historic Preservation (ACHP) and the Federal Energy Regulatory Commission (FERC). 2002. Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects. Washington, D.C.

Minnesota Historical Society. 2017. Historic and Architectural Survey Manual. [Online] URL: https://mn.gov/admin/assets/surveymanual_tcm36-327675.pdf. Accessed: July 30, 2019. Revised June 2017.

Minnesota Historical Society. 2005. SHPO Manual for Archaeological Projects in Minnesota. [Online] URL: https://mn.gov/admin/assets/archsurvey_tcm36-327672.pdf. Accessed: July 30, 2019. Published July 2005.

Minnesota Power (MP). 2018. Pre-Application Document, Volume I of II, Grand Rapids Hydroelectric Project (FERC Project No. 2362) Prairie River Hydroelectric Project (FERC Project No. 2361). Prepared by HDR Engineering, Inc. for Minnesota Power. December 13, 2018.

Appendix G. Prairie River Project Water Quality Study

Water Quality Study Plan

Prairie River Hydroelectric Project

(FERC No. 2361)

September 2019

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1.0 Study Requests

The Federal Energy Regulatory Commission's (FERC or Commission) February 7, 2019, Scoping Document 1 (SD1) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Prairie River Hydroelectric Project (Project) relicensing:

- Effects of continued operation of the Projects on water quality (e.g., dissolved oxygen [DO] levels and water temperature)

In Section 6.2.2 of the Pre-Application Document (PAD) (MP 2018), ALLETE, Inc., d/b/a Minnesota Power (MP) proposed to conduct a Water Quality Study to monitor DO and temperature at the Project. FERC filed comments on the proposed Water Quality Study in a letter dated April 5, 2019. In a letter dated April 11, 2019, the Minnesota Pollution Control Agency (MPCA) supported the proposed Water Quality Study and proposed additional parameters to be analyzed.

2.0 Goals and Objectives

The Water Quality Study will collect information and establish recent baseline information on water quality in the vicinity of the Project to further expand on the extensive water quality data that has been collected historically. The study will employ standard methodologies that are consistent with the scope and level of effort of water quality monitoring conducted at hydropower projects in the region. The information collected by this study will be used to determine the Project's potential effects on water quality and provide water quality data sufficient to determine compliance with applicable water quality standards (Minnesota Statute Chapter 7050) and designated uses.

3.0 Resource Management Goals

The State of Minnesota has established water quality standards (Minnesota Statute Chapter 7050) to protect water resources for uses such as fishing, swimming, and other recreation and to sustain aquatic life. These rules are administered by the MPCA, who is the lead 401 Water Quality Certification Agency. The Minnesota Department of Natural Resources (MDNR), Minnesota Board of Soil and Water Resources (BSWR), and local agencies also play a role in water quality protection (MPCA undated).

4.0 Public Interest

FERC and MPCA expressed interest in this study.

5.0 Background and Existing Information

Existing relevant and reasonably available information regarding water quality in the Project vicinity was presented in Section 5.3.7.2 of the PAD (MP 2018). The PAD included historical water quality data collected in the vicinity of the Project including upstream of the Project, downstream of the Project, and within Prairie River Reservoir (Lower Prairie Lake and Prairie Lake). The data collected ranges from 2001 – 2016. The data generally depicts DO concentrations both upstream and downstream of Prairie River Dam are typically above the minimum state criterion (MPCA 2018).

6.0 Project Nexus

The Project impounds water at Prairie River Dam. Operation of the hydropower facility may affect water quality parameters such as DO and temperature in the Project's impoundment and immediate downstream area.

7.0 Methodology

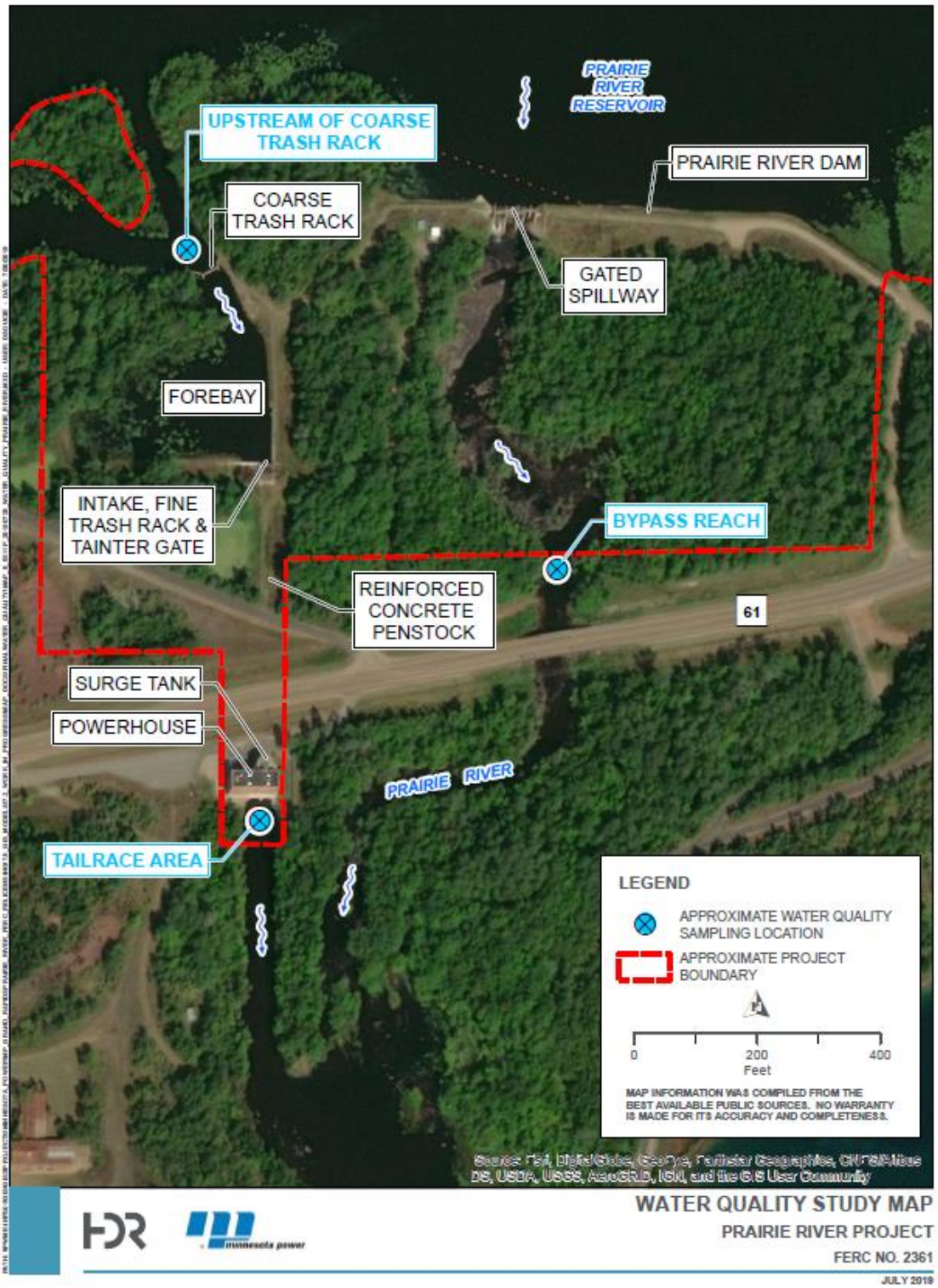
7.1 Water Temperature and DO Monitoring

MP will monitor DO and water temperature at the following general locations at the Project:

1. Upstream of coarse trash rack;
2. Tailrace area; and
3. Bypass reach (upstream of the road to avoid influence).

These locations are depicted in Figure 7-1.

Figure 7-1
Water monitoring locations at the Prairie River Project



Safety concerns related to monitoring device retrieval will be taken into consideration when determining the specific sampling locations. Water quality sampling will be taken with a YSI model 556 portable DO/temperature meter fitted with a DO membrane probe and temperature probe. The meter will be calibrated at the start of the day before the sample sets are collected. The meter will be calibrated according to manufacturer instructions. The calibration method which will be used is an air calibration method in percent (%) saturation. DO and temperature values will be recorded directly from the meter. Care will be taken to insure the DO probe membrane is in working condition and will be replaced as needed.

The upstream of coarse trash rack sampling location will be collected and recorded at 1-meter intervals for DO and temperature. For the tailrace area and bypass reach locations, measurements of DO and temperature will be taken at the surface, middle, and bottom of the water column and include corresponding depth measurements.

All water quality monitoring locations will be georeferenced using Global Positioning System (GPS). These GPS locations will be included in a Geographic Information Systems (GIS) database layer to support the documentation and reporting of collected data.

The DO and water temperature measurements will be collected on a biweekly basis (every other week to avoid data clustering) from May 1, 2020 to September 30, 2020.

Additional information will be documented during the course of the study:

1. Total discharge, unit discharge, and bypass discharge at the Project will be recorded during each sampling event;
2. Identification and recording of the habitat type at the tailrace and bypass reach sampling locations (i.e. pool, run, riffle);
3. Pictures will be taken at each sampling location; and
4. Reservoir surface elevation will be recorded during each sampling event.

8.0 Schedule and Deliverables

Results of this study will be summarized in the final study report. MP anticipates that the Water Quality Study Report will include the following elements:

1. Project information and background
2. Study area
3. Methodology

4. Study results
5. Analysis and discussion including:
    - An analytical summary and graphical representations of the data, including average DO concentration and temperature with associated measures of confidence.
    - A histogram of depth, DO, and temperature within the reservoir and a graphical representation of any changes of these components over the duration of the study period.
    - A histogram of depth, DO, and temperature a in the downstream reach and bypass reach sampling locations and a graphical representation of any changes of this component over the duration of the study period.
    - An appendix to the report that includes all data points used to develop the report (including date and time of collection).
6. Agency correspondence and/or consultation
7. Literature cited

MP anticipates the monitoring associated with this study will be completed by the end of September 2020. Due to the length of this study, the final study report may not be provided in the Initial Study Report that will be distributed to stakeholders and filed with FERC in October 2020. If the final study report is not complete by the ISR filing, MP will incorporate a description of the overall progress and data collected and will file the final study report as soon as possible. The estimated level of effort for this study is approximately 150 hours. MP estimates that this study will cost approximately $18,000 to complete.

9.0 Discussion of Alternative Approaches

MP has wholly incorporated FERC's August 21, 2019 comments on the PSP with the exception of comment 3(f) regarding calculating the discharge at Prairie River by prorating the flow recorded at the USGS stream gage #05212700 located upstream. Instead, MP will provide data as calculated using head and tail water elevations and gate openings. This calculated data is currently used by operations and is more accurate than data derived by prorating flow from the upstream USGS gage. The proposed methods for this study are consistent with accepted professional practices. The overall approach is commonly used in relicensing proceedings and is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC study requirements under the ILP. No alternative approaches to this study are warranted.

10.0 References

Minnesota Pollution Control Agency (MPCA). 2018. Mississippi River – Grand Rapids Watershed Monitoring and Assessment Report. Published June 2018.

Minnesota Pollution Control Agency (MPCA). Undated. Clean Water Act Section 401 Water Quality Certifications. [Online] URL: https://www.pca.state.mn.us/water/clean-water-act-section-401-water-quality-certifications. Accessed: March 12, 2019.

Minnesota Power (MP). 2018. Pre-Application Document, Volume I of II, Grand Rapids Hydroelectric Project (FERC Project No. 2362) Prairie River Hydroelectric Project (FERC Project No. 2361). Prepared by HDR Engineering, Inc. for Minnesota Power. December 13, 2018.

Appendix H. Prairie River Project Desktop Entrainment and Impingement Study

Fish Entrainment and Impingement Study Plan

Prairie River Hydroelectric Project

(FERC No. 2361)

September 2019

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1.0 Study Requests

The Federal Energy Regulatory Commission's (FERC or Commission) February 7, 2019, Scoping Document 1 (SD1) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Prairie River Hydroelectric Project (Project) relicensing:

- Effects of continued operation of the Project on impingement, entrainment, and turbine-induced fish mortality.

In Section 6.2.3 of the Pre-Application Document (PAD) ALLETE, Inc., d/b/a Minnesota Power (MP) proposed to conduct a desktop entrainment and impingement study at the Project. FERC provided comments on the Fish Entrainment and Impingement Study in their April 5, 2019, PAD comment letter, which have been addressed in this study plan. No other formal comments or study requests were received regarding fish entrainment and impingement.

2.0 Goals and Objectives

The goals and objectives of the Fish Entrainment and Impingement Study are to:

- Describe the physical characteristics of the powerhouse and intake structures including location, dimensions, turbine specifications, trashrack spacing, and field collection of intake velocities that could influence entrainment.
- Describe the local fish community and compile a target species list for entrainment analysis.
- Use intake velocities, trashrack spacing, target fish swim speeds, and other Project specifications to conduct a desktop impingement assessment.
- Conduct a desktop analysis that incorporates the impingement assessment, Project specifications, and hydrology to quantify turbine entrainment and mortality at the Project.

3.0 Resource Management Goals

Multiple agencies have resource management goals relevant to this study. The Minnesota Department of Natural Resources' (MDNR) mission statement is to conserve and manage Minnesota's aquatic resources and associated fish communities for their intrinsic values and long term ecological, commercial, and recreational benefits to the people of Minnesota (MDNR 2019). The waters in the

Prairie River Project and Project vicinity are designated by the Minnesota Pollution Control Agency (MPCA) as cool and warm water aquatic life and habitat and wetlands (MPCA 2018).

4.0 Public Interest

FERC expressed interest in this study.

5.0 Background and Existing Information

Existing relevant and reasonably available information regarding the fish community in the Project vicinity was summarized in Section 5.4.2 of the PAD. Studies conducted by Minnesota Department of Natural Resources (MDNR) in Prairie Reservoir periodically from 1955-2012 indicated a dominance of bluegill (*Lepomis macrochirus*), black crappie (*Pomoxis nigromaculatus*), yellow perch (*Perca flavescens*), northern pike (*Esox lucius)*, white sucker (*Catostomus commersonii*), walleye (*Sander vitreus*), pumpkinseed (*Lepomis gibbosus*), shorthead redhorse (*Moxostoma macrolepidotum)*, brown bullhead (*Ameiurus nebulosus*), and rock bass (*Ambloplites rupestris)*. In the past, Prairie River Reservoir had been exclusively stocked with Walleye from 2008 through 2012 by the MDNR. Due to failure to achieve management goals set for Prairie River Reservoir, the walleye stocking program was recommended for discontinuation (MP 2018).

6.0 Project Nexus

Downstream fish passage through hydroelectric dam intakes and turbines may cause injury or mortality by impingement against trashracks or entrainment through a turbine as a result of Project operations. Entrainment injuries and mortalities can result from fish coming into contact with the turbine blades or other mechanical components and/or pressure changes and cavitation.

7.0 Methodology

A desktop evaluation of the potential for fish impingement, entrainment, and turbine mortality will be performed to achieve the objectives described in Section 2.0. This evaluation will make use of the extensive amount of existing fish community information, hydrology data, and structural/operational characteristics of the Project to quantify turbine entrainment and mortality for select species. The only potential field component would be to collect intake velocities at the Project depending on the feasibility and safety considerations.

7.1 Task 1 – Consultation with Interested Stakeholders

MP will coordinate with interested stakeholders who express an interest in participating in this study at the Proposed Study Plan meeting and through subsequent comments filed on the Proposed Study Plan (PSP) or the Revised Study Plan (RSP).

7.2 Task 2 – Describe the Physical Characteristics and Water Chemistry Characteristics of the Project that may influence Fish-related Turbine Entrainment, Impingement, and Survival

Physical and operational data for the Project including reservoir surface area, volume, average depth, and retention time will be obtained. Maps and available drawings of the dam and powerhouse may be reviewed to gather information related to total head, intake depth and size, the number, type, orientation, trashrack clear spacing, and other relevant powerhouse/turbine specifications necessary to perform the study. Many of these physical and operational data are summarized in the PAD, although further review of Project drawings may be necessary.

Water quality profile data collected as part of the Water Quality Study will be used to describe reservoir water quality conditions and potential influence on fish entrainment.

7.3 Task 3 – Intake Velocity Data Collection

Velocity measurements and/or the calculated average approach velocity will be completed one foot in front of the existing trashrack structure. If feasible, measurements will be collected using an Acoustic Doppler Current Profiler (ADCP) or similar technology. In the event that approach velocity measurements are not possible due to river flow conditions or safety-related concerns, calculated approach velocities will be used. Calculation of approach velocities will be determined by dimensions/spacing of trash racks, pumping rate, intake width, and water depth.

7.4 Task 4 – Describe the Species Composition of the Existing Fish Community and Select a Subset of these Species for the Entrainment Assessment

Results of the existing fisheries information (MP 2018, MDNR 2018) will be used to describe the fish communities that may be susceptible to turbine entrainment. This is expected to include information related to spatial and temporal characteristics, life histories, swimming speeds, and avoidance behavior of target fish species larval, juvenile, and adult life stages. A target species list will be compiled for the entrainment assessment that is expected to include species of management concern (fish stocked by MDNR), as well as the dominant species reported by MDNR in Prairie River Reservoir from 1973-2012. The expected susceptibility of these species to entrainment based on varying life

stage periodicities, abundance at the Project, and potential “cold stress” related entrainment will be included.

7.5 Task 5 – Assess the Potential for Trashrack Exclusion and/or Impingement of the Target Species

Information gathered as part of Tasks 1 through 3 will be used to assess the potential for trashrack exclusion and vulnerability to impingement/entrainment. This will incorporate the trashrack clear spacing, intake velocities, swimming speeds, and body scaling factors. Body scaling factors (documented body width to body length proportions) will be calculated from empirical data to determine minimum lengths of target species physically excluded from the trashrack spacing. Such exclusions will be factored into the individual entrainment and mortality estimates.

7.6 Task 6 – Determine Monthly Turbine Entrainment Rates from Existing Empirical Data and Utilize these Rates to Estimate Monthly Turbine Entrainment for the Target Species using Existing Hydrology and Project Operations

A literature review of turbine entrainment field studies conducted at other hydroelectric projects will be performed to compile entrainment rates for target species. The primary sources of turbine entrainment information may include, but does not have to be limited to, the comprehensive Turbine Entrainment and Survival Database Field Tests prepared by the Electric Power Research Institute (EPRI 1997). For comparing entrainment potential between studied facilities and the Project, the EPRI database includes test data from 43 hydroelectric sites that used full-flow tailrace netting techniques to estimate the number, species, and sizes of fish entrained. Other principal sources of entrainment data include Stone & Webster Environmental Services (1992) and FERC (1995). Monthly entrainment rates will be determined for each of the target species or surrogate/guild representatives available in the literature. Monthly entrainment estimates for each target species will be calculated using the entrainment rate, hydrological, and operational information. Monthly flow duration curves for a representative dry, average, and wet water year will be utilized, in addition to operational parameters, to provide the estimated average and potential range of entrainment. Target fish species abundance data may be incorporated into the entrainment estimates to account for local fish community makeup in relation to the entrainment rates determined from the literature.

7.7 Task 7 – Calculate Turbine Mortality for the Range of Target Species' Sizes Expected to Become Entrained and Apply this to the Monthly Entrainment Estimates

A literature review of turbine mortality field studies conducted at other hydroelectric projects will be performed to compile fish survival rates applicable to the Project. The primary sources of turbine survival information may include, but does not have to be limited to, the comprehensive Turbine Entrainment and Survival Database Field Tests prepared by EPRI (EPRI 1997).

In addition to the literature review, a blade strike analysis will be performed to calculate turbine mortality rates at the Project. It has been suggested that the majority of fish mortalities at low head dams (<100 ft) are caused by fish striking a blade or other component of the turbine unit. Estimates of survival for each target species based on the blade strike analysis and literature review findings will be developed, and these survival estimates will be applied to the entrainment estimates for overall Project assessments.

8.0 Schedule and Deliverables

Results of this study will be summarized in the final study report. MP anticipates that the Fish Entrainment and Impingement Study Report will include the following elements:

- Project information and background
- Study area
- Methodology
- Study results
- Analysis and discussion
- Agency correspondence and/or consultation
- Literature cited

MP anticipates that this study will be completed by July 2020. The study report will be prepared and provided to the applicable parties in conjunction with the Initial Study Report (ISR) that will be distributed to stakeholders and filed with FERC in accordance with the FERC's Integrated Licensing Process (ILP) Plan and Schedule. The estimated level of effort for this study is approximately 240 hours. MP estimates that this study will cost approximately $30,000 to complete.

9.0 Discussion of Alternative Approaches

Desktop entrainment and impingement studies are consistent with generally accepted practices in the scientific community. The overall approach is commonly used in relicensing proceedings and is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC study requirements under the ILP. No alternative approaches to this study are warranted.

10.0 References

Electric Power Research Institute (EPRI). 1997 Turbine entrainment and survival database – field tests. Prepared by Alden Research Laboratory, Inc., Holden, Massachusetts. EPRI Report No. TR-108630. October 1997.

Federal Energy Regulatory Commission (FERC). 1995. Preliminary assessment of fish entrainment at hydropower projects, a report on studies and protective measures, volumes 1 and 2 (Paper No. DPR-10). Office of Hydropower Licensing, FERC, Washington, DC.

Minnesota Department of Natural Resources (MDNR). 2018. Fisheries Lake Surveys: Blandin. Online: [URL] https://www.dnr.state.mn.us/lakefind/showreport.html?downum=31053300.

Minnesota Department of Natural Resources (MDNR). 2019. Our Mission. Online: [URL] https://www.dnr.state.mn.us/aboutdnr/mission.html. Accessed: May 23, 2019.

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Minnesota Pollution Control Agency (MPCA). 2018. Water Quality Standards. Online [URL]: https://www.pca.state.mn.us/water/water-quality-standards. Accessed on October 4, 2018.

Stone & Webster Environmental Services. 1992. Fish entrainment and turbine mortality review and guidelines. EPRI Report TR-101232. September 1992.

Appendix I. Prairie River Project Recreation Resources Study

Recreation Resources Study Plan

Prairie River Hydroelectric Project

(FERC No. 2361)

September 2019

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1.0 Study Requests

The Federal Energy Regulatory Commission's (FERC or Commission) February 7, 2019, Scoping Document 1 (SD1) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Prairie River Hydroelectric Project (Project) relicensing:

- Adequacy of existing recreational facilities and public access at the Projects to meet current and future recreational demand.

In Section 6.2.7 of the Pre-Application Document (PAD) (MP 2018), ALLETE, Inc., d/b/a Minnesota Power (MP) proposed to conduct a Recreation Resources Study to evaluate current recreational opportunities and potential improvements. FERC filed comments on the proposed Recreation Resources Study Plan in a letter dated April 5, 2019. These comments included the identification of recreation sites and their ownership and conducting recreation use surveys, spot counts, and report preparation.

2.0 Goals and Objectives

The Recreation Resources Study will collect information regarding current recreation use levels and the condition of the existing Project recreation facilities. The goals and objectives of this study are to:

- Gather information on the condition of the MP-managed, FERC-approved recreation facilities and identify any need for improvement; and
- Characterize current recreational use and future demand of the MP-managed, FERC-approved recreation facilities within the Project Boundary.

3.0 Resource Management Goals

The mission of the Minnesota Department of Natural Resources (MDNR) is to work with citizens to conserve and manage the State's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. The recreation facilities within the Project contribute to MDNR's goals by providing outdoor recreation opportunities to the public (MDNR 2019).

4.0 Public Interest

FERC has expressed interest in this study.

5.0 Background and Existing Information

Section 5.8.2 of the PAD describes existing information about recreation facilities and opportunities in the Project area. Pursuant to Article 411 of the current FERC license, MP provides a canoe self-portage trail at the Project, extending approximately 1,500 feet from the southern bank of Prairie River Reservoir to the Prairie River, 100 feet south of Prairie River Dam. Additionally, MP manages three shoreline fishing areas providing access to the reservoir and downstream of the Prairie River Dam. One area is located adjacent to the canoe self-portage take-out, west-northwest of the dam. The other two shoreline fishing areas are located on the east and west sides of the peninsula leading to the canoe self-portage put-in on the Prairie River. All of the fishing areas are accessible from the canoe self-portage trail and include signage to direct anglers to the fishing areas. The Public Access Plan defining each of these access areas was developed in consultation with the National Park Service (NPS), MDNR, and Arbo Township and was approved by FERC in August 1995.

6.0 Project Nexus

The Project currently provides multiple public recreational opportunities. The results of this study, in conjunction with existing information, will be used to inform analysis in the license application regarding potential Project effects on public recreation and to update the existing Public Access Plan, if needed.

7.0 Methodology

7.1 Task 1 - Recreation Facility Inventory and Condition Assessment

MP will perform a field inventory to document the existing MP-managed, FERC-approved recreation facilities (canoe self-portage trail and shoreline fishing areas) at the Project. MP will record the following information for the facilities including:

- A description of the type and location of the existing recreation facility (including relationship to Project Boundary);
- Ownership and party responsible for operation and maintenance of the facility;
- The type of recreation provided;
- Hours and season of operation;
- Length and footing materials of any trails;
- Existing facilities, signage, and sanitation;
- The type of vehicular access and parking (if any);
- General observations of site use, condition, and accessibility;

- Suitability of facilities to provide recreational opportunities and access for persons with disabilities (i.e., compliance with current Americans with Disabilities Act standards for accessible design); and
- Photographic documentation of recreation facilities and Global Positioning System (GPS) location.

7.2 Task 2 – Recreational Use Observation

MP will conduct recreational observations at the MP-managed, FERC-approved recreation facilities; including three shoreline fishing areas and the canoe self-portage trail.

These observations will be conducted over two-hour intervals at different times of day on a rotating basis. A designated observer will visit the area over the course of the traditional recreation season (Memorial Day through Labor Day). MP will conduct the observations and surveys using the following schedule:

Month	Survey and Reconnaissance
May	▪ Two weekend days, one during the Memorial Day Weekend ▪ Two randomly selected weekdays
June	▪ Two weekend days ▪ Two randomly selected weekdays
July	▪ Two weekend days, one the weekend following the 4th of July ▪ Two randomly selected weekdays
August	▪ Two weekend days ▪ Two randomly selected weekdays
September	▪ Two weekend days one during the Labor Day Weekend ▪ Two randomly selected weekdays

The recreational use observations will represent a snapshot-in-time depicting specific user groups and their activities during randomly selected intervals. An observation form will be filled out by the designated observer during scheduled observation times. These observations will include the following information:

- Date and time;
- Observer;
- Weather conditions;
- Number of people observed;
- Observed activities; and

- Pertinent notes.

To estimate the use of the MP-managed, FERC-approved facilities, MP will utilize methods for deriving recreation user day calculations that were developed for use in FERC Form 80 reporting. MP will use the information collected from recreational use observations to determine the adequacy of current recreational opportunities and estimate future recreational demand.

7.3 Task 3 - Recreational Survey

MP will develop a survey to administer to the recreational users observed during the recreational use observations discussed in Section 7.2. The survey will allow respondents to provide survey responses related to recreation at the Project. The survey will be used to gain user opinions with regard to the existing Project recreation facilities and opportunities. The survey will record the number of people in a party, their primary reason (recreational activity) for visiting the Project, their perception of level of use, and their opinions with regard to the amount and types of recreation opportunities offered at the FERC-approved recreation facility.

8.0 Schedule and Deliverables

MP intends to conduct the Recreation Resources Study from May 2020 through September 2020. Upon completion of recreational use observations and surveys, the data will be analyzed and the study report will be prepared and provided to applicable parties in conjunction with the Initial Study Report (ISR) that will be distributed to stakeholders and filed with FERC in accordance with FERC's Integrated Licensing Process (ILP) Plan and Schedule. The estimated level of effort for this study is approximately 170 hours. MP estimates that this study will cost approximately $20,000 to complete.

Results of the facility assessment and recreational use observations and surveys will be summarized in the final study report. MP anticipates that the Recreation Resources Study Report will include the following elements:

- Project information and background
- Study area
- Methodology
- Study results
- Analysis and discussion
- Any agency correspondence and/or consultation
- Literature cited

Appendix J. Prairie River Project Cultural Resources Study

Cultural Resources Study Plan

Prairie River Hydroelectric Project

(FERC No. 2361)

September 2019

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1.0 Study Requests

The Federal Energy Regulatory Commission's (FERC or Commission) February 7, 2019, Scoping Document 1 (SD1) identified the following environmental resource issue to be analyzed in the Environmental Assessment (EA) for the Prairie River Hydroelectric Project (Project) relicensing:

- Effects of continued project operation on properties that are included in or eligible for inclusion in the National Register of Historic Places.

ALLETE, Inc., d/b/a Minnesota Power (MP) did not propose to conduct a Cultural Resources Study in the Pre-Application Document (PAD). FERC requested MP conduct a Cultural Resources Study by letter dated April 5, 2019. No other formal study requests meeting the Integrated Licensing Process (ILP) study criteria were received regarding cultural resources.

2.0 Goals and Objectives

The Cultural Resources Study will identify potential historic properties within the Project's Area of Potential Effects (APE) and assess the potential effects of continued Project operations and maintenance activities on historic and cultural resources, should any be present. The goals and objectives of this study are to:

- Consult with the Minnesota State Historic Preservation Office (SHPO) and potentially affected federally-recognized Indian Tribes to determine if the APE is appropriate for the Project;
- Conduct background research and an archival review;
- Conduct a Phase 1 Reconnaissance Survey (Reconnaissance Survey) of the Project's APE;
- Consult with federally-recognized Indian Tribes to develop and conduct an inventory of properties of traditional religious and cultural importance (often referred to as "traditional cultural properties") within the APE;
- Assess the condition of the area where any historic and archaeological sites are located for shoreline stability and evidence of erosion; and
- If determined necessary, update the Project's Cultural Resources Management Plan (CRMP) in consultation with the Minnesota SHPO and federally-recognized Indian Tribes to include appropriate measures for the management of historic properties within the Project's APE, including specific protection, mitigation and enhancement measures.

3.0 Resource Management Goals

The National Historic Preservation Act of 1966 provided for a network of historic preservation offices in every state to spearhead state preservation initiatives and help carry out the nation's historic preservation program. Minnesota's SHPO was created by state statute in 1969 to provide statewide leadership.

4.0 Public Interest

FERC and the Minnesota SHPO expressed interest in this study.

5.0 Background and Existing Information

Existing relevant and reasonably available information regarding cultural resources in the Project vicinity was presented in Section 5.10 of the PAD (MP 2018).

A Phase I survey was completed in 1990 at the Prairie River Project that included a survey of the APE and shoreline of Prairie River Reservoir. This work identified a total of 18 archaeological sites. A Phase II evaluation was completed for 17 of these sites in 1992 and one additional site in 1993. Of the evaluated sites, six were determined to be significant and eligible for listing on the NRHP. Additionally, certain Project facilities, including the Prairie River Powerhouse, were found to be eligible for listing on the NHRP. After a fire damaged the powerhouse in 2008, the building was determined no longer eligible for listing on the NHRP because of the significant damage that was caused by the fire.

Article 410 of the current FERC License required the development of a CRMP in consultation with the Minnesota SHPO. The FERC-approved CRMP requires MP to submit a report annually to FERC and the SHPO that summarizes cultural resource management activities conducted during the year. In addition to the annual summary reports filed with FERC, field monitoring was conducted by certified archeologists from 2014 through 2017 as requested by the Minnesota SHPO. The reports were provided to the SHPO for review.

6.0 Project Nexus

At present, there is no evidence that archaeological or historic resources are currently being affected by the Project's operations. However, the Project has the potential to directly or indirectly affect historic properties listed or eligible for inclusion in the NRHP.

7.0 Methodology

7.1 Task 1 – APE Determination

Pursuant to the implementing regulations of Section 106 at 36 CFR § 800.4(a), MP will consult with the Minnesota SHPO and potentially affected Indian Tribes, to determine and document the APE for the Project as defined in 36 CFR § 800.16(d). MP tentatively proposes the following APE:

> *The APE for the Prairie River Hydroelectric Project includes all lands and waters within the FERC Project boundary and also lands and properties outside of the Project boundary where Project-related activities that are conducted in compliance with the FERC license may affect historic properties.*

7.2 Task 2 – Background Research and Archival Review

MP will conduct background research and an archival review to inform the specific research design and the historic and environmental contexts. MP will review relevant sources of information that may include, but are not necessarily limited to:

- Information on archaeological sites, historic architectural resources, and previous cultural resource studies on file with Minnesota SHPO;
- A review of Minnesota's NRHP listings in proximity to the Project;
- Historic maps and aerial photographs of the APE;
- Relevant documents related to Project construction;
- Relevant information available from local repositories;
- Information on the current and historical environment, including mapped soils, bedrock geology, physiography, topography, and hydrology in the vicinity of the APE;
- Relevant historical accounts of the Project area;
- Relevant management plans for the Project, including approved management plans; and
- Any additional relevant information made available by the Minnesota SHPO, Indian Tribes, or other stakeholders.

7.3 Task 3 – Reconnaissance Survey

A Reconnaissance Survey will be conducted within the Project's APE. The proposed methods for the Reconnaissance Survey take into account the nature and extent of potential effects on historic properties, and the likely nature and location of historic properties within the APE (36 CFR 800.4(b)

(1)). The Reconnaissance Survey will be conducted by a qualified cultural resources professional[1] retained by MP and will be in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 Federal Register [FR] 44716, Sept. 1983) and the Minnesota SHPO's *Manual for Archaeological Projects in Minnesota* (Minnesota Historical Society 2005).

The Reconnaissance Survey will include a visual reconnaissance of the APE. Based on the results of the background literature review and field observations, MP or their consultant will identify any geographic areas within the APE that (a) have archaeological potential; (b) have not previously been surveyed; and (c) where Project-related effects (e.g., shoreline erosion) have the potential to adversely affect historic properties (should they be present) and are occurring or have a reasonable potential to occur during the term of a new license. If any such areas of the APE are identified, MP will conduct subsurface testing of those areas in accordance with the methodology as described in the SHPO's *Manual for Archaeological Projects in Minnesota.* MP will consult with the SHPO and other parties regarding the results of the Reconnaissance Survey to determine if additional site evaluations or management measures are recommended. As a component of the reconnaissance survey, the survey will identify properties of architectural significance within the APE and update existing information on architectural resources in the Minnesota SHPO's files.

The Reconnaissance Survey will include a visual reconnaissance of the entire APE, as determined after consultation with the Minnesota SHPO, to identify any previously recorded or unrecorded archaeological and/or historic architectural resources. If archaeological material is observed during the Reconnaissance Survey, a preliminary assessment of the archaeological site will consist of the delineation of site boundaries. The maximum length and width of each site will be measured and recorded and the site's location geo-located. Site dimensions and elevations will be recorded on standardized field forms along with sketch maps of site settings and notations regarding landform, site aspect, temporal affiliations (if possible) and density of observed materials, site condition, any evidence of Project-related effects, and the nature of site deposits. Site boundaries will be located on Project maps and USGS topographic maps. Based on the judgment of the archaeologist, visual reconnaissance may be augmented by limited subsurface testing (e.g., shovel test pits). The archeologist will geo-locate, record, and collect any observed artifacts, features, or other pre-contact or historic period cultural material (as appropriate), and any new archaeological sites discovered will be documented on the Minnesota Archaeological Site Form. If any archaeological and/or historic architectural resources are discovered during the Reconnaissance Survey, the condition will be

[1] For this study, a "qualified cultural resources professional" is defined as an individual who meets the Secretary of the Interior's Professional Qualification Standards (48 FR 44738-44739, Sept. 1983).

assessed on where the sites are located for shoreline stability and evidence of erosion and document such conditions in the final study report.

Treatment and disposition of any human remains that may be discovered will be managed in a manner consistent with the Native American Graves Protection and Repatriation Act (NAGPRA) (P.L. 101-601; 25 U.S.C. 3001 *et seq*.)[2], and the Council's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (Advisory Council on Historic Preservation [ACHP] 2007). Any human remains, burial sites, or funerary objects that are discovered will at all times be treated with dignity and respect. In the event that any Native American graves and/or associated cultural items are inadvertently discovered, MP will immediately notify the Minnesota SHPO and potentially affected Indian Tribes.

As a component of the Reconnaissance Survey, the survey will identify properties of architectural significance within the APE and update existing information on architectural resources in the Minnesota SHPO's files. This component will be in accordance with the Minnesota SHPO's *Historic and Architectural Survey Manual and Archaeology Survey Manual* (Minnesota Historical Society 2017). The Reconnaissance Survey will document properties of architectural significance using photographs, brief descriptions, condition, and location information. The survey will conduct limited research on the history of the buildings, sites, and features, and complete a survey form for each property. The location will be documented on Project maps and USGS topographic maps.

7.4 Task 4 – Cultural Resources Management Plan

MP will consult with the Minnesota SHPO and potentially affected Indian Tribes, and other parties, as appropriate, to update the existing CRMP, if necessary. The measures provided in the CRMP will assist MP in managing historic properties within the Project's APE throughout the term of the new license.

The CRMP will be prepared in accordance with FERC's guidance on cultural resources guidelines promulgated by FERC and the Advisory Council on Historic Places (ACHP) on May 20, 2002. The CRMP will address the following items (ACHP and FERC 2002):

- Identification of the APE for the Project and inclusion of a map or maps that clearly show the APE in relation to the existing and proposed Project Boundary;

[2] Pursuant to 43 C.F.R. Part 10, NAGPRA applies to human remains, sacred objects, and items of cultural patrimony (described as "cultural items" in the statute) located on federal or tribal lands or in the possession and control of federal agencies or certain museums. Regardless of where cultural items are discovered, the principles described in NAGPRA's implementing regulations will serve as guidance for MP's actions should the remains or associated artifacts be identified as Native American and to the extent such principles and procedures are consistent with any other applicable requirements.

- Additional studies to assist in identifying or managing historic properties within the APE;
- Continued use and maintenance of any historic properties;
- Potential effects on historic properties resulting from the continued operation and maintenance of the Project;
- Protection and treatment of historic properties threatened by potential ground-disturbing activities;
- Protection and treatment of historic properties threatened by other direct or indirect Project-related activities, including routine Project maintenance and vandalism;
- The resolution of unavoidable adverse effects on historic properties;
- Treatment and disposition of any human remains that are discovered, taking into account any applicable state laws and the Council's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (ACHP 2007);
- Compliance with the Native American Graves Protection and Repatriation Act (25 U.S.C. §3001), for tribal or federal lands within the Project's APE;
- Provisions for unanticipated discoveries of previously unidentified cultural resources within the APE;
- A dispute resolution process;
- Categorical exclusions from further review of effects;
- Public interpretation of the historic and archaeological values of the Project, if any; and
- Coordination with consulting parties during implementation of the Management Plan.

8.0 Schedule and Deliverables

Based on the results of Task 3, MP will prepare a report on the results of the Phase I Reconnaissance Survey. The report will include: 1) a summary of information obtained through the background research and archival review, 2) maps and descriptions of reported archaeological and historic resources within the Project's APE, 3) an assessment of the APE's archaeological sensitivity and potential, 4) an assessment of significant architectural resources within the APE, and 5) recommendations regarding additional cultural resource studies and/or management measures for identified resources. MP will consult with Minnesota SHPO, Indian Tribes, and other interested parties (as appropriate) regarding the Reconnaissance Survey Report.

MP anticipates this study will be completed by October 2020. Due to the length of this study, the final study report may not be provided in the Initial Study Report (ISR) that will be distributed to stakeholders and filed with FERC in October 2020. If the final study report is not complete by the ISR filing, MP will incorporate a description of the overall progress and data collected and will file the final study report

as soon as possible. The estimated level of effort for this study is approximately 320 hours. MP estimates that this study will cost approximately $40,000 to complete.

9.0 Discussion of Alternative Approaches

MP has wholly incorporated FERC's August 21, 2019 comments on the Proposed Study Plan and has responded to Minnesota SHPO's comments in Section 3.2 of the Revised Study Plan. The proposed methods for this study are consistent with accepted professional practices. The overall approach is commonly used in relicensing proceedings and is consistent with generally accepted methods used by Federal and state agencies. In addition, the proposed methods for this study are consistent with FERC study requirements under the ILP. No alternative approaches to this study are warranted.

10.0 References

Advisory Council on Historic Preservation (ACHP). 2007. Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects. Washington, D.C.

Advisory Council on Historic Preservation (ACHP) and the Federal Energy Regulatory Commission (FERC). 2002. Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects. Washington, D.C.

Minnesota Historical Society. 2017. Historic and Architectural Survey Manual. [Online] URL: https://mn.gov/admin/assets/surveymanual_tcm36-327675.pdf. Accessed: July 30, 2019. Revised June 2017.

Minnesota Historical Society. 2005. SHPO Manual for Archaeological Projects in Minnesota. [Online] URL: https://mn.gov/admin/assets/archsurvey_tcm36-327672.pdf. Accessed: July 30, 2019.

Minnesota Power (MP). 2018. Pre-Application Document, Volume I of II, Grand Rapids Hydroelectric Project (FERC Project No. 2362) Prairie River Hydroelectric Project (FERC Project No. 2361). Prepared by HDR Engineering, Inc. for Minnesota Power. December 13, 2018.

9.0 Discussion of Alternative Approaches

The methodology proposed in this plan is appropriate for the size and scope of the Project. The proposed methods for this study are consistent with accepted professional practices. The overall approach is commonly used in relicensing proceedings and is consistent with generally accepted methods used by federal and state agencies. In addition, the proposed methods for this study are consistent with FERC study requirements under the ILP. No alternative approaches to this study are warranted.

10.0 References

Minnesota Department of Natural Resources (MDNR). 2019. Conservation Agenda. [Online] URL: https://www.dnr.state.mn.us/conservationagenda/index.html. Accessed: May 23, 2019.

Minnesota Power (MP). 2018. Pre-Application Document, Volume I of II, Grand Rapids Hydroelectric Project (FERC Project No. 2362) Prairie River Hydroelectric Project (FERC Project No. 2361). Prepared by HDR Engineering, Inc. for Minnesota Power. December 13, 2018.