U.S. NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

DIVISION OF FUEL CYCLE SAFETY, SAFEGUARDS, AND ENVIRONMENTAL REVIEW

FINAL ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED RENEWAL OF U.S. NUCLEAR REGULATORY COMMISSION LICENSE NO. SNM–2506 FOR PRAIRIE ISLAND INDEPENDENT SPENT FUEL STORAGE INSTALLATION

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EXECUTIVE SUMMARY

On October 20, 2011, Northern States Power Company, a Minnesota corporation (NSPM) (doing business as Xcel Energy), submitted an application to the U.S. Nuclear Regulatory Commission (NRC) requesting renewal of Special Nuclear Materials (SNM) license number SNM–2506 for the Prairie Island Nuclear Generating Plant (PINGP) site-specific independent spent fuel storage installation (ISFSI) located within the city limits of Red Wing in Goodhue County, Minnesota. NSPM is requesting authorization to continue the currently licensed activities at the Prairie Island (PI) ISFSI for an additional 40 years. The purpose and need for the proposed action (issuance of a renewed license) are to provide additional nuclear spent fuel storage capacity so that the PINGP Units 1 and 2 can continue to operate.

The NRC's federal action is the decision whether to renew the license for an additional 40 years per NSPM's license renewal request. In Title 10 of the Code of Federal Regulations (10 CFR 72.42(a), "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste," states that an ISFSI license may be renewed by the Commission upon application by the licensee for a period not to exceed 40 years, if NRC requirements are met. If approved, NSPM would continue to possess and store the PINGP spent fuel at the PI ISFSI in accordance with the requirements in 10 CFR Part 72 for an additional 40 years, provided that NRC requirements are met. This final environmental assessment (EA) assesses the potential environmental impacts of the proposed license renewal and of reasonable alternatives on the following environmental resources: land use; historical and cultural resources; visual and scenic resources; climatology, meteorology, and air quality; geology and soils; water resources; ecological resources; socioeconomics; environmental justice; noise; transportation; public and occupational health and safety; and waste management. Chapter 2 of this final EA discusses the alternatives to the proposed action, Chapter 3 discusses the affected environment, and Chapter 4 discusses the impacts to the environmental resource areas.

The NRC staff prepared this final EA in accordance with NRC regulations at 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," that implement the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. § 4321), and NRC staff guidance in NUREG–1748, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs." The NRC staff reviewed previous EAs and environmental impact statements (EISs) conducted for the PINGP and PI ISFSI; consulted with other federal agencies, federally recognized Indian tribes, and state and local government agencies; conducted site visits; and reviewed responses to NRC requests for additional information.

Generally, in its NEPA evaluations, the NRC staff categorizes the potential environmental impacts of a proposed action as follows:

- SMALL—environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource

- MODERATE—environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource

- LARGE—environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource

In October 2012, NRC and the Prairie Island Indian Community (PIIC) entered into a memorandum of understanding (MOU). The MOU acknowledges the PIIC's special expertise in the areas of historic and cultural resources, socioeconomics, land use, and environmental justice as they relate to license renewal for the PI ISFSI. In preparing this EA, the PIIC and NRC worked together to develop a comprehensive evaluation of the areas covered by the MOU.

The NRC staff finds that the impacts from the proposed action would be small for all environmental resource areas. In addition, the NRC staff concludes that there would be no disproportionately high and adverse impacts to minority or low-income populations and that federally listed threatened and endangered species would not be affected by the continued operation of the PI ISFSI during the proposed license renewal period.

The NRC staff also evaluated the potential environmental impacts from decommissioning, taking into consideration an additional 40 years of PI ISFSI operation. Additionally, this final EA analyzes cumulative impacts from past, present, and reasonably foreseeable future actions when combined with the environmental impacts from the proposed action.

Based on its review of the proposed action relative to the requirements set forth in 10 CFR Part 51, the NRC staff has determined that renewal of NRC license SNM–2506, which would authorize continued operation of the PI ISFSI in Goodhue County, Minnesota, for an additional 40 years, will not significantly affect the quality of the human environment. Therefore, based on this assessment, an EIS is not warranted, and pursuant to 10 CFR 51.31, a finding of no significant impact (FONSI) is appropriate.

Pursuant to 10 CFR 51.33, the NRC staff made a draft of this EA and FONSI available for public review and comment. In doing so, the NRC staff determined that preparation of the draft EA and draft FONSI furthers the purposes of NEPA. The NRC performed an EA, and based on its results, the NRC is issuing a FONSI. Appendix B to this EA provides summaries of the comments made on the draft EA and the NRC staff's responses to those comments.

On September 19, 2014, the NRC published a revised rule at 10 CFR 51.23, "Environmental Impacts of Continued Storage of Spent Nuclear Fuel Beyond the Licensed Life for Operations of a Reactor" [79 FR (*Federal Register*) 56238]. The rule codifies the NRC's generic determinations in NUREG–2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel," regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license (i.e., those impacts that could occur as a result of the storage of spent nuclear fuel at at-reactor or away-from-reactor sites after a reactor's licensed life for operation and until a permanent repository becomes available). In the NRC Memorandum and Order CLI–14–08, the Commission held that the revised 10 CFR 51.23 and associated NUREG–2157 cure the deficiencies identified by the court in *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012) and stated that the rule satisfies the NRC's NEPA obligations with respect to continued storage. The revised rule requires that EAs prepared for future reactor and spent fuel storage facility licensing actions consider the environmental impacts of continued storage, if the impacts of continued storage of spent fuel are relevant to the proposed action. Section 4.15 of this EA provides the NRC staff's consideration of the generic environmental impacts of NUREG–2157 for the proposed renewal of the PI ISFSI site-specific license.

ACRONYMS

AADT	average annual daily traffic
ac	acre
ACHP	Advisory Council on Historic Preservation
ADAMS	Agencywide Documents Access and Management System
ALARA	as low as is reasonably achievable
AMP	Aging Management Program
AMSL	above mean sea level
APE	area of potential effect
BIA	Bureau of Indian Affairs
CFR	Code of Federal Regulations
cm	centimeters
CON	certificate of need
CRMP	Cultural Resource Management Plan
dB(A)	decibel(s) (acoustic)
DNR	Department of Natural Resources
DOE	U.S. Department of Energy
DTS	dry transfer system
EA	environmental assessment
EIS	environmental impact statement
ER	environmental report
EPA	U.S. Environmental Protection Agency
FONSI	finding of no significant impact
FR	*Federal Register*
ft	feet
FWS	U.S. Fish and Wildlife Service
g	gravitational acceleration
gal	gallon
GEIS	generic environmental impact statement
GWd/MTU	gigawatt-days/metric tons of uranium
ha	hectare
IMAP	Inspection and Monitoring Activities Program
in	inches
ISFSI	independent spent fuel storage installation
km	kilometer
kPA	kilopascals
kph	kilometers per hour
kW	kilowatt
L	liter
LLW	low-level radioactive waste

m	meters
mi	mile
mph	miles per hour
MOU	Memorandum of Understanding
MPCA	Minnesota Pollution Control Agency
MPUC	Minnesota Public Utilities Commission
mR	milliroentgen
mrem	millirem
mSv	milliSievert
MWD/MTU	megawatt days per metric ton of uranium
NAAQS	National Ambient Air Quality Standards
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRC	U.S. Nuclear Regulatory Commission
NRHP	National Register of Historic Places
NSPM	Northern States Power Company, a Minnesota corporation (doing business as Xcel Energy)
PI	Prairie Island
PIFD	Prairie Island Fire Department
PIIC	Prairie Island Indian Community
PINGP	Prairie Island Nuclear Generating Plant
PIPD	Prairie Island Indian Community Police Department
psi	pounds per square inch
PUC	Public Utilities Commission
RAI	request for additional information
REMP	Radiological Environmental Monitoring Program
ROI	region of influence
SAR	safety analysis report
SEIS	supplemental environmental impact statement
SER	safety evaluation report
SHPO	State Historic Preservation Officer
SNM	Special Nuclear Materials
Sv	Sievert
TLD	thermoluminescent dosimeter
TN–40	Transnuclear 40 cask
TN–40HT	Transnuclear 40 HT cask
U-235	uranium-235
USACE	U.S. Army Corp of Engineers
USCB	U.S. Census Bureau
USDOT	U.S. Department of Transportation

1 INTRODUCTION

1.1 Background

In 1993, the U.S. Nuclear Regulatory Commission (NRC) issued Northern States Power Company, a Minnesota corporation (NSPM) (doing business as Xcel Energy), a 20-year license to receive, possess, store, and transfer the Prairie Island Nuclear Generating Plant (PINGP) spent fuel in the Prairie Island (PI) independent spent fuel storage installation (ISFSI). Under the conditions of Special Nuclear Materials (SNM) license number SNM–2506, NSPM can store 40 fuel assemblies per cask in up to 48 Transnuclear-40 (TN–40) and Transnuclear-40HT (TN–40HT) casks. The fuel assembly burnup limit is up to 45 gigawatt-days per metric ton uranium (GWd/MTU) for fuel stored in a TN–40 cask and up to 60 GWd/MTU for fuel stored in a TN–40HT cask (NSPM, 2010a). In support of the license request, NRC staff also completed an environmental assessment (EA) and determined a finding of no significant impact (FONSI) was appropriate (NRC, 1992). In 2010, NRC amended license SNM–2506 at the request of the licensee to allow NSPM to use a modified storage cask design, the TN–40HT, to accommodate the dry storage of fuel with higher enrichment and high burnup fuel. The NRC staff also completed an EA in support of this amendment and determined a FONSI was appropriate (NRC, 2009).

NRC's regulations at Title 10 of the Code of Federal Regulations (CFR) Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste," specifically 10 CFR 72.42(a), state that an ISFSI license may be renewed by the Commission upon application by the licensee for a period not to exceed 40 years if NRC requirements are met. NRC issued this provision allowing license applicants to request renewals of site-specific ISFSI licenses for a period not to exceed 40 years in a final rule published in the *Federal Register* (FR) on February 16, 2011 (76 FR 8890).

On October 20, 2011, NSPM submitted an application (NSPM, 2011a) to NRC requesting renewal of license SNM–2506 for the PINGP ISFSI for an additional 40 years. NSPM supplemented its application on February 29, 2012 (NSPM, 2012a), April 26, 2012 (NSPM, 2012b), July 26, 2013 (NSPM, 2013a), and July 31, 2014 (NSPM, 2014a). On March 30, 2012, the NRC staff accepted NSPM's application for a detailed technical review (NRC, 2012a). NRC issued a notice in the FR (77 FR 37937) providing an opportunity to request a hearing and petition for leave to intervene. NSPM provided responses on March 13, 2013 (NSPM, 2013b), to the NRC staff request for additional information (RAI) (NRC, 2013a) regarding the environmental review.

In accordance with NRC regulations at 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," that implement the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. § 4321), the NRC staff has prepared this final EA. The scope of this NRC staff review is the renewal of the PI ISFSI license for an additional 40 years.

1.2 Purpose and Need for the Proposed Action

ISFSIs are typically used by operating nuclear power plants that require increased spent fuel storage capability because their spent fuel pools have reached capacity. The PI ISFSI is needed to provide additional spent fuel storage capacity so that the PINGP Units 1 and 2 can

continue to operate. NRC issued the operating licenses for PINGP Unit 1 on August 9, 1973, and for Unit 2 on October 29, 1974. PINGP Units 1 and 2 operate under separate NRC licenses (DPR–42 and DPR–60, respectively) that will expire in 2033 and 2034, respectively (NRC, 2011a). Spent fuel assemblies from PINGP Units 1 and 2 not already stored at the PI ISFSI are currently stored onsite in a spent fuel pool. Spent fuel assemblies are moved from the spent fuel pool to a storage cask that is then transported to the PI ISFSI for temporary dry storage. The PINGP spent fuel pool does not have the needed capacity to store all the spent nuclear fuel that the PINGP Units 1 and 2 would generate through the end of their license terms. The PI ISFSI provides additional spent fuel storage capacity necessary for NSPM to continue to operate PINGP Units 1 and 2 until a permanent facility (or facilities) is available for offsite final disposition of the spent fuel. If the NRC renews the PI ISFSI license as requested, NSPM would be able to continue to possess and store spent fuel generated from the PINGP operations for an additional 40 years at the PI ISFSI.

1.3 The Proposed Action

NSPM initiated the proposed federal action by submitting an application for renewal of its PINGP ISFSI for a 40-year period. The current license period ended on October 31, 2013; however, the current license continues in effect under the timely renewal doctrine as described in 10 CFR 72.42(c). NRC's federal action is the decision whether to renew the license for up to an additional 40 years. If approved, NSPM would be able to continue to possess and store PINGP spent nuclear fuel in up to 48 TN–40 and TN–40HT casks at the PI ISFSI in accordance with the requirements in 10 CFR Part 72 and license SNM-2506.

As described in Section 1.1, the PI ISFSI is licensed to store spent fuel in up to 48 casks (a total of up to 1,920 spent fuel assemblies) on two seismically qualified concrete pads. As of June 2015, there are 29 TN–40 casks (NSPM, 2011a) and 9 TN–40HT casks onsite (NSPM, 2015). Operations would continue to include storage of and periodic transfer of filled casks to the PI ISFSI pad and routine inspections and monitoring of the ISFSI site. NSPM has indicated that there will be no change in routine operations, and no new construction or land disturbance is being requested as part of this license renewal application.

1.3.1 Site Location and Description

The PI ISFSI is located within the city limits of Red Wing in Goodhue County, Minnesota (Section 5, T113N, R15W), approximately 45 kilometers (km) [28 miles (mi)] southeast of the Minneapolis–St. Paul metropolitan area (Figure 1-1). The PI ISFSI is approximately 2.2 hectares (ha) [5.5 acres (ac)] in size and located within PINGP site boundary and exclusion area of approximately 230 ha [578 ac] (Figure 1-2). The ISFSI is located approximately 274.3 meters (m) [900 feet (ft)] southwest from the PINGP Units 1 and 2 (Figures 1-3 and 1-4) (NSPM, 2011a). The nearest resident, a Prairie Island Indian Community (PIIC) tribe member, is approximately 0.72 km [0.45 mi] northwest of the center of the PI ISFSI (NSPM, 2011a). The PINGP site boundary is located adjacent to the PIIC reservation, and the PI ISFSI is located within 548 m [1,798 ft] of the PIIC reservation (Figure 1-2).

Prairie Island is bordered by the Vermillion and Mississippi Rivers. The PI ISFSI is located in a low island terrace associated with the Mississippi River floodplain. The ground surface near the PINGP site is fairly level to slightly rolling, ranging in elevation from 205.7 to 215.2 m [675 to 706 ft] above mean sea level (AMSL) (NSPM, 2011a). The PI ISFSI pad elevation is 211.7 m [694.5 ft] AMSL (NSPM, 2011a). The surface slopes gradually toward the Mississippi River to

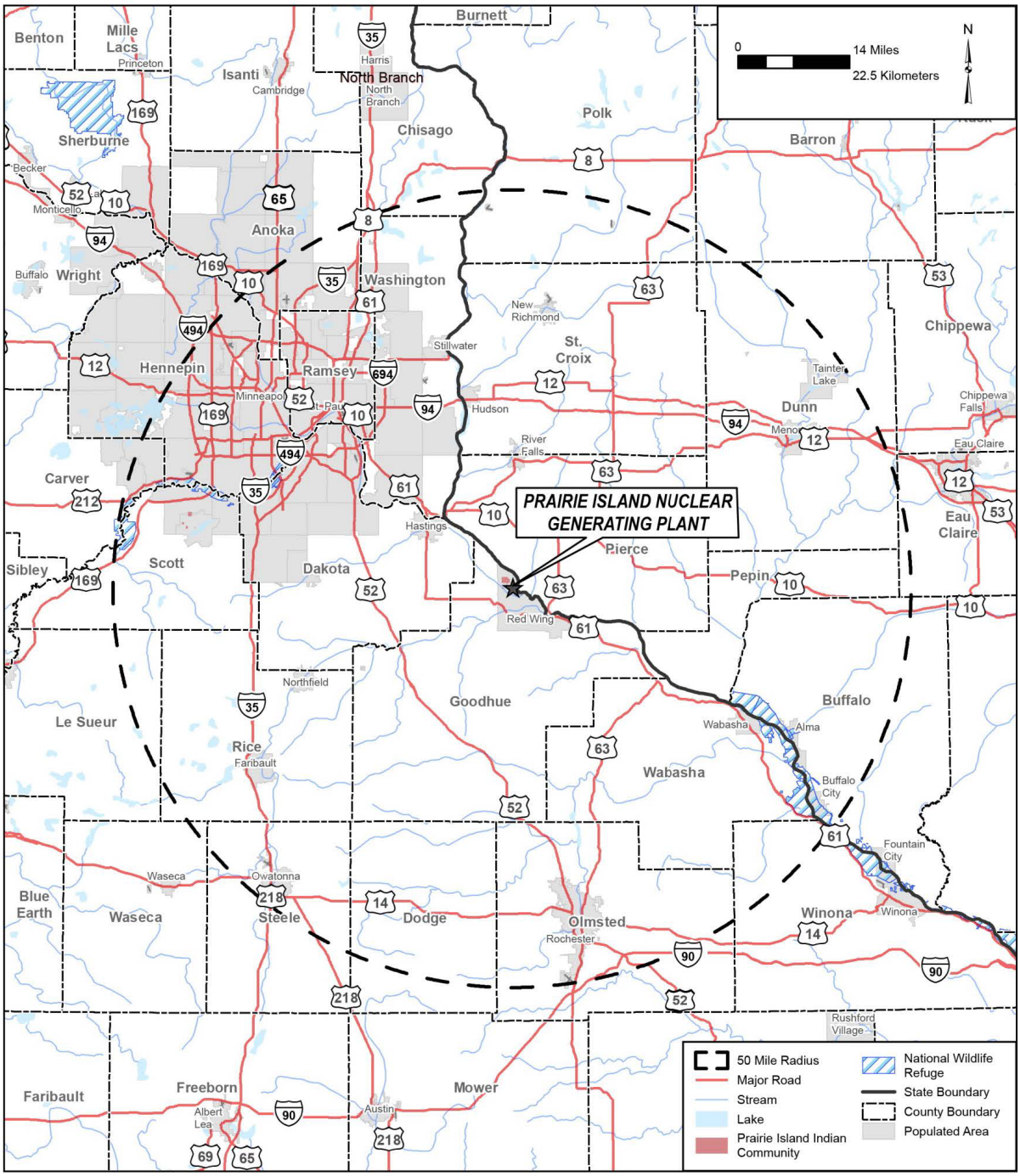

Figure 1-1. The Prairie Island Site and 80-km [50-mi] Region (Modified From NSPM, 2011a)

the northeast and Vermillion River on the southwest. Normal water level is 205.6 m [674.5 ft] AMSL. Water level is controlled by the U.S. Army Corps of Engineers (USACE) Lock and Dam No. 3 located on the Mississippi River. Ground cover consists of prairie grass and brush (NSPM, 2011a).

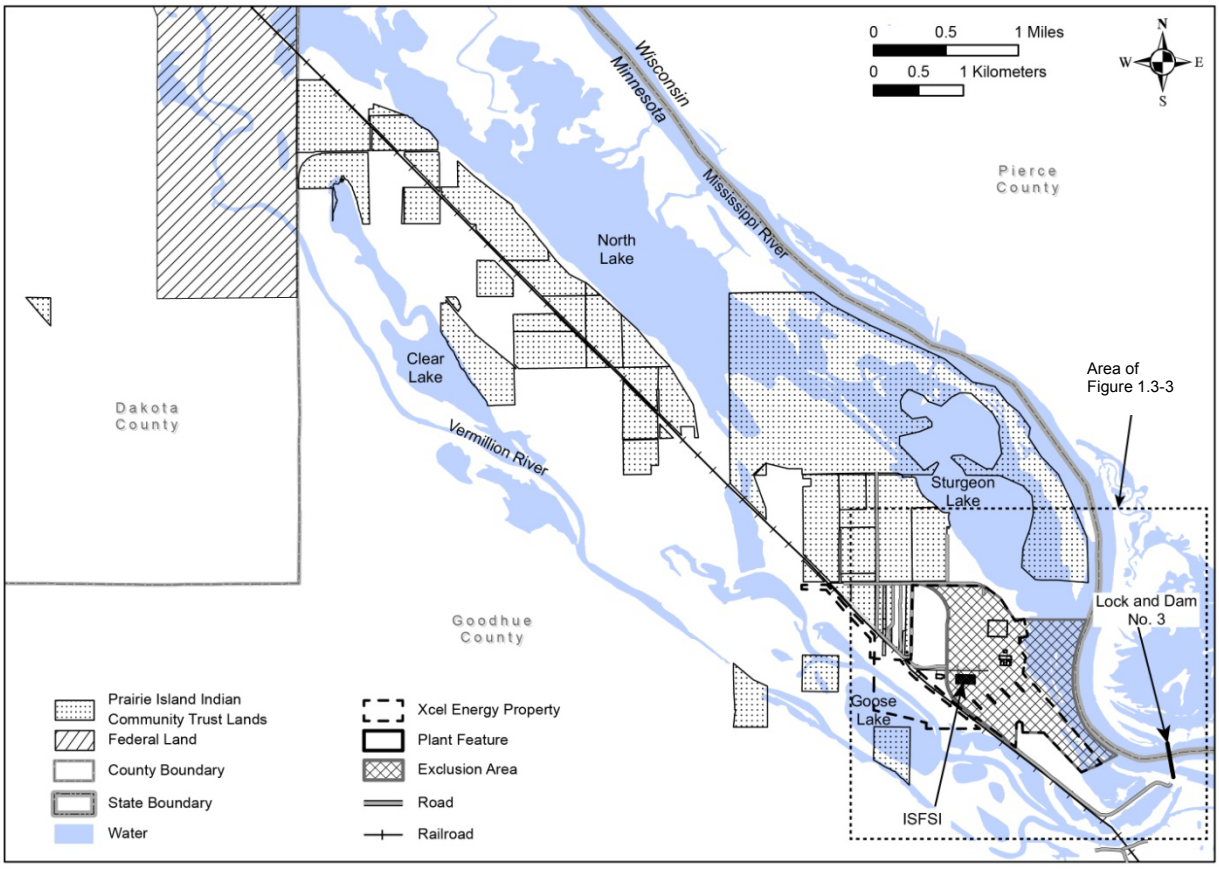

Figure 1-2. Prairie Island General Site Drawing (NMC, 2008; PIIC, 2013a; USCB, 2012)

The PI ISFSI site is covered with concrete and gravel. The protected area fence surrounding the ISFSI is within the PINGP site boundary and exclusion area. The PI ISFSI is surrounded by two 2.4-m [8-ft]-high security fences and a 2.4-m [8-ft]-high nuisance fence. An earthen berm {5.2 m [17 ft] high}, located between the nuisance fence and the security fences, surrounds the ISFSI and provides radiological shielding (NSPM, 2011a). An equipment storage building and a security building are located on the northeast corner of the PI ISFSI within the security and nuisance fences. The equipment storage building houses the cask transport vehicle. The alarm monitoring equipment is housed in a building outside of the earthen berm but inside the nuisance fence north of the access road (Figure 1-5 depicts the PI ISFSI layout) (NSPM, 2011a).

1.3.2 Current Independent Spent Fuel Storage Installation and Dry Cask Storage System Description

The PI ISFSI is licensed to store spent nuclear fuel in the TN–40 and TN–40HT bolted cask design systems. Each TN-40 cask is designed to hold 40 fuel assemblies with initial enrichment less than or equal to 3.85 percent weight uranium-235 (U-235), assembly average burnup up to 45,000 megawatt days per metric ton of uranium (MWD/MTU), minimum cooling time of 10 years, and maximum heat load of 27 kilowatt (kW) (NSPM, 2011a). The TN–40HT cask is designed to hold 40 fuel assemblies with initial enrichment less than or equal to 5.0 percent weight U-235, assembly average burnup up to 60,000 MWD/MTU, minimum cooling time of 12 years, and maximum heat load of 32 kW (NSPM, 2010a).

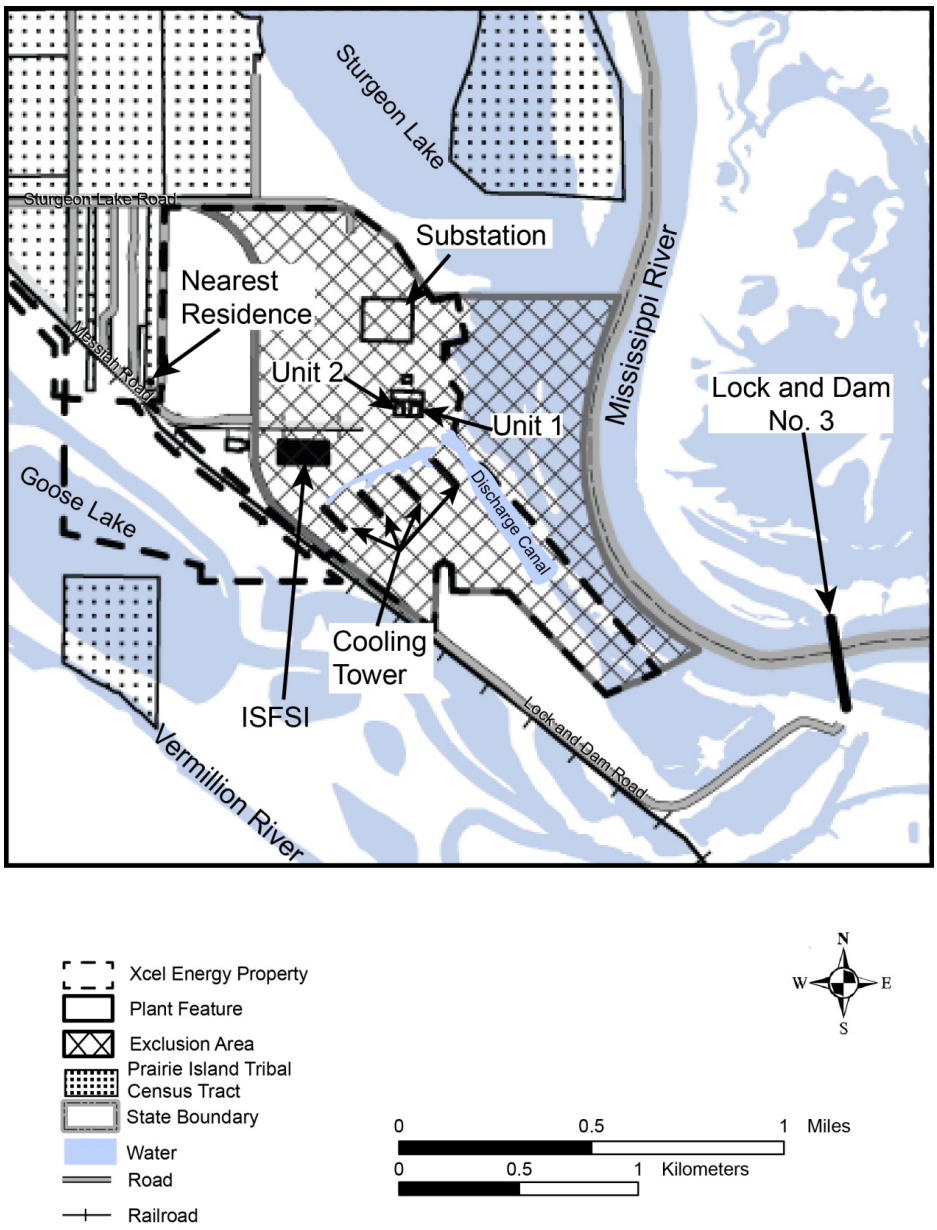

Figure 1-3. Prairie Island Nuclear Generating Plant (NMC, 2008; PIIC, 2013a; USCB, 2012)

Currently, 38 vertically positioned casks are located on two seismically qualified, reinforced concrete pads. Each pad consists of two parallel rows that can hold 12 casks per row for a total design capacity of 48 casks (NSPM, 2011a). The concrete pads are 91 centimeters (cm) [36 inches (in)] thick and provide structural support for the casks; thus, the pads are classified as safety related. The PI ISFSI pad elevation is 211.7 m [694.5 ft] AMSL (NSPM, 2011a).

The earthen berm is constructed of fill material reinforced with geofabric. Erosion control material and natural vegetation give the berm a natural appearance (NSPM, 2011a).

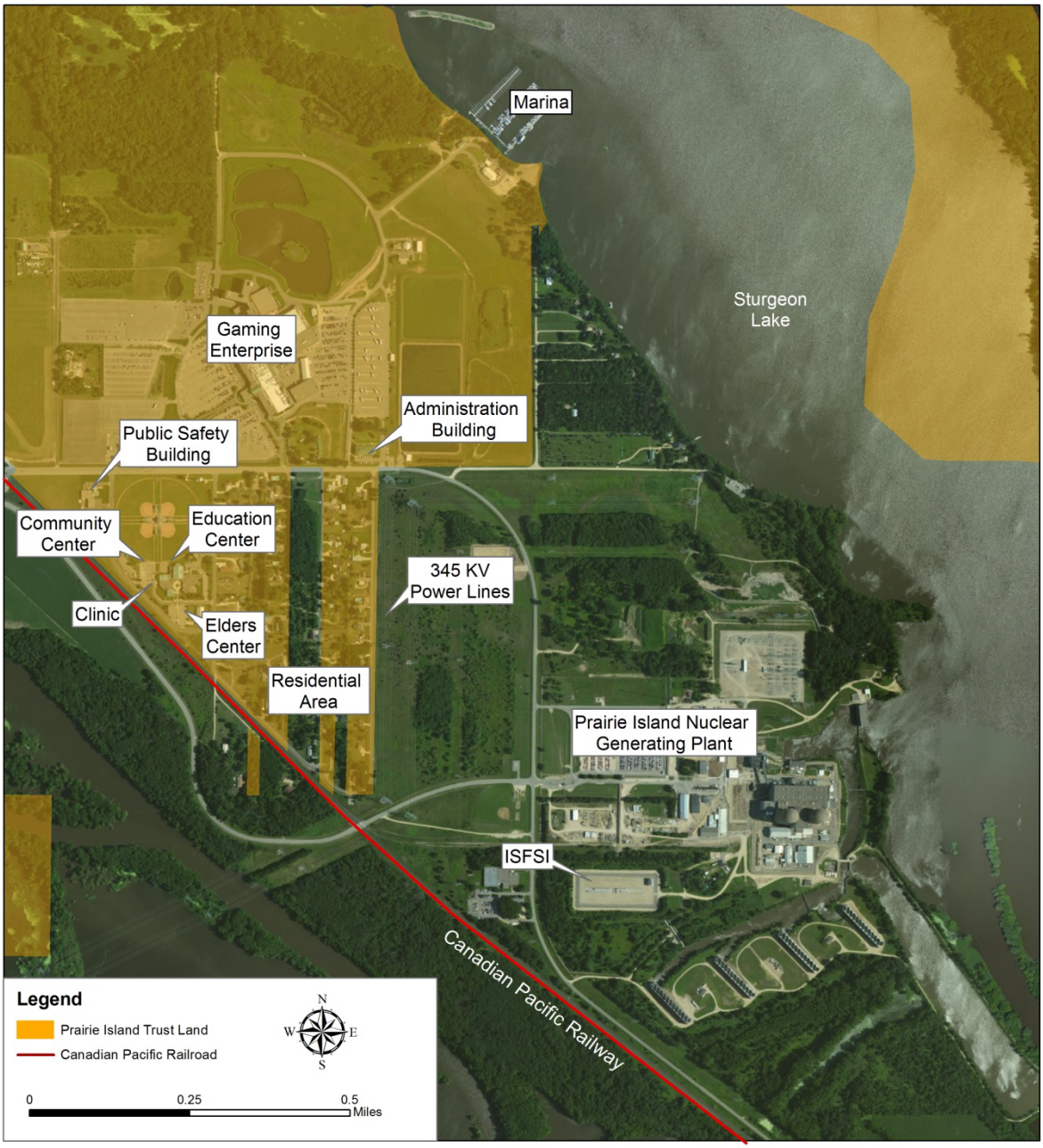

Figure 1-4. Prairie Island Indian Community and Prairie Island Nuclear Generating Plant Layout (Minnesota Geospatial Information Office, 2010; PIIC, 2014a)

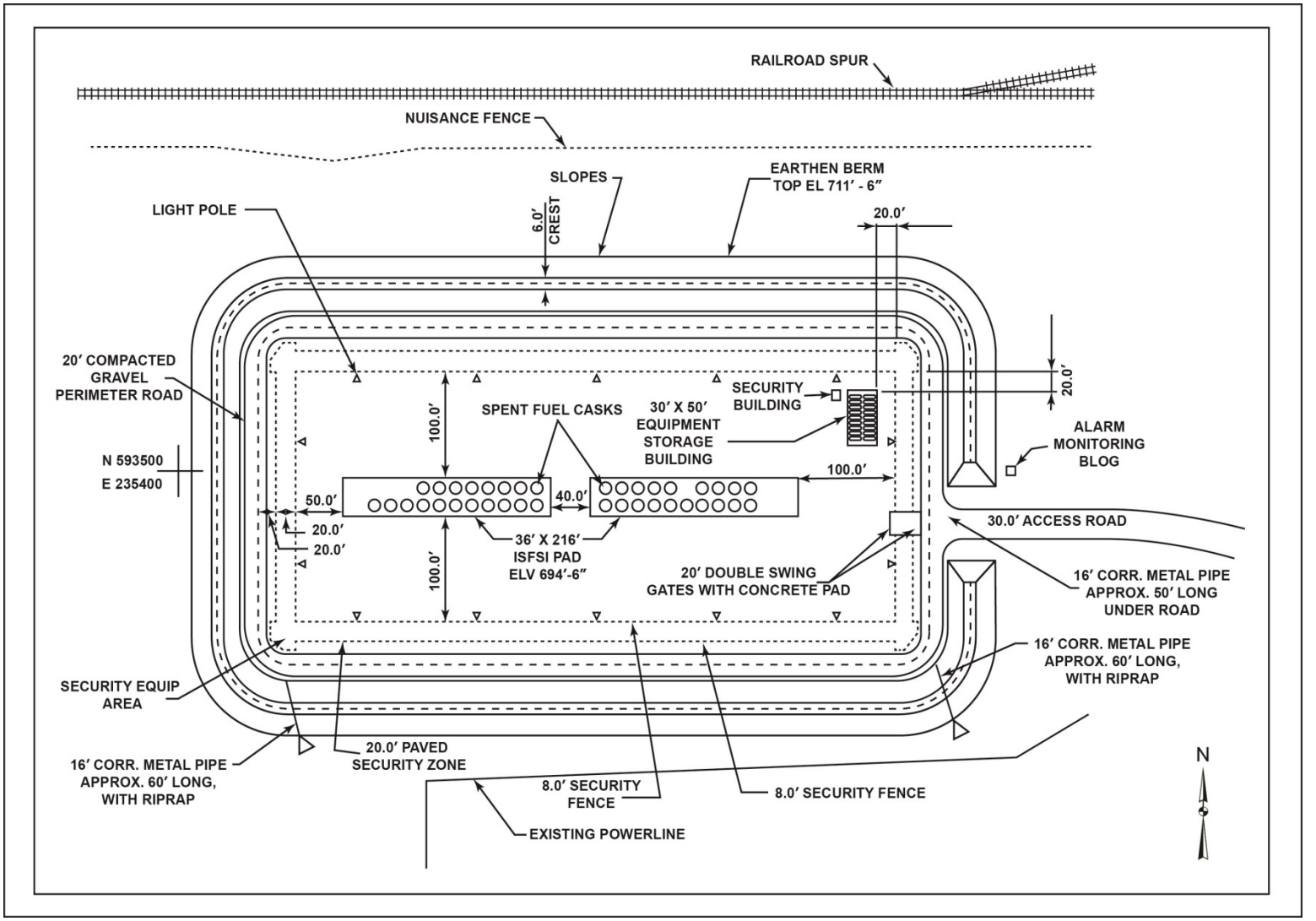

Figure 1-5. Prairie Island Dry Cask Storage Facility (Modified from MPUC, 2009a; NSPM, 2013c, 2012c, 2008a)

Handling of the fuel, cask loading, and decontamination of the casks takes place within the PINGP auxiliary building; thus, there are no fuel handling facilities exclusively for the PI ISFSI (NSPM, 2011a).

Each storage cask consists of the following components:

- Basket assembly for support of the fuel assemblies
- Containment vessel enclosing basket assembly and fuel
- Gamma shield
- Neutron shield
- Top neutron shield
- Pressure monitoring system
- Weather cover

1.3.3 Waste Management

Operation of the PI ISFSI generates no gaseous wastes, and there are no ventilation or off-gas systems. Additionally, no sanitary sewage is produced (NSPM, 2011a). Maintenance of the cask transport vehicle is performed in the equipment storage building within the PI ISFSI controlled area. These maintenance activities produce small amounts of wastes, such as ethylene glycol (antifreeze) or drips of lubricating fluid, which are cleaned up and disposed of at appropriate facilities. Other wastes generated include small amounts of cleaning and maintenance waste products involved with occasional replacement and recalibration of monitoring instrumentation and applying corrosion-inhibiting coatings on some casks (NSPM, 2011a).

1.3.4 Monitoring Programs

NSPM performs routine monitoring activities. These activities include the Radiological Environmental Monitoring Program (REMP) for PINGP Units 1 and 2 and the PI ISFSI. The REMP for the PI ISFSI is conducted in accordance with the PI ISFSI license SNM–2506, ISFSI Technical Specification 5.2, Appendix A. Ambient gamma radiation is monitored at the PI ISFSI through 20 thermoluminescent dosimeters (TLDs) (NSPM, 2014b). TLDs are instruments that measure the ambient or total gamma radiation levels resulting from nuclear facilities and naturally occurring radiation fields emitted from the atmosphere (cosmic radiation) and the Earth (terrestrial radiation). Twelve TLDs are located inside of the PI ISFSI earthen berm, 8 TLDs are located outside of the earthen berm, and 15 additional TLDs are located between 6 and 8 km [4 and 5 mi] from the PINGP. The TLDs are measured and replaced quarterly (NSPM, 2014b). The results of the quarterly surveys are documented in the annual REMP report to NRC (NSPM, 2014b). The REMP for the PI ISFSI does not include any other physical, chemical, or ecological monitoring (NSPM, 2011a). Results from the ISFSI environmental monitoring program over the last 8 years are further discussed in Section 3.11 of this EA. The REMP for the PI ISFSI will continue throughout the extended period of operation, if the proposed license renewal is approved.

The application also describes the ISFSI Aging Management Program (AMP). Ten elements identified for the PI ISFSI that are part of the ISFSI Inspection and Monitoring Activities Program (IMAP) account for managing each aging effect listed in the ISFSI IMAP:

- Visual inspection of the exterior of the in-service casks
- Monitoring of the interseal pressure of the in-service casks
- Radiation monitoring and associated surveillance activities of the in-service casks
- Visual inspection of the concrete pads
- Visual inspection of the earthen berm
- Visual inspection of an in-service cask bottom prior to the end of the current ISFSI license period
- Visual inspection under an in-service cask protective cover (surfaces normally not visible or accessible with the cover in place) prior to the end of the current ISFSI license period
- Visual inspection of the cask bottom in the event an in-service cask is lifted in preparation for movement (inspections of opportunity)
- Visual inspection under the protective cover (surfaces normally not visible or accessible with the cover in place) of an in-service cask in the event the cover is removed for maintenance (inspections of opportunity)
- Visual inspection of the bottom and under the protective cover of the lead cask at least every 20 years

The NRC staff's safety analysis, including NRC's review of the licensee's AMP, will be documented in a separate safety evaluation report (SER).

1.3.5 Decommissioning

10 CFR Section 72.54, titled "Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas," identifies the provisions for termination of specific licenses for and decommissioning of ISFSIs. In accordance with 10 CFR 72.54(d), each licensee must notify the NRC in writing, and submit within 12 months of this notification, a final decommissioning plan if (i) the licensee has decided to permanently cease principal activities at the entire site or any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements, or (ii) no principal activities under the license have been conducted for a period of 24 months, or (iii) no principal activities have been conducted for a period of 24 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements. The decommissioning plan would be developed consistent with applicable regulations and submitted for NRC review and approval. Decommissioning would begin upon NRC approval of the plan. The content of the decommissioning plan is provided under 10 CFR 72.54(g). The NRC would conduct a separate environmental review associated with the review and approval of the decommissioning plan. Potential environmental impacts associated with decommissioning, taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, are described in Chapter 4 of this EA following the potential impacts from the proposed action for each resource area.

In its application (NSPM, 2011a), NSPM discussed two options for decommissioning. The storage casks, including the spent fuel assemblies, could be shipped to a suitable repository for final disposal. Alternatively, the spent fuel could be removed from casks and shipped in a licensed shipping container to a suitable repository. NRC has certified the TN–40 cask for transportation of the spent nuclear fuel from the PINGP (NRC, 2011b). The TN–40HT cask has not been certified for transportation of the spent nuclear fuel from the PINGP.

1.4 Federal, State, and Local Agencies

NSPM is responsible for complying with all NRC regulations and other applicable federal, state, and local requirements. A summary of the regulatory requirements and permits, in addition to requirements of an NRC licensee, for activities at the PI ISFSI follows.

NSPM applied for a certificate of need (CON) from the Minnesota Public Utilities Commission (MPUC) for storage of up to a total of 64 casks of spent fuel that will be generated during PINGP Units 1 and 2 extended period of operation (NSPM, 2011a). In July 2009, MPUC completed an environmental impact statement pursuant to Minnesota law to evaluate the PI ISFSI expansion and granted NSPM a CON to store up to 64 casks within the PI ISFSI with the conditions that (i) the design and operation of the spent fuel storage facility are adequate to guard against prohibited groundwater contamination and (ii) NSPM provides an update on the current emergency response plans in its annual status reports to the MPUC (MPUC, 2009a,b).

NSPM is authorized to discharge industrial waste water and storm water to the Mississippi River under National Pollutant Discharge Elimination System (NPDES) Permit MN0004006. The permit regulates the amount of river water PINGP Units 1 and 2 can use for cooling and limits effluents associated with the PINGP. Operation of the PI ISFSI does not result in any industrial waste water discharge. No storm water samples are collected and analyzed at locations where surface water runoff leaves the PI ISFSI area. The current requirements of the NPDES permit in place are summarized in the NRC's Supplemental Environmental Impact Statement for the PINGP license renewal in Section 2.1.6.3 (NRC, 2011c).

1.5 Cooperating Agencies

Trust Responsibility

The Federal Government has a trust responsibility to federally recognized tribes, which establishes fiduciary obligations to federally recognized Indian tribes (NRC, 2014a). NRC's Tribal Protocol Manual, Section 1.D explains that, for federal agencies that hold tribal assets, the trust responsibility establishes fiduciary obligations to the tribes, including duties to protect tribal lands and cultural and natural resources for the benefit of tribes and individual tribal members/land owners. This manual also clarifies that the NRC, as an independent regulatory agency, exercises its fiduciary duty in the context of its authorizing statutes, in this case the Atomic Energy Act, NEPA, and the National Historic Preservation Act (NHPA) of 1966, as amended. As explained in SECY–14–0006, "Tribal Consultation Policy Statement and Protocol," dated January 10, 2014, the NRC has demonstrated a commitment to achieve the Executive Order 13175 (65 FR 67249) objectives by implementing a case-by-case approach to interactions with federally recognized tribes. In this Commission paper, the NRC staff further explain that this case-by-case approach has established a foundation for government-to-government relationships that respects the right for tribal self-government and

self-determination. As part of the implementation of this approach for this proposed action, the NRC has entered into a memorandum of understanding (MOU) with the PIIC, as discussed in the following section.

Memorandum of Understanding with the Prairie Island Indian Community

In October 2012, NRC and the PIIC entered into an MOU. The MOU acknowledges the PIIC's special expertise in the areas of historic and cultural resources, socioeconomics, land use, and environmental justice as they relate to license renewal for the PI ISFSI. The MOU establishes a cooperating agency relationship between NRC and the PIIC and defines the roles and responsibilities of both entities and the process they will use to prepare an EA that incorporates and reflects the PIIC's views in the areas of special expertise. The MOU can be found under the Agencywide Documents Access and Management System (ADAMS) Accession Number ML12284A456 (NRC, 2012b).

In preparing this final EA, the PIIC and NRC worked together to develop a comprehensive evaluation of the areas covered by the MOU. NRC considered all input the PIIC provided and incorporated information where appropriate. The PIIC's analysis and statements are included to present its viewpoint on the areas covered by the MOU in relevant sections of this EA. These written statements are indented to distinguish them from NRC text.

The Prairie Island Indian Community Tribal Government

The PIIC is a federally recognized Indian tribe organized under the Indian Reorganization Act of 1934 (25 U.S.C. § 476). Members of the PIIC are descendants of the Mdewakanton Band of Eastern Dakota, also known as the Mississippi or Minnesota Sioux, who were parties to various treaties with the United States from 1805 to 1863 (PIIC, 2014b). A sovereign tribe, such as the PIIC, has a government structure separate from both the state and federal governments. The PIIC is governed by the Constitution and By-Laws of the Prairie Island Indian Community. A five-member Tribal Council is elected by the tribal members every 2 years to uphold the Tribal Constitution and By-Laws in determining who is or is not eligible to be enrolled in a federally recognized Indian tribe; each individual tribe establishes its own criteria for enrollment. Many tribes determine a blood quantum (or degree of full-blood, such as 25 percent) or will establish enrollment by lineal descendency from a common group of ancestors. For PIIC, tribal membership is determined by lineal descendency (PIIC, 2014b).

1.6 Consultations

The NHPA was enacted to create a national historic preservation program, including the National Register of Historic Places (NRHP) and the Advisory Council on Historic Preservation (ACHP). Section 106 of the act requires federal agencies to consider the effects of their undertakings on historic properties. Regulations define an undertaking as "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; and those requiring a federal permit, license or approval." [See 36 CFR 800.16(y).] License renewal is a federal undertaking that requires compliance with the NHPA. The ACHP regulations implementing Section 106 of the Act are found in 36 CFR Part 800, "Protection of Historic Properties." NRC is coordinating compliance with Section 106 in parallel with the NEPA process and has notified the ACHP consistent with 36 CFR 800.8(c) (NRC, 2013b).

The Endangered Species Act of 1973 was enacted to prevent the further decline of endangered and threatened species and to restore those species and their critical habitats. Section 7 of the Act requires consultation with the U.S. Fish and Wildlife Service (FWS) of the U.S. Department of the Interior or the National Marine Fisheries Service of the U.S. Department of Commerce to determine whether (i) endangered and threatened species or their critical habitats are known to be in the vicinity of the proposed action and (ii) the proposed federal action may affect listed species or critical habitat.

NRC also requested input from the Minnesota Department of Natural Resources (DNR) (NRC, 2012c), the City of Red Wing (NRC, 2012d), and Wisconsin DNR (NRC, 2013c) to facilitate the identification of local resource areas that may be affected by a renewal of the PI ISFSI license, if approved.

Table 5-1 in this final EA lists consultation documents.

1.7 Basis for Review

The NRC staff has addressed the potential environmental impacts associated with the proposed renewal of License SNM–2506 and has documented the results of the assessment in this document. The staff performed this review in accordance with the requirements of 10 CFR Part 51 and staff guidance found in NUREG–1748 (NRC, 2003).

The NRC staff reviewed and considered the following documents in the development of this EA:

- NSPM license renewal application dated October 20, 2011 (NSPM, 2011a,b), and supplemental information submitted on February 29, 2012 (NSPM, 2012a), April 26, 2012 (NSPM, 2012b), August 21, 2014 (NSPM, 2014c), and December 16, 2014 (NSPM, 2014d)

- NSPM responses to NRC environmental RAIs (NSPM, 2013b)

- Previous NRC environmental and safety review documents for the PI ISFSI (NRC, 2010a, 2009, 1993, 1992)

- NRC's Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 39, Regarding Prairie Island Nuclear Generating Plant, Units 1 and 2, Final Report (NUREG–1437) (NRC, 2011c)

- NRC's consultation with federal agencies, Indian tribes, and state and local government agencies (see Table 5-1)

- NRC's Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel (NUREG–2157) (NRC, 2014b)

In addition, the development of this EA was closely coordinated with the SER development. Additional references may be found in Section 8.0 of this EA.

This EA documents the NRC staff's review and evaluation of the potential environmental impacts of the proposed license renewal and of reasonable alternatives. The NRC staff is

focusing on new and significant information, including changes as a result of the proposed action, changes in the affected environment, and the operating history.

To limit redundancy and to focus this EA on issues that have not been previously evaluated, the NRC staff refers to previous environmental review documents for more detailed descriptions of those aspects of analysis that remain unchanged.

2 ALTERNATIVES

2.1 Alternatives to the Proposed Action

2.1.1 No-Action Alternative

The no-action alternative would consist of denial of the Northern States Power Company, a Minnesota corporation (NSPM) (doing business as Xcel Energy) request to renew the Prairie Island (PI) independent spent fuel storage installation (ISFSI) license. The license, however, would continue in effect with respect to possession of licensed material per Title 10 of the Code of Federal Regulations (CFR) 72.54(c) until the U.S. Nuclear Regulatory Commission (NRC) notifies the licensee in writing that the license is terminated. NSPM would continue to maintain the stored spent fuel on the ISFSI in a safe and secure condition. Although the license would continue in effect, in accordance with 10 CFR 72.54(c), NSPM would not be able to place additional casks on the ISFSI storage pad. NSPM would continue to control entry and restrict access to the area until the PI ISFSI is suitable for release. If NSPM does not pursue other alternatives such as those described in the following sections, reactor operations would cease once the spent fuel pool reaches its licensed capacity.

The NRC staff addressed the impacts that arise directly as a result of the Prairie Island Nuclear Generating Plant (PINGP) Units 1 and 2 shutdown as part of the no-action alternative evaluation in the license renewal supplemental environmental impact statement (SEIS) for the PINGP Units 1 and 2 (NRC, 2011c, Section 8.6). The NRC staff concluded that the impacts to air quality, groundwater, surface water, ecology, human health, and waste management would be small, and impacts to socioeconomics would be small to moderate (NRC, 2011c).

After the reactors cease operations, decommissioning of PINGP Units 1 and 2 would begin in accordance with 10 CFR 50.82. The environmental impacts from decommissioning nuclear power plants have previously been evaluated in the "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," NUREG–0586, Supplement 1 (NRC, 2002). The environmental impacts of reactor license renewal on decommissioning were addressed in the SEIS for PINGP Units 1 and 2 (NRC, 2011c). The NRC staff did not identify any new and significant information during the reactor license renewal review. Therefore, the NRC concluded that there are no decommissioning impacts beyond those discussed in the NUREG–1437 generic environmental impact statement (GEIS), "Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants"[1] (NRC, 1999, 1996).

Decommissioning of the PI ISFSI would commence upon NRC approval of the final decommissioning plan in accordance with 10 CFR 72.54. NRC approval of the decommissioning plan would constitute a federal action under the National Environmental Policy Act and would be subject to a site-specific environmental review. Potential environmental impacts associated with decommissioning the PI ISFSI, taking into consideration an additional 40 years of operation after the proposed action, are described in Chapter 4 of this environmental assessment (EA).

[1]The NRC originally issued the NUREG–1437 GEIS in 1996 and issued Addendum 1 to the GEIS in 1999. In addition, in June 2013, the NRC issued Revision 1 to the NUREG–1437 GEIS (NRC, 2013d).

2.1.2 General License

NSPM could use its general license under 10 CFR Part 72 to store the spent fuel in dry casks. Under 10 CFR Part 72, Subpart K, "General License for Storage of Spent Fuel at Power Reactor Sites," a general license authorizes storage of spent fuel in NRC-approved dry casks at power reactor sites already licensed to possess fuel or operate nuclear power reactors under 10 CFR Part 50 or 10 CFR Part 52. Exercising a general license under 10 CFR Part 72 would require NSPM to transfer the spent fuel in the pool into a cask design that has received a certificate of compliance from the NRC under 10 CFR Part 72, or apply (through the cask vendor) for NRC certification under the general license provisions for the dry casks currently used at the PI ISFSI to store spent fuel from PINGP Units 1 and 2. NSPM would continue to operate the site-specific licensed PI ISFSI; however, because the PI ISFSI site-specific license would not be renewed, the license would continue in effect with respect to possession of licensed material per 10 CFR 72.54(c) until the Commission notifies the licensee in writing that the license is terminated. NSPM would not be able to place additional casks on the site-specific ISFSI storage pad. NSPM would continue to maintain the stored spent fuel on the PI ISFSI in a safe and secure condition.

If a new ISFSI was built under the general license provisions, there would be environmental impacts associated with construction and operation of the new ISFSI. Construction and operation impacts would be dependent on site-specific conditions within the owner-controlled area and likely be similar to those discussed in NRC's 1992 EA for the construction of the PI ISFSI (NRC, 1992). Further, impacts associated with storing spent fuel under a general license would be similar to the environmental impacts from continued operation of the site-specific ISFSI, as discussed in Chapter 4 of this EA.

2.1.3 License Renewal for an Additional 20-Year Term Alternative

The PI ISFSI was originally licensed for a 20-year period of operation. For this alternative, the ISFSI license would be renewed for an additional 20-year period consistent with the current license term. The NRC staff considered as an alternative the continued operation of the PI ISFSI for an additional 20 years to understand whether the environmental impacts of continued operations for an additional 20 years would differ from those of continued operation for an additional 40 years (proposed action).

For the 20-year alternative, only the potential radiological impacts to public and occupational health are discussed in this EA in Sections 4.11.2.1 and 4.11.2.2. The NRC staff did not separately address the 20-year alternative for the other resource areas, because the staff determined that, for those resource areas, the site operations and the types of potential environmental impacts associated with operation activities during the 20-year interval would be the same as those activities for the proposed action (i.e., the 40-year license renewal).

2.1.4 Increase the Storage Capacity of the Onsite Existing Spent Fuel Pool or Construct Additional Onsite Spent Fuel Pool Storage Space

As an alternative to the proposed action, NSPM could increase the storage capacity of the existing spent fuel pool or construct a new spent fuel pool. To increase the storage capacity of existing spent fuel pool, NSPM would need to modify the spent fuel storage configuration. As discussed in NRC's EA for the construction and operation of the ISFSI (NRC, 1992), NSPM could use a rack design with a more compact array of cells (reracking), consolidate the spent fuel rods (the fuel rods from two spent fuel assemblies are removed, reconfigured, and then

placed in a canister), or use two-tiered racks (a second tier of filled storage racks is placed on top of the existing storage racks). In the 1992 EA, the NRC staff concluded that (i) reracking would not provide a means to store spent fuel for the balance of the plant's licensed operational lifetime, (ii) spent fuel rod consolidation would not meet life-of-plant needs and would interfere with normal plant operations, and (iii) the use of two-tiered racks would require considerable support of the fuel pool walls and there are technical and licensing uncertainties associated with installed two-tiered racks. In addition, these alternatives would result in higher occupational exposure. Further, in its license renewal application, NSPM stated that structural analysis demonstrated that the capacity could be increased no more than 30–35 percent in weight. NSPM further stated that these methods to increase the capacity of the spent pool would not provide the storage necessary for the PINGP's operational life (NSPM, 2011a).

Construction and operation of a new spent fuel pool at the PINGP site would require support facilities separate from the existing spent fuel pool. In addition to requiring the same support facilities, maintenance, and surveillance as the existing spent fuel pool, a new storage pool would require new fuel handling equipment, a large capacity cask crane, building ventilation, and a water quality system. There would be environmental impacts associated with construction of the new spent fuel pool. This alternative would also result in higher occupational exposure for the additional maintenance and surveillance activities associated with operating a new storage pool.

Therefore, the NRC staff concludes that increasing the capacity of the PINGP spent fuel pool or constructing an additional onsite spent fuel pool are not reasonable alternatives to renewing the PI ISFSI license.

2.1.5 Shipment of Spent Fuel to an Offsite Facility

As an alternative to the proposed action, NSPM could ship its spent fuel to the Monticello Nuclear Generating Plant in Monticello, Minnesota. However, Minnesota Statute 116c.83 requires storage of spent fuel to be at the site where it is generated. NSPM could also ship its spent fuel to an out of state nuclear power plant with sufficient storage capacity. In order for this option to be viable, the receiving nuclear power plant would have to be licensed and willing to accept the PINGP spent fuel. The NRC staff expects that nuclear power plants would consider their own spent fuel storage capacity needs before accepting spent fuel from other sources. Therefore, the NRC staff concludes that this alternative is not reasonable.

NSPM could also construct an ISFSI at an offsite location. In addition to the impacts from activities such as packaging and transferring of the spent fuel, impacts from construction and operation of a new ISFSI at an offsite location would occur. Therefore, the NRC staff concludes that this alternative is not reasonable, because of the additional environmental impacts associated with construction of an ISFSI offsite.

Shipment of the spent fuel to a commercial reprocessing facility, a federal repository, or an interim storage facility is not a reasonable alternative, because these facilities are currently not available in the United States.

3 AFFECTED ENVIRONMENT

Prairie Island Nuclear Generating Plant (PINGP) Units 1 and 2 and the Prairie Island (PI) independent spent fuel storage installation (ISFSI) are located on the west bank of the Mississippi River in Goodhue County within the city limits of Red Wing, Minnesota (Figure 1-1). The City of Hastings is located approximately 21 kilometers (km) [13 miles (mi)] northwest (upstream) of the plant. Minneapolis and St. Paul are located approximately 63 and 51 km [39 and 32 mi], respectively, northwest of the plant. For purposes of the evaluation in this report, the "affected environment" is the environment that currently exists at and around the PI ISFSI. The existing conditions that have shaped the environment are at least partially the result of past construction and operation of PINGP Units 1 and 2 and the PI ISFSI. Section 1.3 of this environmental assessment (EA) describes the ISFSI facility and its operation.

The affected environment discussion provided in this section is summarized from NUREG–1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 39, Regarding Prairie Island Nuclear Generating Plant, Units 1 and 2, Final Report" (NRC, 2011c); "Environmental Assessment for the Amendment of U.S. Nuclear Regulatory Commission License No. SNM–2506 for the Independent Spent Fuel Storage Installation, Docket 72–0010" (NRC, 2009); "Environmental Assessment Related to Construction and Operation of the Prairie Island Independent Spent Fuel Storage Installation, Docket No. 72–10, Northern States Power Company" (NRC, 1992); and updates from independent sources as referenced. Some of the supporting information the Prairie Island Indian Community (PIIC) provided to the U.S. Nuclear Regulatory Commission (NRC) staff for the development of this EA is not publicly available and is cited as such.

3.1 Land Use

Onsite

As discussed in Sections 1.2 and 1.3.1, Northern States Power Company, a Minnesota corporation (NSPM) (doing business as Xcel Energy), owns and operates the PINGP Units 1 and 2 and associated facilities on approximately 234 hectares (ha) [578 acres (ac)] of land on PI. The land is currently zoned for industrial use. The developed portion of the PINGP industrial site occupies approximately 24 of the 234 ha [60 of the 578 ac] of land and consists of the ISFSI, power plant structures and associated buildings, maintenance facilities, and parking lots (AEC, 1973).

Approximately 97 ha [240 ac] of the PINGP property were disturbed and modified during the construction of PINGP Units 1 and 2, of which approximately 73 ha [180 ac] were returned to grassland after PINGP Unit 1 and 2 construction was completed (NRC, 2011c, Section 2.2.1). The remaining 137 ha [338 ac] of the PINGP property are primarily undisturbed and wooded. The U.S. Army Corps of Engineers (USACE) owns a small strip of land within the PINGP exclusion zone on the banks of the Mississippi River northeast of Units 1 and 2, which NSPM leases (NRC, 2011c, 1992).

Prior to construction, the land at PINGP and the PI ISFSI site was used for agriculture. During the construction of PINGP Units 1 and 2, portions of the PI ISFSI area were used for the concrete batch plant and disposal of dredge material collected from the excavation of the PINGP discharge canal (NRC, 2011c; NSPM, 2013b). After the construction of PINGP Units 1

and 2 and prior to the installation of the ISFSI, the land remained undeveloped and was covered in prairie grass, weeds, and trees (NRC, 1992).

Based on NRC review of construction photographs and NSPM responses to the NRC's environmental request for additional information (RAI), excavation activities that occurred during construction of the PI ISFSI extended to a depth of about 1.8 m [6 ft] below the center line of the concrete ISFSI pads for the installation of foundation and electrical conduit housing (duct bank) (NRC, 2012e; NSPM, 2013b). The vertically central trench beneath the concrete pads is approximately 1.2 meters (m) [4 feet (ft)] wide and accommodates a 0.9-m [3-ft]-wide concrete duct bank (NSPM, 2008a, pp. 7–49). Construction of this trench caused the deepest disturbances during PI ISFSI construction activities. The land area within the ISFSI security fences is approximately 2.3 ha [5.5 ac] and includes the dry storage pad, equipment storage building, and security building. The alarm monitoring building is located outside the earthen berm and north of the access road. Figure 1-3 depicts the general PINGP layout and exclusion zone boundary. Figure 1-5 depicts the PI ISFSI layout.

Offsite

Current land use within 8 km [5 mi] around the PINGP is a mixture of commercial, light industrial, residential, municipal, and agricultural land. Land beyond the Red Wing, Minnesota, city limits is used mostly for agriculture (Goodhue County, 2004). The area across the Mississippi River in Pierce County, Wisconsin, is primarily agricultural land with some rural residential areas along the Interstate 35 corridor and near Hagar City (Pierce County, 2013). Open water areas in the vicinity receive seasonal heavy recreational use. Points of access to water areas within an 8-km [5-mi] radius include the PIIC marina and other private marinas, Red Wing or other community facilities/boat ramps, and campgrounds.

Prairie Island Indian Community

The PI ISFSI is located immediately adjacent (south and southeast) to the PIIC Reservation on the ancestral homeland of the Mdewakanton Band of Eastern Dakota (see Section 3.10.1 for additional cultural background of Prairie Island and the PIIC). The PIIC owns and operates the Treasure Island Resort and Casino, located approximately 1.6 km [1 mi] northwest of the PI ISFSI. Treasure Island began as a one-room bingo hall in 1984 and has since grown to include a 480-room hotel, 9 restaurants and bars, 24-lane bowling alley and arcade, 3,000-seat entertainment and convention center, 137-slip marina, and 95-site recreation vehicle park. The PIIC also owns and operates Dakota Station, a gas station and convenience store. The PI ISFSI is located approximately 1.6 km [1 mi] southeast of the Dakota Station (PIIC, 2013b).

The closest occupied offsite residence is approximately 0.72 km [0.45 mi] northwest of the center of the PI ISFSI (NSPM, 2011a) (Figure 3-1). The PIIC's Lower Island residential area, church, clinic, community center, education building, elder center, fitness center, pow-wow grounds, public safety building, softball diamonds, tribal court, tribal government administration building, water treatment facility, and wastewater treatment facility are located within a 1.6-km [1-mi] radius northwest of the PI ISFSI (PIIC, 2013b). Certain portions of the undeveloped areas of PI (both on and off reservation) are used for traditional ceremonies, medicinal plant gathering, prairie restoration, wild rice restoration, hunting, fishing, and other recreational activities (PIIC, 2013b).

The PIIC has approximately 900 enrolled members with approximately 325 members residing on the tribal lands within a 1.6 to 8-km [1 to 5-mi] radius of the PINGP (PIIC, 2013b). The

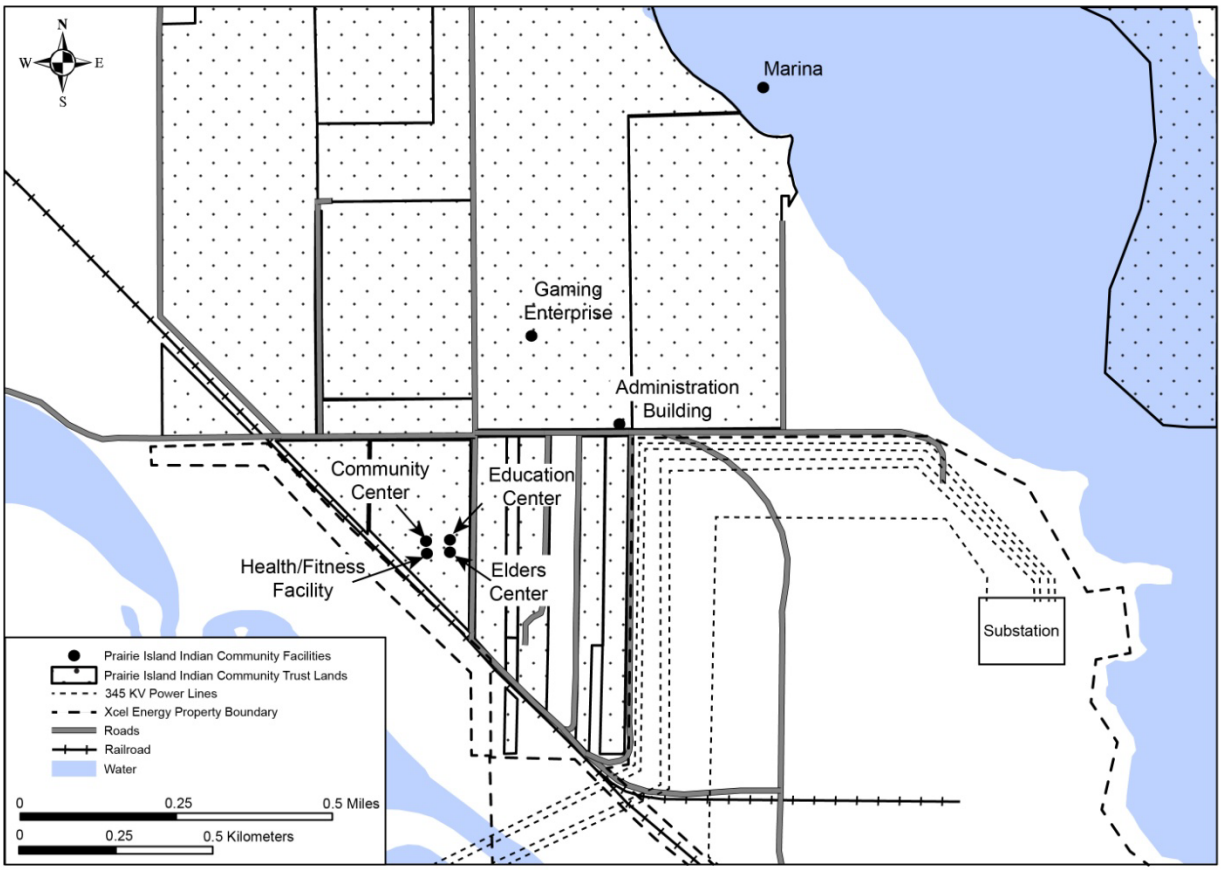

Figure 3-1. Prairie Island Indian Community Facilities (Source: PIIC, 2013a)

annual rate of population growth is estimated to be approximately 4 percent. Each enrolled adult member is eligible for a 0.4-ha [1-ac] land assignment, although there are only a limited number of land assignments currently available outside of the Mississippi River floodplain. It costs the PIIC approximately $35,000 to develop the infrastructure for each land assignment (roads, water, and sewer) (PIIC, 2013b).

The Tribal Council issues a land assignment certificate to each assignee, who is granted lifetime use of the land. Assignees of new land assignments (i.e., newly developed with no existing dwellings) have 1 year to make improvements (i.e., construct or place a home on the assignment) (PIIC, 2013b).

The PIIC's land holdings total more than 1,200 ha [3,000 ac] (including both land and water) including the most recent acquisition known as "Parcel D." This new parcel was transferred on April 4, 2013, from USACE to the Bureau of Indian Affairs (BIA) and placed into trust for the benefit of the PIIC (PIIC, 2013b; USACE, 2013). As explained in the PINGP license renewal supplemental environmental impact statement (SEIS), reservation and trust lands are not subject to state or local land use jurisdiction and Indian tribes are free to develop independent land-use policies and management plans (NRC, 2011c). In addition to its trust land, the PIIC also owns the Mount Frontenac Golf Course, which includes approximately 170 ha [426 ac] of land that are not in trust and are therefore subject to state and local jurisdiction. The Mount Frontenac Golf Course is located about 26 km [16 mi] southeast of the PIIC Reservation. The PIIC does not plan to request that the Mount Frontenac parcel be placed into trust (PIIC, 2013b).

A number of projects on PI summarized in the PINGP license renewal SEIS have been conducted to provide the PIIC with information that supports land management, restoration, and enhancement efforts. Among the projects described is a medicinal and culturally important plant study conducted in 2008 and 2009 within the PINGP property boundary. The study identified yarrow, ragweed, big milkweed, lamb's quarter, wild strawberry, sunflower, sweet clover, sand primrose, Virginia creeper, goldenrod, and pennyroyal within the PINGP property boundary, which are all medicinal and culturally important plant species to the PIIC (AEC, 1973; NRC, 2011c).

3.2 Transportation

The PINGP license renewal SEIS (NRC, 2011c) states that the primary routes workers within the region of influence (ROI) [i.e., the three-county area (Goodhue and Dakota Counties in Minnesota and Pierce County in Wisconsin)] use to commute to the PINGP are U.S. Highway 61, County Road 19, County Road 31, and County Road 18.

Because Sturgeon Lake Road is the only access road from U.S. Highway 61 to the PINGP and the PIIC property, the PIIC members have concerns regarding traffic on land that comprises the tribe's residential area, the casino, and tribal government offices (NRC, 2011c). In addition to pedestrian, bicycle, and motorized carts, daily traffic on Sturgeon Lake Road includes approximately 102 tribal government employees and as many as 16,000 Treasure Island Resort and Casino guests and 1,500 Treasure Island employees (NRC, 2011c). Table 3-1 provides 2011 traffic counts and indicates that average annual daily traffic counts (AADTs) are below maximum capacities for the roads leading to PINGP and the PIIC Reservation.

Table 3-1. Major Commuting Routes Leading to the Prairie Island Nuclear Generating Plant and 2011 Average Annual Daily Traffic Counts

Roadway and Location	Road/Highway Capacity (Vehicles Per Day) (NRC, 2011c)	Annual Average Daily Traffic (AADT)* (Minnesota Department of Transportation, 2011)
County Road 18 (just north of intersection with Sturgeon Lake Road)	12,000	6,300
County Road 18 Segment (south of intersection with Sturgeon Lake Road and north of County Road 19)	12,000	7,300
County Road 18 (between County Road 19 and County Road 46, Mt. Carmel Road)	12,000+	7,200
Sturgeon Lake Road	20,000	12,600
County Road 19 (between County Road 18 and U.S. Highway 61)	5,000	310
County Road 31 (between County Road 18 and U.S. Highway 61)	10,000	580
County Road 7 (just south of intersection with U.S. Highway 61)	Not Available	640
U.S. Highway 61 (between County Road 18 and MN 316)	40,000	10,000†
U.S. Highway 61 (between County Road 18 and County Road 19)	40,000	17,400‡

*All AADTs represent traffic volume during the average 24-hour day during 2011.
†Heavy commercial annual average daily traffic count is 360 for this segment.
‡Heavy commercial annual average daily traffic count is 1,100 for this segment.
Sources: NRC, 2011c; Minnesota Department of Transportation, 2011.

The Mississippi River is a major shipping channel that is used for PINGP transportation needs. Barges pass through Lock and Dam 3 to the PINGP barge landing. This mode of transportation was used for the Unit 1 steam generator replacement in 2004 and was used for the Unit 2 steam generator replacement project in 2013 (NRC, 2011c; NSPM, 2013d).

3.3 Demography and Socioeconomics

The socioeconomic ROI is defined as the area in which PINGP Units 1 and 2 and PI ISFSI employees and their families reside, spend their income, and use their benefits, thereby affecting economic conditions in the region. The socioeconomic ROI includes Goodhue and Dakota Counties, Minnesota, and Pierce County, Wisconsin. Approximately 83 percent of PINGP employees, including ISFSI workers, reside in the three-county ROI (NRC, 2011c).

The communities around the PI ISFSI are predominantly rural and include the city of Red Wing (population 16,459) and smaller population centers such as Miesville (population 125) and Welch township (population 754), Minnesota, and Hager City (population 338) and Diamond Bluff (population 194), Wisconsin (USCB, 2013a). The center of the PI ISFSI is located approximately 0.72 km [0.45 mi] southeast of the nearest resident on the PIIC Reservation. The PIIC has approximately 900 enrolled members; approximately 325 members reside on tribal land (PIIC, 2013b).

Demographics

Using 2010 census block group data, an estimated 50,308 people live within 16 km [10 mi] of the PI ISFSI, which equates to a population density of 63 people per km^2 [160 people per mi^2]. An estimated 3,066,565 people live within 80 km [50 mi] of the PI ISFSI, which equates to a population density of 152 people per km^2 [390 people per mi^2] (NSPM, 2011a). NRC staff use census block groups because the U.S. Census Bureau (USCB) does not report information on income for blocks, the smaller geographic area, and census tracts are too large to identify minority or low-income communities (NRC, 2003).

Population changes and projections for the ROI are shown in Table 3-2. Between 2000 and 2010, the populations grew by 4.7 percent in Goodhue County and 11.5 and 12 percent in Pierce and Dakota Counties, respectively. County populations are projected to grow at similar rates over the next decade, followed by lower growth rates over the following several decades.

Table 3-2. Total Population and Percentage Growth in Goodhue and Dakota Counties, Minnesota, and Pierce County, Wisconsin, 2000 to 2045

County	Population (Percentage Growth)*					
	2000	2010	2020	2030	2040	2045
Goodhue	44,127	46,183 (4.7)	50,589 (8.7)	53,435 (5.3)	55,022 (2.8)	55,636 (0.1)
Dakota	355,904	398,552 (12.0)	439,201 (9.2)	471,291 (6.8)	492,303 (4.2)	497,438 (1.0)
Pierce	36,804	41,019 (11.5)	47,008 (12.7)	51,963 (9.5)	ND	ND

Sources: USCB, 2013a; Minnesota State Demographic Center, 2014a,b, 2012; Wisconsin Department of Administration, 2014, 2013, 2008
*Percentage growth rate is calculated over the previous decade
ND = no data

According to the PIIC's estimation, the population of the PIIC is growing at an estimated rate of 4 percent per year. If this rate continues, it is estimated that the PIIC could grow by 600 people over the next 40 years. The population of the City of Red Wing grew 2.13 percent between the years 2000 and 2010 (Census Viewer, 2014). If this rate continues, it is estimated that the City of Red Wing could grow by approximately 1,450 people over the next 40 years.

The demographic profile for the ROI is presented in Table 3-3. All three counties have predominantly white populations. With the exception of American Indian, all minority and ethnic populations are proportionately concentrated in Dakota County. Hispanic or Latino is the main minority group; approximately half of the total minority population in all three counties is Hispanic or Latino in ethnicity. Minorities (race and ethnicity combined) comprise 12.9 percent of the total population in the ROI.

Table 3-3. Demographic Profile of the 2010 Population in the Region of Influence

	Goodhue, Minnesota	Dakota, Minnesota	Pierce, Wisconsin	Region of Influence
Total Population	46,183	398,552	41,019	485,754
Race—Total Population, not Hispanic or Latino (Percent of Total Population)				
White	43,684 (94.6)	339,499 (85.2)	39,614 (96.6)	422,797 (87.0)
Black or African American	445 (0.96)	18,709 (4.7)	232 (0.57)	19,386 (4.0)
American Indian and Native Alaskan	533 (1.15)	1,647 (0.41)	151 (0.37)	2,331 (0.48)
Asian	274 (0.59)	17,451 (4.4)	301 (0.73)	18,026 (3.7)
Native Hawaiian and Other Pacific Islander	17 (0.04)	216 (0.05)	7 (0.017)	240 (0.05)
Some other race	511 (1.1)	9,556 (2.4)	201 (0.49)	10,268 (2.1)
Two or more races	719 (1.6)	11,474 (2.9)	513 (1.25)	12,706 (2.6)
Ethnicity*				
Hispanic or Latino	1,342	23,966	623	25,931
Percent of total population	2.9	6.0	1.5	5.3
Minority Population (Including Hispanic and Latino Ethnicity)				
Total minority population	2,494	58,986	1,395	62,875
Percent minority	5.4	14.8	3.4	12.9
2010 Population Density (Persons per km^2/mi^2)				
	24/61	277/709	28/71.5	100/256.7

Source: USCB, 2013a
*Minority population includes persons of Hispanic/Latino origin who are considered an ethnic minority and may be of any race (USCB, 2001)

Recreational, leisure, and employment opportunities attract daily and seasonal visitors to the ROI. The Treasure Island Resort and Casino may have as many as 16,000 guests at any given time. During the PIIC's annual pow-wow, 500 to 2,000 additional visitors may be in and around the PIIC grounds. The U.S. Census of Agriculture provides the most recent information on migrant farm and temporary labor (less than 150 days) at the county level. In Minnesota, 970 temporary farm workers were employed on 338 farms in Goodhue County and 1,012 temporary farm workers were employed on 218 farms in Dakota County (USDA, 2009a). In Pierce County, Wisconsin, 720 temporary farm workers were employed on 298 farms (USDA, 2009b).

Income

Income and poverty information for the ROI based on USCB 2009-2013 American Community Survey 5-year estimates is presented in Table 3-4. These estimates show that median household income and per capita income were highest in Dakota County, Minnesota, and that the median household income in both Dakota and Pierce Counties was higher than the statewide averages. The percentage of residents living below the poverty level, for all three counties, is less than the respective state averages.

Housing

USCB housing data from 2000 and 2010 for the ROI are presented in Table 3-5. Goodhue County had an estimated 20,337 housing units in 2010, an increase of about 12 percent from 2000. Dakota and Pierce Counties had an estimated 159,598 and 16,132 housing units, respectively, an increase of about 16 percent from 2000 (USCB, 2013a). Of the more than 196,000 housing units in the ROI, which include single family homes, multifamily housing, mobile homes, and rental units, approximately 185,800 or 95 percent are occupied. Average annual vacancy rates in 2010 were 8.2 percent in Goodhue County, 4.7 percent in Dakota County, and 7.0 percent in Pierce County, up from 5.0, 1.9, and 3.5 percent in 2000 for Goodhue, Dakota, and Pierce Counties, respectively. The median value of owner-occupied housing units in 2010 was $192,900 in Goodhue County, $243,700 in Dakota County, and $200,200 in Pierce County.

Table 3-4. 2009–2013 Income Information for the Region of Influence

	Goodhue County, Minnesota	Dakota County, Minnesota	Minnesota	Pierce County, Wisconsin	Wisconsin
Median Household Income (Annual Dollars)	$56,836	$73,732	$59,836	$59,226	$52,413
Per Capita Income (Annual Dollars)	$29,932	$34,828	$30,913	$27,462	$27,523
Families Living Below the Poverty Level (Percent)	6.0	4.9	7.4	5.9	8.8
Persons Below the Poverty Level (Percent)	9.9	7.6	11.5	12.4	13.0

Source: USCB, 2013b

Table 3-5. Housing Information for the Region of Influence			
Goodhue County, Minnesota			
	2000	**2010**	**Percent Change**
Total	17,879	20,337	+12.1
Occupied Housing Units	16,983	18,730	+9.3
Vacant Units	896	1,670	+46.3
Vacancy Rate (Percent)	5.0	8.2	+39.0
Median Value (Dollars)	$119,300	$192,900	+38.2
Dakota County, Minnesota			
Total	133,750	159,598	+16.2
Occupied Housing Units	131,151	152,060	+13.7
Vacant Units	2,599	7,538	+65.5
Vacancy Rate (Percent)	1.9	4.7	+59.6
Median Value (Dollars)	$148,500	$243,700	+39.1
Pierce County, Wisconsin			
Total	13,493	16,132	+16.4
Occupied Housing Units	13,015	15,002	+13.2
Vacant Units	478	1,130	+57.7
Vacancy Rate (Percent)	3.5	7.0	+50.0
Median Value (Dollars)	$125,500	$200,200	+37.3
Source: USCB, 2013a			

Employment

Based on 2008–2010 American Community Survey 3-Year Estimates, the Goodhue County labor force was estimated to be 25,825 and the Pierce County labor force was estimated to be 24,650 (USCB, 2013a). The Dakota County labor force was estimated to be 232,714 based on 2011 American Community Survey 1-Year Estimates (USCB, 2013a). Unemployment rates for Goodhue, Dakota, and Pierce Counties were 5.5, 6.9, and 5.6 percent, respectively, which were lower than the statewide Minnesota and Wisconsin unemployment rates of 7.7 and 8.2 percent, respectively (USCB, 2013a).

The largest employer in Goodhue County is the PIIC with more than 1,500 employees in its Treasure Island Resort and Casino and government offices (NRC, 2011a). Educational services, health care, and social services represent the largest sector of employment within the ROI, followed by manufacturing and retail trade sectors.

Local Finance

Property taxes are the primary source of revenue for Minnesota and Wisconsin counties. In addition to funding county government, property taxes fund municipal government, school districts, vocational technical colleges, and special taxing districts. Property taxes levied in Goodhue and Dakota Counties in 2012 totaled $26.7 and $129 million, respectively (Minnesota Department of Revenue, 2012). Property taxes levied in Pierce County in 2010 totaled $15.2 million (Wisconsin Department of Revenue, 2012).

In 2010, NSPM paid $10.7 million in property taxes. The majority of NSPM's annual property taxes are assessed by Goodhue County, the City of Red Wing, and Red Wing School District 256. In 2010, NSPM paid $3.1, $4.1, and $2.2 million in property taxes to Goodhue County, the City of Red Wing, and School District 256, respectively. NSPM also

makes annual payments to other taxing jurisdictions, including the Minnesota State General Tax, Red Wing Housing and Development Authority, Red Wing Port Authority, and to Goodhue County under a Revenue Stabilization Agreement (NSPM, 2011a). NRC staff recognized the downward trend of overall taxes received by the City of Red Wing in the PINGP license renewal SEIS (NRC, 2011c).

Education

The PI ISFSI is located in Red Wing School District 256 in Goodhue County. In 2012–2013, Red Wing School District 256 enrolled approximately 2,834 students in pre-kindergarten through grade 12 (Minnesota Department of Education, 2013). Goodhue County has four public school districts, including Red Wing School District 256, with a total enrollment of 6,758 students in 2012–2013 (Minnesota Department of Education, 2013).

Utilities and Services

Local private residents and most public water systems in the ROI use groundwater for their water source (NRC, 2011c). The PIIC's water is primarily supplied by the PIIC's central water system, with the exception of some individual wells for newer homes on the PIIC's Upper Island land (NRC, 2011c).

The City of Red Wing indicated, during the PINGP Unit 1 and 2 license renewal process, that city revenues do not provide sufficient resources to meet its obligations under NSPM's Emergency Response Plan (NRC, 2011c, Appendix A). A Letter of Agreement for Response Services between the City of Red Wing and NSPM (NSPM, 2013d) explains each party's responsibilities in the event of an emergency at the PINGP. The Red Wing Police Department has primary authority in the area of the PINGP; shall be the normal, single point-of-contact for a response outside of the PINGP; and has the ability to request additional response resources from neighboring agencies (NSPM, 2013d).

Because of the proximity of the PI ISFSI to the PIIC, the tribe considers itself to be a *de facto* host community. In 2003, the PIIC established the Prairie Island Indian Community Police Department (PIPD), which has been maintained and operated since that time as a law enforcement agency, providing police protection and emergency assistance on the PIIC Reservation (PIIC, 2013b). PIPD is staffed by duly appointed peace officers pursuant to Minnesota Statute Section 626.93 (PIIC, 2013b). The PIIC established the Prairie Island Indian Community Fire Department (PIFD) in 2009. The PIFD is cross-staffed by PIPD personnel and operates a brush fire truck. On August 23, 2004, the PIIC and the City of Red Wing entered into their first Mutual Aid Assistance Agreement pursuant to which both parties mutually agreed to render "such assistance as they are reasonably able in the event of an emergency situation" (PIIC, 2013b). The Mutual Aid Assistance Agreement further provides that "a [PI Indian] Community Officer acting pursuant to this agreement has the full and complete authority of a City Officer as though appointed by the City." Although the City of Red Wing is the primary authority in the area of the PINGP and is the normal, single point-of-contact for a response outside of the PINGP (NSPM, 2013d), the PIIC has communicated to NRC staff that PIPD has been first on the scene to emergencies at the PINGP and is often the first to arrive to an incident. The PIIC is responsible for the costs associated with any PIPD-furnished assistance and does not receive any tax revenues from the City of Red Wing (PIIC, 2013b). The PIIC has communicated to NRC staff that the PIPD will continue to support the Mutual Aid Assistance Agreement and is most likely to be the first to arrive to any incident at the PI ISFSI.

Prairie Island Indian Community Housing

There are 60 housing units on the original reservation core (referred to as the Lower Island) and 29 housing units on the Phase I residential development on the new trust lands (referred to as the Upper Island) (PIIC, 2013b). A Phase II Upper Island residential development with 26 housing units is currently underway with another 21 units planned once the original 26 are filled. The Tribal Council assigns all housing units on the reservation. It is not possible to assign a median value to these housing units, because the homes cannot be sold to nontribal members. The land (which is typically a large percentage of a home's value) can never be sold, as it is in trust for the common benefit of the PIIC (PIIC, 2013b).

Prairie Island Indian Community Local Finances

The PIIC receives no tax revenue from NSPM. In 2003, however, the PIIC entered into a settlement agreement with NSPM to allocate funds to the PIIC that includes certain provisions that relate to the PIIC's health and safety to address its concerns about the PINGP and PI ISFSI (Minn. Stat. § 216B.1645, Subd. 4; Laws 2003, First Special Session Chapter 11) (NRC, 2011c). This agreement was approved by the Minnesota Public Utilities Commission (MPUC) and the Minnesota Legislature. Through the agreement, funds are allocated to the PIIC to address a variety of issues: health concerns, emergency management, land acquisition, construction of community infrastructure, or other community purposes. The agreement is in place as long as PINGP Units 1 and 2 are operational and the ISFSI continues to be used for dry cask storage, although certain provisions of the agreement end when the current operating licenses expire. The PIIC also receives an annual payment from NSPM for radiological emergency preparedness activities and supplies (NRC, 2011c).

Prairie Island Indian Community Education

There is no school on PI; children from the PIIC can either attend Red Wing public schools or the Tribal Council will provide tuition for private elementary or secondary school. The PIIC has established the PI Learning Center, which offers tutoring services, Dakota language classes, summer school, General Equivalency Diploma preparation, and assistance with college applications. The PIIC provides 100 percent tuition assistance to any tribal member accepted into college (PIIC, 2013b).

Prairie Island Indian Community Utilities and Services

The PIIC established centralized water and sewer systems, a water treatment facility, a health care facility, a community and government center, a buffalo farm, and a police and fire department (the police force totals eight officers). In addition, the tribe is able to respond to small fires with its 208-liter (L) [500-gallon (gal)] brush truck and can deploy its incident command vehicle during times of emergencies. The PIIC also provides health insurance to each member, various services for community elders, education benefits and tuition assistance (elementary, secondary, and post-secondary) to tribal members, and other social services and benefits. In addition, enrolled PIIC tribal members are eligible to receive a share of the net revenues from the casino and other economic enterprises (PIIC, 2013b).

3.4 Climate, Meteorology, and Air Quality

Prairie Island is located in southeast Minnesota on the border of Minnesota and Wisconsin. The island's climate is mostly influenced by the eastward storm systems that move across the

northern United States, which can cause extreme seasonal temperature changes. However, because the island is located in the Upper Mississippi River system, the site experiences a more moderate climate than other areas at the same latitude. Monthly temperatures in the local area can range from −11 °C [12.0 °F] in January to 22.2 °C [72.1 °F] in July (NRC, 2011c). The local mean annual precipitation of 76.07 centimeters (cm) [29.95 inches (in)] occurs mainly from June through August (NRC, 2011c). Snowfall contributes to annual precipitation at about 112 cm [44 in] per year. Tornadoes generally occur from March through November. Although air sampling systems are not required at the PI ISFSI, data for the PINGP Meteorological Monitoring Program are gathered once per hour and reviewed daily. The data are stored in a database and then compiled into monthly, quarterly, and annual reports.

Under the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: nitrogen dioxide, sulfur dioxide, carbon monoxide, lead, ozone, and particulate matter (PM_{10} and $PM_{2.5}$). Under the NAAQS, areas are designated as being in "attainment" or "nonattainment" for the standards established for each criteria pollutant. Goodhue County is in attainment (meets the minimum standards established for each air quality criteria pollutant) within the Southeast Minnesota–La Crosse (Wisconsin) Interstate Air Quality Control Region (40 CFR 81.66). No airborne contaminants are emitted during ISFSI operations, and no ventilation or off-gas systems are used (NSPM, 2011a).

3.5 Geology and Soils

The PINGP property is bounded by rocky bluffs and heavily forested slopes that rise to a height of about 91 m [300 ft] above PI. The plant is located on a low island terrace within the Mississippi River floodplain. Sediment in the area consists of sandy alluvial soils and gravel deposited by glacial outwash and river processes. At the site, the uppermost bedrock is sandstone that is part of the upper Franconia formation (Figure 3-2). Underneath the Franconia formation are several hundred meters [feet] of lower Cambrian and Precambrian sandstone with minor shale horizons. The dominant structural feature in the area is the Precambrian Keweenawan Basin. This basin is separated from a smaller basin in the Twin Cities area by the Afton-Hudson anticline. The site is located on the west limb of the Red Wing anticline (Figure 3-3) (NRC, 2011c).

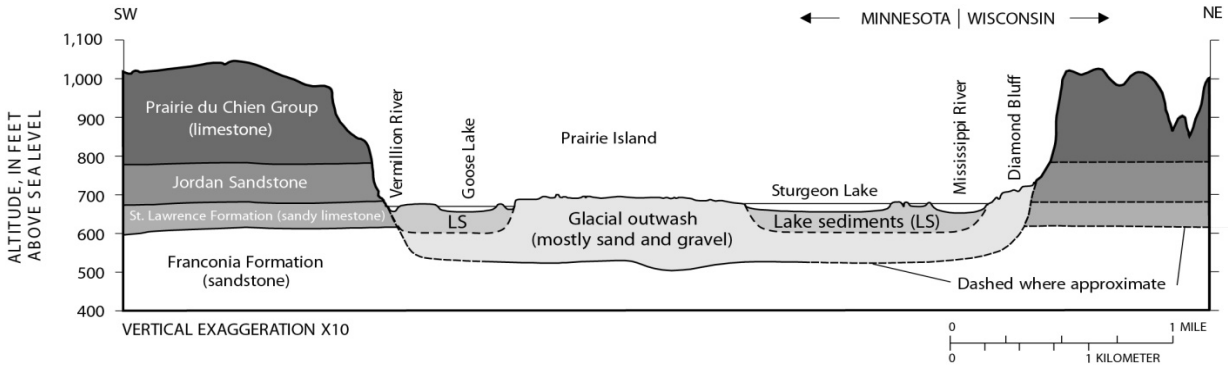

Figure 3-2. General Lithology Geologic Cross Section for the Prairie Island Terrace (Cowdery, 1999)

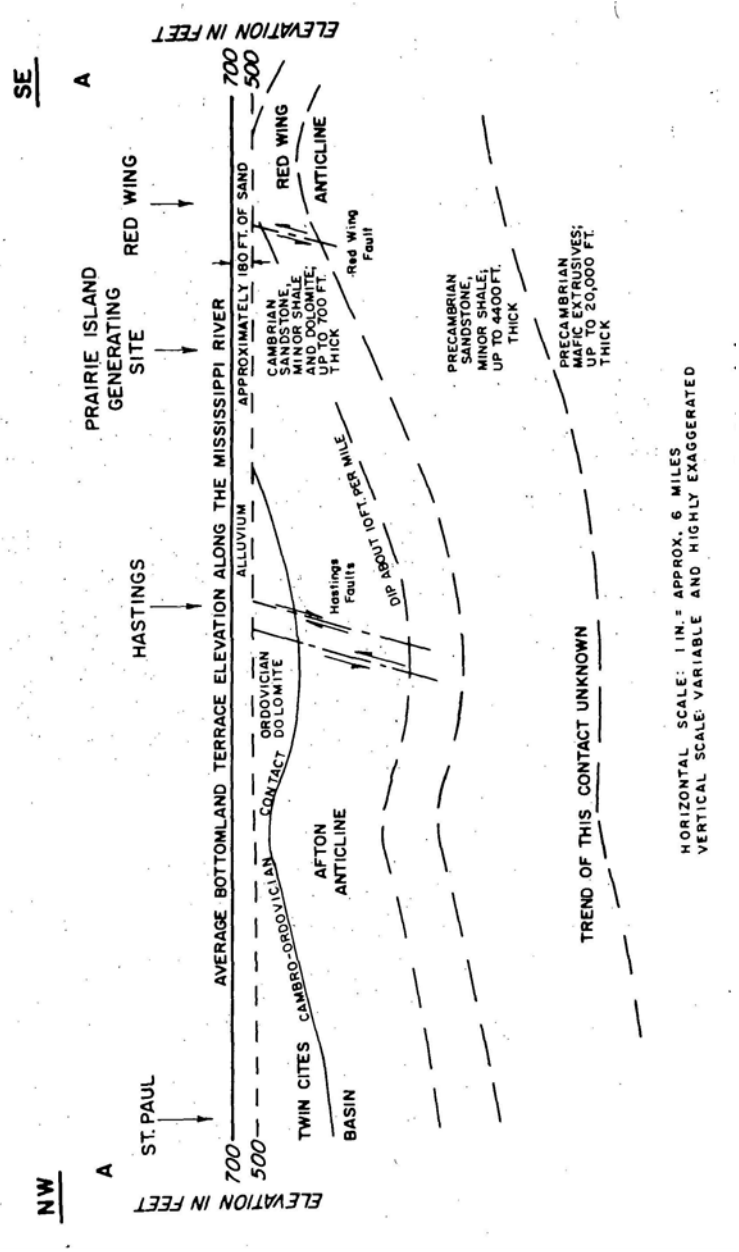

Figure 3–3. Regional Geologic Cross Section (Modified From NSPM, 2011b)

To avoid any potential problems with soils associated with freezing, the footings and slabs that support the concrete ISFSI pads are below the anticipated freeze depth or on fill below the freeze depth. Previous liquefaction analysis using seismicity data found the subsurface materials to be stable and adequate for the proposed foundation loading (NRC, 1992).

There are several major faults in the Minnesota–Wisconsin region, although there is no evidence of recent activity along any of the known fault zones in the region (NRC, 1992). The Douglas fault and the Lake Owen fault penetrated Precambrian rocks along the north and south sides of the Keweenawan Basin, respectively. The southern portion of the Lake Owen fault, known as the Hastings fault, trends southwest (Figure 3-3). Movements along these faults appear to have been restricted to Precambrian timeframes (about 541 million years to 4.6 billion years ago).

3.6 Water Resources

3.6.1 Surface Water Hydrology

The primary surface water bodies near the PI ISFSI are the Mississippi River, Vermillion River, the Cannon River, and Sturgeon Lake (NMC, 2008; NSPM, 2011b). PI is a low-lying island with the majority of the island less than 7.6 m [25 ft] above the Mississippi River. The Vermillion River borders the southwest portion of the site.

The Mississippi and Vermillion Rivers converge at the downstream end of PI (NRC, 2011b). Sturgeon Lake was created by a rise in water elevation caused by construction of Lock and Dam 3 and the subsequent flooding of sections of the floodplain. The Vermillion and Cannon Rivers enter the main stream of the Mississippi River below Lock and Dam 3 (NMC, 2008). The water and flow in the stretch of the Mississippi near the PI ISFSI and Sturgeon Lake are identified as Pool 3 and are controlled by Lock and Dam 3, located 2.4 km [1.5 mi] downstream of the PINGP property (NRC, 2011c; NSPM, 2011a). Typically, the Mississippi River is kept at a water level higher than that of the Vermillion River and discharge from Lock and Dam 3 tends to be at its peak in the spring and summer.

3.6.2 Groundwater Hydrology

The ISFSI site is located on an island terrace within the Mississippi River floodplain. The primary aquifers in the surrounding areas are generally composed of limestone and sandstone (NRC, 2011b). The surficial aquifer directly underneath the PI ISFSI is composed of sands, gravels, and other finer grained sediments resulting from glacial outwash that are 39.6 to 60.9 m [130 to 200 ft] thick. The water level fluctuations in the surrounding surficial water sources (mainly the Mississippi River) influence the groundwater levels in the alluvial aquifer. There are no groundwater wells at the ISFSI site. The six wells located at the PINGP site draw water from the surficial aquifer.

The Franconia sandstone formation is directly beneath the surficial aquifer under the PI ISFSI. The Mount Simon formation (part of the Dresbach formation), located below the Franconia Formation, is the primary water-producing aquifer for the nearby community of Red Wing and the PIIC. Cowdery (1999) notes that despite a high hydraulic head gradient between aquifers, the exchange of water between the alluvial aquifer and the bedrock aquifer below is small because of a layer of clay-rich materials between the two strata.

3.7 Ecological Resources

The principal terrestrial and aquatic ecological habitat on Prairie Island, a low island terrace between the Mississippi and Vermillion Rivers, is characterized by prairie land, bluffs, and stream valleys. The PINGP license renewal SEIS (NRC, 2011c, Sections 2.2.5 and 2.2.6) describes the aquatic and terrestrial resources located on and in the vicinity of the PINGP site.

3.7.1 Terrestrial Resources

The PINGP license renewal SEIS (NRC, 2011c, Section 2.2.6) describes a variety of wildlife present in the forested and grassland communities on and in the vicinity of the PINGP site that could be present at or adjacent to the ISFSI. The area of the site where the ISFSI is located is dominated by the landscaping and developed cover (concrete and other impermeable surfaces)

and surrounded by mixed deciduous and regenerated mixed deciduous forest cover types and grassland. During the site visit conducted to support this EA, the NRC staff confirmed the information provided in the license renewal application that the PI ISFSI is located in a dry, upland portion of the PINGP property and does not use, touch, or otherwise interact with the wetland or riparian habitats that are found on the banks of the Mississippi and Vermillion Rivers (NSPM, 2011a; NRC, 2012e). As described in the PINGP license renewal SEIS, invasive plant species purple loosestrife (*Lythrum salicaria*) and common buckthorn (*Rhamnus cathartica*) have been documented on the PINGP property. NSPM does not actively eradicate invasive plant species at the PINGP.

Because the ISFSI is located within a principal route of the Mississippi Flyway used by approximately 40 percent of the U.S. migratory birds and waterfowl, birds are commonly observed on and in the PINGP property boundary. A detailed listing of migratory bird species and nesting bird species, as well as trees, insects, and reptiles characteristic of the PINGP area, is incorporated by reference and can be found in the PINGP final environmental statement (AEC, 1973, Appendix A).

3.7.2 Aquatic Resources

The Mississippi River is the largest and most important aquatic resource in the vicinity of the PI ISFSI. Other aquatic resources in the area include St. Leonard Creek and the Vermillion River that border the PINGP property to the southwest and Sturgeon Lake that borders the PINGP property to the east. As described in EA Section 3.6.1, the PINGP property is located on the shore of the Mississippi River's Pool 3. To support the PINGP license renewal request, the applicant provided NRC with data from monitoring events in Pool 3 from 1981 to 2007. Data gathered using an electrofisher device documented the relative abundance of eight species (carp, white bass, freshwater drum, sauger, black crappie, shorthead redhorse, walleye, and gizzard shad); these ranged from 69 to 89 percent of all fish caught each year (Environmental Services, Inc., 2007). The status of eight species (carp, white bass, freshwater drum, sauger, shorthead redhorse, walleye, gizzard shad, smallmouth bass, and largemouth bass) is discussed in each PINGP annual environmental monitoring report submitted to NRC. Each of these eight species was considered "relatively stable" in the last available annual report (Environmental Services, Inc., 2007).

The Minnesota Department of Health publishes fish consumption guidelines for the general public and for sensitive groups. Guidelines provide consumption advice regarding species, recommended consumption frequency, and contaminants of concern. The Minnesota Department of Health guidelines/advisories for the Mississippi River from Hastings Dam to Red Wing (Pool 3) and all 95.9 km [59.6 mi] of the Vermillion River are available on the Minnesota Department of Health website (Minnesota Department of Health, 2012a,b).

3.7.3 Threatened, Endangered, and Special Status Species

Minnesota Department of Natural Resources (DNR) (2012), provided information from the Natural Heritage Information System database for rare species or other noteworthy natural features within 0.6 km [1 mi] of the PINGP property. The NRC staff and NSPM consulted with U.S. Fish and Wildlife Service (FWS) regarding federal records for rare, threatened, or endangered species or critical habitat in the vicinity of the PI ISFSI (NRC, 2012f; NSPM, 2011a; FWS, 2014). The NRC received a response from FWS on April 11, 2013, which identified that the Higgins eye (*Lampsilis higginisii)*, a federally listed endangered mussel, was present in the Mississippi near the PINGP and nesting pairs of bald eagles (*Haliaeetus leucocephalus*) are

known to occur in the area (FWS, 2013a). After NRC received the April 2013 FWS letter, the FWS listed the northern long-eared bat (*Myotis Septentrionalis)* as a federal threatened species on May 4, 2015 [80 *Federal Register* (FR) 17974]. Critical habitat is not determinable at this time (80 FR 17974). The FWS formally removed bald eagles from the Federal List of Endangered and Threatened Wildlife effective August 8, 2007. The Minnesota DNR (2013) removed the bald eagle as a species of concern, though the species continues to be protected under the Bald and Gold Eagle Protection Act and the Migratory Bird Treaty Act (72 FR 37346). A plant survey conducted at the PINGP in 2008 and 2009 revealed that the state-listed plant species of special concern—beach heather (*Hudsonia tomentosa*)—occurred within the PINGP property on a steep bank adjoining lowland floodplain habitat, which was reportedly northeast of the plant substation about 0.8 km [0.5 mi] northeast of the northeast corner of the ISFSI berm (NSPM, 2011a). The NRC staff reviewed FWS's most recent online occurrence data report for Goodhue County, Minnesota (FWS, 2013b). The Minnesota trout lily (*Erythronium propullans*), a federal and state endangered plant, and the prairie bush clover (*Lygodium palmatum*), a federal and state listed threatened plant, are identified as being present in Goodhue County. Neither FWS nor Minnesota DNR listed these species as present on or in the vicinity of the PINGP in their 2008 correspondence with NRC regarding the proposed PINGP license renewal (NRC, 2011c).

Appendix A of this EA names terrestrial species that are federally listed, state listed, or both, as threatened, endangered, or candidate species found in Goodhue County, Minnesota, and could be potentially affected by the proposed PI ISFSI license renewal. Appendix A also lists native plant communities Minnesota DNR identified within 0.6 km [1 mi] of the PINGP property. The NRC staff did not include listed aquatic species in Appendix A, because the PI ISFSI operation does not have the potential to affect aquatic species.

3.8 Visual and Scenic

The major natural landscape feature near the affected area of the PI ISFSI is the Mississippi River. The turbine building and reactor containment structures dominate the manmade industrial landscape of the PINGP site. Because the ISFSI is located inside the protected area boundary at an elevation above the river level, recreational visitors are unable to see the ISFSI from the water (NSPM, 2011a). In addition, the NRC staff observed that the view of the ISFSI from the PIIC Reservation roadways outside of the PINGP property is obstructed by the earthen berm and forested areas immediately north, west, and south of the ISFSI.

3.9 Noise

The PI ISFSI generates no noise other than the occasional vehicle traffic to and from the site during routine maintenance activities and cask transfers (NSPM, 2011a). No noise other than that from a vehicle used for routine maintenance activities and cask transfers would be attributable to this proposed action. The major sources of noise from the PINGP site are operation of Units 1 and 2, including the mechanical-draft cooling towers, turbines, large pumps, and cooling water system motors (NRC, 2011c). In rural or low-population areas, background noise levels typically range from 35 to 45 decibels acoustic [dB(A)] (NRC, 1999, 1996). Minnesota noise standards (Minnesota Rule 7030.0040, Subpart 2) stipulate that the daytime sound levels are not to exceed 60 dB(A) for more than 50 percent of the time (MPUC, 2009a). Noise measurements collected on Sturgeon Lake Road, just north of the PINGP property boundary, indicated noise levels ranging from 43 to 46 dB(A) (as measured in the casino parking lot) and from 32 to 36 dB(A) at the east end of Sturgeon Lake Road (MPUC, 2009a).

3.10 Historic and Cultural Resources

This section discusses the cultural background and the known historic and cultural resources at the PINGP site and in the surrounding area.

Section 106 of the National Historic Preservation Act requires the NRC to take into account the effects of the proposed licensing action on historic properties. The NRC staff contacted the Minnesota State Historic Preservation Officer (SHPO) and Indian tribes and gathered and reviewed documentation regarding previous efforts to locate and evaluate historic properties located within the PINGP site. A record of these consultations can be found in Section 5 of this EA.

3.10.1 Cultural Background

The Red Wing area and PI contain prehistoric and historic Native American and Euro-American cultural resources. The Mississippi River and its tributaries served as a major means of transportation for people and goods during the settlement of the region as early as 12,000 years ago. The region's prehistoric and historic periods are described in NRC's PINGP license renewal SEIS (NRC, 2011c, Section 2.2.9). The PIIC members are descendants of the Mdewakanton Band of Eastern Dakota, who are also known as the Mississippi or Minnesota Sioux. The Dakota have lived in the region and on Prairie Island for countless generations (PIIC, 2013b). As stated in Section 1.5 of this EA, the PIIC is a federally recognized Indian tribe organized under the Indian Reorganization Act of 1934 (25 U.S.C. § 476). Pursuant to that Act, the Reservation was established and the PIIC's Constitution and Bylaws were approved on June 20, 1936. Section 3.1 provides additional information about the PIIC and its reservation.

A number of archaeological surveys and other resource investigations have been performed within and near the PINGP property on Prairie Island during the past 125 years. A summary of archaeological investigations, along with a list of the known and reported historic and cultural resources through 2009, are provided in the PINGP license renewal SEIS (NRC, 2011c, Section 2.2.9). The area of potential effect (APE) for this proposed action is limited to the PI ISFSI site and access road from the PINGP auxiliary building to the ISFSI. Although no sites have been identified within the PI ISFSI boundary or the APE for this proposed action, a list of the 11 recorded archaeological sites known to exist within the PINGP property is provided in Table 3-6 for reference. One additional site in the table is a reported, but not field confirmed, mound site. Seven historic finds, listed in Table 3-6 as "PS" followed by a number, and one find with no site number do not meet minimum criteria to be identified as archaeological sites and are not given archaeological site numbers.

During the license renewal review for PINGP Units 1 and 2, NSPM entered into a settlement agreement with the PIIC where NSPM committed to revise existing procedures, establish a training program for site personnel, conduct a Phase I reconnaissance field survey of previously disturbed areas and Phase I field study of areas of known archaeological sites to delineate site boundaries, develop and implement a cultural resource management plan (CRMP), conduct botanical surveys to identify culturally and medicinally important species on the PINGP site, and consult with a qualified archaeologist prior to conducting any ground-disturbing activity in any areas designated as undisturbed or an area described as potentially containing archaeological resources. NSPM sought comments on its revised procedures, including the CRMP, from the

Table 3-6. Archaeological Sites and Historic Find Spots Recorded Within the Prairie Island Nuclear Generating Plant Property Boundary					
Site Number	**Site Name**	**Description**	**National Register of Historic Places**	**Site Condition Per State Site File**	**Type of Site Alteration***
21GD002	Bartron Site	Artifact Scatter—Base Camp	Listed 1970	Within PINGP property boundary—70% moderate; 20% heavily disturbed; 10% completely destroyed	Agricultural activity; historic and modern use; archaeological excavation for PINGP construction; borrow pit; road construction
21GD058/ 061	Birch Lake Mound Group	Earthwork. Cemetery-Mortuary (Eight mounds)	Undetermined	90% heavily disturbed	Railroad construction; cultivation; archaeological excavation for PINGP construction
21GD059	NSP II Mound Group	Earthwork (Six mounds) Mississippian affiliation	Undetermined	1981 last update Disturbed/ destroyed	Cultivation; construction of PINGP cooling towers; spoil deposits
21GD062	Birch Lake Mound	Earthwork (One mound) Probably Woodland affiliation	Undetermined	Completely destroyed	Archaeological excavation for PINGP construction
21GD148	Cooling Tower Site	Artifact scatter, Woodland and probable Mississippian affiliation	Undetermined Nominated in 1980; not listed	Unassessed condition	Development of PINGP cooling tower
21GD149	Substation Site	Artifact scatter, possible Woodland and probably Oneota affiliation	Undetermined	Unassessed condition	Erosion; development of PINGP substation
21GD207	Dike Site	Artifact scatter, Woodland affiliation	Undetermined	Unknown—No evidence of site in 2009	Development of dike
21GD277	Indian Slough Mound	Earthwork	Undetermined	Minimally disturbed	No known threats
21GD278	Otto Phlika Farmstead	Farm	Undetermined	Moderately disturbed (no known threats)	No known threats

Table 3-6. Archaeological Sites and Historic Find Spots Recorded Within the Prairie Island Nuclear Generating Plant Property Boundary

Site Number	Site Name	Description	National Register of Historic Places	Site Condition Per State Site File	Type of Site Alteration*
21GD279	Kuhns Farm	Farm	Undetermined	Moderately disturbed	Development
21GD280	Reliance Stove Door Site	Artifact scatter, possible homestead	Undetermined	Unassessed condition	Erosion
21GDl	Vergil Larson Mounds II	Earthwork (Reported 3 mounds)	Unevaluated	Not field verified	No known threats
No site number	Prairie Island District 132 Schoolhouse Site	Unconformed subsurface remains of District Schoolhouse (1873–1953)	Unevaluated	No form	No known threats
PS0002	Find Spot: historic refuse dump	European American	Lack of Site Integrity	No form	No known threats
PS0003	Find Spot: cellar depression	European American	Lack of Site Integrity	No form	No known threats
PS0006	Find Spot: historic refuse dump	European American	Lack of Site Integrity	No form	No known threats
PS0007	Find Spot: historic refuse scatter	European American	Lack of Site Integrity	No form	No known threats
PS0008	Find Spot: historic refuse scatter	European American	Lack of Site Integrity	No form	No known threats
PS0018	Find Spot: architectural debris	European American	Lack of Site Integrity	No form	No known threats
PS0019	Find Spot: architectural debris	European American	Lack of Site Integrity	No form	No known threats

Source: NRC, 2011c
*Site condition information updated by PIIC December, 2014a. Regardless of current site condition, the PIIC also considers these sites to be sacred because they contained the human remains of their ancestors.

Minnesota Historical Society, BIA, Office of the State Archaeologist, and the PIIC (NRC, 2011c). NSPM completed the CRMP in September 2010.

Cultural resource studies conducted as a result of the settlement agreement include (i) an archaeological reconnaissance survey for planned expansion of a dredge holding area (Boden, 2009), (ii) a geomorphological study to assess the potential for deeply buried archaeological sites within the expanded dredge holding area (Hudak, 2009), and (iii) an archaeological

reconnaissance survey of the entire PINGP site designed to relocate and assess the condition of known archaeological sites and identify additional resources where possible (Boden, et al., 2010). In addition, a literature review of previous archaeological investigations within the PINGP boundary was conducted to assess the impact of facility construction on archaeological resources (Iffert, 2010). With the exception of the 2009 reconnaissance report for the dredge holding area, each of these studies has been incorporated into the CRMP.

Several recent studies indicate potential for additional unrecorded archaeological resources within the PINGP boundary. First, the results of the 2009 geomorphological study indicate that the island–terrace landform that encompasses the PINGP site has moderate to high potential to contain buried archaeological sites (Hudak, 2009). This assessment is based on confirmation of an ancient (approximately 1,400 years old) buried soil or paleosol, which is a buried land surface that would have been stable and suitable for human use. Any evidence of past human activity that might have occurred on that former surface now lies buried beneath the current surface. Therefore, these buried archaeological deposits would not have been recognized by those surveyors who only searched the ground surface for evidence of archaeological sites. Two other recent archaeological investigations (Boden, et al., 2010; Schirmer, 2013) have reported previously unknown burial sites within and near the PINGP. A 2010 limited archaeological reconnaissance survey recorded a previously unrecorded mound site, 21GD277 (Boden, et al., 2010). In 2012, a group of 15 previously unreported burial mounds was also identified on PI near the PINGP through the use of light detection and ranging remote sensing technology (Schirmer, 2013). None of the reported burial mound sites from the two recent archaeological investigations are within the PI ISFSI boundary or the APE for this proposed action. Based on the number, type, and density of known archaeological sites identified, there is a high probability that additional unrecorded resources may exist within the PINGP property. In addition, prehistoric archaeological sites could be buried under parking lots, modular buildings, or other structures or features within the PINGP property (Boden, et al., 2010).

In fall 2014, NSPM identified a concern regarding the failure to adequately address the need for additional historic and cultural surveys prior to an increase in size of a retention pond at the PINGP. The issue has been entered into PINGP's corrective action program for evaluation (NSPM, 2014e).

Traditional Cultural Properties

Traditional cultural properties are cultural resources that are historically important for a community to maintain its cultural heritage. Examples of traditional cultural properties include places where important resources such as medicinal plants are gathered; a sacred mountain and/or landscape that is crucial to a community's identity; or burial locations that, for example, connect American Indians with their ancestors. The PIIC conducted an inventory of medicinal and culturally important plant species on tribal lands. The inventory, which was conducted in the fall of 2008 and spring/summer of 2009, is a follow-up to an inventory conducted in 1998 (NRC, 2011c). Mound sites on Prairie Island may qualify as places of religious and cultural importance to the PIIC. Although the PIIC has not evaluated or documented sites within the PINGP boundary as traditional cultural properties, members of the PIIC consider all archaeological sites, burial mounds or habitation sites, and locations of medicinal plants to be important to Dakota culture.

Since the license renewal of PINGP Units 1 and 2, the Minnesota State Archaeologist has authenticated Site 21GD058/061 (Birch Lake Mound) as a Native American burial site. The Minnesota Indian Affairs Council asked the state archaeologist to authenticate the mound site in

support of the October 2011 repatriation of human remains. Dr. Elden Johnson, Minnesota State Archeologist from 1959 to 1978, initially removed the human remains from Prairie Island in the late 1960s during construction of the PINGP. The Birch Lake Mound is located outside the construction area on the PINGP property (NRC, 2011c, Section 4.9.6). This repatriation effort was initiated by the PIIC.

While the state archaeologist has not yet authenticated other mound locations within the PINGP as proven burial sites, the NRC staff recognizes that the PIIC and other tribes may view Sites 21GD059, 21GD062, and 21GD277 as burial sites. The Office of the State Archaeologist presumes that Indian mounds are burial sites. Because these sites contained the human remains of their ancestors, they are considered sacred sites by the PIIC regardless of whether the state archaeologist has authenticated them as burial sites. The potential for unreported human burials or human remains is also acknowledged for the Bartron Site (21GD002) and the vicinity of the unconfirmed mound site (21GDI). Other noncemetery locations within the PINGP associated with traditional cultural activities may also have the potential to be considered important to tribes.

3.10.2 Historic and Cultural Resources Within the Area of Potential Effect

The APE for this proposed action consists of the PI ISFSI site and access road from the PINGP auxiliary building to the ISFSI. As discussed in Section 3.1, during the construction of PINGP Units 1 and 2, portions of the PI ISFSI area were the locations for the concrete batch plant and disposal site for dredge material collected from the excavation of the PINGP discharge canal (NRC, 2011c; NSPM, 2013b). After the construction of PINGP Units 1 and 2 and prior to the installation of the ISFSI, the land remained undeveloped and was covered in prairie grass, weeds, and trees (NRC, 1992).

To identify historic and cultural resources within the APE, NSPM hired Westwood Professional Services, Inc., to conduct a Phase I archaeological survey (Sather, 2010; NRC, 2011c, pp. 4–39). The survey report can be found in Appendix A, item 1, in NSPM's license application request at Agencywide Documents Access and Management System (ADAMS) Accession Number ML113140518. The survey was specifically designed to evaluate the depth of previous ground disturbance within the ISFSI facility and determine whether any archaeological deposits were present within potentially undisturbed buried soil. Eight test pits were excavated along the ISFSI perimeter road located between the PI ISFSI and the earthen berm to an average depth of 1.8 m [6 ft] below the surface (NSPM, 2011a). All eight tests were positioned outside the security fences for the cask storage area. No cultural materials were recovered from any of the eight test excavations. The consulting archaeologists determined that seven of the eight exposed soil profiles contained significantly disturbed soils from past construction activities (Sather, 2010, p. 5; NSPM, 2011a).

In anticipation of expected future ISFSI expansion activities, NSPM hired Westwood Professional Services, Inc. to conduct a Phase I Archaeological Survey to evaluate whether any archaeological deposits were present within the APE for this proposed action. The survey was conducted in September 2014 (NSPM, 2014d). The PIIC, NRC staff and subcontractors, and NSPM representatives observed the survey activities. The draft survey report was provided to the PIIC and the SHPO for review and comment. No cultural materials were recovered from any of the test excavations and borings, and the consulting archaeologists interpreted all the eight exposed soil profiles as significantly disturbed by past construction activities (NSPM, 2014d).

Archaeological investigations completed to date have confirmed the locations of 11 archaeological sites within the PINGP property, but not within the APE for this proposed action (NRC, 2011c, Section 2.2.9.2; NSPM, 2014d). Nine additional locations have been identified as potential archaeological resources based on unconfirmed reports of possible burial mounds (21GDI—Vergil Larson II Mound Group), a former schoolhouse (PI District 132), and seven historic artifact concentrations. Additional testing or evaluation would be required for the seven historic artifact concentrations listed in Table 3-6 to confirm the presence of archaeological deposits before a state site number is assigned.

To date, one site (21GD002—Bartron) has been determined as eligible for listing in the National Register of Historic Places (NRHP) under Criterion D for its potential to yield important information about the region's history. A second site (21GD148—Cooling Tower Site) has been recommended as eligible for listing in the NRHP but is not yet listed. The remaining 18 archaeological resources identified within the PINGP property boundary, but not within the APE for this proposed action, remain unevaluated with regard to NRHP eligibility. No archeological sites, potential archaeological resources, or sites determined eligible for listing in the NRHP are within the APE for this ISFSI license renewal.

3.11 Public and Occupational Health and Safety

Risks to occupational health and safety include exposure to industrial hazards (i.e., moving heavy objects, working outside, and working with heavy equipment during cask transfer operations), hazardous materials, and radioactive materials. Industrial hazards for the PI ISFSI are typical for similar industrial facilities and include accidents ranging from minor cuts to industrial machinery accidents.

The Atomic Energy Act requires NRC to promulgate, inspect, and enforce standards that provide an adequate level of protection for public health and safety and the environment. NRC continuously evaluates the latest radiation protection recommendations from international and national scientific bodies to establish the requirements for applicants and licensees. NRC has established multiple layers of radiation protection limits to protect the public against potential health risks from exposure to effluent discharges from nuclear facility operations. ISFSIs in the United States are licensed by NRC and must comply with NRC regulations and conditions specified in the license in order to operate. The licensees are required to comply with Title 10 of the Code of Federal Regulation (CFR) Part 20, Subpart C, "Occupational Dose Limits for Adults"; 10 CFR Part 20, Subpart D, "Radiation Dose Limits for Individual Members of the Public"; and 10 CFR 72.104, "Criteria for Radioactive Materials in Effluents and Direct Radiation from an ISFSI or MRS."

For a U.S. resident, the average annual estimated total effective dose equivalent from natural background and anthropogenic (man-made) radiation sources is about 6.2 milliSieverts (mSv) [620 millirems (mrem)] (NRC, 2011d). The source of this dose includes cosmic radiation, background radiation (radon and thoron), radiation sources in the Earth (terrestrial sources), naturally occurring radionuclides that exist in the body, medical and occupational sources, industrial sources, and radionuclides present in consumer products. U.S. population is exposed to two primary sources: naturally occurring background radiation and medical exposure to patients.

In April 2010, the NRC staff asked the National Academy of Sciences (NAS) to perform a study on cancer mortality and incidence risks for populations living near NRC-licensed nuclear facilities. In this NRC-sponsored study, NAS will use its expertise to update a 1990 study the

National Cancer Institute conducted, “Cancer in Populations Living Near Nuclear Facilities” (Jablon, et al., 1991). The objective of the new NAS study is to provide the NRC with an analysis of the latest cancer mortality and incidence data for populations living near NRC-licensed nuclear power and fuel cycle facilities. NAS will study nuclear power plants that generate electricity, as well as facilities that create the nuclear fuel used in the power plants, and will conduct its study in two phases. In the Phase 1 report, “Analysis of Cancer Risk in Populations near Nuclear Faculties—Phase 1,” (NAS, 2012), NAS performed a feasibility study that developed approaches to evaluate cancer risks in populations living near NRC-licensed nuclear power and fuel cycle facilities. The Phase 1 results are to be used to inform the design of the cancer risk assessment that would be carried out in the NAS study’s second phase. In Phase 2, NAS would perform the cancer risk assessment using the methods developed in Phase 1 at all NRC-licensed facilities; however, NAS recommended that an interim step be conducted. This step is for NAS to perform pilot studies at seven sites to evaluate the feasibility of the Phase 1 methods before the NRC staff decide whether to proceed with Phase 2 for the balance of the operating nuclear power plants and fuel cycle facilities. In the Commission paper SECY–12–0136, “Next Steps for the Analysis of the Cancer Risks in Populations Near Nuclear Facilities Study” dated October 5, 2012 (NRC, 2012g), the NRC staff informed the Commission of its plans to proceed with the pilot studies. Additional information can be found on the following NAS Web site: http://dels.nas.edu/global/nrsb/CancerRisk.

As explained in Section 1.3.4 of this EA, 20 thermoluminescent dosimeters (TLDs) are located both inside and outside of the PI ISFSI berm. Fifteen TLDs are also located between 6 and 8 km [4 and 5 mi] from the PINGP and are intended to record an ambient radiation level (meaning the radiation that could be coming from any natural or manmade source, including accidents at a nuclear facility). TLDs measure accumulated exposure to gamma radiation in milliroentgen (mR) at all of these locations over a period of time. At the PINGP and PI ISFSI, TLDs are replaced every quarter (or approximately every 91 days). The exposed TLDs are collected and the data analyzed. In the United States, doses are most commonly reported in mrem. For the purposes of comparing the TLD readings to other radiation described in this EA as mrem, the NRC staff accepts the Health Physics Society conversion that 1 mR of gamma radiation equals approximately 1 mrem. Table 3-7 compares the average of the ambient gamma radiation levels from the TLDs located inside and outside the ISFSI berm, and from two TLD locations on the PIIC property, collected during each quarter of the years between 2006 and 2013. The average levels from the TLDs located between 6 and 8 km [4 and 5 mi] from the PINGP are also provided in Table 3-7 (last column) (NSPM, 2014c).

As explained in Section 4.11.2 of this EA, the dry casks are heavily shielded and decontaminated prior to being transferred to the ISFSI pad. Gamma radiation is emitted from spent fuel in dry casks to the sky and then scattered back to the ground (known as “skyshine”) outside of the earthen berm. Note that ambient radiation levels outside of the berm (reported in Table 3-7) are significantly lower than the radiation levels inside the berm because the berm provides radiological shielding. Table 3-7 shows that the two TLD locations on the PIIC property measure ambient radiation levels similar to the TLDs located 6 and 8 km [4 and 5 mi]

Table 3-7. Quarterly Average Ambient Gamma Radiation Levels Reported for Years 2006 to 2013					
Year	Annual Mean Dose Rates Averaged (mR/91 days*)		Cumulative Annual Average of Two TLDs at PIIC (mR/91 days)		Average Gamma Radiation (mR/91 days)
	Inside the Berm†	Outside the Berm	Sample Locations P-07S and P-08S		15 Locations Between 6 and 8 km [4 and 5 mi] from the PINGP
2013	122.6‡	24.0	14.1	13.7	15.1
2012	100.7	19.9	14.9	14.3	16.5
2011	103.1	19.7	14.8	13.9	15.7
2010	102.0	20.5	15.2	14.7	16.0
2009	99.5	20.4	15.1	15.0	16.3
2008	107.0	21.1	16.2	15.8	17.1
2007	105.0	21.5	16.4	16.3	17.7
2006	90.2	21.1	15.4	15.1	16.6

Source: NSPM, 2014b, 2013e, 2012c, 2011c, 2010b, 2009, 2008b, 2007
TLD = thermoluminescent dosimeter; PINGP = Prairie Island Nuclear Generating Plant; mR = milliroentgen; PIIC = Prairie Island Indian Community
*1 mR = approximately 1 mrem. Multiply mR/91 days measurement by 4 to obtain approximate average annual mrem.
†All TLD sample locations are provided in the annual Radiological Environmental Monitoring Programs.
‡The 2013 fourth quarter TLD results for ISFSI monitoring locations P-011B, P-021B, P-031B, and P-081B (located north and east of the ISFSI berm) were elevated. The higher doses were due to the temporary use of the adjacent area for preparing steam generators for shipment. Now that the steam generators have been shipped, doses are expected to return to their previous levels during the first quarter of 2014.

from the PINGP. The radiation levels recorded at the PIIC and 6 and 8 km [4 and 5 mi] from the PINGP are similar to the range of ambient radiation levels expected for this region of the country (Kathren, 1984; Moeller, 2005).

In response to the March 11, 2011, 9.0-magnitude earthquake and tsunami that resulted in extensive damage to the six nuclear power reactors at the Fukushima Dai-ichi, Japan, site, the NRC established a task force of senior agency experts to analyze lessons learned from the accident and to begin reviewing NRC regulations to determine whether additional measures needed to be taken immediately to ensure the safety of U.S. plants. The task force's report concluded that the continued operation and licensing activities of nuclear power plants in the United States do not pose an imminent risk to public health and safety (NRC, 2011e). The task force also made a dozen recommendations for Commission consideration in SECY–11–0137, "Prioritization of Recommended Actions To Be Taken in Response to Fukushima Lessons Learned" (NRC, 2011f), and the NRC staff prioritized the recommendations into three tiers. On March 12, 2012, the NRC staff issued orders (i.e., mitigation strategies for beyond-design-basis external events, provisions for mitigation strategies for beyond-design-basis external events, and enhancements to spent fuel pool instrumentation) and a request for information (regarding seismic and flooding reevaluations and walkdowns, and reevaluations of emergency communications systems and staffing levels) to nuclear power plant licensees. Regarding ISFSIs, the robustness of these dry cask storage systems has been tested by significant challenges (e.g., the August 23, 2011, Mineral, Virginia, earthquake that affected the North Anna Nuclear power plant and the March 11, 2011, earthquake and subsequent tsunami that damaged the Fukushima Dai-ichi nuclear power plant). Neither event resulted in significant damage to or the release of radionuclides from the dry cask storage containers (Virginia Electric

and Power Company, 2011; Institute of Nuclear Power Operations, 2011). It should be noted that casks at Fukushima were stored inside a building.

3.12 Environmental Justice

Under Executive Order 12898 (59 FR 7629), federal agencies are responsible for identifying and addressing potential disproportionately high and adverse human health and environmental impacts on minority and low-income populations. Environmental justice refers to a federal policy implemented to ensure that minority, low-income, and tribal communities historically excluded from environmental decision-making are given equal opportunities to participate in decision-making processes. In 2004, the Commission issued a Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions (69 FR 52040), which states, "The Commission is committed to the general goals set forth in Executive Order 12898, and strives to meet those goals as part of its National Environmental Policy Act review process."

The environmental justice analysis assesses the potential for disproportionately high and adverse human health or environmental effects on minority and low-income populations that could result from license renewal of the PI ISFSI. Consistent with the NRC's Policy Statement (69 FR 52040) and guidance within NUREG–1748 (NRC, 2003), affected populations are defined as minority and low-income populations within a 6.4-km [4-mi] radius of PI ISFSI. Data on low-income and minority individuals are usually collected and analyzed at the census tract or census block group level (NRC, 2003).

3.12.1 Minority and Low-Income Populations

In Section 3.3, the NRC staff reviewed the population, demographic, and economic data within Goodhue and Dakota Counties in Minnesota and Pierce County in Wisconsin (Tables 3-3 and 3-4). Tables 3-3 and 3-4 show that the percentages of minority or low-income populations in the ROI do not significantly exceed the corresponding percentages for their respective states. However, census block groups and census tract data within 6.4 km [4 mi] of the facility show minority and low-income population percentages that do significantly exceed comparable percentages in their respective counties and states (USCB, 2013b).

Five census block groups are located within a 6.4-km [4-mi] radius of the PI ISFSI: two are located in Pierce County, Wisconsin, and three are in Goodhue County, Minnesota. Table 3-8 provides a summary of the demographic information for these five block groups. Census tract 802, block group 6 contains the PINGP and the PIIC Reservation. About 26 percent of the population in that census tract comprises minority populations, of which about 62 percent are American Indian and Native Alaskan. When compared to Goodhue County's 5.4 percent minority population (see Table 3-3), the minority population in block group 6 (26.2 percent) is 20.8 percentage points higher. NRC guidance states that staff may consider minority populations with differences greater than 20 percentage points higher than the state or county percentages, or that exceed 50 percent of the block group, to be significant (NRC, 2003). Following this NRC guidance, the minority population in block group 6 is considered to be a significant environmental justice population (NRC, 2003). The block group boundaries are provided in Figure 3-4.

Table 3-8. 2010 Census Demographic Profile of Block Groups Within 6.4 km [4 mi] of the Prairie Island Independent Spent Fuel Storage Installation					
	Census Tract 802, Block Group 5 (Goodhue County, Minnesota)	**Census Tract 802, Block Group 6 (Goodhue County, Minnesota) (Prairie Island Indian Community and PINGP)**	**Census Tract 804, Block Group 1 (Goodhue County, Minnesota)**	**Census Tract 9606, Block Group 2 (Pierce County, Wisconsin)**	**Census Tract 9606, Block Group 3 (Pierce County, Wisconsin)**
Total Population	1,524	1,155	1,088	1,634	1,590
Race (not Hispanic or Latino)					
White (not Hispanic or Latino)	1,425	852	1,049	1,583	1,550
Black or African American	13	8	1	0	5
American Indian and Native Alaskan	20	187	11	6	15
Asian	11	10	7	5	3
Native Hawaiian and Other Pacific Islander	0	1	0	0	0
Some other race	0	0	0	0	0
Two or more races	27	41	16	12	14
Ethnicity					
Hispanic or Latino (of any race)	28	56	4	23	3
Percent Hispanic or Latino	1.8	4.8	0.4	1.4	0.2
Minority Population (Including Hispanic and Latino Ethnicity)*					
Total minority population	99	303	39	51	40
Percent minority	6.5	26.2	3.6	3.1	2.5

Source: USCB, 2013a
*Minority population includes persons of Hispanic/Latino origin who are considered an ethnic minority and may be of any race (USCB, 2001).

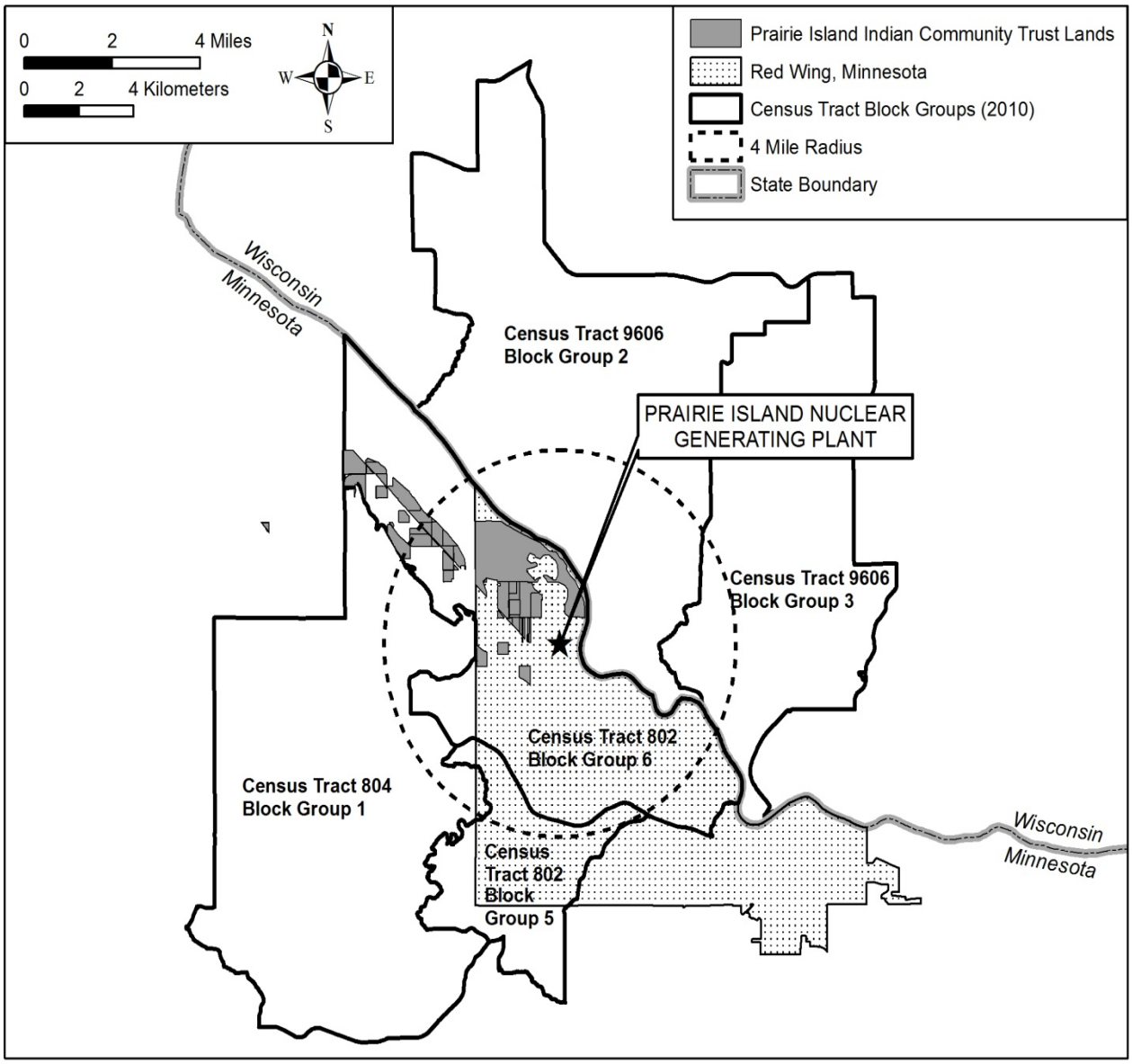

Figure 3-4. Block Groups Within 6.4 km [4 mi] of the Prairie Island Nuclear Generating Plant (Source: USCB, 2012)

Table 3-9 provides the 2009 to 2013 5-Year American Community Survey income estimates for the five block groups within 6.4 km [4 mi] of the PI ISFSI. When compared to Goodhue County's families (6.0 percent) and individuals (9.9 percent) living below the poverty level (see Table 3-4), the percentage of families living below the poverty level in block group 6 (26.9 percent) is 20.9 percentage points higher, and the percentage of individuals living below the poverty level in block group 6 (32.5 percent) is 22.6 percentage points higher. In addition, when compared to Minnesota's individuals below the poverty level (11.5 percent), block group 6 (32.5 percent) is 21 percent higher. NRC guidance states that staff may consider differences greater than 20 percentage points higher than the state or county percentages, or low-income populations that exceed 50 percent of the block group, to be significant (NRC, 2003). Following this NRC guidance, the minority population in block group 6 is considered to be a significant environmental justice population (NRC, 2003). The other block groups' per capita incomes and poverty levels are not appreciably different from their respective states and counties.

Table 3-9. 2009–2013 5-Year American Community Survey Income Estimate of Block Groups Within 6.4 km [4 mi] of the Prairie Island Independent Spent Fuel Storage Installation					
	Census Tract 802, Block Group 5 (Goodhue County, Minnesota)	**Census Tract 802, Block Group 6 (Goodhue County, Minnesota) (Prairie Island Indian Community and PINGP)**	**Census Tract 804, Block Group 1 (Goodhue County, Minnesota)**	**Census Tract 9606, Block Group 2 (Pierce County, Wisconsin)**	**Census Tract 9606, Block Group 3 (Pierce County, Wisconsin)**
Median Household Income (Annual Dollars)	$79,621	$48,456	$69,167	$85,583	$71,375
Per Capita Income (Annual Dollars)	$34,791	$24,234	$31,885	$35,897	$32,432
Families Living Below the Poverty Level (Percent)	0.0	26.9	4.1	1.8	3.5
Persons Below the Poverty Level (Percent)	2.7	32.5	5.1	2.5	4.6
Source: USCB, 2014					

Adjacent Communities

The NRC staff met with Prairie Island community members, elected tribal officials, and officials from the City of Red Wing, and conducted field observations to investigate whether there were high-density communities within the vicinity of the PI ISFSI. As described in Section 3.1 of this EA, the PINGP property boundary is located immediately south-southeast of the PIIC Reservation boundary. The PIIC Reservation and housing areas described in Section 3.3 of this EA are located within census tract 802, block group 6. The PINGP and PI ISFSI also are located within census tract 802, block group 6. Based on significant differences between local minority and low-income populations compared to the State of Minnesota and Goodhue County, the NRC staff identifies census tract 802, block group 6 as a minority population block group for this assessment. NRC staff has designated the PIIC as a minority population within a 6.4-km [4-mi] radius of the PI ISFSI.

The income and racial characteristics of other block groups within 6.4 km [4 mi] of the PI ISFSI do not indicate that 50 percent of the population is minority or low-income, and do not significantly exceed those of the state or county percentage for either minority or low-income categories.

3.12.2 Subsistence Consumption of Fish and Wildlife

Executive Order 12898, Section 4-4 (59 FR 7629) directs federal agencies, whenever practical and appropriate, to collect and analyze information on the consumption patterns of populations

that rely principally on fish and/or wildlife for subsistence and to communicate the risks of these consumption patterns to the public.

The following input on subsistence consumption of fish, wildlife, and plants was provided by the PIIC (2014b):

> Although tribal members have concerns regarding radiological contamination of the medicinal plants found on Prairie Island, they nevertheless gather and use these plants, albeit at suppressed levels due to contamination concerns. As well, most members of the Community do not consume fish from the Mississippi River (Sturgeon Lake) because of pollution concerns (either from PINGP Units 1 and 2 or from other upstream dischargers). There are tribal members who hunt on tribal lands, but they would not be considered subsistence-level consumers.
>
> The Radiological Environmental Monitoring Program (REMP), implemented by Xcel collects samples of various media around the PINGP and ISFSI—fish, invertebrates, milk, cabbage and water (surface and ground). With the exception of ground water, no samples are collected on tribal lands. The State of Minnesota also has a monitoring program, which evaluates radiological impacts on surface and ground water, milk, and air. The State's program does not include sample locations on tribal lands (aside from drinking water, from the community water supply).
>
> Although the data from both programs show little or no impacts, the fact that no samples (other than water) are collected on tribal lands is a source of on-going concern to tribal members. If additional samples (i.e., other media) were collected on tribal lands, tribal members might consume more plants, fish, and wildlife.

In this EA, NRC considered whether there were any means for minority or low-income populations to be disproportionately affected by examining impacts to American Indian, Hispanic, and other traditional lifestyle special pathway receptors. Special pathways that took into account the levels of radiological and nonradiological contaminants in native vegetation, crops, soils and sediments, surface water, fish, and game animals on or near the PINGP or PI ISFSI were considered (see Sections 4.13 and 4.14 of this EA).

The special-pathway-receptors analysis is an important part of the environmental justice analysis because consumption patterns may reflect the traditional or cultural practices of minority and low-income populations in an area, such as migrant workers or Native Americans. Traditional use of an area can be indicative of properties or resources that are historically significant for a living community to maintain its cultural heritage. For example, in the PINGP Units 1 and 2 license renewal review, the PIIC provided NRC information about the traditional use of Prairie Island as a summer encampment for fishing, hunting, gathering medicines and foods, and raising crops. During the review, the PIIC also expressed concern about native plants on Prairie Island being displaced by invasive species and human health impacts associated with the use of plants that are culturally significant to the PIIC (NRC, 2011c).

Operating nuclear power plants must have a comprehensive radiological environmental monitoring program to assess the impact of site operations (including the ISFSI) on the environment. During plant operations, nuclear power plant operators collect samples from aquatic pathways (e.g., fish, surface water, and sediment) and terrestrial pathways

(e.g., airborne particulates, radioiodine, milk, food products, crops, and direct radiation). Contaminant concentrations found in native vegetation, crops, soils, sediment, surface water, fish, and game animals in areas surrounding nuclear power plants are usually quite low (i.e., at or near the threshold of detection) and are seldom above background levels (NRC, 2013d, Section 3.10). REMP reports are sent to the PIIC annually.

4 ENVIRONMENTAL IMPACTS

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the applicant's environmental report (ER); gathered information from federal, state, local, and Tribal government agencies; and evaluated the environmental impacts to the various resources of the affected environment from the proposed action. As stated previously, the NRC also consulted with 28 regional Indian tribes. The documentation of these consultations can be found in Table 5-1 of this environmental assessment (EA).

The NRC staff used the guidance outlined in NUREG–1748 (NRC, 2003) in its evaluation. In accordance with this guidance, the staff evaluated the direct effects, indirect effects, and cumulative impacts that each resource area may encounter from the proposed action. The NRC staff categorizes the impacts in terms of small, moderate, or large, defined as follows:

- SMALL—environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource

- MODERATE—environmental effects are sufficient to alter noticeably, but not to destabilize important attributes of the resource

- LARGE—environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource

As described in Section 2.1.3 of this EA, only the potential impacts to public and occupational health are discussed in this EA for the 20-year alternative because the NRC staff determined that, for all other resource areas, the site operations and the types of potential environmental impacts associated with those operations during the 20-year interval would be similar to those for the proposed action (i.e., the proposed 40-year license renewal).

On September 19, 2014, the NRC published a revised rule in Title 10 of the Code of Federal Regulations (CFR) 51.23, "Environmental Impacts of Continued Storage of Spent Nuclear Fuel Beyond the Licensed Life for Operations of a Reactor" [79 *Federal Register* (FR) 56238]. The rule codifies the generic impact determinations in NUREG–2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel." This rule was formerly known as the Waste Confidence Decision and Rule. The revised rule adopts the generic impact determinations made in NUREG–2157 and codifies the NRC's generic determinations regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license (i.e., those impacts that could occur as a result of the storage of spent nuclear fuel at at-reactor or away-from-reactor sites after a reactor's licensed life for operation and until a permanent repository becomes available). In CLI–14–08 (NRC, 2014d), the Commission held that the revised 10 CFR 51.23 and associated NUREG–2157 cure the deficiencies identified by the court in *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012) and stated that the rule satisfies the NRC's National Environmental Policy Act (NEPA) obligations with respect to continued storage. The revised rule requires that EAs prepared for future reactor and spent fuel storage facility licensing actions consider the environmental impacts of continued storage, if the impacts of continued storage of spent fuel are relevant to the proposed action. Section 4.15 of this EA provides the NRC staff's consideration of the generic environmental impacts of NUREG–2157 for the proposed renewal of the Prairie Island (PI) independent spent fuel storage installation (ISFSI) site-specific license.

4.1 Land Use

Approval of the proposed action will not result in any construction or expansion of the existing ISFSI footprint or operations. Activities related to continued operation of the PI ISFSI include transferring dry storage casks to the ISFSI pad and routine maintenance activities. All activities would occur within the industrial footprint of the site involving existing structures and roads.

The environmental impacts on land use from the construction and operation of up to 48 casks were assessed in the NRC PI ISFSI licensing EA and were determined to be minimal because operation of the ISFSI would not require the use of any land surface beyond that which was cleared and graded during Prairie Island Nuclear Generating Plant (PINGP) construction (NRC, 1992). Continued storage of spent fuel in the ISFSI for the proposed 40-year license renewal period would not change the ISFSI's industrial land use. Because land use conditions would not change, and because any ongoing land disturbance would occur within previously disturbed industrial areas at PINGP and the PI ISFSI, impacts from the proposed action on land use would be SMALL and not significant.

After taking into consideration an additional 40 years of ISFSI operation if the license is renewed, land disturbance due to decommissioning would be limited to previously disturbed portions of the PINGP site and would not require additional land beyond the land previously disturbed during ISFSI construction activities. Decommissioning activities would include concrete pad and berm removal and site restoration to preconstruction conditions (backfilling, grading, and landscaping). Because land use conditions would not change, and because any decommissioning-related activities would occur within previously disturbed industrial areas at PINGP and the PI ISFSI, there would be no significant land use impacts from decommissioning.

The following input on land use impacts was provided by the Prairie Island Indian Community (PIIC) (PIIC, 2014b):

> The presence of the PINGP and ISFSI has had a negative effect on the PIIC, its people and lands. This viewpoint has come into sharper focus following the issuance of the Continued Storage Generic EIS (GEIS) and Continued Storage Rule. The Continued Storage Rule underscores the belief that spent nuclear fuel will remain in Prairie Island forever. Because of this, many tribal members do not want to raise their families so close to such a facility. Prairie Island is the ancestral homeland of the Mdewakankton Dakota, a land of traditional and cultural significance, and portions of Prairie Island are held in Trust by the United States government and designated as a reservation for the common benefit of all tribal members. This land was to allow the PIIC to continue to maintain its traditions and culture in perpetuity. Prairie Island itself is integral to tribal traditions and culture. Because of the ISFSI and the spent nuclear fuel, the Tribal Council has been looking for land elsewhere, away from the PINGP and ISFSI, to meet the housing and other needs of tribal members. If tribal members cannot live on Prairie Island or refuse to reside on Prairie Island, the tribe's culture may not survive.

The NRC recognizes that PI has been a place of historic and cultural significance to the tribe for thousands of years. Because of the PIIC's special expertise and information relating to land use at PI, NRC worked with the PIIC through the memorandum of understanding (MOU) described in Section 1.5 of this EA to incorporate important information into the EA. Several meetings were held between the PIIC and NRC to fully understand land use concerns, especially

subsurface land uses. The PIIC remains concerned that no archaeological survey work was conducted in the immediate vicinity of the PI ISFSI prior to its construction. In September 2014, additional archaeological survey work was conducted in the immediate vicinity of the expected PI ISFSI expansion area and the road that connects the PI ISFSI to the auxiliary building (see EA Section 3.10.2). The survey revealed the following information: (i) the excavated soils were characterized as sands that became lighter in color the deeper the soils were excavated, an indication of previous disturbance and (ii) there was no evidence of paleosols, which are buried land surfaces that would have been stable and suitable for human use (NSPM, 2014d). The NRC staff considered the findings of this survey in the evaluation of impacts to historic and cultural resources in this EA. Section 3.10 of this EA documents the cultural background of the area and historic and cultural resources at the PINGP and PI ISFSI. Section 4.10 of this EA discusses the PIIC's concerns in more detail, as well as NRC's evaluation of impacts to historic and cultural resources as a result of the proposed PI ISFSI license renewal.

4.2 Transportation

There would be no change or increase in traffic volume within the region of influence (ROI) (i.e., Goodhue and Dakota Counties, Minnesota, and Pierce County, Wisconsin) as a result of the proposed action. Additionally, approval of the proposed action would not result in new construction or expansion of the existing ISFSI footprint or change in operations. In its ER, Northern States Power Company, a Minnesota corporation (NSPM) (doing business as Xcel Energy), stated that no additional employees are needed to maintain and/or monitor the PI ISFSI (NSPM, 2011a); thus there would be no change in traffic volume and levels of service on roadways in the vicinity of the PINGP site. NSPM will continue to transfer new, empty casks from the supplier to the PINGP auxiliary building, and transfer loaded casks, approximately zero to six casks each year through 2031, from the PINGP auxiliary building to the ISFSI pad (NSPM, 2013b). There would be no noticeable environmental impact beyond what is currently being experienced. Therefore, the NRC staff concludes that the potential impacts from the proposed action on transportation would be SMALL and not significant.

After taking into consideration an additional 40 years of ISFSI operation if the license is renewed, decommissioning could increase the number of trucks entering and leaving the PINGP from dismantling and demolishing ISFSI structures and transporting materials offsite. NSPM states that about 20 additional construction workers were used in addition to onsite personnel during initial ISFSI construction activities (NSPM, 2013b, p. 15). NRC finds it reasonable to expect that 20 additional workers would be needed during ISFSI decommissioning. NRC's supplemental environmental impact statement (SEIS) for the PINGP relicensing concluded that average annual daily traffic volumes are below maximum capacities for the roads leading to the PINGP (NRC, 2011c, Section 2.2.8.2). NRC's PINGP license renewal SEIS also concluded that County Road 18 and Sturgeon Lake Road currently have the capacity to handle the additional volume of traffic associated with refueling operations or large construction projects when numerous additional workers (as many as 925 additional workers during refueling outages that occur every 20 months for a duration of 45 to 90 days) are added to normal traffic flows in the vicinity of PINGP and the PIIC (NRC, 2011c, Section 3.2.7). Although NRC concluded that transportation impacts would mostly occur during shift changes, NSPM could stagger work schedules and use NSPM employees and/or local law enforcement officials to direct traffic entering and leaving the PINGP site to minimize the service impacts on Sturgeon Lake Road (NRC, 2011c). Therefore, an increase in traffic flow from PI ISFSI decommissioning activities would not be noticeable, and thus potential transportation impacts from decommissioning would be SMALL and would not be significant.

4.3 Socioeconomics

In the PI ISFSI license renewal application and responses to NRC's environmental request for additional information (RAI), NSPM indicated that the proposed action will not require any additional employees to maintain and/or monitor the PI ISFSI (NSPM, 2013b, 2011a). With no new employment expected and no additional burden on the community to provide housing and public services, an increase to the tax base is not anticipated. Based on this information, no change (direct or indirect) to the local economy would result from the proposed action and thus potential socioeconomic impacts would be SMALL and would not be significant.

The following input was provided by the PIIC (2014b):

> Although the ISFSI is located immediately adjacent to our Community (and we are the *de facto* host community), the PIIC receives a very limited financial benefit from these facilities. The City of Red Wing and Goodhue County receive millions of dollars annually from the PINGP and ISFSI via taxes. The ISFSI and its dry casks (38 currently, expected future total of 98—and associated risk) are right next to our homes, our government center, our church, our recreational areas, and our tribal gaming enterprise. Our community members bear the greatest risk, yet we receive virtually no benefit.
>
> The PIIC also expends considerable financial resources participating in state and federal regulatory proceedings for the PINGP Units 1 and 2 and the ISFSI (federal only). There is no other governmental entity (e.g., City of Red Wing, Goodhue County, or the State of Minnesota) participating in these proceedings at the same level as the PIIC. Were it not for the existence of the PINGP ISFSI, the funds used by the PIIC to participate in regulatory proceedings are funds that could be used for other community purposes; this is a negative socioeconomic impact that must be considered.

The NRC recognizes that the PIIC is concentrated closer to the PINGP and PI ISFSI than any other population group and has invested financial resources to ensure the safety and security of its members. As discussed, direct employment, taxes, and services would not be expected to change as a result of the proposed action. Financial burdens, such as expenses associated with participation in PINGP-related actions, emergency planning, and steps required in the event of an accident [e.g., educating the public on risks and procedures, maintaining special medical supplies (iodine tablets), equipment, and trained professionals], would also not change and would continue to impact, in the same manner, communities within the ROI. According to the PIIC, by virtue of their proximity to the PINGP, the PIIC police department (PIPD) is often the first local government law enforcement agency onsite in response to calls occurring on both reservation and nonreservation land adjacent to the PINGP as well as calls originating from or occurring on the PINGP site, which lies within Goodhue County or the City of Red Wing.

The Red Wing Police Department has primary authority in the area of the PINGP and has the ability to request additional response resources from other organizations such as the PIIC (NSPM, 2013d). PIPD officers are Minnesota licensed peace officers recognized as a responding party authorized to provide assistance to a requesting party from the county or city pursuant to a 2004 Cooperative Agreement Regarding Law Enforcement with Goodhue County and the City of Red Wing and the South East Region Counties Mutual aid Agreement (PIIC, 2013b), and a 2011 Letter of Agreement for Emergency Response Services Between the City of Red Wing, City of Red Wing Office of Emergency Management, City of Red Wing Police

Department, City of Red Wing Fire Department, and NSPM (NSPM, 2013d). The 2011 Letter of Agreement for Emergency Response Services affirms that each party can perform its responsibilities as outlined in other plans referenced in the agreement. In addition to police services, the City of Red Wing provides necessary emergency services to respond to fire, breach of containment facilities that may occur at the PINGP or PI ISFSI, and the treatment of injuries that may result from providing these services.

After taking into consideration an additional 40 years of ISFSI operation if the license is renewed, about 20 additional workers would be needed to support ISFSI decommissioning as discussed in Section 4.2 of this EA. Although the nature of impacts from decommissioning depend on local economic activity, which the NRC staff cannot project with certainty, the additional workers needed to decommission the PI ISFSI would not appreciably affect the overall socioeconomic characteristics of the area (i.e., expenditures, tax revenues, demand for housing, public utilities, and public services). Therefore, NRC staff concludes that potential socioeconomic impacts within the ROI from decommissioning the ISFSI would be SMALL and would not be significant.

4.4 Climatology, Meteorology, and Air Quality

Under the proposed action, newly filled dry casks would be periodically transferred to the PI ISFSI, approximately zero to six casks each year through 2031 (NSPM, 2013b). By design, the dry spent fuel storage casks emit no gaseous effluents subject to the terms and conditions of a Title V air pollution control operation permit issued by the Minnesota Pollution Control Agency (MPCA). In addition, no diesel generators are located at the PI ISFSI. The transport vehicle that moves the casks from the spent fuel pool to the ISFSI generates some exhaust from burning diesel fuel. Such emissions are not likely to be detectable during the infrequent transfer activities, approximately zero to six times per year. As such, the potential impact to climate and air quality due to the proposed action would be SMALL and would have no significant environmental impact.

After taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, decommissioning activities could have intermittent, local air quality impacts. Fugitive dust generated during intermittent earthmoving activities and exhaust emissions from vehicles and equipment involved in ISFSI demolition and decommissioning activities could impact the local air quality. In the 1992 EA, similar activities were considered as part of the ISFSI construction-related impacts (NRC, 1992) and were determined to be insignificant if best management practices were followed. Although the attainment status of the region for the standards that the U.S. Environmental Protection Agency (EPA) has established under the National Ambient Air Quality Standards (NAAQS) for each criteria pollutant would be reviewed as part of the decommissioning plan licensing review, the NRC staff expects that air quality would not be significantly affected, because decommissioning activities would be regulated under federal, state, and local air permits during this time; dust and exhausts would be dissipated by local weather conditions; and the demolition-related activities would be intermittent. For these reasons, the NRC staff concludes that air quality impacts during ISFSI decommissioning would be similar to air quality impacts during construction. Therefore, the NRC staff determines that any potential impact to air quality from decommissioning of the PI ISFSI would be SMALL and would not be significant.

4.5 Geology and Soils

Continued ISFSI operation would not affect the underlying geology. The only liquid spills or leaks that could occur at the PI ISFSI are grease, oil drips, and spills from the maintenance and operation of the cask transfer vehicle. NSPM performs regular maintenance on the cask transfer vehicle in the equipment storage building located within the PI ISFSI (Figure 1-5) (NSPM, 2011a, Section E2.1.2.1). In its application, NSPM states that drips of lubricating fluid from the transport vehicle would be cleaned up and disposed of at appropriate facilities (NSPM, 2011a, Section E2.1.2.1). Monitoring the pressure of all in-service casks is a continual process (NSPM, 2011a). Visual inspections of the dry casks are conducted quarterly, and spills or leaks observed at the ISFSI are addressed during inspections (NSPM, 2011a). According to the Minnesota Public Utilities Commission (MPUC), eight low-pressure alarms have gone off at the ISFSI since the first cask was emplaced at the ISFSI in 1995. All the alarms were caused by gaseous leaks in the monitoring system tubing or pressure transmitter, and none of the alarms were due to a cask seal leak (MPUC, 2009a). In June 2011, NSPM conducted a visual inspection of the bottoms of two casks, including the cask that has been in service the longest amount of time (NSPM, 2011a). Inspection results identified no issues that would affect the intended function of the casks. For these reasons, the NRC staff concludes that the potential impacts to geology and soils from the proposed action would be SMALL and would not significantly affect such resources.

After taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, decommissioning could produce short-term impacts to soils from pad removal activities and contribute to soil erosion. The NRC staff expects that disturbance to the soil horizons if the ISFSI foundation is removed and from leveling and regrading of the ISFSI would not impact subsurface geology, because decommissioning activities would not extend to a depth beyond the unconsolidated soil deposits. Additionally, soils found to be contaminated above NRC release levels would be shipped offsite to an authorized disposal facility. Under 10 CFR Part 20, Subpart E ("Radiological Criteria for License Termination"), soils at the site would have to meet applicable radiological soil concentration limits before those areas could be released for restricted or unrestricted use. Following ISFSI decommissioning, the NRC staff expects the area would be regraded consistent with the local topography, and that NSPM would reseed the soils to reduce soil erosion. NSPM would manage storm water runoff and provide sediment control in accordance with local construction codes. For these reasons, the NRC staff concludes that potential impacts on geology and soils from decommissioning the PI ISFSI would be SMALL and would not be significant.

4.6 Water Resources

Water consumption at the PI ISFSI is not anticipated to change, because existing operational and maintenance procedures would continue. The ISFSI does not use, consume, or otherwise generate liquid effluents during normal operation. During spent fuel loading, water for cask decontamination is used within the confines of the PINGP power plant and would fall within the scope of potential water impacts NRC has previously assessed for reactor operations. The NRC staff concluded in the PINGP Units 1 and 2 license renewal SEIS that the impacts on surface water and groundwater from consumptive water use during PINGP operations would be SMALL (NRC, 2011c). The NRC staff determined that overall surface water and groundwater impacts associated with continued PINGP operations would be SMALL (NRC, 2011c). Handling of the fuel, cask loading, and decontamination of the casks takes place within the PINGP auxiliary building. The license applicant asserts that no credible mechanisms could contaminate

the outside surfaces of the casks, other PI ISFSI components, or operating personnel after the casks leave the decontamination area (NSPM, 2011a, Section E2.1.2.1). After a certified cask is loaded, removed from the pool, decontaminated, and has left the auxiliary building, there is no mechanism to contaminate the outside surfaces unless the cask/canister is breached. Therefore, the proposed action would cause no significant environmental impact to water quality or local water use.

As described earlier in this section, only spent fuel loading operations and cask decontamination require the use of water resources. These activities were included in the SEIS evaluation for surface water and groundwater impacts. Because there are no changes in water consumption or impacts to water quality as a result of the proposed action, the NRC staff concludes that the potential direct impacts on surface water and groundwater resources from the proposed action would also be SMALL and would not be significant.

The primary surface water bodies in the PINGP site vicinity are the Vermillion River to the west and the Mississippi River to the east. Indirect impacts to water quality can result from storm water runoff incorporating grease, oil drips, and spills from the maintenance and operation of the cask transfer vehicle. NSPM performs regular maintenance on the cask transfer vehicle in the equipment storage building located within the PI ISFSI (Figure 1.45) (NSPM, 2011a, Section E2.1.2.1). In its application, NSPM states that drips of lubricating fluid from the transport vehicle would be cleaned up and disposed of at appropriate facilities (NSPM, 2011a, Section E2.1.2.1). NSPM provided NRC with a copy of the 2012 Storm Water Pollution Prevention Plan (NSPM, 2013b), which shows that storm water runoff from the ISFSI area is collected by a surface drain in the southeast corner of the ISFSI that discharges the storm water to the landlocked area south of the ISFSI. Therefore, water quality impacts to surface water and groundwater resulting from ISFSI storm water and sediment runoff would be minimal. No increase in discharge or runoff is anticipated for the PI ISFSI in the license renewal period (NSPM, 2011a, Section E3.6.1). NSPM would manage storm water runoff in accordance with the 2012 Storm Water Pollution Prevention Plan and provide sediment control in accordance with its MPCA National Pollutant Discharge Elimination System permit. For these reasons, the NRC staff concludes that the potential indirect environmental impacts from the proposed action on water resources would be SMALL and would not significantly affect water resources.

After taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, decommissioning could result in local, short-term impacts to water quality due to ISFSI concrete pad demolition, removal of the fencing and berm, restoration of the site to preconstruction conditions, and relocating the spent fuel casks to an alternate location. The license applicant would be required to manage storm water runoff and provide sediment control in accordance with federal, state, and local requirements to limit erosion and prevent contaminants from entering surface water bodies and sensitive areas. As previously stated in this section, storm water runoff from the ISFSI area is collected by a surface drain in the southeast corner of the ISFSI that discharges the storm water to the landlocked area south of the ISFSI. The storm water holding capacity of this landlocked area exceeds the capacity needed to contain runoff from credible storms in this area. Storm events would direct any loose soil, grease, oil drips, and spills from operating equipment to this landlocked area before reaching surface water bodies. For these reasons, the NRC staff concludes that potential impacts to water resources from decommissioning the PI ISFSI would be SMALL and would not be significant.

4.7 Ecology and Threatened and Endangered Species

The PI ISFSI proposed action does not involve activities that would disturb any new land beyond the disturbances already assessed in the 1992 licensing EA for construction and operation of the ISFSI. There would be no changes to the ISFSI footprint and operations. Loaded casks would continue to be transferred to the ISFSI pad, although at infrequent intervals. In addition, the PI ISFSI is cooled by a passive cooling system with no moving parts. Thus, the NRC staff expects that animals and birds would have either grown accustomed to the ISFSI or would have relocated away from the ISFSI. Therefore, the NRC staff concludes that the impacts on ecological resources from the proposed action would be SMALL and would not be significant.

NRC staff determined that the proposed action would not adversely affect federally listed threatened and endangered terrestrial species, nor state-identified rare species or species of special concern, because none of these terrestrial species are known to occur within the ISFSI boundary or areas of operations, and no critical habitat for listed or proposed threatened or endangered species is present on the PINGP site as discussed in Section 3.7.3 of this EA. The NRC staff did not perform a detailed evaluation of impacts to listed aquatic species including the Higgins eye pearlymussel (federally listed as an endangered species on June 14, 1976, [41 FR 24064]), because PI ISFSI operations do not require water for cooling and do not discharge water. The NRC staff also did not perform a detailed evaluation of potential impacts to the threatened northern long-eared bat, because PI ISFSI operations do not require clearing trees or any construction activities that may impact caves or other bat habitat. As stated in Section 4.5 of this EA, the casks do not contain any liquids, so there is no possibility of liquid leakage. Storm water runoff from the ISFSI area is collected by a surface drain in the southeast corner of the ISFSI that discharges the storm water to the landlocked area south of the ISFSI and does not affect aquatic resources. NRC staff determined that the proposed action would not adversely affect federally listed and proposed threatened and endangered species.

After taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, decommissioning could increase noise levels and change localized air quality as a result of fugitive dust from earthmoving activities and equipment exhaust emissions. As a result, animals would likely avoid the activity area. The PI ISFSI area was previously disturbed by ISFSI construction and was covered in prairie grass, weeds, and trees prior to the construction of the PI ISFSI (NRC, 1992). Following decommissioning activities, as the vegetation is reestablished, local wildlife would likely reinhabit the area if the ISFSI area is not used for another PINGP-related activity. If decommissioning included removing the ISFSI structures, regrading, and reseeding activities, newly established vegetation would be similar to what was present prior to ISFSI construction. Therefore, the NRC staff concludes that potential impacts on terrestrial and aquatic ecology from decommissioning would be SMALL and would not be significant. In addition, decommissioning the PI ISFSI would not adversely affect threatened and endangered species.

4.8 Visual and Scenic

The NRC staff does not anticipate any changes in the local or regional scenic quality, because the scope of the proposed action does not include any new construction or changes in operations. Scenic quality is impacted by surface disturbances and facilities at the PI ISFSI, which contrast with the natural environment. However, an earthen berm and trees surround the

PI ISFSI, preventing visibility of the installation from offsite roadways. Based on this lack of visibility and the absence of changes in scenic quality, the NRC staff determines that the impacts from the proposed action would not be significant.

After taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, decommissioning could cause short-term scenic and visual impacts from ISFSI demolition. Land disturbance impacts from the decommissioning activities, such as building demolition, would not be visible from offsite. The NRC potential scenic and visual impacts would be temporary and SMALL and would not be significant.

4.9 Noise

Approval of the proposed action will not result in construction or expansion of the existing ISFSI footprint that would generate construction-type noises. By design, the PI ISFSI is cooled by a passive cooling system with no moving parts that generate noise. Therefore, noise typically associated with the ISFSI is not audible. Cask handling and transporting loaded casks to the ISFSI pad would continue to occur on an infrequent basis (zero to six casks per year). The earthen berm around the ISFSI mutes noise generated by the transport vehicle during cask transfer activities. Therefore, impacts from noise-generating activities as a result of the proposed action would be undetectable and SMALL and would not be significant.

After taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, decommissioning could result in local, short-term noise impacts. Sources of noise would result from additional traffic, building demolition, and relocating the spent fuel currently stored at the ISFSI. As described in Section 3.9 of this EA, daytime noise levels at two locations just north of the PINGP property boundary ranged from 43 to 46 decibels acoustic [dB(A)] and from 32 to 36 dB(A) (MPUC, 2009a)—well below the State of Minnesota noise standards. Demolition and earthwork equipment can generate noise levels exceeding 90 dB(A) (NRC, 2002). This noise level applies at a reference distance of 15 meters (m) [50 feet (ft)] from the source. For point sources, noise is reduced by about 6 dB(A) for every 15 m [50 ft] after the initial 15 m [50 ft]. Therefore, decommissioning activities at the PI ISFSI would produce noise levels above 60 dB(A) at a distance of about 91 m [300 ft] in all directions from the ISFSI and would dissipate to levels below background noise levels of about 30 dB(A) at a distance of about 167 m [550 ft] from the ISFSI, which is less than half the distance to the nearest PINGP property boundary. NRC estimates the noise level would not be detectable offsite. Because of this, the NRC staff concludes that potential noise impacts from decommissioning would be SMALL and would not be significant.

4.10 Historic and Cultural Resources

As discussed in Section 3.10, the area of potential effect (APE) consists of the 2.2-hectare (ha) [5.5-acre (ac)] PI ISFSI site and access road from the PINGP auxiliary building to the ISFSI. NRC contacted the Minnesota State Historic Preservation Officer (SHPO) in accordance with 36 CFR Part 800 regarding the effects of a proposed undertaking (proposed action) on historic properties. The Minnesota SHPO determined that no properties listed in or eligible for listing in the National Register of Historic Places will be affected by this project (Minnesota Historical Society, 2012). As stated in the ER (NSPM, 2011a), the proposed action would not involve any new construction or disturbance of previously undisturbed land. The NRC also consulted with 28 regional Indian tribes. The documentation of these consultations can be found in Table 5-1 of this EA.

The PIIC requested that the following information be considered by the NRC in evaluating the proposed action's impacts on historic and cultural resources (PIIC, 2014b):

> Prairie Island is rich in archaeological resources that are an integral part of the PIIC's history and culture. Over the years there have been many archaeological surveys documenting and recording hundreds of prehistoric archaeological sites over the entire length of Prairie Island. These sites include burial mounds, habitation sites, and lithic scatters; these sites are inextricably linked to the PIIC's history and culture, as they represent the day-to-day actions of their ancestors.
>
> In recent years there have been a number of archaeological surveys conducted within the boundaries of the PINGP. We remain concerned, however, that very little archaeological survey work in the vicinity of the ISFSI, was conducted prior to the construction of the ISFSI, in the immediate vicinity of the ISFSI. The archaeological survey work used to support the 1992 NRC ISFSI licensing proceedings was conducted in 1967 and was subsequently found to be an unreliable source of information. These concerns are especially relevant given the expected expansion of the ISFSI.
>
> The NRC's 1992 EA for the ISFSI license referenced the 1967 archaeological survey (conducted prior to the construction of the PINGP Units 1 and 2) to conclude that, "nothing significant in the immediate area of the power plant or ISFSI was found." The EA further states "no other areas of historical, archaeological and cultural significance are found within the site boundary." No information was provided relative to the areal extent of the 1967 archaeological survey. (NRC, 1992)
>
> Prior to the construction of the PINGP Units 1 and 2, NSPM hired Dr. Elden Johnson, who was at that time the State Archaeologist, to conduct archaeological surveys of the area. We learned, through the PINGP Units 1 and 2 relicensing process that Dr. Johnson was primarily interested in excavating the burial mounds, such as the Birch Lake Mound site that were located far from the PINGP Units 1 and 2 construction site (and nowhere near the ISFSI site). In the vicinity of the PINGP, Dr. Johnson conducted some mechanical trenching operations (close to the Mississippi River) and possibly some other work (e.g., mapping) in the immediate vicinity of the PINGP in 1967.
>
> An NSPM-generated literature review and synthesis of all archaeological surveys and reports for the PINGP (Iffert, 2010), indicates that the 1967 work was not well documented and the "excavation units could not be re-located and no map or specific notes of the surveyed locations from that year are currently available." We remain concerned that the basis of the original license documents (ER, EA) was the very limited and undocumented 1967 survey. Moreover, the Phase I provided by Xcel in support of its ISFSI license renewal application was very limited in scope.
>
> The lack of archaeological survey work prior to ISFSI construction is an on-going source of concern for the PIIC. We will never know whether any archaeological resources were present in the ISFSI area before construction. There simply is no documentation available.

> Given that recent archaeological investigations indicate that there is still a high potential for additional unrecorded archaeological resources to be discovered within the PINGP boundary, we remain concerned that archaeological resources were lost during the construction of the ISFSI.

The NRC staff updated its understanding of resource areas, including historic and cultural resources, through coordination with the PIIC via the MOU and examination of new survey data further explained in this section. As discussed in Section 3.10, NSPM commissioned a Phase I Archaeological Survey that included excavation of eight subsurface test pits to an average depth of 1.8 m [6 ft] below the surface around the ISFSI perimeter (Sather, 2010; NRC, 2011c, pp. 4–39). The consulting archaeologist reported finding fragments of concrete in one of the test pits but no other artifacts. Disturbed soil was present in seven of the eight test pits. During the site visit conducted to support this EA, NSPM provided photographs taken during grading and construction of the PI ISFSI for the NRC staff and PIIC review (NRC, 2012e). Based on the review of these materials, it is likely that grading activities for construction of the concrete ISFSI pads removed any potential for buried archaeological deposits up to 1.8 m [6 ft] below the pad surface; however, the east-west oriented trench excavated for this purpose did not extend the full horizontal width of the ISFSI. As explained in EA Section 3.10.2, no cultural materials were recovered during grading and construction of the PI ISFSI. As explained in EA Section 3.10.2, no cultural materials were recovered during grading and construction of the PI ISFSI.

Identified historic and cultural sites are located outside the ISFSI facility footprint. In addition, the proposed action will not disturb any undisturbed land surface. Therefore, the NRC staff concludes that no historic properties would be affected by the proposed license renewal. Potential impacts to historic and cultural resources as a result of the proposed action would be SMALL and would not be significant. However, there remains the potential for unreported archaeological resources to be present in subsurface contexts in portions of the ISFSI that were not disturbed by the original ISFSI construction. NSPM has implemented the Cultural Resources Management Plan (CRMP) on file at the PINGP to manage and ensure the protection of archaeological and cultural resources at the PINGP property. The CRMP includes a detailed overview of existing information regarding the nature and location of known cultural and historic resources within the PINGP property, identifies which types of activities have potential to cause disturbance to these resources, and establishes procedures and practices for proper review, notification, and consultation with concerned parties prior to initiating future construction and excavation projects at the PINGP. NSPM employees are required to notify and consult with a variety of federal, state, tribal, and local agencies and entities depending on the nature and scope of planned activities and applicable laws and regulations. NSPM has agreed to maintain and implement the CRMP as long as NSPM owns or controls the plant site (NSPM, 2013c). Implementation of the CRMP through a renewed license term, if approved, would minimize potential impact to historic and cultural resources.

Recent archaeological field investigations indicate that there is high potential for additional unrecorded archaeological resources within the PINGP boundary, even under parking lots, buildings, and other structures (Boden, et al., 2010). Prior to decommissioning, a decommissioning plan would need to be submitted to the NRC for review and approval in accordance with 10 CFR 72.54. NRC authorization for decommissioning would constitute a federal action under NEPA, and environmental impacts to historic and cultural resources would be assessed at that time. Portions of the PI ISFSI situated beyond the horizontal extent of the central trench constructed for the existing concrete pads may not have been significantly disturbed and therefore retains the potential for unreported and unevaluated subsurface

archaeological deposits. Therefore, if decommissioning activities are determined to have the potential to disturb previously undisturbed soils with the potential to contain archaeological resources, then subsurface testing may be required to determine the significance of resources that may be present. Archaeological testing may also be required to determine whether unreported human burials are present in accordance with Minnesota's Private Cemeteries Act (Minnesota Statute 307.08) prior to ground disturbance. Through the implementation of NSPM's CRMP and compliance with federal, state, and local requirements, potential impacts of decommissioning to historic and cultural resources could be minimized and impacts could be SMALL to MODERATE depending on the results of the subsurface tests.

4.11 Public and Occupational Health and Safety

4.11.1 Nonradiological Impacts

The PI ISFSI uses a passive cooling system with no moving parts. If needed, NSPM performs maintenance operations on the cask transfer equipment and other ancillary equipment in a low-radioactive dose environment when spent fuel is not being moved from the PINGP auxiliary building to the PI ISFSI (NSPM, 2011a). Normal workplace hazards associated with the ISFSI operations (i.e., moving heavy objects, working outside, and working with heavy equipment during cask transfer operations) would not change as a result of the proposed action. Preventive maintenance at the PI ISFSI would be infrequent and similar to the maintenance activities that have occurred since the ISFSI operations began. For these reasons, the NRC staff concludes that potential nonradiological impacts from maintenance operations under the proposed action would be SMALL and would not be significant.

After taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, potential nonradiological health impacts from decommissioning would be associated with moving heavy objects, working outside, working with heavy equipment during cask transfer operations, relocating spent fuel, and demolishing and dismantling the ISFSI. NSPM could implement existing operating procedures to limit these impacts and reduce the likelihood of occupational incidents. If such procedures are in place, the NRC staff concludes that potential nonradiological impacts during decommissioning would be SMALL and would not be significant.

4.11.2 Radiological Impacts

Radiological impacts from the proposed action would result from the storage of spent nuclear fuel in sealed, heavily shielded Transnuclear-40 (TN–40) and Transnuclear-40HT (TN–40HT) dry casks on concrete pads that hold up to 48 casks. The exterior surfaces of the casks would be decontaminated and surveyed to ensure that (i) radioactive contamination meets technical specifications prior to transfer to the ISFSI and (ii) the casks are not opened at the PI ISFSI. Thus, the only source of radiation exposure from the ISFSI is from direct and scattered neutron and gamma radiation emanating from the spent fuel stored inside each dry cask. As described in Section 1.3.1 of this EA, a 5.18-m [17-ft]-high earthen berm surrounding the PI ISFSI provides additional radiological shielding and visual screening from the PINGP exclusion area boundaries (NSPM, 2011a). Because the shielded casks and earthen berm limit direct radiation to the public, the scattered radiation (skyshine) from the PI ISFSI is the only means of exposure from the PI ISFSI.

As of September 2011, 29 TN–40 casks were stored at the PI ISFSI. Six TN–40HT casks were placed at the ISFSI in spring 2013, and three TN–40HT casks were placed in fall 2013. When

NSPM's license limit of 48 casks is reached, there will be 19 TN–40HT casks stored at the PI ISFSI. The impact analysis included in the applicant's ER (NSPM, 2011a) assumes that 48 TN–40HT casks are stored on the two ISFSI pads and each TN–40HT cask is loaded with the design basis spent fuel, producing the maximum allowable source term value for the purpose of radiation shielding analyses. This assumption provides a conservative analysis because the source term is much greater than that of the actual fuel loading in the casks on the pad. The dose contribution from the TN–40 cask was evaluated in the past and remains valid because the source term is decreasing as the fuel ages.

4.11.2.1 Occupational Dose

NSPM maintains a radiation protection program for the PI ISFSI in accordance with 10 CFR Part 20 to ensure that radiation doses are as low as is reasonably achievable (ALARA). During cask transfer and storage, radiological impacts to workers directly involved in ISFSI activities will result from transferring casks from the auxiliary building to the pad and from performing radiation surveys, surveillance activities (when necessary) of the casks, and routine security patrols. The actual dose may deviate from this estimate due to dose rates, time to complete tasks, or number of persons working on tasks, but actual dose monitoring is conducted to ensure that each worker's exposure associated with the PINGP, including the PI ISFSI, is less than the regulatory limit specified in 10 CFR 20.1201 of 0.05 Sv (Sievert) [5 rem] annually. NUREG–0713, "Occupational Radiation Exposure at NRC Licensed Facilities" (NRC, 2012i), includes a compilation of occupational exposure reports from all NRC-licensed facilities. The review of these data associated with PINGP indicates exposure to all workers associated with the PINGP, including the PI ISFSI, is well below the regulatory limits in 10 CFR 20.1201.

NRC's EA (NRC, 2009) evaluated NSPM's license amendment request to allow the use of the TN–40HT casks. The EA found that, for PINGP workers not directly involved in cask handling or routine ISFSI operations, potential radiological impacts from 48 fully loaded TN–40HT casks are limited by the distance to the casks and the shielding provided by the ISFSI berm. The dose rate at the PINGP site boundary {about 110 m [361 ft] from the western edge of the PI ISFSI concrete pad} was calculated to be 2.43E-04 milliSieverts per hour (mSv/hr) [2.43E-02 millirems per hour (mrem/hr)] when the ISFSI is fully loaded with 48 TN–40HT casks (NRC, 2009). For PINGP workers not involved in cask handling and maintenance activities, doses attributable to the PI ISFSI would be within the required occupational dose limits specified in 10 CFR Part 20 (NRC, 2009). Licensees are required to conduct authorized operational, inspection, and maintenance activities in accordance with the occupational dose limits specified in 10 CFR 20.1201 and to have and follow a radiation protection program consistent with 10 CFR 20.1101. Therefore, the NRC staff concludes that radiological impacts to PINGP workers from the proposed ISFSI license renewal would be SMALL and would not be significant.

During decommissioning workers could receive radiological doses while removing the casks from the ISFSI pads and decontaminating and dismantling the ISFSI. However, decommissioning activities are required to be conducted in a manner to meet annual occupational radiological dose regulatory limits in 10 CFR 20.1201 and to use procedures to achieve doses that are ALARA pursuant to 10 CFR 20.1101(b). For this reason, the NRC staff concludes that radiological impacts to workers during decommissioning would be SMALL and would not be significant.

Under the 20-year renewal alternative, additional spent fuel assemblies would be loaded and spent fuel would continue to be stored at the PI ISFSI for an additional 20 years. The 20-year

alternative would not result in a reduction of the amount of spent fuel PINGP Units 1 and 2 would generate. Operational inspection and maintenance of the PI ISFSI would be conducted in the same manner as for the proposed action. Annual radiological doses to workers during the 20-year alternative would be similar to those from the first 20 years of the ISFSI operation, which have been below the annual limits in 10 CFR 20.1201. Therefore, potential radiological doses to workers from the 20-year renewal alternative would be SMALL and would not be significant.

4.11.2.2 Dose to the Public

The only means of exposure to members of the public from the PI ISFSI is the scattered radiation from the PI ISFSI (skyshine) because the shielded casks and earthen berm greatly limit direct radiation to the public. The calculation of collective population dose conservatively assumes that (i) all permanent residents within the 3.22-km [2-mi] radius are located at the same distance {0.72 kilometers (km) [0.45 miles (mi)] from the center of the ISFSI} as the nearest resident and (ii) all transient residents associated with the PIIC's Treasure Island Casino are 1.3 km [0.8 mi] from the PI ISFSI (NSPM, 2014b). The highest exposure rates to the nearest offsite permanent and transient individuals, using 48 TN–40HT casks, were calculated to be 2.42E-6 and 2.64E-7 mSv/hr [2.42E-4 and 2.64E-5 mrem/hr], respectively (NRC, 2009; NSPM, 2014b, 2011a). The rapid decrease of radiation dose rate as a function of greater distance from the source results in negligible exposure for the population located farther away from the ISFSI. The highest exposure rates would occur when the last two casks are placed on the ISFSI. The radiation from the ISFSI will continually decrease due to decay of the radiation sources in the casks. After review of NSPM's license amendment request and associated supplements to modify the TN–40 cask design to store spent nuclear fuel with a higher enrichment and burnup, the NRC staff completed a safety evaluation report (SER) that determined use of TN–40HT casks at the PI ISFSI would not significantly affect public health and safety (NRC, 2010a), and NRC approved the license request (NRC, 2010b).

At a distance of 0.72 km [0.45 mi] from fully loaded 48 TN–40HT casks at the center of the PI ISFSI, the annual exposure to the nearest offsite permanent resident has been calculated to be 0.022 mSv/yr [2.20 mrem/yr] (NRC, 2009; NSPM, 2014b, 2011a). This calculated annual exposure to the nearest offsite real individual from the ISFSI is below the 0.25 mSv/yr [25 mrem/yr] limit specified in 10 CFR 72.104(a) and the 1 mSv/yr [100 mrem/yr] limit in 10 CFR 20.1301(a)(1). Doses to members of the public would be further limited by the distance to the PINGP site boundary and would therefore not exceed the regulatory limits of 0.02 mSv/hr [2 mrem/hr] for external sources in 10 CFR 20.1301(a)(2) for individual members of the public. For these reasons, the NRC staff concludes that the potential radiological impacts to members of the public as a result of the proposed action would be SMALL and would not be significant.

During decommissioning, radiological dose to members of the public would be associated with removal of the casks and relocating the spent fuel. Offsite radiological exposures would be expected to be low given the distance of the decommissioning activities to the nearest offsite resident. For this reason, the NRC staff determined that such exposures, on an annual basis, would be less than the annual dose limit in 10 CFR 20.1302. Therefore, the NRC staff concludes that the potential radiological impacts to members of the public from decommissioning the PI ISFSI after the proposed license renewal period would be SMALL and would not be significant.

Under the 20-year renewal alternative, additional spent fuel assemblies would be loaded and spent fuel would continue to be stored at the PI ISFSI for an additional 20 years. The

calculations discussed previously are also bounding for the 20-year alternative. For this reason, the NRC staff concludes that annual radiological doses to members of the public during the 20-year alternative would remain below the annual limits in 10 CFR 20.1301. Therefore, potential radiological impacts to members of the public from the 20-year renewal alternative would be SMALL and would not be significant.

4.11.3 Accidents

NSPM has evaluated the potential radiological impacts resulting from a suite of postulated accidents in its safety analysis report (SAR) for the PI ISFSI (NSPM, 2011b). 10 CFR 72.70(c)(6) requires NSPM to update the SAR every 24 months from the date of issuance of the license. SAR Sections 8 and A8 (NSPM, 2011b) and the PI ISFSI license renewal application (NSPM, 2011a, Section E4.4.2) provide the following accident analyses for the TN–40 and TN–40HT casks. The NRC staff evaluated the public dose estimates provided in the applicant's SAR for the TN–40 and TN–40HT casks and determined that, for the proposed action, there is reasonable assurance that the effects of direct radiation from the postulated accidents will be below the regulatory limits in 10 CFR 72.106(b) (NRC, 2010a).

(1) Earthquake—NSPM postulated the design basis earthquake as an extreme natural phenomenon (NSPM, 2011a,b). The design basis earthquake would have a peak ground acceleration of 0.12 "g" horizontal and 0.08 "g" vertical (where "g" is the gravitational acceleration). NSPM's analysis concluded that the major components of the ISFSI have been designed and evaluated to withstand the seismic forces generated by the design basis earthquake. Results of the analysis show that the design basis earthquake would not cause the cask to tip over or slide, would not damage the cask, and would not compromise cask leak-tight integrity. Therefore, the design basis earthquake would not result in a release of radioactive materials. This conclusion is applicable to both the TN–40 and TN–40HT casks (NSPM, 2011b, Sections 8.2.1 and A8.2.1; 2011a, Section E4.4.2.1). The NRC staff reviewed NSPM's analysis and findings (NSPM, 2011a,b) and determined that no radiological dose consequences are expected from earthquake activity (NRC, 2010a).

(2) Extreme Wind—NSPM postulated the extreme winds resulting from a design basis tornado or from a design basis tornado missile as an extreme natural phenomenon (NSPM, 2011a,b). The design basis tornado would have a rotational wind velocity of 483 kilometers per hour (kph) [300 miles per hour (mph)], a forward progression of 96 kph [60 mph], and a pressure drop of 0.43 kilopascals (kPA) [3 pounds per square inch (psi)] in 3 seconds. NSPM's SAR analysis concluded that all components of the ISFSI are capable of safely withstanding tornado wind loads and tornado-generated missiles (NSPM, 2011b). Results of the analysis show that these extreme winds would not be capable of overturning or sliding the casks or damaging their seals. Therefore, tornado wind loads and tornado-generated missiles would not result in a release of radioactive materials. This conclusion is applicable to both the TN–40 and TN–40HT casks (NSPM, 2011b, Sections 8.2.2 and A8.2.2;2011a, Section E4.4.2.2). The NRC staff reviewed NSPM's analysis and findings (NSPM, 2011a,b) and determined that the environmental impact of a tornado and tornado-generated missile on the ISFSI would not be significant (NRC, 2010a).

(3) Flood—The surface of the PI ISFSI concrete pad is located at 211.7 m [694.5 ft] above mean sea level (AMSL) (NSPM, 2011b, Section 4.2.1). The probable maximum flood has been calculated to reach a level of 214.4 m [703.6 ft] AMSL with a water velocity of

1.9 m per second [6.2 ft per second] and wave action to a maximum level of 215.4 m [706.7 ft] AMSL (NSPM, 2011b). The casks are designed to withstand the forces developed by the probable maximum flood without damaging cask integrity, damaging cask seals, or overturning the casks. The height of the cask seals will be above the level of the probable maximum flood and associated wave action. No fuel damage or criticality is postulated to occur as a result of flooding. Therefore, the probable maximum flood would not result in a release of radioactive materials. This conclusion is applicable to both TN–40 and TN–40HT casks (NSPM, 2011b, Sections 8.2.3 and A2.8.3; 2011a, Section E.4.4.2.3). The NRC staff reviewed NSPM's analysis and findings (NSPM, 2011a,b) and determined that no release of radioactive materials is expected from flooding activity (NRC, 2010a).

(4) Explosion—NSPM (2011a,b) postulated a transportation accident involving a jumbo barge explosion in the Mississippi River as having the worst case impact on the safe operation of the PI ISFSI. This barge explosion has been postulated to occur at a location approximately 792 m [2,600 ft] from the PI ISFSI generating an estimated pressure wave of 15.5 kPa [2.25 psi] at the ISFSI, which is a significantly smaller pressure wave than the external pressure the TN–40 and TN–40HT casks are designed to withstand. The cask will not overturn as a result of the postulated explosion pressure wave. All other potential sources of explosion are bounded by the barge explosion. Accordingly, this event would not result in a release of radioactive materials (NSPM, 2011a, Sections 8.2.4 and A8.2.4). This conclusion is applicable to both the TN–40 and TN–40HT casks (NSPM, 2011b, Sections 8.2.5 and A8.2.5; 2011a, Section E4.4.2.4). The NRC staff reviewed NSPM's analysis and findings (NSPM, 2011a,b) and determined that no release of radioactive materials is expected from explosion (NRC, 2010a).

(5) Fire—NSPM (2011a,b) postulated the impacts of a bounding 757-liter (L) [200-gallon (gal)] engulfing fire directly around the cask, with the fuel source being a ruptured fuel tank of the cask transporter transport vehicle. NSPM postulated that 757 L [200 gal] of fuel would sustain an engulfing fire for about 12 minutes, but analyzed a 15-minute engulfing fire around the cask. The containment of the casks will be assured as long as the metallic lid seals remain below 299 °C [570 °F] for the TN–40 cask and 280 °C [536 °F] for the TN–40HT cask and the cavity pressure is less than 689 kPa [100 psi] for both casks.

The thermal analysis for the fire accident conditions shows that the TN–40 and TN–40HT casks would withstand the hypothetical fire accident event without compromising the containment integrity. Therefore, the postulated fire would not result in a release of radioactivity or associated dose. This conclusion is applicable to both the TN–40 and TN–40HT casks (NSPM, 2011b, Sections 8.2.5 and A8.2.5; 2011a, Section E4.4, 2.5). Even in the unlikely event of total loss of the neutron shield, the site boundary accident dose rates would continue to be below 10 CFR 72.106(b) limits. The NRC staff reviewed NSPM's analysis and findings (NSPM, 2011a,b) and determined that no release of radioactive materials is expected from fire (NRC, 2010a).

(6) Inadvertent Loading of a Newly Discharged Fuel Assembly—NSPM (2011a,b) postulated the inadvertent loading of an assembly not intended for storage in the storage canister with a heat generation rate exceeding the design basis. To preclude this postulated accident from going undetected and to ensure that it can be rectified before the casks are sealed, NSPM requires a final verification of the assemblies loaded into the casks and a comparison with fuel management records to ensure that the loaded assemblies do not exceed any of the specified limits. Appropriate actions are taken to ensure that an erroneously loaded fuel assembly does not remain undetected. Therefore, the storage of a fuel assembly with a heat generation exceeding the maximum allowable heat generation rate is not considered credible in view of the multiple administrative controls in place, and no doses are postulated for this accident. This conclusion is applicable to both the TN–40 and TN–40HT casks (NSPM, 2011b, Sections 8.2.7 and A8.2.7; 2011a, Section E.4.4.2.6). The NRC staff reviewed NSPM's multiple controls in place (NSPM, 2011a,b) and determined that no release of radioactive materials is expected from this event (NRC, 2010a).

(7) Cask Seal Leakage—The storage casks feature redundant seals in conjunction with an extremely rugged body design (NSPM, 2011a,b). The sintered fuel pellet matrix and the zircaloy cladding that surrounds the fuel pellets provide additional barriers to the release of radioactivity. Furthermore, the gaps between the seals are pressurized in excess of the cask cavity pressure. The pressure between the seals is monitored in real time for any failure of the inner or outer seal. Therefore, no credible mechanisms that could result in leakage of radioactive products have been identified (NSPM, 2011a,b). Nevertheless, a loss of the storage cask confinement capability NSPM postulated is presented in Item 9 in this list (NSPM, 2011a,b). This conclusion is applicable to both the TN–40 and TN–40HT casks (2011a, Section 4.4.2.7; NSPM, 2011b, Sections 8.2.7 and A8.2.7).

(8) Hypothetical Cask Drop Accident—NSPM (NSPM, 2011a,b) evaluated the cask under a bottom end impact on the PI ISFSI storage pad after a drop from a height of 46 centimeters (cm) [18 inches (in)], which is a postulated impact event that is extremely unlikely to occur. The storage pad is the hardest concrete surface outside of the containment building. Because the cask is determined to be structurally sound after a drop from a height of 46 cm [18 in] and the worst case load produced by road conditions beyond those allowed by specifications would place the bottom of the cask at a height of 35.56 cm [14 in] (NSPM, 2011b, Section 4.3.3), NSPM evaluated the impact of such an event on the cask body, lid bolts, and basket and concluded that a cask drop would not breach the cask confinement barrier and would not result in a release of radioactive material or any resultant dose. This conclusion is applicable to both the TN–40 and TN–40HT casks (2011a, Section E.4.4.2.8; NSPM, 2011b, Sections 8.2.8 and A8.2.8). Even in the unlikely event of total loss of the neutron shield, dose calculations under this scenario show that the site boundary accident dose rates would continue to be below 10 CFR 72.106(b) limits (NSPM, 2011b, Sections 8.2.8.3 and A8.2.8.3). The NRC staff reviewed NSPM's analysis and findings (NSPM, 2011a,b) and determined that no radiological dose consequences are expected from cask drop accident (NRC, 2010a).

(9) Loss of Confinement Barrier—For the TN–40 cask, loss of the confinement barrier was not considered to be credible in the PI ISFSI SAR (NSPM, 2011b), but was hypothesized solely to demonstrate the safety features of the PI ISFSI by subjecting it to a set of simultaneous multiple failures, any of which is far beyond the capability of natural phenomena or man-made hazards to produce. The analyses in the SAR calculated the

radiological consequences of a release of the entire gaseous inventory in a cask containing 40 fuel assemblies. All of the krypton-85 gas was conservatively assumed to be instantaneously released from the TN–40 cask. The analyses found the dose at the site boundary for the hypothetical loss of the spent fuel cask confinement barrier would remain within the 0.05 Sv [5 rem] criteria in 10 CFR 72.106(b). Similar conservative analyses for TN–40HT indicated dose values are well below the limiting offsite doses defined in 10 CFR 72.106(b) (NSPM, 2011a,b). The NRC staff reviewed NSPM's analysis and findings (NSPM, 2011a,b) and determined that no radiological dose consequences are expected from loss of confinement barrier (NRC, 2010a).

The accident analyses summarized in the previous list bound cask performance throughout the proposed 40-year period of extended operation of the ISFSI (the proposed action) (NSPM, 2011a). Either dose consequences are not expected or the accident dose rates for the accident scenarios analyzed in the SER, for both the TN–40 and TN–40HT casks, are below the 10 CFR 72.106 regulatory limits. Therefore, the NRC staff concludes that the environmental impact of these accident scenarios would be SMALL and would not be significant.

4.12 Waste Management

As previously described in Sections 1.3.3 and 4.4 of this EA, the dry spent fuel storage casks used at the ISFSI emit no gaseous effluents and there are no ventilation or off-gas systems. NSPM maintains the cask transport vehicle inside the Equipment Storage Building located within the dry cask storage facility (Figure 1-5). Small amounts of wastes, such as ethylene glycol (antifreeze) or drips of lubricating fluid produced as a result of cask transport vehicle maintenance, would be cleaned up and disposed of at appropriate PINGP facilities (see Section 4.6 of this EA). Other waste generated at the PI ISFSI includes small amounts of cleaning and maintenance waste products (NSPM, 2011a). In its application, NSPM also noted that no sanitary sewage is produced at the PI ISFSI (NSPM, 2011a, Section E2.1.2.1).

Fuel handling, cask loading, and decontamination of the casks take place within the PINGP auxiliary building. The NRC evaluated potential impacts from these activities that occur within the PINGP auxiliary building during the license renewal SEIS. No fuel handling facilities are associated exclusively with the ISFSI (NSPM, 2011a). Typical wastes generated as a result of cask loading operations and transfer cask decontamination may be liquid (from decontamination of transfer cask), gaseous (from loading and seal welding the storage cask), and/or solid (from protective clothing utilized and all tools and material used during a loading and transfer campaign). NSPM's existing onsite waste processing systems manage these wastes. These waste processing systems are not located within the PI ISFSI. Contaminated pool water removed during the loading of dry storage casks is normally drained back into the spent fuel pool, and this liquid, combined with liquid wastes from decontamination of storage casks, is directed to the power plant liquid waste processing system. During loading campaigns, separate from continued ISFSI operation, small quantities of low-level solid radioactive waste generated during the loading and transfer cask decontamination are processed by compaction using the power plant solid waste processing system. This low-level radioactive waste consists of disposable Anti-C garments, tapes, and decontamination cloths, among other things (NSPM, 2011a). The NRC staff concludes that the potential impacts of the proposed action on waste management would be SMALL and would not be significant.

After taking into consideration an additional 40 years of PI ISFSI operation if the license is renewed, decommissioning would result in short-term waste impacts due to the temporary activities associated with relocating the spent fuel currently stored at the PI ISFSI.

Decommissioning wastes could be generated as a result of removal of the concrete pads, fencing, and the earthen berm around the ISFSI. Once ISFSI structures are removed, the ISFSI area would be backfilled, graded, and landscaped. Due to the leak-tight design of the storage casks, no radioactive waste would be generated by decommissioning activities (NSPM, 2011a).

In its application (NSPM, 2011a), NSPM discussed two options for decommissioning the PI ISFSI. The storage casks, including the spent fuel assemblies, could be shipped to a suitable repository for final disposal. Alternatively, the spent fuel could be removed from existing casks on the PI ISFSI pad and shipped in a licensed shipping container to a suitable repository. The waste produced from this second option would be from the repackaging process (removing the spent fuel assemblies from the casks and placing them into new casks) and decontamination and disposal of the casks once the spent fuel is removed. The repackaging process itself would also generate low-level radioactive waste (LLW) (e.g., clothing and tools). NSPM expects that the old casks would only be slightly radioactively contaminated due to their long-term exposure to the relatively small neutron flux from the storage of spent fuel (NSPM, 2011a), which would require disposal as LLW (Electric Power Research Institute, 2010). NSPM would be required to manage waste resulting from decommissioning activities, including radioactive waste, in accordance with NRC and other federal, state, and local requirements. Decommissioning of the ISFSI could also generate nonradioactive waste. The noncontaminated portions of the casks and concrete pads would be demolished and disposed of as debris in a landfill. NSPM would handle these potential LLW and nonradioactive wastes according to federal, state, and local regulatory requirements. Therefore, the NRC staff concludes that the potential impacts of decommissioning on waste management would be SMALL and would not be significant.

4.13 Environmental Justice

Through NRC's license renewal application review, consultation with the PIIC as a cooperating agency, and the applicant's responses to NRC's environmental RAIs, the NRC staff described potential impacts of the proposed action that could disproportionately impact population groups of concern as identified in Section 3.12 of this EA. In the majority of its assessment, the NRC staff used data from the U.S. Census Bureau (USCB) as provided in Sections 3.3 and 3.12 of this EA and verified data with the PIIC. Where the NRC staff used different analytical methods or additional information for the analysis, the sections include explanatory discussions and citations for those sources.

With respect to evaluating the proposed action's impact on environmental justice, the PIIC requested that the following information be considered (PIIC, 2014b)**:**

> The PIIC does not view the PINGP and ISFSI as separate installations. The PIIC views the PINGP and ISFSI holistically. That is, one exists because of the other. Therefore it is difficult to separate the effects from the operation of the PINGP 1 and 2 from the operation of the ISFSI. As a Tribe, we do not put things in separate boxes and view or evaluate them separately or just within the confines of one license term, particularly when the recently-finalized Continued Storage Rule precludes site-specific analysis of indefinite onsite storage, while also finding that there will be no adverse impacts associated with indefinite onsite storage.
>
> Most members of the PIIC believe that the PINGP was built at its location because, at that time, the Tribe was in no position to fight it. In the late 1960s, members of the tribe were quite poor and totally disenfranchised. The

City of Red Wing fully supported the $200 million project, as the city would benefit tremendously from it. The city annexed a large area of land that included the PINGP site (exclusive of the PIIC, although its reservation boundaries are within the annexed area) so that the PINGP would become part of its tax base. Jobs were promised, but very few Tribal Members have ever worked at PINGP 1 and 2. There is no community in the country that would stand by and allow a nuclear power plant to be built on the other side of its boundary without its full consent or without a fight. It cannot be said strongly enough that the PINGP 1 and 2, and the ISFSI, have had a negative impact on the PIIC for the last 40 years.

The spent nuclear fuel stored at the PI ISFSI has had and will continue to have a negative impact on our community until it is removed, as promised, to a federal repository. Most Tribal Members do not believe that the spent fuel from the PINGP will leave Prairie Island. This viewpoint is underscored by the recent Continued Storage Rule and the related GEIS that evaluated environmental impacts for time periods well beyond the original "temporary" 20-year licensing term. Ironically, we fully understand that denying the license renewal for the ISFSI means nothing; the spent nuclear fuel will remain on-site until there is a repository or storage facility. Because of this new reality (prospect of no repository), the PIIC's views and analysis are beyond the confines of a 40-year license term.

Each day the "temporary" waste storage at PINGP 1 and 2 becomes more permanent. To fully understand the Tribe's viewpoint one must go back to the early 1990s when NSPM first requested approval for short-term, on-site storage. During the initial on-site dry cask licensing process in the early 1990s, the PIIC expressed its concerns regarding the long-term storage of spent fuel in dry casks and the possibility that the waste would never leave Prairie Island. We were told then that the ISFSI was to be an interim or temporary solution, to keep the PINGP operating (and thereby save jobs in the Red Wing area) until the national repository, Yucca Mountain, could begin accepting waste. The probability that the waste will leave during the lifetime of those Tribal members and leaders who fought against interim or temporary storage is close to zero.

Minnesota law requires approval from the Minnesota Public Utilities Commission (MPUC) and the State Legislature before a utility can use on-site dry cask storage. During the process to evaluate NSPM's application for a Certificate of Need (CON) for the PI ISFSI (by the MPUC), hearings were held before Administrative Law Judge Allan Klein in November and December 1991. In April 1992, Judge Klein recommended that the MPUC deny the CON, stating:

"The likelihood that the dry cask storage would become permanent is so great that it is appropriate to require legislative authorization if the project must go forward immediately."

The MPUC nevertheless rejected Judge Klein's recommendations and ruled that NSPM could store the waste, though the Minnesota Legislature reduced the number of casks allowed from 48 to 17 (NSPM initially sought a CON for 48 dry casks). Subsequent Legislative Action in 2003 increased the cask limit to 29 casks. In 2010 the MPUC approved NSPM's CON for an additional 35 casks,

increasing the limit to 64 casks. An additional 34 casks will be needed if the PINGP is decommissioned in 2034, which would bring the total to 98 casks of spent nuclear fuel on Prairie Island. We have no way of knowing whether NSPM will seek to relicense the PINGP for another 20-year term. However, the Continued Storage Generic EIS (NRC, 2014a) contemplates a second 20-year renewal term. Another 20 years of operation would result in another 1,299 spent fuel assemblies being produced at the PINGP, requiring an additional 32 casks (130 total casks).

The 1992 legislative hearings for the PI ISFSI were highly contentious and divisive. It is highly doubtful that NSPM would have received state approval then if legislators believed that the waste would be on site indefinitely, as it should be considered in the absence of a National repository, (and as considered in the Continued Storage GEIS). We are no closer to a repository than we were 20 years ago when the "temporary" ISFSI was licensed. We further discuss the Environmental Justice aspects of Continued Storage in Section 4.15 of this EA.

With respect to the accident scenarios presented in Section 4.11.3, we do not believe that they represent a plausible assessment of the possible "worst case" impacts on the ISFSI. According to the SAR, and stated above in EA Section 4.11.3, NSPM postulated that a transportation accident involving a jumbo barge explosion on the Mississippi River would have a worst case impact on the safe operation of the ISFSI. The SAR postulates that the accident/explosion would occur at a distance of 792 m [2,600 ft] from the ISFSI. Moreover, the SAR states that this accident would also bound impacts that might be postulated for railroad, highway or other barge accidents.

As can be seen in EA Figure 1-4 the rail lines owned and operated by Canadian Pacific Railroad run through our community and are just 201 m [660 ft] from the PI ISFSI, not 792 m [2,600 ft]. Trains annually transport millions of gallons of hazardous and flammable materials, such as Bakken crude oil, on these lines. Bakken crude is the highly flammable and volatile crude oil from the Bakken region of North Dakota. The volume of Bakken crude transported on the rail lines has increased dramatically. In 2014 over 365 million barrels of Bakken crude were produced in 2014. Almost all of this material (approximately 511,000 carloads) was transported by rail; this is a significant increase from the 9,500 carloads transported in 2008.

Along with a significant increase in the transportation of Bakken crude comes an increase in catastrophic accidents involving Bakken crude. In the last 18 months there have been catastrophic accidents in Casselton, North Dakota, Aliceville, Alabama, and Lac-Mégantic, Quebec, Lynchburg, Virginia, Mount Carbon, West Virginia and Ontario, Canada, involving Bakken crude. Because of the increasing volumes of Bakken shipped, the US Department of Transportation (USDOT) predicts that there will be 15 mainline derailments in 2015, absent any changes to existing regulations (USDOT, 2014).

Because of the proximity of the rail lines to the PIIC, as well as the PINGP and ISFSI (201 m [660 ft]), and the predicted increase in mainline derailments, we are very concerned about a similar accident occurring on Prairie Island and the resulting consequences. We do not believe that this matter has been adequately

addressed in the applicant's SAR, their ER, or this EA for several reasons. The ISFSI license renewal application was submitted to the NRC in 2011 and it wasn't until 2012 that Bakken crude transports began to significantly increase. The rail lines are 201 m [660 ft] from the ISFSI, much closer than the 0.5 mi [2,600 ft] "worst case" postulated accident scenario. While the postulated accident involves 1,400 tons [1,543 short tons] of TNT exploding, we do not believe that the scenario is very plausible. Given the high volume of Bakken crude transported daily on the rail lines, we are concerned that an accident involving this material, just 201 m [660 ft] from the ISFSI, is a far more credible scenario that has been overlooked.

The consequences of such an accident would be devastating to the PIIC. The Environmental Justice aspects of this type of accident should have been evaluated in this EA.

In light of the PIIC's input, NRC staff considered impacts from ISFSI expansion to accommodate up to 98 casks. NRC considered the placement of up to 98 casks as part of the cumulative impacts analysis of this EA (see Section 4.14). Expansion of the ISFSI would require that an application and ER be submitted to the NRC for review and approval of the proposed action. Once the application and ER are submitted to the NRC, staff would conduct a thorough assessment of both potential safety implications and environmental impacts.

Regarding the PIIC's concerns about various accidents, NSPM has evaluated the potential radiological impacts resulting from a suite of postulated accidents in its SAR for the PI ISFSI including explosion and fire sequences. In EA Section 4.11.3 Accidents, NRC staff concluded that for the proposed 40-year license renewal, either dose consequences are not expected or dose rates for the accident scenarios analyzed in the SER are below the 10 CFR 72.106 regulatory limits (NRC, 2010a). NRC staff explains in EA Section 3.12 that the scope of the environmental justice evaluation conducted for this licensing action includes an analysis of the potential for disproportionately high and adverse human health or environmental effects on minority and low-income populations that could result from license renewal of the PI ISFSI. NRC staff also explains in EA Section 3.12.1 that the PIIC reservation (census tract 802, block group 6) is considered to be a significant environmental justice population and could be disproportionately affected. As explained later in this section, NRC reviewed annual Radiological Environmental Monitoring Program (REMP) reports, NSPM's SAR, and NRC's SERs and EAs to identify all potentially significant pathways for human health and environmental effects, and found no evidence to suggest that potential impacts from operation of the PI ISFSI, including accidents, would be disproportionately high and adverse on minority or low-income populations or to communities with unique characteristics or practices.

NRC recognizes that the PIIC is also concerned about the potential impacts of continued operation of the PINGP and PI ISFSI. In Section 4.0 of this EA, the NRC staff explains that the Continued Storage Rule requires that EAs prepared for future reactor and spent fuel storage facility licensing actions consider the environmental impacts of continued storage, if the impacts of continued storage of spent fuel are relevant to the proposed action. NRC staff provides its consideration of the potential generic environmental impacts evaluated in NUREG–2157 for the proposed renewal of the PI ISFSI site-specific license in Section 4.15 of this EA. The NRC has also discussed accidents, including explosion and fire sequences in Section 4.11.3 in this EA, and will document NRC's safety analysis of the proposed action in a separate SER.

To fulfill the NRC's obligation to evaluate potential environmental justice impacts from this licensing action, NRC staff evaluated whether the minority and low-income populations could experience disproportionately high and adverse human health and environmental effects from the proposed action. As discussed in Section 3.12 of this EA, the NRC staff found significant differences in minority and low-income populations between census tract 802, block group 6 and the state and county minority and low-income population. In addition, the NRC staff identified unique cultural ties between the PIIC and the PINGP site. Through its review of NSPM's ER, its own research of census data, information the PIIC provided the NRC staff as part of the MOU, and comments the City of Red Wing provided NRC on the proposed action, the NRC staff identified communities with unique characteristics that would make them susceptible to disproportionately high and adverse impacts. Due to its close proximity to PINGP Units 1 and 2, the PIIC could be disproportionately affected.

To perform this environmental justice assessment of impacts, the NRC staff (i) reviewed annual REMP reports, NSPM's SAR, and NRC's SERs and EAs to identify all potentially significant pathways for human health and environmental effects; (ii) determined the impact of each of those potentially significant pathways for populations within the identified census block groups and populations not identified with particular census block groups; and (iii) determined whether or not there were any unique characteristics or practices among the minority or low-income populations identified that would result in a disproportionately high and adverse impact on minority or low-income people within each census block group (via consultations with the PIIC and review of the City of Red Wing's comments on the proposed action). Additionally, the NRC staff considered whether (i) the radiological or other health effects were significant or above generally accepted norms, (ii) the risk or rate of hazard was significant and appreciably in excess of the general population, and (iii) the radiological or other health effects occur in groups affected by cumulative or multiple adverse exposures from environmental hazards. Although all resource areas were reviewed, these NRC efforts resulted in identification of the following pathways and impacts with the potential to disproportionately affect the environmental justice groups:

- Nonradiological health impacts potentially affecting populations living in close proximity to the PI ISFSI site (see EA Section 4.11.1)

- Radiological health impacts potentially affecting populations living in close proximity to the PI ISFSI site (see EA Sections 4.11.2.2 and 4.11.3)

- Cultural impacts potentially affecting the PIIC due to the community's ancestral connections to the PI ISFSI site (see EA Section 4.10)

The NRC staff determined, in the Public and Occupational Health and Safety sections of this EA (Sections 3.11 and 4.11), that the level of potential nonradiological impacts and radiological doses to the public from the proposed action would be within NRC regulatory limits and applicable federal, state, and local regulatory limits. Different segments of the population, including minority or low-income population, would not be affected differently by continued operations of the PI ISFSI. In addition, the proposed action would not yield any pathways that could lead to adverse impacts on population groups of concern.

The NRC staff considered whether (i) there is an impact on the natural or physical environment that significantly and adversely affects a particular group, (ii) there are any significant adverse impacts on a group that appreciably exceed or are likely to appreciably exceed those on the general population, and (iii) groups will be affected by cumulative or multiple adverse exposure

from environmental hazards. The NRC staff found that the presence of the PI ISFSI on PIIC ancestral lands, as described in Section 3.12.2 of this EA, may have a disproportionate effect on the PIIC. In addition, the NRC staff acknowledges that because of the PIIC's proximity to the plant and the uniqueness of the community, there is the potential for the PIIC to be disproportionately affected by the continued operation of PINGP 1 and 2 (NRC, 2011c). The land occupied by the PI ISFSI is not accessible to the PIIC, and past impacts to culturally important sites (e.g., prior destruction of burial mounds, placement of fill/spoils on top of a burial mound) have had an impact on the PIIC. Archaeological evidence (including village sites and burial mounds) described in Section 3.10 of this EA conclusively demonstrates that Prairie Island has been a place of historical and cultural significance for thousands of years.

The NRC staff concluded that offsite health and environmental impacts from the proposed action would be SMALL and not significant. The NRC staff did not identify any studies, reports, or anecdotal evidence to suggest otherwise. NRC staff found no environmental pathway (e.g., subsistence consumption) that would physiologically affect minority or low-income populations differently from other segments of the general population should the PI ISFSI be expanded. Annual REMP reports between 2006 and 2013 that include the PI ISFSI indicate that all radiological levels are below regulatory limits (see EA Table 3-7). The PI ISFSI is a passive system that doesn't produce any liquid or gaseous discharges (effluents). Consequently, no disproportionately high and adverse human health impacts would be expected in special pathway receptor populations in the region as a result of subsistence consumption of fish and wildlife. Moreover, the NRC staff's assessment generated no indication of any unique characteristics or practices among minority or low-income populations in the region that could lead to disproportionately high and adverse health or environmental impacts. Based on the potential environmental impacts from continued operation of the PI ISFSI during the license renewal period, which are not significant, the NRC staff concludes that there would be no disproportionately high and adverse impacts to the PIIC or any other minority or low-income populations.

The NRC staff concludes that environmental impacts on all resource areas from decommissioning the existing ISFSI after the proposed license renewal period would be SMALL, with the exception of potential impacts on cultural and historic resources, which could be SMALL to MODERATE depending on the results of subsurface tests that may be conducted as part of decommissioning activities (see Section 4.10 of this EA). As described in Section 4.10, NSPM employees are required under the CRMP to notify and consult with a variety of federal, state, tribal, and local agencies and entities, depending on the nature and scope of planned activities and applicable laws and regulations. Implementation of the NSPM's CRMP through a renewed license term, if approved, would minimize potential impact to historic and cultural resources. NSPM has agreed to maintain and implement the CRMP as long as NSPM owns or controls the plant site (NSPM, 2013c). In light of the available information, the NRC staff concluded that potential socioeconomic impacts within the ROI from decommissioning the ISFSI would be SMALL and would not be significant, because the 20 additional workers needed to support ISFSI decommissioning would not appreciably affect the overall socioeconomic characteristics of the area. There is no evidence that impacts from decommissioning would be disproportionately high and adverse on minority or low-income populations or to communities with unique characteristics or practices. Moreover, the NRC staff's assessment generated no indication of any unique characteristics or practices among minority or low-income populations in the region that could lead to disproportionately high and adverse health impacts. Therefore, the NRC staff concludes that there would be no disproportionately high and adverse impacts on population groups of concern or on minority

or low-income populations from decommissioning the PI ISFSI after the proposed license renewal period.

4.14 Cumulative Impacts

The Council on Environmental Quality regulations implementing NEPA define cumulative effects as "the impact on the environment which results from the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). The NRC staff evaluated whether cumulative environmental impacts could result from the incremental impact of the proposed action when added to the past, present, or reasonably foreseeable future actions in the area. For the purposes of this analysis, past actions are those related to the resources at the time of the PI ISFSI licensing and construction, present actions are those related to the resources at the time of current operation of the PI ISFSI, and future actions are considered to be those that are reasonably foreseeable through the end of the PI ISFSI operation including the proposed action. Therefore, the analysis considers potential impacts through the end of the current license term as well as the proposed 40-year PI ISFSI renewal license term. The geographic area over which past, present, and future actions would occur is dependent on the type of action considered and consistent with the affected area described for each resource in Chapter 3 of this EA. Actions considered in this cumulative impact include the license renewal for PINGP Units 1 and 2, Lock and Dam 3 navigation safety and embankment improvements on the Mississippi River, the replacement of PINGP Unit 2 steam generators, and the potential expansion of the PI ISFSI (NSPM, 2014e, 2013b; NRC, 2011c).

The NRC staff recognized that NSPM had expressed an interest in pursuing a power uprate for PINGP Units 1 and 2 (NRC, 2011c, Section 4.11) during the NRC staff review of the PINGP license renewal. Since that time, NSPM has decided not to request a power uprate (NSPM, 2013b).

In the PINGP license renewal SEIS (NRC, 2011c), the NRC staff evaluated the potential environmental impacts of an additional 20 years of operation. In addition, refurbishment activities, including steam generator replacement and maintenance activities (e.g., refueling, pipe replacement), were evaluated. NSPM replaced the PINGP Unit 2 steam generators in December of 2013 to support plant operations through the renewed PINGP license period (NSPM, 2014e). The steam generator replacement activities took approximately 100 days to complete. An additional 1,280 workers were used to complete the combined replacement and refueling outage (NSPM, 2014e). NSPM identified that some steam generator replacement construction activities would take place in previously undisturbed areas and in areas not expected to be impacted by the refueling and steam generator replacement activities. Therefore, NSPM consulted with the PIIC regarding steam generator replacement activities that required construction in previously undisturbed areas and followed the PINGP Archeological, Cultural, and Historic Resources plan. Results of cultural surveys conducted prior to construction activities were shared with the PIIC; no cultural resources were identified during the survey or construction activities (NSPM, 2014e). In its response to NRC's environmental RAIs, NSPM stated that steam generator replacement activities included construction of temporary buildings and a warehouse that were completed by the end of March 2013, a laydown area, and a temporary parking area (NSPM, 2013b). The steam generators were moved beginning in September 2013 via a self-propelled transporter to a new storage building, which housed the replacement steam generators until they were ready for installation. All steam generator replacement activities occurred within the PINGP site boundary. After the steam generator

replacement activities were completed, the temporary parking area was removed and reseeded, and the storage building and laydown area were turned over for future use (NSPM, 2014e).

As explained in Section 1.4 of this EA, MPUC issued NSPM a CON in December 2009 authorizing NSPM to expand the PI ISFSI to store up to 64 casks. In its 2008 MPUC CON application, NSPM stated that 3,895 spent fuel assemblies would be expected to be produced by the end of 2034 (NSPM, 2008a, pp. 3–10). Assuming 40 assemblies per cask and adequate cooling (see Section 1.3.2 of this EA), a total of 98 casks would be needed and placed in the PI ISFSI if all the spent fuel would be stored in dry storage. NSPM plans to install two 5.5-m-wide by 66-m-long by 1-m-deep [18-ft-wide by 216-ft-long by 3-ft-deep] concrete pads, each 0.9 m [3 ft] thick, and plans to store up to 64 casks by the end of year 2031 (NSPM, 2013b). Each concrete pad can hold up to 12 casks. NSPM stated that the expansion would include excavating the new pad area, trenching the new duct bank path, pouring the new concrete pad and duct bank, and replacing the structural fill (NSPM, 2013b). The new pads would be installed immediately adjacent and south of the existing pads within the ISFSI security fences (NSPM, 2013b, p. 4). In its MPUC CON application, NSPM stated that if additional concrete pads were installed north and south of the existing concrete pads, the PI ISFSI could accommodate a total of 100 casks without having to change the security perimeter (NSPM, 2008a, p. 3A-12).

In its role as a cooperating agency, the PIIC provided the following information that considers past and future activities at the PI ISFSI and discusses cumulative impacts on the tribe, its people, and its lands (PIIC, 2014b)**:**

> As discussed previously in Section 4.13 of this EA (Environmental Justice), in the absence of a federal repository, we have to look beyond the confines of the proposed 40-year renewal term. Looking at recent events—the MPUC CON for additional casks and expected ISFSI expansion, the Continued Storage Rule and supporting GEIS, and the lack Congressional action on either the Yucca Mountain repository (funding) or interim storage facility (authorization)—one can only conclude that the spent nuclear fuel at Prairie Island is here for the long term. Spent nuclear fuel is currently stored on site at Prairie Island and other nuclear plants because of the government's failure to establish a permanent repository for spent fuel. In the meantime, as the Court of Appeals for the District of Columbia Circuit observed, "[t]his type of storage, optimistically labeled 'temporary storage,' has been used for decades longer than originally anticipated. The delay has required plants to expand storage pools and to pack spent nuclear fuel more densely within them. The lack of progress on a permanent repository has caused considerable uncertainty regarding the environmental effects of temporary spent nuclear fuel storage and the reasonableness of continuing to license and relicense nuclear reactors."[2]
>
> The Court's finding that temporary storage "has been used for decades longer than originally anticipated" is the focus of the PIIC's concerns. The PIIC believes that the prospect that spent nuclear fuel will be stranded onsite indefinitely is very real, and that the current regulatory framework doesn't adequately account for the cumulative impacts resulting from long-term storage. For example, the regulatory scheme for spent nuclear fuel is compartmentalized into storage and

[2] *New York v. NRC*, 681 F.3d 471, 474 (D.C.Cir. 2012).

transportation, Parts 72 (licensing requirements for the independent storage of spent nuclear fuel) and 71 (packaging and transportation of radioactive material), respectively. The regulatory compartmentalization may have made sense when the duration of onsite storage was anticipated to be no more than a decade or two. Considering the possibility that spent nuclear fuel may remain onsite indefinitely; however, this artificial regulatory compartmentalization may preclude a full and complete analysis of the potential cumulative adverse health and environmental impacts.

For example, there is still considerable uncertainty regarding the long-term effects of high burn up fuel during extended dry cask storage, including unresolved concerns associated with degradation of fuel assemblies and internal cask components and cladding. Potential problems are less likely to occur during the proposed license renewal term (i.e., up to 40 years), but beyond that term there is far more uncertainty. As a result, the potential transportation of these casks will become more problematic the longer the spent nuclear fuel is stored onsite.

The PIIC fears that by the time a detailed analysis of the potential health, safety and environmental risks associated with the transportation of the casks off Prairie Island is conducted for periods of time beyond the proposed extended license term (i.e., in 50, 100, or 200 or more years), the risks associated with transportation will be greater than the risks of continued onsite storage, leaving the spent nuclear fuel stranded at the PI ISFSI indefinitely. The potential risks and adverse environmental impacts of storage beyond the proposed license term and subsequent transportation must be fully explored now. To defer rigorous environmental impact analysis to some unknown point in the future is meaningless. NSPM will continue to load and store up to 64 dry casks during the first 20 years of the proposed extended license term, with an additional 34 casks needed if the PINGP is decommissioned in 2034. What good would it do to fully analyze the potential risks and adverse environmental impacts of indefinite storage or transportation until after 98 casks—more than 2,500 tons [2,755 short tons] of nuclear waste according to NSPM's estimate—are already placed at the PI ISFSI? Deferring the analysis of long-term storage and transportation risks and potential adverse environmental impacts for 40 or more years, and thereby allowing the generation and storage of even larger quantities of nuclear waste in the interim, is like trying to unring a bell after it's been rung. It simply can't be done.

The continued storage of spent nuclear fuel at the PI ISFSI represents an ongoing threat to the PIIC's Reservation homeland. The viability of the PIIC Reservation as a homeland for future generations of tribal members will be at risk until all spent fuel is removed from the PI ISFSI.

In addition, the PIIC believes that the cumulative impact analysis must include an analysis of the environmental, health and safety impacts that would occur if the assumptions made in the Continued Storage Rule and GEIS do not occur, and that there is a loss of institutional controls or the PI ISFSI is not rebuilt and all of the casks not reloaded every 100 years. In her comments on the Continued Storage Rule and GEIS, NRC Chairman Allison Macfarlane described this as a "worst case" scenario. The PIIC respectfully disagrees with Chairman

> Macfarlane's characterization of this as a "worst case" scenario, and believes that such a scenario is reasonably foreseeable and therefore must be analyzed to assess the cumulative impacts of continued storage at the PI ISFSI. There is currently no statute, regulation or license condition that would require the rebuilding of the ISFSI and reloading of the spent fuel into new casks every 100 years, and it is pure speculation to assume that institutional controls will exist in 100 years, 200 years or longer.

In light of the PIIC's concerns for potential future ISFSI expansion up to 98 casks, the NRC identified and evaluated the potential environmental impacts of an expansion of the ISFSI's capacity to accommodate 98 casks as part of the cumulative impact analysis of this EA. NSPM indicates that the ISFSI expansion of up to 64 casks is needed in or about the year 2019 to continue operating PINGP Units 1 and 2 until the end of their license lives in 2033 and 2034, respectively (NSPM, 2013b). NSPM also provided potential expected construction activities and potential environmental impacts associated with ISFSI expansion up to 64 casks in its RAI responses (NSPM, 2013b). NSPM expects that the ISFSI expansion to store up to 64 casks will be completed in 1 month (in 2019) and will consist of the following activities: (i) site preparation and excavation of the pad area, which will involve using earthmoving equipment such as bulldozers, scrapers, backhoes, and graders to excavate and level the pad and duct bank areas; (ii) trenching of the duct bank path and installation of underground concrete duct banks and associated electrical conduit from the existing Cask Monitoring Building to the new pads using reinforced steel, conduit, and forms; (iii) pouring concrete for two storage pads, each 5.5 m [18 ft] wide by 66 m [216 ft] long by 0.9 m [3 ft] thick, and duct banks; and (iv) replacing the structural fill and returning the site to a 2 percent grade. The new pads will be placed wholly within the area surrounded by the PI ISFSI security fences. NSPM also plans to install two concrete turnaround areas: one along the access road that connects the PI ISFSI and the auxiliary building and one at a cask transporter storage facility outside of the PI ISFSI security fences, but within the earthen berm (NSPM, 2014d). However, any expansion of the ISFSI would require NSPM to submit a license amendment request, including an ER, for NRC's review and approval. The NRC staff would conduct safety and environmental reviews of the proposed ISFSI expansion. For the purposes of this EA, NRC staff expect that the environmental impacts from a potential future ISFSI expansion up to 98 casks would be similar to NSPM's estimates provided in its RAI responses to expand the ISFSI up to 64 casks [i.e., excavating the new pad area(s), founding footings and slabs below the anticipated frost depth or on fill below the frost depth, trenching the new duct bank path, pouring the new concrete pad and duct bank, and replacing the structural fill] (NSPM, 2013b).

Cumulative Impacts on Land Use

For the purposes of this analysis, the geographic area considered includes the PINGP Units 1 and 2 and 8 km [5 mi] around the PINGP site. Land use impacts from the construction and operation of the PI ISFSI were addressed in the original PI ISFSI licensing EA (NRC, 1992) and were determined to be minimal because operation of the ISFSI would occur on land that had already been cleared, excavated, and graded during the PINGP construction. As discussed in Section 4.10 of this EA, all activities related to continued operation of the PI ISFSI would occur within the industrial footprint of the site involving existing structures and roads.

During the PINGP license renewal environmental review, the NRC staff did not identify any new and significant information (NRC, 2011c) regarding land use and determined that there would be no impacts related to these issues beyond those discussed in the NUREG–1437 GEIS (NRC, 2011c). During the Unit 2 steam generator replacement activities in 2013, temporary

buildings were constructed for construction contractors and to house equipment before and after replacement, and a temporary parking area was constructed (NSPM, 2014e). These activities occurred within the industrial footprint of the site after appropriate surveys were conducted. Best management practices were used to limit erosion, including silt fences and seeding and mulching disturbed areas (NSPM, 2014e). Regarding the potential expansion of the ISFSI, NSPM plans to install two concrete pads to store up to 64 casks (NSPM, 2013b). The new pads would be installed immediately adjacent and south of the existing pads within the ISFSI security and berm (NSPM, 2013b). The potential expansion of the ISFSI to store 64 or 98 casks would occur on land that had already been cleared and graded during PINGP construction and is within the industrial footprint of the site. Therefore, the NRC staff concludes that the PI ISFSI expansion to store either 64 or 98 casks would not change the ISFSI's industrial land use and any land disturbance would occur within previously disturbed industrial areas at PINGP and the PI ISFSI. Therefore, the PI ISFSI expansion would not have a significant incremental contribution to land use cumulative impacts.

The following discussion, related to cumulative impacts on land use, is provided by the PIIC (PIIC, 2014b):

> The analysis (i.e., this EA) includes the current land use of the PINGP and PI ISFSI site, but does not address how the land use of the PIIC or other neighbors might change when the PI ISFSI expands and becomes a *de facto* permanent storage site because of inaction on either a national repository or interim storage facility. The PIIC fully understands that this licensing action is for a proposed 40-year renewal term. In the absence of a national repository or a storage facility; however, one can't help but believe that this action is the first of many 40-year renewals that will cumulatively have lasting negative impacts on our community. One catastrophic incident at the PINGP or PI ISFSI could significantly alter the land use of the PINGP and PI ISFSI neighbors, damaging the PIIC's economy or rendering the PIIC Reservation uninhabitable for future generations. Even a minor or near-miss incident could permanently and irreparably damage the PIIC's land use.
>
> The PIIC questions the usefulness of the land use impacts analysis in the 1992 EA relative to today's land use impacts, not to mention land use impacts in the foreseeable future. When the ISFSI was originally licensed, for a 20-year license term, no one ever imagined that we, as a nation, would be evaluating the environmental impacts of storage periods of 100 years or longer.
>
> According to the September 13, 2013 Federal Register Notice regarding the issuance of a GEIS and proposed rule codifying the GEIS in 10 CFR 51.23, paragraph (a) of 10 CFR 51.23 was to be revised to state "it is feasible to safely store spent nuclear fuel beyond the licensed life for operation of a reactor and to have a mined geologic repository within 60 years following the licensed life of a reactor." Instead, paragraph (a) was revised to state: "The Commission has generically determined that the environmental impacts of continued storage of spent nuclear fuel beyond the licensed life for operation of a reactor are those impacts identified in NUREG–2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel." It is the GEIS (NUREG–2157) that optimistically assumes that a repository will be available during the short-term storage period (60 years beyond the licensed life of a reactor. The

short-term storage period apparently is a sliding scale, as this time period is specific to the licensed life of individual reactors.

In the case of the PINGP ISFSI, the short term could end by 2094 assuming only one renewal term for the PINGP Units 1 and 2, or it could be some other time period should the PINGP Units 1 and 2 be relicensed for more than one term. These shifting dates and promises only serve to reinforce the PIIC's belief that the spent nuclear fuel on Prairie Island is here to stay.

As discussed throughout this document, the PINGP and ISFSI are located right next to the PIIC reservation, a mere 600 yards away from the nearest homes, and less than 1.6 km [1 mi] from various community buildings and the PIIC's gaming enterprise, on the tribe's ancestral lands. Prairie Island is the PIIC's only homeland, the land promised to the Community by the United States government. The PIIC cannot simply relocate to another place, somewhere away from the nuclear waste dump that has been established next door. This land was acquired by the United States government for the common benefit of all tribal members in perpetuity. This land was to allow the PIIC continue to maintain its traditions and culture.

The continued and indefinite presence of the PINGP and the ISFSI with its tons of spent nuclear waste will have a cumulative negative effect on the tribe's use of its land (i.e. community growth). Most tribal members do not believe that the spent nuclear waste stored at the PI ISFSI will ever leave Prairie Island in their lifetime. As a result, many tribal members choose not to raise their families so close to such a facility. Tribal members living on tribal land, near to, and learning from their relatives is integral component of tribal culture. This aspect of cumulative impacts on land use has not been fully evaluated in this EA.

NRC recognizes that the continued operation of the PINGP and PI ISFSI precludes that land from being used for other purposes and influences land development surrounding the PINGP. As previously stated, this EA analysis considers future potential impacts through the end of the current license term as well as the proposed 40-year PI ISFSI renewal license term. In addition, NRC has evaluated accidents in Section 4.11.3 in this EA and will document NRC's safety analysis of the proposed action in a separate SER. Although past, present, and reasonably foreseeable future activities as discussed in this section may result in land use impacts in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Because the PI ISFSI license renewal and the continued operation would not require any additional land nor would it cause any current land use to change, the NRC staff concludes the potential land use impacts from the continued operation of the ISFSI would not be significant.

Cumulative Impacts on Transportation

For the purposes of this analysis, the geographic area considered consists of Goodhue and Dakota Counties, Minnesota, and Pierce County, Wisconsin. In the PINGP license renewal SEIS, no new and significant information was identified that changed NRC's impacts determination from PINGP Units 1 and 2 continued operations (NRC, 2011c). The NRC also evaluated the transportation impacts during an expected 80-day refurbishment project (steam generator replacement and refueling) as part of the PINGP license renewal SEIS (NRC, 2011c,

Section 3.2.7) and considered updated information NSPM provided that verified the steam generator replacement project was completed in 104 days (NSPM, 2014e).

NSPM expects that the expansion of the ISFSI to store 64 casks would require 13 additional construction workers, including equipment operators, laborers, electricians, iron workers, concrete finishers, and construction supervision staff, for a total of 4 weeks and would increase traffic flow by approximately 24 additional truck trips per day and an additional 6 commuter vehicle trips on roads leading to the ISFSI work site (NSPM, 2013b, 2008a). U.S. Highway 61, Prairie Island Boulevard, and Sturgeon Lake Road would be used as transportation routes during the expansion activities. PINGP Unit 2 steam generator replacement activities are completed and will not overlap with PI ISFSI expansion activities. Therefore, the NRC staff concludes that the transportation impacts from the expansion of the ISFSI to store 64 casks would not have a significant incremental contribution to transportation cumulative impacts. Similar transportation impacts over a similar time period and with a similar number of workers would be needed to accommodate up to 98 casks.

Although past, present, and reasonably foreseeable future activities as discussed in this section may impact transportation in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, the NRC staff concludes that, although the proposed ISFSI license renewal period would extend beyond the current PINGP Units 1 and 2 operating licenses, the potential impacts to transportation from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Socioeconomics

The primary geographic area of interest considered in this cumulative analysis is Goodhue and Dakota Counties in Minnesota and Pierce County in Wisconsin where most of the PINGP Units 1 and 2 employees reside. In the EA for the construction and operation of the ISFSI, the NRC staff determined that basic socioeconomic characteristics of the local area would not be affected during initial ISFSI construction, because the increase of 20 workers to the area would not affect the basic socioeconomic characteristics (NRC, 1992). In the PINGP license renewal SEIS, the NRC staff concluded that continued operation of PINGP Units 1 and 2 would not have a negative impact on socioeconomic conditions in the region. The NRC staff discussed the downward trend of overall taxes received by the City of Red Wing and concluded that there would be no significant land use impacts related to tax revenue during the license renewal term beyond what has already been experienced. The NRC staff also considered the socioeconomic impacts from refurbishment activities (i.e., steam generator replacement) in the PINGP license renewal SEIS (NRC, 2011c).

NSPM expects that the expansion of the PI ISFSI to accommodate the 64 casks would require 13 additional construction labor workers for a total of 4 weeks and would increase to traffic flow by approximately 24 additional truck trips per day on roads leading to the ISFSI work site (MPUC, 2009a; NSPM, 2013b). The NRC staff finds that potential socioeconomic impacts from the expansion of the ISFSI from 64 to 98 casks would be similar to the socioeconomic impacts described for the ISFSI expansion from 48 to 64 casks because the length of time and number of workers would be similar for each expansion. For these reasons, the NRC staff concludes that potential socioeconomic impacts, within the ROI, from an ISFSI expansion of 48 to 64 casks and from 64 to 98 casks would not have a significant incremental contribution to cumulative impacts.

Although past, present, and reasonably foreseeable future activities as discussed in this section may result in socioeconomic impacts in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore the NRC staff concludes that potential socioeconomic impacts from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Climate, Meteorology, and Air Quality

For the purposes of this analysis, the geographic area considered consists of Goodhue and Dakota Counties, Minnesota, and Pierce County, Wisconsin. The NRC's EA regarding the initial construction and operation of the PI ISFSI for up to 48 casks concluded that temporary increases in levels of suspended particulate matter (dust) would be insignificant (NRC, 1992, Section 9.1). In its responses to NRC's environmental RAIs, NSPM confirmed that during ISFSI construction activities, water was used to control fugitive dust (NSPM, 2013b).

Construction of structures for the PINGP Unit 2 steam generator replacement project required earthmoving equipment with combustion engines, which resulted in fugitive dust and exhaust emissions from worker vehicles and minor air quality impacts. Impacts to air quality were evaluated in the PINGP license renewal SEIS (NRC, 2011c). NSPM provided NRC staff with updated information after the steam generator replacement project was completed in December 2013 (NSPM, 2014e). NSPM used best management practices during the steam generator replacement project including seeding and mulching disturbed areas (NSPM, 2014e). During the steam generator replacement project, a shuttle bus to transport workers between the PIIC casino parking lot and the PINGP site was provided temporarily to reduce the total passenger vehicles miles (NSPM, 2014e).

Construction of new ISFSI pads to accommodate expanded storage capacity is a foreseeable future action with potential air impacts similar to those impacts described in the EA for ISFSI construction, which determined fugitive dust impacts to be insignificant with best management practices (NRC, 1992, Section 9.1). Construction activities require earthmoving equipment and vehicles with combustion engines that may degrade the local air quality over the short term and cause direct impacts to air quality, including fugitive dust. NSPM expects to use earthmoving equipment such as bulldozers, scrapers, backhoes, and graders for ISFSI expansion activities (NSPM, 2013b). In addition, the operation of the PI ISFSI does not emit gaseous effluents. In its responses to NRC's environmental RAIs, NSPM states that fugitive dust related to PI ISFSI expansion will be controlled by wetting exposed soil areas and covering stockpiles (NSPM, 2013b, p. 12). Therefore, the NRC staff concludes that the potential impacts on air quality from ISFSI expansion activities would not have a significant incremental contribution to cumulative impacts.

Although past, present, and reasonably foreseeable future activities as discussed in this section may result in climate, meteorology, and air quality impacts in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, the NRC staff concludes that potential impacts to climate, meteorology, and air quality from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Geology and Soils

This analysis considers impacts on and in the vicinity of the PINGP site. The 1992 initial licensing EA concluded that with good construction practices, erosion impacts from constructing the PI ISFSI would be insignificant (NRC, 1992). Geology and soils at the ISFSI were impacted

as a result of excavating subsurface soils, filling, and regrading activities during ISFSI construction. NRC's 1992 initial licensing EA states that subsurface materials are stable and adequate for the expected foundation load from 48 casks (NRC, 1992). As part of the PINGP license renewal environmental review, the NRC staff did not identify any new or significant information (NRC, 2011c), and the NRC staff determined that there would be no impacts from continued operation of the PINGP Units 1 and 2 related to this issue beyond those discussed in the NUREG–1437 GEIS (NRC, 2011c).

In its responses to NRC's environmental RAIs, NSPM described the work activities to expand the PI ISFSI to store 64 casks, which would include excavation of the pad area and duct bank path, pouring concrete to form the duct bank and pad, and replacing the structural fill to a 2 percent grade (NSPM, 2013b). NSPM plans to use earthmoving equipment, such as bulldozers, scrapers, backhoes, and graders, to excavate and level the pad and duct bank areas (NSPM, 2013b). Construction activities to accommodate up to 98 casks would require similar steps and equipment. As stated in Section 4.5 of this EA, the NRC staff expects that disturbance to the soil horizons if the ISFSI foundation is removed and disturbance from leveling and regrading of the ISFSI would not impact subsurface geology. NRC also expects that new ISFSI pads constructed adjacent to the existing ISFSI pads would not extend to a depth beyond the unconsolidated soil deposits and would not impact subsurface geology. NSPM would manage storm water runoff and provide sediment control in accordance with local construction codes. The NRC staff expects the foundation load for up to 98 casks on additional slabs would be adequate and that the slabs would be seismically qualified (as are the existing slabs). In its RAI responses, NSPM states it will use energy-absorbing controls (e.g., riprap and other sediment controls) to minimize the potential for storm water erosion during the construction and operation periods related to PI ISFSI expansion (NSPM, 2013b). Therefore, the NRC staff concludes that the potential impacts to geology and soils from ISFSI expansion would not have a significant incremental contribution to cumulative impacts.

Although past, present, and reasonably foreseeable future activities, as discussed in this section, may impact geology and soils in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, the NRC staff concludes that potential impacts to geology and soils from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Water Resources

For the purposes of this analysis, the geographic area considered includes the bodies of water around the PINGP site. During NRC's 1992 initial licensing EA, the NRC staff concluded that construction of the PI ISFSI would have a negligible impact on water quality and water supply, and that there would be no impact on water quality and water supply during ISFSI operations (NRC, 1992).

Also, the NRC staff evaluated the impacts on surface and groundwater consumption and quality during the license renewal period of PINGP Units 1 and 2 (NRC, 2011c) and concluded that the continued operation of PINGP Units 1 and 2 would minimally affect water resources and would not contribute to an overall decline in the current condition of these resources (NRC, 2011c). Further, the NRC staff evaluated the impact to water resources from refurbishment activities in the PINGP license renewal SEIS and discussed the cumulative impacts from other past, present, and future actions, including dredging by the PIIC, water quality issues from agricultural and urban runoff, and the creation of the Lock and Dam system, which have had and will continue to have an impact on the Upper Mississippi River (NRC, 2011c).

The PI ISFSI expansion activities would involve earthmoving activities that could increase sediment runoff. As noted earlier in this section, NSPM commits to use energy-absorbing controls (e.g., riprap and other sediment controls) to minimize the potential for storm water erosion during the construction and operation periods related to PI ISFSI expansion (NSPM, 2013b). In addition, any ground-disturbing activities would be conducted in accordance with appropriate permits from federal, state, and local agencies. Therefore, the NRC staff concludes that potential impacts to water resources from expansion activities would not have a significant incremental contribution to cumulative impacts.

Although past, present, and reasonably foreseeable future activities as discussed in this section may impact water resources in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, the NRC staff concludes that potential impacts to water resources from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Ecology and Threatened and Endangered Species

For purposes of this analysis, the geographic area considered includes the PINGP site. The NRC's EA regarding the initial construction and operation of the PI ISFSI for up to 48 casks concluded that impacts from noise and habitat loss during construction activities would be minimal (NRC, 1992). In addition, the NRC staff determined that the incremental increase in the TN–40HT casks' surface temperature would have no impacts on federally listed species or critical habitat (NRC, 2009).

In the PINGP license renewal SEIS, the NRC staff evaluated the impacts to aquatic and terrestrial resources and threatened and endangered species. The NRC staff concluded that there would be no significant impacts to aquatic and terrestrial resources from continued operation of Units 1 and 2 during the license renewal term (NRC, 2011c, Sections 4.5.4 and 4.6). The NRC staff concluded that the continued operation of PINGP Units 1 and 2 would not likely adversely affect any federally listed aquatic species; however, continued operation of PINGP Units 1 and 2 during the license renewal term would likely affect state-listed mussel species and could cause long-term destabilization to certain mussel populations (NRC, 2011c). The NRC staff concluded that potential impacts during the license renewal term are not expected to adversely affect any listed or proposed threatened or endangered terrestrial species (NRC, 2011c, Section 4.7.2). The NRC staff also concluded that the steam generator replacement activities would not significantly impact terrestrial and aquatic threatened and endangered species (NRC, 2011c, Section 3.2.2).

Expansion of the PI ISFSI to store 64 casks or 98 casks would occur onsite and would not impact any areas beyond the surface disturbances that occurred during the PI ISFSI construction (i.e., clearing the area inside the PI ISFSI security fences, the area outside of the security fences but within the berm, and the access road connecting the auxiliary building and ISFSI) that NRC staff evaluated in the 1992 licensing EA. As stated in its application to MPUC, the PI ISFSI could accommodate a total of 100 casks without having to change the security perimeter (NSPM, 2008a, p. 3A–12). Section 3.7.3 of this EA explains that PI ISFSI operations do not have the potential to affect aquatic species. As noted in this section under the cumulative impacts discussions for water resources, noise, climate, meteorology, and air quality, construction activities could increase erosion, noise levels, and change local air quality as a result of fugitive dust and equipment exhaust emissions, but would be minor. Construction activities associated with a 64-cask storage capacity and a 98-cask storage capacity would be

similar in duration and severity. For these reasons, the NRC staff determined that ISFSI expansion that occurs within the existing ISFSI security fences and berm, regardless of the number of casks, would not adversely affect threatened and endangered species and would not have a significant impact on aquatic and terrestrial resources.

Although past, present, and reasonably foreseeable future activities as discussed in this section may result in impacts to ecology and threatened and endangered species in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, the NRC staff concludes that potential impacts to ecology and threatened and endangered species from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Visual and Scenic Resources

The major natural landscape feature near the affected area of the PI ISFSI is the Mississippi River. The NRC staff determined that visual impacts would be negligible from construction of the PI ISFSI (NRC, 1992). No new and significant information was identified during the development of the PINGP license renewal SEIS (NRC, 2011c) and, therefore, the NRC staff determined that there would be no impacts from continued operation of the PINGP Units 1 and 2 related to this issue beyond those discussed in the NUREG–1437 GEIS (NRC, 2011c). The NRC staff also evaluated the impacts to visual and scenic resources from the planned steam generator replacement project in the PINGP license renewal SEIS (NRC, 2011c).

Similar short-term visual and scenic impacts would occur for expansion activities that are discussed as part of decommissioning the existing ISFSI in Section 4.8 of this EA, which the NRC staff determined to be SMALL. For ISFSI expansion activities that occurred within the existing ISFSI security fences and berm, dry casks would not be transported offsite and would therefore not have an offsite visual impact. The onsite visual impacts described previously for the proposed action in Section 4.8 of this EA would continue because of contrast with the natural environment. Similar onsite visual impacts would occur regardless of the number of casks that are located within the existing ISFSI security fences and berm. Therefore, the NRC staff concludes that the potential impact on scenic and visual resources from ISFSI expansion within the existing ISFSI security fences and berm would not have a significant incremental contribution to cumulative impacts.

Although past, present, and reasonably foreseeable future activities as discussed in this section may result in visual and scenic impacts in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, the NRC staff concludes that potential impacts to visual and scenic resources from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Noise

This analysis considers impacts on and in the vicinity of the PINGP site. The NRC staff determined that noise impacts from construction of the PI ISFSI to the nearest resident would be acceptable due to the distance from the ISFSI to the nearest resident (NRC, 1992). Impacts on construction workers would be minimal provided the applicant complies with Occupational Safety and Health Administration's noise regulations and with good construction practices (NRC, 1992). No new and significant information was identified during the development of the PINGP license renewal SEIS (NRC, 2011c), and therefore, the NRC staff determined that there would be no impacts from continued operation of the PINGP Units 1 and 2 related to this action

beyond those discussed in the NUREG–1437 GEIS (NRC, 2011c). The NRC staff also evaluated the impacts on noise from the planned steam generator replacement project in the PINGP license renewal SEIS (NRC, 2011c).

Similar noise impacts as described for decommissioning activities in Section 4.9 of this EA would occur during ISFSI expansion activities. The NRC staff concludes that decommissioning of the existing ISFSI would not elevate noise impacts outside of the PINGP property boundary above background levels, as explained in Section 4.9 of this EA. Construction activities to expand the PI ISFSI to accommodate 64 casks or 98 casks would be similar in duration and scope; therefore, noise levels during expansion activities would be similar. For these reasons, the NRC staff concludes that potential noise impacts during ISFSI expansion would not have a significant incremental contribution to cumulative impacts.

Although past, present, and reasonably foreseeable future activities as discussed in this section may impact noise in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, the NRC staff concludes that, because noise-generating activities as a result of the proposed action would be virtually undetectable from routine maintenance activities and cask transfers, potential impacts on noise from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Historic and Cultural Resources

A number of archaeological surveys and other resource investigations have been performed within and near the PINGP property on Prairie Island. In addition, NSPM commissioned a literature review of previous archaeological investigations within the PINGP boundary to assess the impact of facility construction on archaeological resources (Iffert, 2010). The available records as described by Iffert (2010) indicate that survey work conducted in support of PINGP Units 1 and 2 original license applications was concentrated farther east and south in areas that were ultimately used to construct the existing generating plant and cooling towers (Iffert, 2010, p. 44). As described in EA Section 3.1, prior to construction, the PI ISFSI site was used for agriculture until construction of PINGP Units 1 and 2, at which time portions of the PI ISFSI area were used for the concrete batch plant and disposal of dredge material collected from the excavation of the PINGP discharge canal (NRC, 2011c; NSPM, 2013b). After the construction of PINGP Units 1 and 2 and prior to the installation of the ISFSI, the land at the PI ISFSI site remained undeveloped and was covered in prairie grass, weeds, and trees (NRC, 1992). Archaeological investigations completed to date have confirmed the locations of 11 archaeological sites within the PINGP property. None of the sites are located within the APE for this proposed action (NRC, 2011c); however, there remains the potential for unknown historic and cultural resources near the ISFSI. For example, portions of the PI ISFSI situated beyond the horizontal extent of the central trench constructed for the existing concrete pads may not have been significantly disturbed and therefore retain the potential for unreported and unevaluated subsurface archaeological deposits (see EA Section 4.10).

As discussed in EA Section 3.1, NRC reviewed construction photographs during the site visit for this proposed action that show the original ISFSI construction activities. Based on staff's review of NSPM's construction photographs and RAI responses (NSPM, 2013ab), excavation activities that occurred during construction of the PI ISFSI extended to a depth of about 1.8 m [6 ft] below the center line of the concrete ISFSI pads for the installation of foundation and electrical conduit housing (duct bank) (NRC, 2012e; NSPM, 2013b). No archaeological resources were found during construction of the PI ISFSI (NSPM, 2013b, p. 13). As discussed in EA Section 3.10.2, the results of the 2009 geomorphological study indicate that the island–terrace landform that

encompasses the PINGP site has moderate to high potential to contain buried archaeological sites (Hudak, 2009). During a 2010 limited archaeological reconnaissance survey, eight test pits were excavated along the ISFSI perimeter road located inside the earthen berm to an average depth of 1.8 m [6 ft] below the surface (NSPM, 2011a) to evaluate the depth of previous ground disturbance within the ISFSI facility and determine whether any archaeological deposits were present within potentially undisturbed buried soil. No cultural materials were recovered from any of the eight test pit excavations, and the consulting archaeologists determined that seven of the eight exposed soil profiles were significantly disturbed by past construction activities (Sather, 2010, p. 5; NSPM, 2011a). Further, during the Phase I archaeological survey conducted in September 2014, no evidence of paleosols was observed in test pits or soil borings drilled up to 3 m [10 ft] deep located within the APE (NSPM, 2014d). Thus, the results of the 2010 and 2014 surveys (Sather, 2010 and NSPM, 2014d, respectively) support Westwood's finding that, although the potential exists for undisturbed subsurface soils to be present within the APE, it is likely that the majority of the deposits in the vicinity of the PI ISFSI have been significantly modified by past construction and landscaping events (NSPM, 2011a).

As previously discussed in this section, expansion of the ISFSI to accommodate 64 or 98 casks would result in ground-disturbing activities that could affect historic and cultural resources, if these are present. Therefore, potential environmental impacts to historic and cultural resources could occur from an ISFSI expansion as a result of the use of earthmoving equipment, such as bulldozers, scrapers, backhoes, and graders, to excavate and level the cask pads and duct bank areas. NSPM discussed expected construction activities and potential environmental impacts associated with an ISFSI expansion up to 64 casks in its RAI responses (NSPM, 2013b). Based on NSPM RAI responses and review of the original PI ISFSI construction photographs, the NRC staff expect that construction activities associated with an ISFSI expansion up to 64 or 98 casks within the existing ISFSI security fences and the berm would be similar based on the depth and extent of earthmoving activities that were experienced during the initial ISFSI construction activities. Some activity may also occur inside of the berm but outside security fences, and along the access road that connects the auxiliary building to the PI ISFSI. Those areas were part of the 2014 survey (NSPM, 2014d). Although no archaeological deposits were present in previous surveys or encountered during previous ISFSI construction activities, NSPM (NSPM, 2014d) made the following new commitment in August 2014 regarding future ISFSI expansion activities:

> "NSPM will perform subsurface archeological surveys within the area where any new ISFSI pads will be located, to a depth expected to be excavated for construction of the new ISFSI pads. These subsurface archeological surveys will be performed consistent with the Cultural Resource Management Plan and implementing procedures, and will be completed prior to submittal of a License Amendment Request for the ISFSI expansion."

Therefore, should the PI ISFSI expansion activities occur within previously disturbed areas (vertically and horizontally) and no historic and cultural resources, if present, are adversely affected, then the NRC staff would expect that potential impacts to historic and cultural resources would not be significant. However, should PI ISFSI expansion activities extend beyond previously disturbed areas (vertically or horizontally), then historic and cultural resources could be affected, if they are present and are not avoided. In either case, the NRC staff expect that NSPM's employees will comply with federal, state, and local requirements and follow their new commitment to perform archeological surveys prior to submitting a License Amendment Request for any potential future expansion activities, which would minimize

potential impacts to historic and cultural resources (NSPM, 2014d, 2011a). Implementation of the NSPM's CRMP through a renewed license term, if approved, and any potential expansions of the ISFSI would also minimize potential impact to historic and cultural resources. Therefore, the NRC staff do not expect that a PI ISFSI expansion would significantly contribute to cumulative impacts to historic and cultural resources.

The following are the PIIC's concerns regarding cumulative archaeological resource impacts from ISFSI expansion (PIIC, 2014b):

> As discussed previously in Section 4.10, no archaeological survey work was conducted in the vicinity of the ISFSI prior to the construction of the ISFSI. Instead, NSPM relied upon archaeological survey data and other information related to the construction of the PINGP 1 and 2, conducted in the late 1960s. The 2010 Phase I archaeological survey conducted by Westwood, in support of the ISFSI license renewal application, was conducted around the perimeter of the ISFSI and not in the vicinity of the expected ISFSI expansion area.
>
> Section 1.4 of the EA states that the MPUC issued a CON for additional casks in December 2009. It is important to note that the 2009 Final EIS for the MPUC CON (MPUC, 2009a) for expanded dry cask storage was completed before Merjent completed its limited Phase I Archaeological Reconnaissance Survey for the PINGP site, which identified a previously unrecorded mound site and before the 2009 Hudak report which identified the paleosol. Furthermore, the 2009 Final EIS only references the 1973 Final Environmental Statement (which relied on the now discredited and out of ISFSI vicinity 1967 Johnson survey work) and the 2008 License Renewal Application (NSPM, 2008a), which contained no new archaeological information. According to NSPM, no archaeological resources were found during construction of the PI ISFSI (NSPM, 2013b, p. 13). Because no survey was conducted prior to ISFSI construction; however, we will never know whether there were any archaeological resources present, but destroyed during construction. As stated in the 2010 Merjent report, "prehistoric archaeological sites could be buried under parking lots, modular buildings or other structures or features within the Plant." This particular statement, coupled with the fact that no archaeological work had been conducted prior to ISFSI construction, elevated our concerns about possible impacts to potential archaeological resources resulting from the future expansion of the ISFSI during the proposed 40-year renewal term.
>
> The Minnesota Department of Commerce, the author of the Final EIS, simply did not have the new archaeological information to disclose in the 2009 Final EIS, as it was not yet available. The Merjent and Hudak reports, had they been available, may have lead the Minnesota Department of Commerce to a different conclusion regarding the expansion of the ISFSI, in our view. As the Merjent Report concluded, "there is a possibility of deeply buried prehistoric archaeological sites across most of the Plant grounds, most recently demonstrated by a geomorphology study by Carl Hudak (2009)." Dr. Hudak's survey identified a paleosol, which is a stable surface capable of preserving cultural materials, at up to 3 meters [10 feet] deep. The Merjent report further states "prehistoric archaeological sites could be buried under parking lots, modular buildings or other structures or features within the Plant." This would

include the ISFSI, in our view. The PIIC did not participate in the MPUC dry cask storage expansion docket, due the terms of the 2003 Settlement Agreement.

Given the possibility that archaeological resources could still be present within the PINGP and PI ISFSI and under buildings, etc., the PIIC was concerned that expected expansion area of the PI ISFSI had not been adequately surveyed or evaluated previously. The PIIC was therefore pleased that the NRC decided to include the expected ISFSI expansion in its cumulative impacts analysis. As discussed below, NSPM also evaluated the potential for impacts to archaeological resources by conducting a Phase I survey within the expected area of potential effect. This is an issue of paramount importance to the PIIC and fortunately no archaeological resources were identified.

As explained previously in this section, NRC staff recognizes that based on the number, type, and density of known archaeological sites identified, there is a high probability that additional unrecorded resources may exist within the PINGP property (see Section 3.10.1). NRC staff considered the PIIC's input and reviewed additional information that was not previously available or considered as part of NRC's 1992 ISFSI construction EA or the 2011 PINGP license renewal SEIS. This new information includes results of light detection and ranging remote sensing (Schirmer, 2013), review of NSPM RAI responses (NSPM, 2013b), review of original construction photographs during the site visit for this licensing action, and a Phase I archeological survey conducted in September 2014 (NSPM, 2014d).

As described in Section 4.10 of this EA, NSPM's employees would notify and consult with a variety of federal, state, tribal, and local agencies and entities depending on the nature and scope of planned activities and applicable laws and regulations (NSPM, 2011a). Also, NSPM has agreed to maintain and implement its CRMP as long as NSPM owns or controls the plant site (NSPM, 2013c). Implementation of the CRMP through a renewed license term, if approved, and any potential expansions of the ISFSI would also minimize potential impact to historic and cultural resources. In accordance with the CRMP, if the ISFSI expansion is determined to have the potential to disturb previously undisturbed soils that could contain archaeological resources, then subsurface testing may be required to determine the significance of resources that may be present. Archaeological testing may also be required to determine whether unreported human burials are present in accordance with Minnesota's Private Cemeteries Act (Minnesota Statute 307.08) prior to ground disturbance.

Although past, present, and reasonably foreseeable future activities as discussed in this section have the potential to impact historic and cultural resources in the APE of the PI ISFSI, the staff determines that continued operation of the PI ISFSI would not have a significant incremental contribution to cumulative impacts. The NRC staff bases this finding on the information that it reviewed, including the 2014 Phase I archeological survey conducted in anticipation of expected future ISFSI expansion activities. Therefore, the NRC staff concludes that potential impacts on historic and cultural resources from continued operation of the PI ISFSI would not be significant.

In addition to the evaluation contained in this EA, NRC notes that any future NRC authorization for an expansion of the PI ISFSI would constitute a federal action under NEPA and an undertaking under the National Historic Preservation Act (NHPA). Prior to such an authorization, NRC would conduct a site-specific environmental review and NHPA Section 106 review to determine whether historic properties are present, and if so, whether the undertaking would result in any adverse effects on these properties. If expansion activities are determined to have potential to disturb previously undisturbed soils that could contain archaeological

resources, then subsurface testing might be required to determine the significance of resources that may be present. Archaeological testing may also be required to determine whether unreported human burials are present in accordance with Minnesota's Private Cemeteries Act (Minnesota Statute 307.08) prior to ground disturbance. NRC would also consult with the Minnesota SHPO, the PIIC, NSPM, and other interested parties to determine whether additional subsurface testing is warranted.

Cumulative Impacts on Public and Occupational Health and Safety

For all environmental reviews conducted for PINGP Units 1 and 2 and for the PI ISFSI, the NRC staff has determined that radiological impacts from construction activities and operations to workers and the public would be well below the regulatory limits (NRC, 2011c, 2009,1992). In addition, the NRC staff concluded that the radiological impacts from the current operation of PINGP from reasonably foreseeable actions, including ISFSI operation, would not be expected to change significantly.

The initial PI ISFSI licensing EA and the license amendment EA for the use of TN–40HT casks identified the cask surface temperature to be a source of nonradiological impacts (NRC, 2009, 1992). Similar nonradiological impacts to workers and the public would occur during ISFSI expansion activities as described for the nonradiological impacts from the decommissioning activities in Section 4.11.1 of this EA. Compliance with the regulatory dose requirements in 10 CFR Parts 20 and 72 during the ISFSI expansion and operations would not result in a significant radiological impact to the public and workers (occupational).

As part of MPUC's EIS to evaluate the expansion of the PI ISFSI (MPUC, 2009a), MPUC analyzed cumulative radiological impacts from storage of up to 98 casks—29 TN–40 and 69 TN–40HT casks. For conservatism in neglecting decay of older fuel and self-shielding of the additional casks themselves, MPUC multiplied the 0.022 mSv/yr [2.20 mrem/yr] dose rate (explained in Section 4.11.2.2 of this EA) by 2 to give a conservative dose rate estimate of 0.044 mSv/yr [4.40 mrem/yr] for 96 [2 × 48] casks on the PI ISFSI pad (MPUC, 2009b). NSPM projects the annual dose to the nearest residence located 0.72 km [0.45 mi] from the center of the ISFSI, where 29 TN–40 and 69 TN–40HT casks would be stored, to be no greater than 0.05 mSv/yr [5 mrem/yr] (NSPM, 2014c). This analysis conservatively assumes that a resident is located at this distance outside and never moves from this location for the entire year (MPUC, 2009b; NSPM, 2014c). The annual exposure for 98 casks in this scenario to the nearest offsite permanent resident is expected to be below the 0.25 mSv/yr [25 mrem/yr] limit specified in 10 CFR 72.104(a) and the 1 mSv/yr [100 mrem/yr] limit in 10 CFR 20.1301(a)(1) (MPUC, 2009b, Section 5.4; NSPM, 2014c). The NRC staff reviewed the MPUC EIS and the NSPM-provided information for the expected radiological impacts from storage of up to 98 casks (NSPM, 2014c, 2008a). The NRC staff determines that the radiological information provided in the 2008 NSPM application to MPUC is consistent with the radiological information that NSPM provided to NRC in its 2008 PINGP license renewal application. The NRC staff considers the methodology for dose calculation acceptable and appropriately bounding. After review of NSPM's license amendment request and associated supplements to modify the TN–40 cask design, NRC staff completed an SER that determined the amendment did not significantly affect public health and safety (NRC, 2010a) and approved the amendment request (NRC, 2010b). For these reasons, the NRC staff concludes that the potential radiological impacts to members of the public from expansion of the PI ISFSI to up to 98 casks would not have a significant incremental contribution to cumulative impacts.

Actual dose monitoring for all PINGP workers, regardless of the number of casks emplaced at the PI ISFSI, would be conducted in such a way that each worker's exposure associated with the PINGP, including the PI ISFSI, is below the regulatory limit in 10 CFR 20.1201 of 0.05 Sv [5 rem] annually. As explained in Sections 4.11.2.1 and 4.11.2.2 of this EA, continued operation of the ISFSI for an additional 40 years (this proposed action) is required to be conducted in a manner to meet occupational annual radiological dose regulatory limits in 10 CFR 20.1201. NSPM is required to have procedures in place to minimize occupational doses to levels ALARA pursuant to 10 CFR 20.1101(b) and public doses to levels pursuant to 10 CFR 20.1302. Although past, present, and reasonably foreseeable future activities as discussed in this section may affect public and occupational health and safety in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, the NRC staff determines that the potential radiological impacts to workers and members of the public from continued operation of the ISFSI would not be significant.

Dose consequences from postulated accidents involving the PI ISFSI are not expected, and the effects of direct radiation from the postulated accident scenarios analyzed in the ISFSI SERs, for both the TN–40 and TN–40HT casks, are below the 10 CFR Part 72 regulatory limits (NRC, 2010a). Although past, present, and reasonably foreseeable future activities as discussed in this section may result in accidents in the vicinity of the PI ISFSI, postulated accidents from continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts. Therefore, NRC staff concludes that the potential incremental contribution of nonradiological and radiological impacts from postulated accidents to workers and the public from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Waste Management

In the initial PI ISFSI licensing EA, the NRC staff stated that the ISFSI would not generate any chemical, sanitary, or solid wastes during normal operations (NRC, 1992, Section 5.4). The NRC determined in its PINGP license renewal SEIS that waste management impacts would be SMALL because PINGP waste disposal systems and operating procedures would ensure that all wastes are handled in accordance with 40 CFR Parts 239 through 299, "Protection of the Environment"; 10 CFR Part 20, "Radiation Protection Standards"; 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities"; the plant's technical specifications; and the PINGP 1 and 2 Offsite Dose Calculation Manual (NRC, 2011c).

Waste management impacts during ISFSI expansion would be less than those impacts during ISFSI decommissioning activities because less waste would be generated or removed (i.e., concrete pads, fencing, and the earthen berm around the ISFSI) and disposed of in a construction debris landfill. The same kind of casks evaluated for the proposed action would be used; therefore, due to the leak-tight design of the storage casks, no radioactive waste is anticipated to be generated by ISFSI expansion activities (NSPM, 2011a). Because existing NSPM programs and/or systems are in place to manage waste generated from activities associated with ISFSI operations, and because any expansion activities would require development of a waste management plan prior to construction, the NRC staff concludes that the potential waste management impacts of ISFSI expansion would not have a significant incremental contribution to cumulative impacts.

Although past, present, and reasonably foreseeable future activities as discussed in this section may result in waste management impacts in the vicinity of the PI ISFSI, continued operation of the ISFSI would not have a significant incremental contribution to cumulative impacts.

Therefore, the NRC staff concludes that potential waste management impacts from continued operation of the ISFSI would not be significant.

Cumulative Impacts on Environmental Justice

The environmental justice cumulative impact analysis assesses the potential for disproportionately high and adverse human health and environmental effects on minority and low-income populations that could result from past, present, and reasonably foreseeable future actions including PI ISFSI operations during the renewal term. Adverse health effects are measured in terms of the risk and rate of fatal or nonfatal adverse impacts on human health. Disproportionately high and adverse human health effects occur when the risk or rate of exposure to an environmental hazard for a minority or low-income population is significant and exceeds the risk or exposure rate for the general population or for another appropriate comparison group. Disproportionately high environmental effects refer to impacts or risk of impact on the natural or physical environment in a minority or low-income community that are significant and appreciably exceed the environmental impact on the larger community. Such effects may include biological, cultural, economic, or social impacts. Some of these potential effects have been identified in resource areas presented in Section 4 of this EA. Minority and low-income populations and the PIIC are subsets of the general public residing in the area, and all would be exposed to the same hazards generated from PI ISFSI operations. As previously discussed in this chapter, there would be no significant impacts from license renewal.

The PIIC shares the following comments regarding environmental justice issues from ISFSI expansion (PIIC, 2014b):

> As the Court of Appeals for the District of Columbia Circuit observed, "[t]his type of storage, optimistically labeled 'temporary storage,' has been used for decades longer than originally anticipated. The delay has required plants to expand storage pools and to pack spent nuclear more densely within them. The lack of progress on a permanent repository has caused considerable uncertainty regarding the environmental effects of temporary spent nuclear fuel storage and the reasonableness of continuing to license and relicense nuclear reactors."[3] This lack of progress is evident in this license renewal proceeding in two obvious ways: 1) that this is a request for a 40-year license renewal for a facility that was billed as temporary; and 2) the EA is also discussing and evaluating impacts from the eventual necessary expansion of the temporary facility.
>
> The Court's finding that temporary storage "has been used for decades longer than originally anticipated" is the focus of the PIIC's concerns. The PIIC believes that the prospect that spent nuclear fuel will be stranded onsite indefinitely is very real, and that the current regulatory framework doesn't adequately account for that fact. For example, the regulatory scheme for spent nuclear fuel is compartmentalized into storage and transportation, Parts 72 (licensing requirements for the independent storage of spent nuclear fuel) and 71 (packaging and transportation of radioactive material), respectively. The regulatory compartmentalization may have made sense when the duration of onsite storage was anticipated to be no more than a decade or two. However,

[3] *New York v. NRC*, 681 F.3d 471, 474 (D.C.Cir. 2012).

considering the possibility that spent nuclear fuel may remain onsite indefinitely, this artificial regulatory compartmentalization may preclude a full and complete analysis of the potential adverse health and environmental impacts.

The PIIC, as a tribe, takes a holistic view and does not separate the PINGP from the ISSFI or the transportation of the casks from one another. They are all part of the same problem—the federal government's failure to address spent nuclear fuel and waste in a timely fashion and to recognize earlier, given the lack of the progress on Yucca Mountain, that the "temporary" storage facilities would be anything but temporary. Information and expectations regarding a federal repository (or need for a repository) have been shifting and changing over the last 40 years—first, the spent fuel would be reprocessed, then it was to be re-racked, then there would be a national repository, and now it's something else. It's no wonder that host communities have all but given up any reasonable expectation that spent nuclear fuel waste will ever leave.

In the last couple of years, experts have expressed considerable uncertainty regarding the long-term effects of high burn up fuel during extended dry cask storage, including unresolved concerns associated with degradation of fuel assemblies and internal cask components and cladding. Potential problems are less likely to occur during the proposed extended license term (i.e., up to 40 years), but beyond that term there is far more uncertainty. As a result, the potential transportation of these casks will become more problematic the longer the spent nuclear fuel is stored onsite. This is yet another area that, as time progresses, additional questions and uncertainties are raised. We wonder why these issues were not adequately addressed when the PINGP Units 1 and 2 were licensed to use high burnup fuel. This certainly underscores our view that the NRC can no longer base its decisions on what might happen in the future (i.e., that there may be repository and we won't have to worry about the extended storage for high burnup fuel) and base its decisions on what is known today.

The PIIC fears that by the time a detailed analysis of the potential health, safety and environmental risks associated with the transportation of the casks off Prairie Island is conducted for periods of time beyond the proposed extended license term (i.e., in 50, 100, or 200 or more years), the risks associated with transportation will be greater than the risks of continued onsite storage, leaving the spent nuclear fuel stranded at the PI ISFSI indefinitely.

What would the potential biological, cultural, economic, or social impacts be if the spent nuclear fuel stored at the PI ISFSI is never removed from Prairie Island or if the waste is stored on Prairie Island for 100 years, 200 years, or longer? What would the potential biological, cultural, economic, or social impacts be if one assumes that NSPM will construct a dry transfer system (DTS) on the PI ISFSI, move all of the spent fuel in each cask to a new cask every 100 years, and replace the PI ISFSI DTS and concrete pads every 100 years? These assumptions are analysis assumptions used in the Continued Storage GEIS (NRC, 2014b, pp. 1-13 to 1-14). The PIIC believes that if these assumptions are permissible as part of the Continued Storage GEIS, and the GEIS is the foundation of the Continued Storage Rule (10 CFR 51.23), which also informs the ISFSI renewal licensing process, then they should they be considered as part of this EA. Each of these analysis assumptions are reasonably foreseeable

> given our Nation's failed nuclear waste policy, and the inability (or unwillingness) of the Federal Government, now more than thirty (30) years after its enactment, to comply with the requirements of the Nuclear Waste Policy Act.
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> The potential risks and adverse environmental impacts of storage beyond the proposed license term and subsequent transportation must be fully explored now. To defer rigorous environmental impact analysis to some unknown point in the future is meaningless. NSPM will continue to load and store up to 64 dry casks during the first 20 years of the proposed extended license term, with an additional 34 casks needed if the PINGP is decommissioned in 2034. What good would it do to fully analyze the potential risks and adverse environmental impacts of indefinite storage or transportation until after 98 casks—more than 2,500 tons [2,755 short tons] of nuclear waste according to NSPM's estimate—are already placed at the PI ISFSI? Deferring the analysis of long-term storage and transportation risks and potential adverse environmental impacts for 40 or more years, and thereby allowing the generation and storage of even larger quantities of nuclear waste in the interim, is like trying to unring a bell after it's been rung. It simply can't be done.

The PIIC is concerned with the human health effects of long-term exposure to radiation from ISFSI expansion. Placement of up to 98 casks at the PI ISFSI would increase skyshine radiation exposure to the public in addition to the radiological impacts expected from the licensed 48 casks. However, the PI ISFSI radiation protection program designed and implemented by NSPM complies with the regulatory requirements in 10 CFR Parts 20 and 72 regarding radiation. Exposure from up to 98 casks, including the operations of PINGP Units 1 and 2, would not exceed NRC regulatory limits as discussed in this section of this EA under Public and Occupational Health and Safety (MPUC, 2009a; NRC, 2009). In addition, the NRC staff found no environmental pathway that would physiologically affect minority or low-income populations differently from other segments of the general population should the PI ISFSI be expanded. Moreover, the NRC staff met with members of the public on Prairie Island, elected PIIC tribal officials, and Red Wing city officials and conducted field observations resulting in no indication of any unique characteristics or practices among minority or low-income populations in the region that could lead to disproportionately high and adverse nonradiological health impacts. Therefore, the combined incremental effects from continued operation of the PI ISFSI and PINGP Units 1 and 2 would not cause any significant cumulative high and adverse human health effect, and all populations living in close proximity to PINGP Units 1 and 2 and the PI ISFSI would be exposed to the same cumulative effect.

As discussed in Section 4.13, there would be no disproportionately high and adverse impacts to minority or low-income populations from the continued operation of PI ISFSI during the license renewal term. Because NSPM has no plans to hire additional nonoutage workers during the license renewal term, employment levels at the PI ISFSI would remain relatively constant with no additional demand for housing or increased traffic. Based on this information and the analysis of human health and environmental impacts presented in this EA, it is not likely there would be any disproportionately high and adverse contributory effect on minority or low-income populations from the continued operation of PI ISFSI during the license renewal term.

In the 2009 EA for TN–40HT cask design use, the NRC staff recognized that there is a potential for the PIIC to be disproportionately affected by the PI ISFSI, but that no disproportionately high and adverse human health impacts would be expected in any environmental justice community in the region as a result of subsistence consumption of fish and wildlife (NRC, 2009). On this

basis, the NRC staff concluded that the cask modification would not have disproportionately high and adverse human health and environmental effects on minority or low-income populations residing near the PI ISFSI (NRC, 2009). The EA for TN–40HT cask design use determined that there would not likely be any cumulative impacts at the PI ISFSI from the same past, present, and reasonably foreseeable actions considered (NRC, 2009).

Potential impacts of construction activities from ISFSI expansion would include temporary transportation congestion from trucks and commuter vehicles and noise, air pollution, and construction noise. NSPM expects 13 additional construction workers, including equipment operators, laborers, electricians, iron workers, concrete finishers, and construction supervision staff, for a total of 4 weeks (NSPM, 2013b, 2008a) for the expansion of the ISFSI to accommodate 64 casks. The NRC staff evaluated traffic impacts in the PINGP license renewal SEIS and concluded that County Road 18 and Sturgeon Lake Road currently have the capacity to handle an additional volume of traffic than what is expected during the ISFSI expansion activities (NRC, 2011c, Section 3.2.7). Although the PIIC and other minority and low-income individuals are in close proximity to the population and the source(s) of the potential impacts, the distance from the site and the earthen berm would mitigate physical impacts of construction on water, noise, and air such that impacts would be minimal for all offsite populations, including the minority and low-income populations closest to the site.

The analysis of potential historic and cultural resource impacts and potential measures to mitigate impacts from ISFSI expansion and decommissioning activities would be similar. As described in Section 4.10 of this EA, NSPM employees are required under the CRMP to notify and consult with a variety of federal, state, tribal, and local agencies and entities depending on the nature and scope of planned activities and applicable laws and regulations. NSPM has agreed to maintain and implement its CRMP as long as NSPM owns or controls the plant site (NSPM, 2013c). NSPM developed the CRMP to protect historical, archaeological, and cultural resources that may currently exist on the site. Implementation of the NSPM's CRMP through renewed license term, if approved, and any potential expansions of the ISFSI would minimize potential impact to historic and cultural resources.

As discussed in Section 3.12 of this EA, the general population, including minority or low-income populations, would not be affected any differently by continued operation of the PI ISFSI for 40 years. In addition, the impacts from decommissioning the PI ISFSI after the proposed ISFSI license renewal period expires would be addressed in a separate NEPA review after the development and NRC approval of a decommissioning plan.

Because no significant human health or environmental effects from the proposed action were identified in Section 4.13 of this EA, the NRC staff concludes that there would be no disproportionately high and adverse cumulative human health and environmental impacts on minorities or low-income populations living in the area if the PI ISFSI license is renewed.

4.15 Continued Storage of Spent Nuclear Fuel

The NRC's licensing proceedings for nuclear reactors and ISFSIs have historically relied upon a generic determination codified in the NRC's regulations at 10 CFR 51.23 to satisfy the agency's obligations under NEPA, with respect to the narrow area of the environmental impacts of storage of spent nuclear fuel (spent fuel) beyond a reactor's licensed life for operation and prior to ultimate disposal (continued storage). The Court of Appeals for the District of Columbia Circuit, in *New York v. NRC*, 681 F. 3d 471 (D.C. Cir. 2012), vacated the NRC's 2010 update to that rule and remanded it to the NRC. Thereafter, the Commission determined that NRC would

not issue licenses dependent upon the formerly titled Waste Confidence Decision and Temporary Storage Rule until the Court of Appeals was appropriately addressed (NRC Commission Order CLI–12–16, 2012h).

On September 19, 2014, the NRC published a final rule at 10 CFR 51.23, "Environmental Impacts of Continued Storage of Spent Nuclear Fuel Beyond the Licensed Life for Operations of a Reactor" (RIN 3150–AJ20; NRC–2012–0246; 79 FR 56238). That rule, effective October 20, 2014, codifies the NRC's generic determinations in NUREG–2157 regarding the environmental impacts of the continued storage of spent fuel. In CLI–14–08, the Commission held that the revised 10 CFR 51.23 and associated NUREG–2157 cured the deficiencies identified by the court in *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012) and stated that the rule satisfies the NRC's NEPA obligations with respect to continued storage. The rule, however, does not authorize the storage of spent fuel. As discussed in the statements of consideration for the final rule (79 FR 56238), the rule does not address the safety of continued storage of spent fuel. NUREG–2157, Appendix B, however, discusses the feasibility of safe storage of spent fuel. In EAs prepared for future reactor and spent fuel storage facility licensing actions, 10 CFR 51.23(b) now requires the NRC to consider the environmental impacts of continued storage, if the impacts of continued storage of spent fuel are relevant to the proposed action. The following analysis documents the required consideration of the environmental impacts of continued storage, as determined in NUREG–2157, for the proposed renewal of the PI ISFSI license.

Overview of 10 CFR 51.23 and NUREG–2157

NUREG–2157 (NRC, 2014b) supports the revised rule at 10 CFR 51.23 and includes, among other things, the staff's analyses related to the particular deficiencies identified by the D.C. Circuit in the vacated Waste Confidence Decision and Rule. NUREG–2157 and the revised rule were issued in draft form in September 2013. The NRC staff's consideration of the issues identified by the D.C. Circuit was aided considerably by extensive public participation. Public participation opportunities included comments received (i) during scoping, (ii) on the draft NUREG–2157 and the proposed revised rule, and (iii) through participation in nationwide public meetings. The information in NUREG–2157 was developed using an open and transparent public process.

The NRC staff's evaluation of the potential environmental impacts of continued storage of spent fuel presented in NUREG–2157 identifies an impact level, or a range of impacts, for each resource area for a range of site conditions and timeframes. The timeframes analyzed in NUREG–2157 include the short-term timeframe (60 years beyond the licensed life of a reactor), the long-term timeframe (an additional 100 years after the short-term timeframe), and an indefinite timeframe (see NUREG–2157, Section 1.8.2).

The NRC staff concluded in NUREG–2157 that the potential impacts of spent fuel storage at the reactor site in both a spent fuel pool and in an at-reactor ISFSI would be SMALL during the short-term timeframe (see NUREG–2157, Section 4.20). However, for the longer timeframes for at-reactor storage, and for all timeframes for away-from-reactor storage, the analysis in NUREG–2157 has determined a range of potential impacts that are greater than SMALL in some resource areas (see NUREG–2157, Sections 4.20 and 5.20, respectively). The analysis in NUREG–2157 also presents an assessment of cumulative impacts for continued storage with ranges of potential impacts for most resource areas (see NUREG–2157, Section 6.5). These ranges reflect uncertainties that are inherent in analyzing environmental impacts to some resource areas over long timeframes. As explained in NUREG–2157 (Appendix D, p. D–96),

those uncertainties exist regardless of whether the impacts are analyzed generically or site-specifically.

NUREG–2157, Appendix B (NRC, 2014b) provides an assessment of the technical feasibility of a deep geologic repository and continued safe storage of spent fuel. That assessment concluded that a deep geologic repository is technically feasible and that a reasonable timeframe for its development is approximately 25 to 35 years. The assessment in NUREG–2157 referenced the U.S. Department of Energy's (DOE) "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste" (DOE, 2013), which stated that DOE's goal "…is to have a repository by 2026; the site characterized, and the repository designed by 2042; and the repository constructed and its operations started by the year 2048." Based on the evaluation of international experience with geologic repository programs—including the issues some countries have overcome—and the affirmation by the Blue Ribbon Commission of the geologic repository approach, the NRC staff continues to believe that 25 to 35 years is a reasonable period for repository development (i.e., candidate site selection and characterization, final site selection, licensing review, and initial construction for acceptance of waste).

At-Reactor Storage

The analysis in NUREG–2157 (NRC, 2014b) concluded that the potential impacts of at-reactor storage during the short-term timeframe would be SMALL (see NUREG–2157, Section 4.20). Further, the analysis in NUREG–2157 stated that disposal of the spent fuel by the end of the short-term timeframe is the most likely outcome (see NUREG–2157, Section 1.2). In this EA, the NRC staff determined that impacts from the proposed renewal for 40 years would be SMALL and not significant for all environmental resource areas. This is due to the passive nature of the ISFSI in that it emits no gaseous or liquid effluents during operation. Also, the ISFSI is designed to minimize radiological doses to workers and members of the public. NSPM did not propose any significant changes in authorized operations for the PI ISFSI or request approval of any new construction or expansion of the existing ISFSI footprint beyond that previously approved as part of the license renewal application. Thus, the potential impacts of at-reactor continued storage during the short-term timeframe are consistent with the evaluation of the environmental impacts for the proposed PI ISFSI license renewal as documented in Sections 4.1 through 4.13 of this EA.

The analysis in NUREG–2157, however, evaluated the potential impacts of continued storage if the fuel is not disposed of by the end of the short-term timeframe. During the long-term and indefinite timeframes, the analysis in NUREG–2157 determined that impacts to all resource areas would be SMALL, except for historic and cultural resources and nonradioactive waste management. NUREG–2157 determined that the potential impacts to historic and cultural resources from at-reactor storage during the long-term timeframe and the indefinite timeframe are dependent on factors that are unpredictable this far in advance and therefore concluded those impacts would be SMALL to LARGE (see NUREG–2157, Section 4.12). Among other things, as discussed in NUREG–2157, the NRC cannot determine at this time what resources may be present or discovered at a continued storage site a century or more in the future and whether those resources will be historically or culturally significant to future generations. Additionally, potential impacts greater than SMALL could occur if the activities to replace the ISFSI and construct and replace a DTS adversely affect cultural or historic resources and the effects cannot be mitigated. The analysis in NUREG–2157 recognized that ground-disturbing activities occurred during initial construction of the nuclear power plant and, thus, the land within and immediately surrounding the power block has been extensively disturbed. The analysis in

NUREG–2157 also explained that if replacement of the ISFSI and construction and replacement DTS occur within the previously disturbed areas or there are no historic or cultural resources present, then impacts would likely be SMALL. If these facilities, however, are located in less-developed or less-disturbed portions of a power plant site outside of the power block with historic and cultural resources present, then impacts to historic and cultural resources could be greater than SMALL (see NUREG–2157, Sections 4.12.2 and 4.12.3). As discussed in Section 3.1 of this EA, during the construction of PINGP Units 1 and 2, portions of the PI ISFSI area were the locations for the concrete batch plant and disposal site for dredge material collected from the excavation of the PINGP discharge canal (NRC, 2011c; NSPM, 2013b). In Section 4.10 of this EA, the NRC staff concluded that potential impacts to historic and cultural resources as a result of the proposed action would be SMALL and not significant; however, the NRC recognized the potential for unreported archaeological resources to be present in subsurface contexts in portions of the ISFSI that were not completely disturbed by the original ISFSI construction. In its review of archaeological investigations completed to date for the PINGP, including the recently completed archaeological survey of the PI ISFSI, the NRC staff found documentation confirming the locations of 11 archaeological sites within the PINGP property but not within the APE for this proposed ISFSI license renewal (NRC, 2011c, Section 2.2.9.2; NSPM, 2014d).

As discussed in NUREG–2157, given the minimal size of an ISFSI and DTS and the large land areas at nuclear power plant sites {e.g., the PINGP site boundary and exclusion area of approximately 230 ha [578 ac], and the land area developed for the ISFSI is 2.2 ha [5.5 ac]}, licensees should be able to locate these facilities away from historic and cultural resources. Potential adverse effects on historic properties or impacts on historic and cultural resources could also be minimized through development of agreements and implementation of the licensee's historic and cultural resource management plans and procedures to protect known historic and cultural resources and address inadvertent discoveries during construction and replacement of these facilities. As discussed in Section 4.10 of this EA, NSPM has implemented the CRMP at the PINGP to manage and ensure the protection of archaeological and cultural resources at the PINGP property. The CRMP includes a detailed overview of existing information regarding the nature and location of known cultural and historic resources within the PINGP property; identifies which types of activities have potential to cause disturbance to these resources; and establishes procedures and practices for proper review, notification, and consultation with concerned parties prior to initiating future construction and excavation projects at the PINGP. However, the analysis in NUREG–2157 recognized that it may not be possible to avoid adverse effects on historic properties under NHPA or impacts on historic and cultural resources under NEPA and, therefore, concluded that impacts would be SMALL to LARGE (see NUREG–2157, Section 4.12.2).

NRC also concluded in NUREG–2157 that the impacts of nonradioactive waste management in the indefinite timeframe would be SMALL to MODERATE, with the higher impacts potentially occurring if the waste from repeated replacement of the ISFSI and DTS exceeds local landfill capacity (see NUREG–2157, Section 4.15). Although the NRC concluded that non-radioactive waste disposal would not be destabilizing (or LARGE), the range reflects uncertainty regarding whether the volume of non-radioactive waste from continued storage would contribute to noticeable waste management impacts over the indefinite timeframe when considered in context of the overall local volume of non-radioactive waste.

As previously discussed, the NRC found in NUREG–2157 that disposal of the spent fuel is most likely to occur by the end of the short-term timeframe. Therefore, disposal during the long-term timeframe is less likely, and the scenario depicted in the indefinite timeframe—continuing to

store spent nuclear fuel indefinitely—is highly unlikely. As a result, the most likely impacts of the continued storage of spent fuel are those considered in the short-term timeframe. In the unlikely event that fuel remains onsite into the long-term and indefinite timeframes, the associated impact ranges in NUREG–2157 reflect the accordingly greater uncertainties regarding the potential impacts over these very long periods of time. The NRC staff finds that the impact determinations for at-reactor storage from NUREG–2157 do not change the staff's evaluation of the potential environmental impacts from the proposed 40-year renewal of the PI ISFSI license, based on (i) the impacts that the NRC considers most likely, which are SMALL and consistent with the environmental impacts discussed in Sections 4.1 through 4.13 of this EA; (ii) the greater uncertainty reflected in the ranges in the long-term and indefinite timeframes compared to the greater certainty in the SMALL findings; and (iii) the relative likelihood of the timeframes.

Away-From-Reactor Storage

In NUREG–2157 (NRC, 2014b), the NRC concluded that a range of potential impacts could occur for some resource areas if the spent fuel from multiple reactors is shipped to a large (roughly 40,000 MTU) away-from-reactor ISFSI (see NUREG–2157, Section 5.20). The ranges for resources such as air quality, terrestrial resources and aesthetics are driven by the uncertainty regarding the location of such a facility and the local resources that would be affected. For example, regarding terrestrial resource impacts, the analysis in NUREG–2157 explained that the impacts would likely be SMALL. However, it also stated that "it is possible that the construction of the project could have some noticeable, but not destabilizing, impacts on terrestrial resources, depending on what resources are affected." Therefore, in NUREG–2157, for away-from-reactor storage, the NRC concluded that the impacts to terrestrial resources would be SMALL to MODERATE (see Section 5.9.1) for the short-term timeframe, based primarily on the potential impacts of construction activities. In addition, there are uncertainties associated with the longer timeframes that contribute to the ranges for historic and cultural resources and for non-radioactive waste management, for the same reasons discussed previously for at-reactor storage.

As discussed in Section 2.1.5 of this EA, the NRC staff considered the storage of the spent fuel at an away-from-reactor storage as an alternative. The NRC determined, however, that it was not a reasonable alternative, because no such facility is available in the United States and there are no currently pending license applications for such a facility. However, such a facility could become available during the continued storage period. If so, an ISFSI of the size considered in NUREG–2157 could store the fuel from up to 25 reactors, which means that only a small portion of the overall impacts of the ISFSI would be attributable to the fuel from any individual reactor.

Based on the factors discussed previously, there is uncertainty whether an away-from-reactor storage would be constructed, uncertainty where it might be located, and uncertainty regarding the impacts in the short-term and the longer timeframes, leading to ranges of impacts. As a result, consideration of the generic environmental impacts from continued away-from-reactor storage provides limited insights to the decision-maker in the overall picture of the environmental impacts from the proposed renewal of the PI ISFSI license.

Cumulative Impacts

The NRC examined the incremental impact of continued storage on each resource area analyzed in NUREG–2157 (NRC, 2014b) in combination with other past, present, and reasonably foreseeable future actions. The analysis in NUREG–2157 presented ranges of

potential cumulative impacts for multiple resource areas (see Section 6.5). These ranges, however, are primarily driven by impacts from activities other than the continued storage of spent fuel at the reactor site; the impacts from these other activities would occur regardless of whether spent fuel is stored during the continued storage period.

Similarly, the NRC evaluated the incremental impact of the proposed renewal of the PI ISFSI license on each resource area in combination with other past, present, and reasonably foreseeable future actions. The NRC staff concluded that the potential impacts of the proposed PI ISFSI license renewal are not a significant contributor to cumulative impacts. The analysis in NUREG–2157 concluded that, in the short-term timeframe, which is the most likely timeframe for the disposal of the fuel in a deep geologic repository, the potential impacts of continued, at-reactor storage are SMALL and would, therefore, not be a significant contributor to the cumulative impacts. Therefore, the NRC staff has determined that there would be no significant change to the cumulative impacts analysis in this EA.

The following discussion regarding continued storage of spent nuclear fuel is provided by the PIIC (PIIC, 2014b):

> As previously stated, there is no community in the United States, let alone a federally recognized Indian Tribe, as close to a nuclear power plant or waste storage facility as the PIIC is. Because of this, the PIIC has been actively engaged in all matters related to the PINGP units 1 and 2 and the PI ISFSI. From the outset when the ISFSI was first proposed, the PIIC expressed concerns and fears that the spent nuclear fuel would never leave Prairie Island, and sadly, the PIIC's fear seems to be coming true.
>
> In 2012, the US Court of Appeals for the District of Columbia Circuit vacated the NRC's Waste Confidence Decision and Temporary Storage Rule. Spent nuclear fuel poses a dangerous, long-term health and environmental risk (see Public and Occupational Health and Safety Sections 3.11 and 4.11).[4] It will remain dangerous "for time spans seemingly beyond human comprehension."[5] Despite years of "blue ribbon" commissions, congressional hearings, agency reports, and site investigations, the United States has not yet developed a permanent solution for disposing spent nuclear fuel envisioned and required by the Nuclear Waste Policy Act.[6] That failure, declared the Blue Ribbon Commission on America's Nuclear Future, is the "central flaw of the U.S. nuclear waste management program to date."[7]
>
> Because of the government's failure to establish a permanent repository for spent nuclear fuel, spent nuclear fuel is stranded at the PI ISFSI and other nuclear plants. In the meantime, as the Court of Appeals for the District of

[4]At massive levels, radiation exposure can cause sudden death." *Nuclear Energy Inst. v. EPA*, 373 F. 3d 1251, 1258 (D.C. Cir. 2004) (internal citations omitted). Even "[a]t lower doses, radiation can have devastating health effects, including increased cancer risks and serious birth defects such as mental retardation, eye malformations, and small brain or head size." *Ibid* at 1258.
[5]*New York v. NRC*, 681 F.3d 471, 474 (D.C.Cir. 2012) citing *Nuclear Energy Inst., Inc. v. Envtl.Prot.Agency*, 373 F.3d 1251, 1258 (D.C.Cir 2004) (per curiam). Spent nuclear fuel must be contained from the environment for tens of thousands of years.
[6]Ibid, 681 F.3d at 474.
[7]Ibid, citing Blue Ribbon Commission on America's Nuclear Future, Report to the Secretary of Energy 10-11 (2012) at 27.

Columbia Circuit observed, "[t]his type of storage, optimistically labeled 'temporary storage,' has been used for decades longer than originally anticipated. The delay has required plants to expand storage pools and to pack spent nuclear more densely within them. The lack of progress on a permanent repository has caused considerable uncertainty regarding the environmental effects of temporary spent nuclear fuel storage and the reasonableness of continuing to license and relicense nuclear reactors."[8] The irony that we are now working through the requested 40-year license renewal term for a "temporary" facility originally licensed for 20 years cannot be overlooked.

The Court's finding that temporary storage "has been used for decades longer than originally anticipated" is the focus of the PIIC's concerns. The PIIC believes that the prospect that spent nuclear fuel will be stranded onsite indefinitely is very real, and that the current regulatory framework doesn't adequately account for that fact. For example, the regulatory scheme for spent nuclear fuel is compartmentalized into storage and transportation, Parts 72 (licensing requirements for the independent storage of spent nuclear fuel) and 71 (packaging and transportation of radioactive material), respectively. The regulatory compartmentalization may have made sense when the duration of onsite storage was anticipated to be no more than a decade or two. However, considering the possibility that spent nuclear fuel may remain onsite indefinitely, this artificial regulatory compartmentalization may preclude a full and complete analysis of the potential adverse health and environmental impacts. As we stated above, the PIIC views the PINGP and ISFSI as one installation and therefore look at environmental, health, and safety impacts in a similar holistic way.

There is still considerable uncertainty regarding the long-term effects of high burnup fuel during extended dry cask storage beyond 20 years, including unresolved concerns associated with degradation of fuel assemblies and internal cask components and cladding. Potential problems may be less likely to occur during the proposed extended license term (i.e., up to 40 years), but beyond that term there is far more uncertainty. As a result, the potential transportation of these casks will become more problematic the longer the spent nuclear fuel is stored onsite.

The PIIC fears that by the time a detailed analysis of the potential health, safety and environmental risks associated with the transportation of the casks off Prairie Island is conducted for periods of time beyond the proposed extended license term (i.e., in 50, 100, or 200 or more years), the risks associated with transportation will be greater than the risks of continued onsite storage, leaving the spent nuclear fuel stranded at the PI ISFSI indefinitely. The potential risks and adverse environmental impacts of storage beyond the proposed license term and subsequent transportation must be fully explored now. To defer rigorous environmental impact analysis to some unknown point in the future is meaningless. NSPM will continue to load and store up to 64 dry casks during the first 20 years of the proposed extended license term, with an additional 34 casks needed if the PINGP is decommissioned in 2034. What good would it do to fully

[8] Ibid.

analyze the potential risks and adverse environmental impacts of indefinite storage or transportation until after 98 casks—more than 2,500 tons [2,755 short tons] of nuclear waste according to NSPM's estimate—are already placed at the PI ISFSI? Deferring the analysis of long-term storage and transportation risks and potential adverse environmental impacts for 40 or more years, and thereby allowing the generation and storage of even larger quantities of nuclear waste in the interim, is like trying to unring a bell after it's been rung. It simply can't be done.

The Continued Storage GEIS anticipates that the dry casks will be replaced every one hundred years as well as the storage pads themselves. The spent fuel will be repackaged into new casks via a DTS that is yet to be licensed by the NRC. We are very concerned about the assumptions related to institutional control of the site and the necessary finances to replace the casks every 100 years. What seems to be missing from the analysis in the Continued Storage Rule is who will pay for cask replacement during the long-term and indefinite storage periods. During these timeframes, the PINGP will not be operating and not generating revenue to cover these costs. When the ISFSI was first licensed, the cost of one dry cask was estimated to be $812,500, but now less than 25 years later the cost per cask has already increased by 734 percent to $5.96 million. One can only imagine what the per-cask cost might be 100 years into the future. How can there be any assurances that there will be adequate funds available to replace the casks when needed? How do we know that NSPM will even exist in 100 years? Or, for that matter, that the NRC or Minnesota PUC will exist to ensure that there is money in the bank? Again, the changing assumptions and expectations have reinforced our greatest fear—that the spent nuclear fuel will never leave Prairie Island.

The PI ISFSI is located right next to the PIIC Reservation, a mere 600 yards away from the nearest homes, and less than 1.6 km [1 mi] from various community buildings and the Tribe's gaming enterprise. Prairie Island is our homeland, a place of historical and cultural significance to our people for thousands of years. This land was to be a means of ensuring the continuation of our traditions and culture. We are fearful, for the reasons articulated above (technical, political and financial) that the spent nuclear fuel be stranded on Prairie Island indefinitely because it is (or will be) the easiest thing to do.

The PIIC respects the fact that the Continued Storage Rule has ushered in a new regulatory paradigm, and that the NRC must adjust from a regulatory framework established for short-term, temporary onsite storage to one of long-term, indefinite onsite storage. The PIIC maintains that a gap exists in the new regulatory framework when it comes to the recognition and consideration of the NRC's trust responsibilities to the PIIC as a federally-recognized Indian Tribe. This is a quintessential site-specific consideration that cannot be addressed generically. In the discrete context of the NRC's obligations under NEPA, the NRC's trust responsibility to the PIIC cannot be fulfilled by an environmental assessment that does not adequately consider the impact that indefinite spent nuclear fuel storage 0.8 km [0.5 mi] from the PIIC's core reservation area may have on the viability of the Prairie Island Reservation homeland for generations to come. In order to fulfill its trust responsibility to the PIIC, the NRC must ensure that adequate funding exists to fulfill the Continued Storage Rule's assumptions

and must conduct a site-specific environmental impact analysis of potential impacts should the assumptions in the Continued Storage Rule and GEIS not be fulfilled.

Because the PIIC believes that the NRC's Continued Storage Rule and GEIS fail to meet the remand directive of the U.S. Court of Appeals for the District of Columbia Circuit in the *New York v. NRC* decision, the PIIC filed a petition on October 27, 2014 seeking the District of Columbia Circuit Court's review. That appeal is currently pending. In addition, on October 20, 2014, the PIIC filed a motion with the Atomic Safety and Licensing Board for leave to file a new contention based on the Continued Storage Rule. That motion is currently pending before the Board.

In the context of continued storage, the PIIC does not believe that the NRC has fulfilled the trust responsibility in its analysis and conclusions in the Continued Storage Rule and GEIS in two respects. First, the Continued Storage Rule and GEIS fail to assess the impacts of a reasonably foreseeable event and its potentially catastrophic impacts on the Community, its homeland and its people. The failure to conduct a complete analysis of a reasonably foreseeable event also violates the trust responsibility because of the certain impact on the trust *res* – the Community's trust lands, the environment, soils, air and water. Whether the Commission is obligated to assess a worst-case scenario is of no matter. It is required to assess reasonably foreseeable events, and with respect to trust lands, events that may damage or destroy the trust res. *See Fort Mojave Indian Tribe v. United States,* 23 Cl. Ct. 417, 426 (1991) (where the trust relationship exists, the trustee "has a duty to protect the trust property against damage or destruction. He is obligated to the beneficiary to do all acts necessary for the preservation of the trust *res* which would be performed by a reasonably prudent man employing his own like property for purposes similar to those of the trust.")

Second, fundamental to safety determinations are institutional controls including funds for replacement ISFSIs and the development and operation of DTSs. The continued storage analysis fails in two important respects: failure to analyze a loss of controls and failure to analyze the cost of these controls and the cost impact on long-term viability. The failure to analyze loss of controls is discussed above and is a significant shortcoming in the GEIS. The safety and security of spent fuel are inextricably linked with sufficient financial resources. While immediate financial needs may be met—or they may not—by the spent fuel management funding requirement, funding over the long term and indefinite storage scenarios has not been assured.

Conclusion

NRC's rule at 10 CFR 51.23 codifies the NRC's generic determinations in NUREG–2157 regarding the environmental impacts of the continued storage of spent fuel. The rule and NUREG–2157 satisfy only a portion of the NRC's NEPA obligations related to the issuance of a reactor license or spent fuel storage facility license by generically evaluating the environmental impacts of continued storage. The rule does not authorize the storage of spent fuel. Prior to the completion of an individual licensing action, the NRC would conduct a site-specific environmental review and document the results of this review in an EA with a finding of no

significant impact (FONSI) or in an EIS. For each site-specific ISFSI license (new, amended, or renewed) an EA is prepared. As discussed in the statements of consideration, the rule does not address the safety of continued storage of spent fuel. NUREG–2157, Appendix B, however, discusses the technical feasibility of continued safe storage of spent fuel and repository availability.

The analysis in NUREG–2157 supports the conclusion that the most likely impacts of continued storage are those discussed for at-reactor storage. For continued at-reactor storage, impacts in the short-term timeframe would be SMALL. Over the longer timeframes, impacts to certain resource areas would cover a range (for historic and cultural impacts during both the long-term and indefinite timeframes, the range is SMALL to LARGE, and for nonradioactive waste management during the indefinite timeframe, the range is SMALL to MODERATE). In NUREG–2157, the NRC stated that disposal of the spent fuel in a repository before the end of the short-term timeframe is the most likely scenario. As explained in NUREG–2157, in response to public comments, the NRC staff relied on certain assumptions regarding the storage of spent fuel to guide its analysis. These assumptions are sufficiently conservative to bound the impacts such that variances that may occur between sites are unlikely to result in environmental impact determinations that are greater than those presented in NUREG–2157. For example, the NRC assumed that dry storage cask systems would be replaced every 100 years. This replacement period provides reasonable increments of time for evaluating environmental impacts because the replacement of dry cask storage systems is likely to be more environmentally significant than routine storage operations. Also, there are inherent uncertainties in determining impacts for the long-term and indefinite timeframes, and, with respect to some resource areas, those uncertainties could result in impacts that, although less likely, could be larger than those that are to be expected at most sites and have therefore been presented as ranges rather than as a single impact level. In addition, those uncertainties exist regardless of whether the impacts are analyzed generically or site specifically. As a result, these impact ranges provide limited insights to the decision-maker considering the overall picture of the environmental impacts from the proposed action. The staff concludes that when weighed against site-specific environmental impacts presented in this EA, and the more likely impacts of continued storage during the short-term timeframe in NUREG–2157, which are SMALL, the uncertainties associated with the impact ranges for the long-term and the indefinite timeframes do not change the staff's analysis of the environmental impacts of renewing the PI ISFSI license. Additionally, for the reasons discussed previously, continued at-reactor storage is not expected to contribute noticeably to cumulative impacts.

Finally, continued storage of the spent fuel from the PINGP Units 1 and 2 is not expected to change either the ISFSI's design or the site's characteristics. In conclusion, after considering the impacts from continued storage presented in NUREG–2157, the NRC staff concludes that the impact determinations from NUREG–2157 do not change the NRC staff's environmental impacts findings discussed in Sections 4.1 through 4.14 of this EA and as a result, the NRC staff continue to find that the proposed license renewal of the PI ISFSI itself has no significant impact on environmental resources.

5 AGENCIES AND PERSONS CONSULTED

The U.S. Nuclear Regulatory Commission (NRC) staff consulted with other agencies regarding the proposed action in accordance with NUREG–1748 (NRC, 2003). These consultations were intended to (i) ensure that the requirements of Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act (NHPA) were met and (ii) provide the designated state liaison agencies the opportunity to comment on the proposed action.

5.1 Minnesota Historical Society

On April 25, 2012, the NRC contacted the Minnesota Historical Society and requested input to help identify local resource areas that may be affected by the proposed renewal of the Prairie Island (PI) independent spent fuel storage installation (ISFSI) license (NRC, 2012j). The Minnesota Historical Society responded via a letter dated May 29, 2012, that, based on available information, it concluded that no properties listed in or eligible for listing in the National Register of Historic Places will be affected by this project (Minnesota Historical Society, 2012).

5.2 Native American Indian Tribes

On June 14, 2012, the NRC sent letters to 28 Indian tribes requesting information regarding historic sites or cultural resources that may be affected by the proposed action, including properties of religious and cultural significance that may be eligible as historic properties under the NHPA. On July 9, 2012, the Leech Lake Band of Ojibwe responded to the NRC that it does not have any known recorded sites of religious or cultural importance near the site. The tribe requested that if any human remains or suspected human remains were found, all work should cease and the County Sheriff's Office and Office of the State Archaeologist should be contacted (Leech Lake Band of Ojibwe, 2012). The Prairie Island Indian Community (PIIC) also responded via letter dated July 18, 2012, and provided information regarding cultural and archaeological resources (PIIC, 2014b, 2013b). In October 2012, NRC and the PIIC entered into a memorandum of understanding (MOU) acknowledging the PIIC's special expertise in four resource areas and worked together to develop a comprehensive evaluation of the areas covered by the MOU. Table 5-1 lists the tribes contacted and the letters' Agencywide Documents Access and Management System (ADAMS) accession numbers.

5.3 U.S. Fish and Wildlife Service

On April 25, 2012, the NRC sent a letter to the U.S. Fish and Wildlife Service (FWS) Twin Cities Minnesota Field Office describing the proposed action and requesting a list of threatened and endangered species and critical habitats that could potentially be affected by the proposed action (NRC, 2012f). The FWS responded via a letter dated April 11, 2013, identifying one endangered mussel (*Lampsillis higginsii*) and nesting pairs of bald eagles that are likely to be present within 8 kilometers [5 miles] of the PI ISFSI (FWS, 2013a).

5.4 Minnesota Department of Natural Resources and Wisconsin Department of Natural Resources

The NRC also sent letters to the Minnesota Department of Natural Resources (DNR) (NRC, 2012c) and Wisconsin DNR (NRC, 2013b) requesting input to help identify local resource areas that may be affected by a renewal of the PI ISFSI license. In the response letter dated July 3, 2012, Minnesota DNR recommended including flood protection information and impacts

Table 5-1. List of Consultation Documents			
Consulting Organization	**Document**	**Date**	**Agencywide Documents Access and Management System Accession Number**
Minnesota (MN) Historical Society	U.S. Nuclear Regulatory Commission's (NRC) Initiation of National Historic Preservation Act (NHPA) Section 106 Consultation	April 25, 2012	ML120830042
U.S. Fish and Wildlife Service	NRC's Consultation Letter	April 25, 2012	ML120830111
MN Department of Natural Resources	NRC's Consultation Letter	April 25, 2012	ML120830159
Wisconsin Department of Natural Resources	NRC's Consultation Letter	February 13, 2013	ML12341A136
MN Historical Society	MN Historical Society Response to Consultation Letter	May 29, 2012	ML12177A079
28 Tribes	NRC's Initiation of NHPA Section 106 Consultation Letters	June 14, 2012	ML120830050 (PIIC) ML12166A438 (Yankton Sioux) ML12166A429 (Winnebago Tribe) ML12166A388 (White Earth Nation) ML12166A358 (Upper Sioux) ML12166A335 (Turtle Mountain) ML12166A314 (Three Affiliated Tribes) ML12166A299 (St. Croix Chippewa) ML12166A287 (Standing Rock Sioux) ML12166A279 (Spirit Lake) ML12166A274 (Sisseton Wahpeton) ML12166A266 (Santee Sioux) ML12166A257 (Rosebud) ML12166A540 (Shakopee Mdewakandon Sioux) ML12166A255 (Bois Forte) ML12166A270 (Cheyenne River Sioux) ML12166A277 (Crow Creek) ML12166A291 (Flandreau Santee Sioux) ML12166A300 (Fond Du Lac) ML12166A343 (Grand Portage) ML12166A356 (Ho-Chunk) ML12166A385 (Leech Lake) ML12166A422 (Lower Brule Sioux) ML12166A433 (Lower Sioux) ML12166A455 (Mille Lac Band Ojibwe) ML12166A464 (MN Chippewa) ML12166A491 (Oglala Sioux)

Table 5-1. List of Consultation Documents			
Consulting Organization	**Document**	**Date**	**Agencywide Documents Access and Management System Accession Number**
			ML12166A499 (Red Lake Band Chippewa)
MN Department of Natural Resources	MN Department of Natural Resources Response to Consultation Letter	July 3, 2012	ML12192A191
Leech Lake Band of Ojibwe	Leech Lake Band of Ojibwe's Response to Section 106 Consultation Letter	July 9, 2012	ML12207A247
Prairie Island (PI) Indian Community (PIIC)	PIIC's Response to Section 106 Consultation Letter	July 18, 2012	ML12201A131
PIIC	Memorandum of Understanding Between the NRC and the PIIC as a Cooperating Agency	October 3, 2012	ML12284A456
City of Red Wing	Consultation Letter to City of Red Wing	November 7, 2012	ML12310A306
City of Red Wing	Relicensing of Independent Spent Fuel Storage System Installation for the Prairie Island Nuclear Generating Plant located in Red Wing, Minnesota, Docket No. 72–10–ISFSI–2	March 18, 2013 April 3, 2013	ML13099A037 ML13101A068
Advisory Council on Historic Preservation (ACHP)	NRC's Letter to ACHP Regarding the PI ISFSI Proposed 40-Year License Renewal	May 8, 2013	ML13094A222
U.S. Fish and Wildlife Service	U.S. Fish and Wildlife Response to Consultation Letter	April 11, 2013	ML13102A010
U.S. Fish and Wildlife Service	Telephone Memo Regarding Northern Long-eared Bat	July 14, 2014	ML14261A367

to species and native plant communities in the environmental assessment (EA) (Minnesota DNR, 2012). Impacts to threatened and endangered species and critical habitats and flooding are provided in Chapter 4.

5.5 City of Red Wing

The NRC also sent a letter to the City of Red Wing (NRC, 2012d) requesting input to help identify local resource areas that may be affected by a renewal of the PI ISFSI license.

The City of Red Wing responded on March 18 and April 3, 2013, with several suggestions for NRC staff's consideration (Harlan, 2013a,b).

6 CONCLUSION AND FINDING OF NO SIGNIFICANT IMPACT

Based on its review of the proposed action, in accordance with the requirements in Title 10 of the Code of Federal Regulations (CFR) Part 51, the U.S. Nuclear Regulatory Commission (NRC) staff has determined that renewal of NRC Special Nuclear Materials (SNM) License SNM–2506, authorizing continued operation of the Northern States Power Company, a Minnesota corporation (NSPM) (doing business as Xcel Energy), site-specific independent spent fuel storage installation (ISFSI) for an additional 40 years, will not significantly affect the quality of the human environment. In its license renewal request, NSPM is proposing no changes in how it handles or stores spent fuel at the Prairie Island (PI) ISFSI. No significant changes in NSPM's authorized operations for the PI ISFSI were requested as part of the license renewal application. Approval of the proposed action would not result in any new construction or expansion of the existing ISFSI footprint beyond that previously approved. The ISFSI is a passive facility that produces no liquid or gaseous effluents. No significant radiological or nonradiological impacts are expected from continued normal operations. Occupational dose estimates from routine monitoring activities and transfer of spent fuel for disposal are expected to be at as low as is reasonably achievable levels and are expected to be within the limits of 10 CFR 20.1201. The estimated annual dose to the nearest potential member of the public from ISFSI activities is 0.02 milliSieverts per year (mSv/y) [2.20 millirems per year (mrem/yr)], which is below the 0.25 mSv/yr [25 mrem/yr] limit specified in 10 CFR 72.104(a) and the 1 mSv/yr [100 mrem/yr] limit in 10 CFR 20.1301(a)(1). Therefore, the NRC staff has determined that pursuant to 10 CFR 51.31, preparation of an environmental impact statement is not required for the proposed action, and pursuant to 10 CFR 51.32, a finding of no significant impact (FONSI) is appropriate.

Pursuant to 10 CFR 51.33, the NRC staff made a draft environmental assessment (EA) and draft FONSI available for public review and comment. In doing so, the NRC staff determined that preparation of the EA and FONSI furthers the purposes of National Environmental Policy Act. The NRC performed an EA, and based on its results, the NRC is issuing a FONSI. Appendix B to this EA provides summaries of the comments made on the draft EA and the NRC staff's responses to those comments.

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APPENDIX A

FEDERAL AND STATE SPECIAL-STATUS SPECIES

FEDERAL AND STATE SPECIAL-STATUS SPECIES

Table A–1. Terrestrial Endangered, Threatened, Candidate, or Special Concern Animal and Plant Species Found in Goodhue County, Minnesota*			
Common Name	**Scientific Name**	**Federal Status**	**State Status**
Mammals			
Prairie vole	*Microtus ochrogaster*		SC†
Least weasel	*Mustela nivalis*		SC†
Northern long-eared bat	*Myotis septentrionalis*	T¶	SC†
Plains pocket mouse	*Perognathusflavescens*		SC†
Western harvest mouse‡	*Reithrodontomys megalotis*		Tracked§
Birds			
Henslow's sparrow	*Ammodramus henslowii*		E†
Red-shouldered hawk	*Buteo lineatus*		SC†
Cerulean warbler‡	*Dendroica cerulea*		SC§
Trumpeter swan	*Cygnus buccinator*		SC†
Acadian flycatcher	*Empidonax virescens*		SC†
Peregrine falcon‡	*Falco peregrinus*		SC†§
Loggerhead shrike	*Lanius ludovicianus*		E†
Insects			
Leonard's skipper	*Hesperia leonardus*		SC†
Regal fritillary	*Speyeria idalia*		SC†
Plants			
Red three-awn	*Aristida purpurea* var. *longiseta*		SC†
Kitten-tails	*Besseya bullii*		T†
Sterile sedge	*Carex sterilis*		T†
Squirrel corn	*Dicentra canadensis*		SC†
Goldie's fern	*Dryopteris goldiana*		SC†
Rattlesnake master	*Eryngium yuccifolium*		SC†
Minnesota dwarf trout lily	*Erythronium propullans*	E‖	E†
Beach-heather	*Hudsonia tomentosa*		T†
Twinleaf	*Jeffersonia diphylla*		SC†
Creeping juniper	*Juniperus horizontalis*		SC†
Prairie bush clover	*Lygodium palmatum*	T‖	T†
Rock sandwort	*Minuartia dawsonensis*		T†
Glade mallow	*Napaea dioica*		T†
Clustered broomrape	*Orobanche fasciculata*		T†
American ginseng‡	Panax quinquefolius		SC§
Tubercled reinorchid	*Platanthera flava* var. *herbiola*		T†
Sessile-flowered cress	*Rorippa sessiliflora*		SC†
Beaked snakeroot	*Sanicula trifoliata*		SC†
Snow Trillium	*Trillium nivale*		SC†
Valerian	*Valeriana edulis* var. *ciliata*		T†

Table A–1. Terrestrial Endangered, Threatened, Candidate, or Special Concern Animal and Plant Species Found in Goodhue County, Minnesota*			
Common Name	**Scientific Name**	**Federal Status**	**State Status**
Plants (continued)			
Gravel Oak Savannah‡			N/A§
Spikerush–Bur Reed Marsh (Northern)‡			N/A§
Sugar Maple–Basswood–(Bitternut Hickory) Forest‡			N/A§
Reptiles			
Smooth Softshell	*Apalone mutica*		SC†
North American racer	*Coluber constrictor*		SC†
Blanding's turtle	*Emydoidea blandingii*		T†
Gophersnake	*Pituophis catenifer*		SC†
Timber rattlesnake	*Crotalus horridus*		T†

*Aquatic species are not included in this table
†Minnesota DNR, 2012, 2013
‡Species or native plant communities reported within 1.6 km [1 mi] of Prairie Island Nuclear Generating Plant
§NSPM, 2011
‖FWS, 2014
¶80 FR 17974
E = Endangered, SC = Special Concern, T = Threatened, PE = Proposed Endangered

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APPENDIX B

PUBLIC COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED RENEWAL OF U.S. NUCLEAR REGULATORY COMMISSION LICENSE NO. SNM–2506 PRAIRIE ISLAND INDEPENDENT SPENT FUEL STORAGE INSTALLATION, AND NRC RESPONSES

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TABLE

ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AEA	Atomic Energy Act
AMP	aging management program
APE	area of potential effect
BIA	Bureau of Indian Affairs
CT/CAT	computed tomography scan
CFR	Code of Federal Regulations
CON	certificate of need
CRMP	Cultural Resource Management Plan
DOR	Department of Revenue
DNR	Department of Natural Resources
EA	environmental assessment
EIS	environmental impact statement
EMFs	effects of electromagnetic fields
ERP	Emergency Response Plan
FONSI	finding of no significant impact
FR	*Federal Register*
GEIS	generic environmental impact statement
ISFSI	independent spent fuel storage installation
km^2	square kilometers
MDH	Minnesota Department of Health
mi^2	square miles
MOU	Memorandum of Understanding
MPUC	Minnesota Public Utilities Commission
mrem	millirems
mSv	milliSieverts
MTU	metric tons of uranium
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRC	U.S. Nuclear Regulatory Commission
NSPM	Northern States Power Company (doing business as Xcel Energy)
NWPA	Nuclear Waste Policy Act
PFS	Private Fuel Storage
PI	Prairie Island
PIIC	Prairie Island Indian Community
PINGP	Prairie Island Nuclear Generating Plant

ACRONYMS

REMP	Radiological Environmental Monitoring Program
ROI	region of influence
SAR	safety analysis report
SEIS	supplemental environmental impact statement
SER	safety evaluation report
SNM	special nuclear materials
SSCs	structures, systems, and components
TLD	thermoluminescent dosimeter
TN–40	Transnuclear-40
TN–40HT	Transnuclear-40HT

B.1 Overview

This appendix discusses the public participation process for the U.S. Nuclear Regulatory Commission (NRC) staff's environmental review and preparation of an environmental assessment (EA) of the Northern States Power Company's [a Minnesota corporation (NSPM) (doing business as Xcel Energy)] application to renew its NRC license for its Prairie Island (PI) Independent Spent Fuel Storage Installation (ISFSI) facility located in Red Wing, Minnesota. NSPM requested that its NRC Special Nuclear Materials (SNM) license (SNM–2506) be renewed for a period of 40 years.

This appendix also summarizes the comments received on the NRC staff's draft EA and finding of no significant impact (FONSI) regarding NSPM's proposed license renewal of its PI ISFSI and provides the NRC staff's response to those comments.

B.2 Public Participation

Public participation is an essential part of the environmental review process under the National Environmental Policy Act (NEPA) of 1969, as amended. This section discusses the opportunities afforded the public to participate in the NRC staff's development of the EA consistent with NEPA and the NRC NEPA-implementing regulations at Title 10 of the U.S. Code of Federal Regulations (CFR) Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

B.2.1 Notice of Receipt and Opportunity for Hearing

On June 25, 2012, the NRC staff published a notice of receipt of the NSPM license renewal application and an opportunity to request a hearing in the *Federal Register* (FR) (77 FR 37937). The initial deadline provided for hearing requests was August 24, 2012. One hearing request was received from the Prairie Island Indian Community (PIIC) on August 24, 2012. An electronic copy of the hearing request can be found through the NRC Agencywide Documents Access and Management System (ADAMS) on the NRC Web site (http://www.nrc.gov/reading-rm/adams.html) by using the Accession Number ML12237B193.

B.2.2 Public Participation Activities

On November 19, 2013, the NRC staff published a notice of availability in the FR requesting public review and comment on the draft EA and draft FONSI for the PI site-specific ISFSI for an additional 40 years (78 FR 69460). The 30-day public comment period started on November 19, 2013, and ended on December 19, 2013. In the notice, the NRC provided information on how to submit comments and request a copy of the draft EA. All comments on the draft EA and draft FONSI were received on or before December 19, 2013.

Copies of the draft EA and draft FONSI were provided to various stakeholders, including federal, tribal, state, and local government officials. Hsueh (2013) provides an example of the letter that transmitted the draft EA and how to submit comments. An electronic version of the draft EA and draft FONSI were made available through the NRC's external Web site http://pbadupws.nrc.gov/docs/ML1320/ML13205A120.pdf and through ADAMS.

NRC staff consulted with other federal agencies, federally recognized Indian tribes, and state and local government agencies; conducted site visits; and reviewed responses to NRC requests

for additional information. In addition, in October 2012, NRC and the PIIC entered into a memorandum of understanding (MOU) that establishes a cooperating agency relationship between NRC and the PIIC and defines the roles and responsibilities of both entities and the process they will use to prepare an EA. In preparing this draft EA, the PIIC and NRC worked together to develop a comprehensive evaluation of the areas covered by the MOU.

B.2.3 Issuance and Availability of the Draft EA and Draft FONSI

On November 19, 2013, the NRC staff published a Notice of Availability of the draft EA and draft FONSI in the FR (78 FR 69460). In this notice, the NRC staff provided information on how to access or obtain a copy of the draft EA and draft FONSI. Electronic versions of the draft EA and draft FONSI and supporting information were made available through the NRC's ADAMS Web site. Members of the public were able to examine and have copied, for a fee, the draft EA and draft FONSI and other related publicly available documents from the NRC Public Document Room. Copies of the draft EA and draft FONSI were also available at the Red Wing Public Library.

B.2.4 Public Comment Period

In the draft EA and draft FONSI notice of availability published on November 19, 2013 (78 FR 69460), NRC stated that public comments on the draft EA and draft FONSI should be submitted by December 19, 2013. Members of the public were invited and encouraged to submit related comments through various media, including electronic submittals to the federal rulemaking Web site or written comments by mail or fax. The notice of availability for the draft EA and draft FONSI also stated that comments received after December 19, 2013, would be considered if it was practical to do so, but NRC would assure consideration only for comments received on or before December 19, 2013. No comments were submitted after December 19, 2013. The NRC received comments from the applicant (NSPM), the Minnesota Department of Natural Resources (DNR), the City of Red Wing, and the PIIC.

B.3 Comment Identification and Review Methodology

NRC reviewed each comment letter. A comment document description table (Table B–1) is provided in this section, which lists general information about the comment letters. Electronic versions of the four comment documents are available under ADAMS Accession Numbers ML13357A188, ML14007A224, ML14007A232, and ML14007A225. Copies of the comment letters are included at the end of this appendix. Detailed responses to comments are provided in Section B.5. The comment number to the left of the hyphen identifies the document number. The number to the right of the hyphen is a consecutive unique-count number for each comment identified in a specific document.

Based on the similarity of comments related to a specific topic, as appropriate, the NRC staff grouped the same or similar comments within each topic. This approach allowed similar comments to be addressed with a single response to avoid duplication of effort and enhance readability of this report. A response has been provided for each comment or group of comments. Each response indicates whether the final EA was modified as a result of the comment.

Table B–1. Comment Document Number Description					
Comment Document Number	**Last Name**	**First Name**	**Affiliation**	**Accession Number**	**Number of Comments**
1	Davison	Kevin K.	NSPM	ML13357A188	59
2	Schrenzel	Jamie	Minnesota Department of Natural Resources	ML14007A224	1
3	Harlan	Thomas	City of Red Wing	ML14007A232	33
4	Mahowald	Philip	Prairie Island Indian Community	ML14007A225	30

B.4 Major Issues and Topics of Concern

The majority of comments received specifically addressed items within the scope of the EA. Topics raised included a variety of concerns about

- Assessment of environmental impacts
- Regulatory issues
- NEPA-related issues
- Land use issues
- Socioeconomics issues
- Environmental justice issues
- Historic and cultural issues
- Radiological issues
- Cumulative effects

B.5 Comment Summaries and NRC Responses

Detailed comment responses are provided in this section. The structure of this section is based on the comment topics provided. Within each topic-specific subsection, the applicable comment identification numbers, comment summaries, and the NRC staff response is provided.

B.5.1 Consulting and Cooperating Agencies

Comment: 2-1
The Minnesota DNR stated it has no further comments at this time.

Response: NRC appreciates the Minnesota DNR's review of the EA. The NRC staff did not revise the EA in response to this comment, because no changes were suggested.

Comment: 4-1
The commenter notes that the cooperating agency relationship between the NRC and PIIC, established through an MOU, is not mentioned in the Executive Summary of the EA. The commenter further notes that, although the Executive Summary does mention that the NRC consulted with federally recognized Indian tribes as part of its environmental review process, the PIIC is the only tribe participant in the development of the EA. The commenter suggests discussing the PIIC as a cooperating agency in the Executive Summary of the EA.

Response: The NRC staff appreciates this comment. The NRC staff revised the Executive Summary to clarify that the PIIC is a cooperating agency.

B.5.2 Applicable Regulatory Requirements and Permits

Comment: 1-8
The commenter requested that additional information be included in the EA to clarify the NSPM storm water permit scope and status.

Response: The NRC staff revised EA Section 1.4 in response to the commenter's suggestions.

B.5.3 Regulatory Issues

Comments: 3-1, 3-14, 4-13
Two commenters expressed frustration that the Federal Government has not met its obligations to store spent nuclear fuel away from the Prairie Island Nuclear Generating Plant (PINGP). Because of this, there is no assurance that storage of spent fuel at the PI ISFSI is temporary.

One commenter noted that the City of Red Wing is facing a scenario that it did not envision: the failure of the Federal Government to meet its contractual agreement with NSPM and remove the spent nuclear fuel from the PINGP to either an interim storage facility or a long-term or permanent repository. The commenter also noted that there is no substantive plan by the Federal Government to remove the waste, and the limited 40-year license renewal would not give the Commission a fair and full analysis of the real impacts of continued storage.

Another commenter noted that there is no assurance whatsoever that waste will ever leave Prairie Island or any site (in spite of an updated Waste Confidence Decision and Rule). This commenter also noted that they previously raised the issue of environmental impacts of indefinite onsite storage of spent nuclear fuel during the PINGP Units 1 and 2 license renewal processes. The commenter also states that NRC's response at that time was that onsite storage of spent nuclear fuel was a Category 1 issue that would not be evaluated in the environmental review and that the Waste Confidence Decision and Rule provided reasonable assurance that the waste would not be stored onsite forever. The commenter noted that the Waste Confidence Decision and Rule do not explicitly authorize individual licensing actions, but that they allow for the indefinite onsite storage of spent nuclear fuel.

Response: The NRC acknowledges the commenters' concern that spent nuclear fuel has been stored at the PI ISFSI longer than originally anticipated at the time the ISFSI was constructed. However, the Federal Government's decision regarding a permanent repository for storage of spent nuclear fuel is not within the scope of this EA. The scope of this EA focuses on environmental impacts of the proposed 40 years of continued operation of the PI ISFSI, including alternatives and cumulative impacts.

On September 19, 2014, the NRC published a final rule that revised its generic determination regarding the environmental impacts of the continued storage of spent nuclear fuel (spent fuel) beyond a reactor's licensed life for operation and prior to ultimate disposal (continued storage) (79 FR 56238*). The rule codifies the NRC's generic determinations in NUREG–2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel" (NRC, 2014a), regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license (i.e., those impacts that could occur as a result of the storage of*

spent nuclear fuel at at-reactor or away-from-reactor sites after a reactor's licensed life for operation and until a permanent repository becomes available). In the NRC Memorandum and Order CLI–14–08 (NRC, 2014a) the Commission held that the revised 10 CFR 51.23 and associated NUREG–2157 cure the deficiencies identified by the Court in New York v. NRC, 681 F.3d 471 *(D.C. Cir. 2012) and stated that the rule satisfies the NRC's NEPA obligations with respect to continued storage. The revised rule requires that EAs prepared for future reactor and spent fuel storage facility licensing actions consider the environmental impacts of continued storage, if the impacts of continued storage of spent fuel are relevant to the proposed action. Section 4.15 of this EA provides the NRC staff's consideration of the generic environmental impacts of NUREG–2157 for the proposed renewal of the Prairie Island ISFSI specific license. It should be noted that the revised rule does not authorize the storage of spent nuclear fuel at any site. The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.*

Comment: 3-12
One commenter suggests this EA is flawed because it references the draft Waste Confidence Generic Environmental Impact Statement (GEIS) (NRC, 2013a), which has not been finalized. The commenter also states the draft waste confidence GEIS is ignored in the EA, and that the EA should be put on hold until the waste confidence GEIS is finalized.

Response: The draft EA referenced the draft GEIS for continued storage of spent nuclear fuel (NRC, 2013a) only to explain the relationship between the environmental review of the proposed PI ISFSI renewal and the GEIS effort, and to provide the status of the GEIS effort at the time of publication of the draft EA. On September 19, 2014, however, the NRC published a revised rule at 10 CFR 51.23, "Environmental Impacts of Continued Storage of Spent Nuclear Fuel Beyond the Licensed Life for Operations of a Reactor" (79 FR 56238), that codified the generic impact determinations in the final GEIS for continued storage of spent nuclear fuel (published as NUREG–2157). This rule was formerly known as the Waste Confidence Decision and Rule. In accordance with the rule, the NRC considered and documented in this final EA the generic environmental impacts of the final GEIS for continued storage of spent nuclear fuel (see Section 4.15 of this final EA).

In addition, as directed by the Commission in CLI–12–16 (NRC, 2012a), NRC would not issue a renewed license for the PI ISFSI before the NRC completed its evaluation of the environmental impacts of continued storage and revised the corresponding regulation at 10 CFR 51.23, "Environmental Impacts of Continued Storage of Spent Nuclear Fuel Beyond the Licensed Life for Operations of a Reactor." In CLI–14–08, however, the Commission held that the revised 10 CFR 51.23 and associated GEIS (NUREG–2157) absolve the deficiencies identified by the court in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012) and stated that the rule satisfies the NRC's NEPA obligations with respect to continued storage. In addition, in CLI–14–08, the Commission lifted the suspension on final licensing decisions imposed in CLI–12–16, in view of the issuance of a revised rule codifying the NRC's generic determinations regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's licensed operating life.

The NRC staff did not revise the EA in response to this comment.

Comment: 3-13
One commenter stated that the EA lacks a comprehensive analysis because the EA relies on outdated reports that may have been developed relying on the old Waste Confidence Decision and Rule, additionally stating that these reports must be viewed in light of the no-build scenario

(i.e., no permanent offsite repository) and, therefore, NRC staff should consider that the fuel may be permanently stored at the PI ISFSI.

Response: The EA evaluates the environmental impacts of the proposed action and reasonable alternatives using currently available and up-to-date information. EA Sections 1.7 and 8.0 reference documents the NRC staff reviewed and considered in the development of the EA. On *September 19, 2014, the NRC published a final rule that revised its generic determination regarding the environmental impacts of the continued storage of spent nuclear fuel (spent fuel) beyond a reactor's licensed life for operation and prior to ultimate disposal (continued storage) (79 FR 56283), including indefinite storage if a repository does not become available (i.e., no-build scenario). The rule codifies the NRC's generic determinations in NUREG–2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel" (NRC, 2014b), regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license (i.e., those impacts that could occur as a result of the storage of spent nuclear fuel at at-reactor or away-from-reactor sites after a reactor's licensed life for operation and until a permanent repository becomes available). In CLI–14–08 the Commission held that the revised 10 CFR 51.23 and associated NUREG–2157 cure the deficiencies identified by the court in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012) and stated that the rule satisfies the NRC's NEPA obligations with respect to continued storage. The revised rule requires that EAs prepared for future reactor and spent fuel storage facility licensing actions consider the environmental impacts of continued storage, if the impacts of continued storage of spent fuel are relevant to the proposed action. Section 4.15 of this EA provides the NRC staff's consideration of the generic environmental impacts of NUREG–2157 for the proposed renewal of the PI ISFSI specific license. The NRC staff did not revise the EA in response to this comment.*

Comment: 3-33
One commenter provided a copy of the City of Red Wing's comments (19 pages) submitted to NRC during the public comment period for the Waste Confidence Decision and Rule. The NRC prepared a draft GEIS (NRC, 2013a) that addresses the environmental impacts of continued storage and provides a regulatory basis for this rule. The commenter provided specific comments on the draft waste confidence GEIS and provided comments on the following topics: (i) the waste confidence rule should start after spent fuel is placed in dry storage, (ii) an analysis of mitigation through emergency preparedness and/or emergency response must be included, (iii) the draft GEIS provides an incomplete analysis on the impact of taxes from continued storage, (iv) the draft GEIS lacks any reference to manufacturers' requirements for the storage systems, and (v) the assumption of institutional control needs to be removed.

Response: The scope of this EA focuses on potential environmental impacts of the proposed 40 years of continued operations of the PI ISFSI, including alternatives and cumulative impacts. NRC staff addressed comments on the draft waste confidence GEIS in a separate document (NRC, 2014b). The NRC staff did not revise the EA in response to this comment, because the comments on the GEIS are not within the scope of this EA.

Comment: 4-14
The commenter states the PIIC's understanding that some waste-confidence-related (now continued storage), site-specific issues will be evaluated during subsequent license renewals for ISFSIs (i.e., 40-year renewal terms). The commenter also states that because each license term is limited to a 40-year interval, site specific, long-term environmental consequences of the indefinite storage of spent nuclear fuel, especially of high burn up fuel, on Prairie Island will never be truly evaluated and understood.

Response: The NRC recognizes the commenter's concerns with respect to long-term impacts due to indefinite storage of spent fuel. On September 19, 2014, the NRC published a revised rule at 10 CFR 51.23, Environmental Impacts of Continued Storage of Spent Nuclear Fuel Beyond the Licensed Life for Operations of a Reactor" (79 FR 56238). The rule codifies the NRC's generic determinations in NUREG–2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel" (NRC, 2014b), regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license (i.e., those impacts that could occur as a result of the storage of spent nuclear fuel at at-reactor or away-from-reactor sites after a reactor's licensed life for operation and until a permanent repository becomes available). In CLI–14–08 the Commission held that the revised 10 CFR 51.23 and associated NUREG–2157 cure the deficiencies identified by the Court in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012) and stated that the rule satisfies the NRC's NEPA obligations with respect to continued storage. The NRC staff's evaluation of the potential environmental impacts of continued storage of spent fuel presented in NUREG–2157 identifies an impact level, or a range of impacts, for each resource area for a range of site conditions and timeframes. The timeframes analyzed in NUREG–2157 include the short-term timeframe (60 years beyond the licensed life of a reactor), the long-term timeframe (an additional 100 years after the short-term timeframe), and an indefinite timeframe. The analysis in NUREG–2157 concludes that the potential impacts of spent fuel storage at the reactor site in both a spent fuel pool and in an at-reactor ISFSI would be SMALL during the short-term timeframe. However, for the longer timeframes for at-reactor storage, including the indefinite timeframe, NUREG–2157 has determined a range of potential impacts that is greater than SMALL in some resource areas. This range reflects uncertainties that are inherent in analyzing environmental impacts to some resource areas over long timeframes. Those uncertainties exist regardless of whether the impacts are analyzed generically or site specifically. In addition, NUREG–2157, Appendix B provides an assessment of the technical feasibility of a deep geologic repository and continued safe storage of spent fuel. That assessment concluded that a deep geologic repository is technically feasible and that a reasonable timeframe for its development is approximately 25 to 35 years. NUREG–2157 states that disposal of the spent fuel by the end of the short-term timeframe is the most likely outcome. NUREG–2157, Section D.2.38.19 provides additional information regarding the analysis in the GEIS of various fuel types, and NUREG–2157, Appendix I provides additional information about high burnup fuel, including how it is transported. The NRC staff did not revise the EA in response to this comment.

B.5.4 Purpose and Need

Comment: 4-2

One commenter disagrees with the EA purpose and need statement. In particular, the commenter disagrees that the true purpose and need is to provide an "option" for temporary continued storage of spent nuclear fuel because the Yucca Mountain national repository has been abandoned and there seems to be no action on siting and developing a different repository location. In addition, the commenter noted that the draft EA needs to address the long and complicated history of our nation's failed nuclear waste policy, the Federal Government's ongoing violation of the Nuclear Waste Policy Act (NWPA), and the possibility that this relicensing action will result in larger quantities of spent nuclear fuel being left stranded indefinitely on Prairie Island.

Response: The NRC's federal action is the decision whether or not to renew the ISFSI license of PINGP for an additional 40 years. The scope of the EA, thus, considers the environmental impacts of the continued storage of the PINGP spent fuel at the PI ISFSI for an additional

40 years, as well as alternatives and cumulative impacts. As discussed in Section 1.3 of the EA, NSPM submitted an application for renewal of its PINGP site-specific ISFSI for an additional 40 years. In its license application, NSPM indicated that there would be no changes in routine operations. In addition, NSPM is not requesting any new construction or land disturbance as part of this license renewal application. Therefore, if approved, NSPM would be able to continue to possess and store PINGP spent fuel within the currently authorized number of casks (i.e., 48 casks) at the PI ISFSI for an additional 40 years. Approval of this licensing action would not result in larger quantities of spent nuclear fuel stored at the PI ISFSI beyond the amount that is currently authorized to be stored at the ISFSI. As discussed in EA Section 4.14, NSPM would need to submit a license application for NRC staff review to amend the current license if it decides to expand the current capacity of the PI ISFSI. The NRC staff, however, did consider a potential expansion of the ISFSI's capacity in the cumulative impacts analysis (see EA Section 4.14). The comments regarding the national repository program, Yucca Mountain, and the NWPA are outside the scope of this EA

The NRC staff revised the EA in Section 1.2 to clarify the purpose and need and to eliminate any confusion.

B.5.5 Alternatives

Comment: 4-7
One commenter would like to see the alternatives analysis expanded to provide a more informed comparison among the alternatives.

Response: The NRC acknowledges the commenter's concern with respect to the alternatives discussion in the EA. NUREG–1748 (NRC, 2003, p. 3–8) notes that "… alternatives should be considered in the EA if (i) there is some identifiable environmental impact from the proposed action and (ii) the objective of the proposed action can be achieved in one of two or more ways that will have differing impacts." The NRC staff found that the potential environmental impacts from the proposed action are not significant. The staff considered the no-action alternative as well as other alternatives (see EA Section 2.0). The NRC staff determined that the EA alternatives analysis is appropriate and, thus, no changes to the EA are necessary in response to this comment.

Comment: 4-8
One commenter sees no difference between the no-action alternative and the proposed action because spent fuel would still be stored at the PI ISFSI. The commenter suggests expanding the no-action alternative to include NSPM's option to use its general license under 10 CFR Part 72 if NRC does not grant this license application request for continued storage at the PI ISFSI for an additional 40 years.

Response: The NRC staff recognizes the commenter's views regarding the no-action alternative and the proposed action. The purpose and need for the proposed action (issuance of a renewed license) are to provide additional nuclear spent fuel storage capacity, up to 48 casks, so that the PINGP Units 1 and 2 can continue to operate. The no-action alternative would consist of denial of NSPM's request to renew the PI ISFSI license; thus, NSPM would not be able to place additional casks on the ISFSI storage pad.

With respect to the no-action alternative, 10 CFR 72.54 provides the regulatory framework for the expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas. In accordance with 10 CFR 72.54(c), "Each specific license continues in

effect, beyond the expiration date if necessary, with respect to possession of the licensed material until the Commission notifies the licensee in writing that the license is terminated …" 10 CFR 72.54(c) proceeds to identify the actions that the licensee must take. The no-action alternative, thus, follows this regulatory framework. Therefore, the NRC staff identified the potential environmental impacts of the no-action alternative, which would include those associated with continued storage of the amount of spent fuel currently stored at the PI ISFSI as well as the resulting consequences, including shutdown and decommissioning of the PINGP and associated environmental consequences. Environmental impacts associated with the transfer of spent fuel from the spent fuel pool to the ISFSI would not occur, because NSPM would not be able to place additional casks on the ISFSI storage pad.

The NRC staff discussed (i) what occurs if NSPM decided not to pursue other storage alternatives and (ii) storage alternatives that NSPM could pursue. One of these alternatives is the general license option (see EA Section 2.1.2). The discussion of the general license alternative identifies the potential environmental impacts of construction and operation of a general license ISFSI.

The NRC staff determined that the EA addresses the general license option and the no-action alternatives analysis, and thus, NRC staff did not revise the EA in response to this comment.

Comment: 4-9
One commenter encouraged NRC staff to consider shipment of spent fuel to an offsite facility as an alternative, potentially to the Private Fuel Storage (PFS) facility in Skull Valley, Utah.

Response: With respect to the shipment of the spent fuel to an offsite facility, the NRC staff considered the proposed PFS as part of this alternative. In 2001, the NRC granted a license to PFS to construct and operate an away-from-reactor ISFSI in Skull Valley, Utah. The proposed facility was intended for temporary storage of up to 40,000 metric tons of uranium (MTU) of spent fuel from U.S. commercial nuclear power plants. The NRC's environmental review of the proposed storage facility is documented in NUREG–1714 (NRC, 2001). By letter dated December 20, 2012, PFS requested that the NRC terminate License No. SNM–2513, and the proposed PFS ISFSI has not been constructed. Therefore, the NRC did not consider this proposed facility as a credible alternative given that the status of the proposed facility does not meet the purpose and need of the proposed action. The NRC staff did not revise the EA in response to this comment, because the commenter's suggestion is not an available option and does not meet the purpose and need of the proposed action.

Comment: 4-10
One commenter stated that the alternatives analysis should also include a discussion of the transportation of spent nuclear fuel, especially high burnup fuel.

Response: If approved, the proposed action would allow continued temporary dry storage of the PINGP spent nuclear fuel at the PI ISFSI, including storage of high burnup fuel. At this time, transportation of high burnup fuel stored at the PI ISFSI, including shipment of the spent fuel to an offsite location, is not a reasonable alternative to the proposed action, because an offsite location is not reasonably available (see Comment 4-9). Therefore, the NRC staff did not consider impacts from transportation of the spent fuel to an offsite location in the alternatives analysis for this EA and did not revise the EA in response to this comment.

Nonetheless, as discussed in NUREG–2157, the NRC is aware that high burnup fuel may be "subject to increased degradation of the spent fuel and cladding that could cause further

problems with handling, storing, and transporting spent fuel" (NRC, 2014b). As discussed in NUREG–2157 (NRC, 2014b), the NRC staff continue to conduct research into the extended storage of spent fuel. In May 2014, the NRC published "Identification and Prioritization of the Technical Information Needs Affecting Potential Regulation of Extended Storage and Transportation of Spent Nuclear Fuel" (NRC, 2014c). This report considered high burnup uranium oxide fuel.

B.5.6 Trust Responsibility

Comment: 4-3
The commenter notes that the NRC discharges its obligations under the trust responsibility by complying with regulations and statutes designed to protect the public. The commenter asserts that NRC cannot comply with its trust responsibility, because NRC is in violation of the NWPA and that this must be discussed in the EA.

Response: As noted in EA Section 1.5, an independent regulatory agency, such as NRC, discharges its obligations under the trust responsibility by complying with regulations and statutes—in this case, the Atomic Energy Act (AEA), NEPA, and the National Historic Preservation Act (NHPA) of 1966, as amended, and by implementing any fiduciary responsibility through assuring that tribal members receive protections from NRC's implementing regulations. The action being considered is the proposed renewal of the PI ISFSI license for an additional 40 years. If approved, NSPM would be able to continue to possess and store PINGP spent fuel at the PI ISFSI in accordance with the requirements in 10 CFR Part 72 and its license. Disposal of high-level waste in a geologic repository mandated in the NWPA is outside the scope of this license renewal environmental review. Thus, the commenter's assertion regarding the NWPA is outside the scope of this EA because permanent spent fuel storage at a repository is not in scope of this EA. The NRC staff finds that the agency has met its trust responsibility obligations specific to this proposed action by complying with the applicable laws and statutes; however, in response to this comment, the NRC staff revised Section 1.5 of the EA to further clarify the agency's trust responsibility.

Comment: 4-4
The commenter states that federal agencies must exercise a higher responsibility when taking actions that affect Indian tribes than it should for the general public in order to fulfill that agency's trust responsibility. The commenter uses the example of the proposed PFS facility on Indian reservation lands and the decision made by the Bureau of Indian Affairs (BIA). Specifically, the commenter noted the BIA's fiduciary duty with respect to the reservation lands and determination that "it is not consistent with the conduct expected of a prudent trustee to approve a proposed lease that promotes storing (spent nuclear fuel) on the reservation." The commenter also noted that in that case, the BIA considered that even though the proposed PFS facility was licensed for a 25-year term, the waste may reside at the facility for a longer period of time because of the delay in a permanent repository. The commenter suggests that the NRC should consider similar factors for this EA.

Response: Regarding the consideration of the BIA's record of decision about the proposed construction of an interim storage facility for spent nuclear fuel generated at commercial nuclear power reactors, the Federal Government has a trust responsibility, which establishes fiduciary obligations to the tribes. As discussed in Section 1.5 of this EA, the NRC, as an independent regulatory agency, exercises its fiduciary duty in the context of its authorizing statutes (in this case, the AEA, NEPA, and the NHPA of 1966, as amended) and implements any fiduciary responsibility through assuring that tribal members receive the same protections from NRC's

implementing regulations that are available to other persons. BIA's fiduciary duty is based on its role as manager of all Indian affairs and all matters arising out of Indian affairs. Lacking such managerial and supervisory role and authority, the NRC discharges its obligations under the trust responsibility by complying with its authorizing statutes. The NRC staff determined that it has complied with its authorizing statutes in the development of this EA; however, in response to this comment, the NRC staff revised Section 1.5 of the EA to further clarify the agency's trust responsibility.

B.5.7 Scope of Environmental Analysis

Comment: 3-6
The commenter states that the draft EA is not complete and therefore the analysis is deficient. The commenter states that he will provide examples of missing information and will also provide his review of assumptions made by the Commission in the draft EA. In addition, the commenter states that the proposed action has significant environmental impacts.

Response: NRC staff understands that the commenter intends to provide other general comments and a discussion on how the draft EA could or should be supplemented. This comment itself does not provide new information. However, NRC staff did review additional documents as discussed under Comment 3-9. Due to the general nature of the comment, and because examples of missing information or other considerations for review are not provided, the NRC staff did not revise the EA in response to this comment.

Comment: 3-17
The commenter states that the best approach is to relicense the PI ISFSI for up to an additional 20 years, not 40 years, which would coincide with the license term limit of PINGP Units 1 and 2. The commenter believes that by coordinating the expiration for both the PINGP and PI ISFSI licenses, the NRC staff would be able to fully examine the impacts of the closure of the PINGP and the true costs and requirements of continued storage at the ISFSI.

Response: As explained in EA Section 2.1.3., the NRC staff did consider the continued operation of the PI ISFSI for an additional 20 years to understand whether the environmental impacts of continued operations for an additional 20 years would differ from those of continued operation for an additional 40 years (proposed action). The staff determined that the potential radiological impacts to public and occupational health may differ between the 20- and 40-year terms of continued operation and, thus, discussed the potential impacts in EA Sections 4.11.2.1 and 4.11.2.2. The NRC staff did not address the 20-year alternative for the other resource areas, the site operations, and the types of potential environmental impacts, because the NRC staff determined that they would be the same as those activities for the proposed action (i.e., the 40-year license renewal).

For all environmental resource areas, the NRC staff concluded that the impacts from the proposed action (an additional 40 years of operation) would not be significant. In addition, the NRC staff concluded that there would be no disproportionately high and adverse impacts to minority or low-income populations and that federally listed threatened and endangered species would not be affected by the continued operation of the PI ISFSI during the proposed license renewal period. The NRC staff determined that the EA adequately addresses continued operation of the PI ISFSI for an additional 20 years and, thus, the NRC staff did not revise the EA in response to this comment.

Comment: 3-19
The commenter states that the definition of the affected environment is too narrow because it does not take into account the future growth of the City of Red Wing during the proposed license period.

Response: The NRC acknowledges the commenter's concern regarding the City of Red Wing's future growth. NUREG–1748, (NRC, 2003, Section 3.4.5, "Affected Environment") states, "Environmental conditions currently existing in the area that could be impacted by the proposed action should be described in this section." EA Section 3.4.5 also refers to NUREG–1748, Section 5.3 for additional guidance. NUREG–1748, Section 5.3 states, "The description of the affected environment focuses on baseline conditions (i.e., status quo)." The NRC staff discusses the projected population growth data available at that time for the three counties within the region of influence (ROI) for the proposed action. Projected information from 2010 to 2040 is included in EA Section 3.3. On February 5, 2014, the NRC staff contacted the Minnesota State Demographic Center and Wisconsin Department of Administration to understand whether additional population data was available. At that time, no other projected population data for years beyond 2040 was available for the three counties or for the City of Red Wing (Minnesota State Demographic Center, 2014a; Wisconsin Department of Administration, 2014).

In March 2014, the Minnesota State Demographic Center issued updated Minnesota county-level population projections from 2015 and 2045 (Minnesota State Demographic Center, 2014b). This new information reflects similar population growth estimates for Goodhue and Dakota compared to the estimates provided in the draft EA. Although the NRC staff determined that this information does not change the NRC staff's conclusion, the NRC staff revised EA Table 3-21 in response to this comment to reflect the most current information.

In addition, the NRC staff found new information for the population growth of the City of Red Wing between 2000 and 2010 that was not included in the draft EA. According to the United States Census Bureau, the city population grew 2.13 percent between the years 2000 and 2010 (Census Viewer, 2014). The NRC staff determined that this information does not change the NRC staff's conclusion. Nonetheless, the NRC staff revised EA Section 3.3 in response to this comment to reflect the city's projected population growth.

Comment: 3-7
The commenter states that the EA relies upon and references the experience associated with dry cask storage, and this experience should be discounted. The commenter states that the EA cannot rely on experience associated with dry cask storage, because the industry and the NRC are learning about dry cask storage in real time. The commenter explains that when the PINGP was built, there was no consideration given to dry cask storage or that the spent fuel would still be onsite in 2013 (25 years after it was to be removed and 40 years after the operations started); rather, there was a belief that there would be, this time, not only the development of a permanent repository but the removal of the spent fuel from the PINGP. The commenter further states that, when it became apparent that spent fuel was not going to be removed, there were accommodations made to increase the storage of the spent fuel pool and, in the early 1990s, the licensee was forced to move to dry cask storage. The commenter states that temporary dry cask storage will not be limited to 40 years, but is, rather, permanent, because there is no plan for a national repository. The commenter states that the unintended practice of continued dry cask storage cannot be considered as experience the EA can rely on. The commenter further states that this experience would lead to the opposite conclusion (i.e., storage will not be limited

to 40 years or any other timeframe; rather, it is permanent). The commenter notes that this is supported by the federal courts.

Response: The NRC acknowledges the commenter's concern that spent nuclear fuel has been stored at the PI ISFSI longer than originally anticipated at the time the ISFSI was constructed. The scope of this EA focuses on the proposed 40 years of continued operation of the PI ISFSI.

NRC regulations for dry cask storage ensure the protection of public health and safety and the environment. The NRC staff thoroughly review each dry cask storage design before it is licensed for use for resistance to accident conditions such as floods, earthquakes, tornado missiles, and temperature extremes. In addition, the NRC staff review the storage of spent nuclear fuel at an ISFSI. When approved, the NRC staff periodically inspect the design, manufacturing, and use of dry casks. These inspections ensure licensees and vendors are following safety and security requirements and meeting the terms of their licenses and quality assurance programs. NRC inspectors also observe practice runs before utilities begin moving their spent fuel into dry casks (NRC, 2014b).

In 2011, the NRC staff amended the regulations in 10 CFR Part 72 to require that applicants for storage-cask-specific licenses and certificates of compliance renewals describe a program, in their applications, for the management of issues associated with aging that could adversely affect structures, systems, and components (SSCs) (76 FR 8872). As discussed in the EA, the NRC staff is also conducting a safety analysis that will be documented in a separate safety evaluation report (SER). The scope of the safety analysis includes, but is not limited to, accidents analysis, aging management, and programs intended to protect the health and safety of workers and the public and protect the environment.

The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.

B.5.8 Assessment of Environmental Impacts

Comment: 3-4
The commenter does not believe that a FONSI is warranted or can be supported, because the EA fails to take into account crucial material information including immediate and cumulative impacts of continued storage using studies that do not consider that the fuel will never leave the ISFSI.

Response: This comment summarizes the commenter's opinion, but does not provide new or significantly different information that changes NRC staff's conclusion. NRC staff determined that a FONSI can be supported; thus, the NRC staff did not revise the EA in response to this comment.

Comments: 3-8 and 3-11
The commenter states that because the NRC staff references the robustness of the dry casks used at the PI ISFSI in EA Section 3.11, the EA should include discussion of the manufacturer's statement, limitations, and information about the casks. The commenter suggests that the EA should review the characteristics and qualities of the Transnuclear-40HT (TN–40HT) casks in light of the cask manufacturer warranties and the anticipated storage life of the cask. The commenter also suggests including a reference to the draft waste confidence GEIS and its storage timelines.

Response: The casks used at the PI ISFSI have been thoroughly evaluated by the NRC staff document in previous SERs. The NRC staff reviewed and approved the storage of PINGP spent fuel using the Transnuclear-40 (TN–40) cask design at the PI ISFSI in 1993. This review included a safety analysis documented in the staff's SER and an EA documented in the NRC staff's EA (NRC, 1993). In 2010, the NRC staff amended the PI ISFSI license, at the request of the licensee, to allow NSPM to use a modified storage cask design, the TN–40HT, to accommodate the dry storage of fuel with higher enrichment and high burnup fuel. The NRC staff's SERs include evaluation of cask design, materials, degradation, and other properties required under 10 CFR Parts 20 and 72. For the 2010 license amendment, the NRC staff also conducted an EA documented in the staff's EA (NRC, 2009).

The scope of this PI ISFSI license renewal EA is the evaluation of environmental impacts from continued storage of the spent fuel in the ISFSI for an additional 40 years. The NRC staff also conducted a safety analysis in support of this license amendment request. NRC staff's SER will determine whether both the TN–40 and TN–40HT casks meet the regulatory requirements and technical specifications to protect public health and safety for the duration of the license renewal request. As part of the safety review, the NRC staff is evaluating NSPM's aging management program (AMP). The AMP addresses the management of issues associated with aging that could adversely affect SSCs. For example, degradation of the SSCs at an ISFSI, such as degradation due to corrosion and radiation, are time-dependent mechanisms. AMP requirements will ensure that SSCs will perform as designers intended during the renewal period (76 FR 8872). NRC's SERs include evaluation of cask design, materials, degradation, and other properties required under 10 CFR Parts 20 and 72. The development of this EA was closely coordinated with the safety analysis conducted in support of this license renewal request. It should be noted that as discussed in NUREG–2175 (NRC, 2014a), NRC does not believe that consideration of manufacturers' analyses or warranties would add further significant information beyond what has already been considered for estimating the behavior and longevity of dry cask storage systems.

The commenter did not provide new information regarding the safety of the dry casks used at the PI ISFSI. The NRC staff determined that the EA incorporates by reference relevant cask safety reviews, and thus the NRC staff did not revise the EA in response to this comment.

Comment: 3-9

The commenter states that the EA ignores information associated with the components of the equipment being used at the PI ISFSI—specifically the concrete and iron used in the TN–40 and TN–40HT dry casks. The commenter states that there is no analysis on dry cask degradation or maintenance. The commenter states that such an analysis is important because the Yucca Mountain environmental impact statement (EIS) relies on a concrete study conducted in St. Cloud, Minnesota. In addition, a draft EIS prepared by the Minnesota Public Utilities Commission (MPUC) for the establishment of an ISFSI at the Monticello Plant indicates a 60-year design life of the proposed storage system (MPUC, 2005); however, the final MPUC EIS for the Monticello ISFSI did not reference this 60-year design life. Also, the proposed storage system discussed in the draft MPUC EIS for Monticello's ISFSI was not the same storage system used at the PI ISFSI, and this raises questions with the commenter as to why Xcel used two different storage systems. The commenter provided copies of referred to documents.

Response: NRC staff acknowledge that previous studies have analyzed spent fuel storage and are referenced in the Yucca Mountain EIS prepared by the U.S. Department of Energy (DOE, 2002, Appendix K). Poe and Wise (1998) analyzed weather conditions affecting spent fuel, and

Poe (1998) analyzed data for the regional storage of spent fuel. These documents were provided to the PI ISFSI safety team for review.

The Yucca Mountain EIS evaluates the environmental impacts of the proposed geologic repository for the disposal of spent nuclear fuel and high-level radioactive waste in Nevada. Although these two NEPA reviews are related to storage of spent fuel in dry casks, the purpose and need, timeframes, and assumptions used to evaluate the environmental impacts are very different. Thus, inclusion of a study referenced in the Yucca Mountain EIS does not warrant inclusion in this EA.

As stated previously in the response to Comment 3-7, NRC amended the regulations in 10 CFR Part 72 in 2011. The amendment required applications for storage-cask-specific licenses and certificate of compliance renewals to provide a management program description for issues associated with aging that could adversely affect SSCs (76 FR 8872). Aging management addresses cask components such as concrete and iron. As discussed in the EA, the NRC staff are also conducting a safety analysis that will be documented in a separate SER. The scope of the safety analysis includes, but is not limited to, accidents analysis, aging management, and programs to protect the health and safety of workers and the public and protect the environment.

Regarding the two different storage systems used at the Monticello and the PI ISFSIs, it should first be noted that the PI ISFSI is under a 10 CFR Part 72 specific license, and the Monticello ISFSI is under a 10 CFR Part 72 general license. Spent fuel storage casks that are approved for use under a general NRC license are listed in 10 CFR 72.214. The TN–40 and TN–40 HT casks used at the PI ISFSI are not listed under 10 CFR 72.214. The choice for Xcel to apply for a 10 CFR Part 72 specific or general license is a business decision that does not involve NRC staff. NRC approves all spent fuel dry storage systems, regardless of license type, by evaluating each design for resistance to accident conditions such as floods, earthquakes, tornado missiles, and temperature extremes. Regarding the revision that was made to the MPUC EIS for the Monticello ISFSI after the draft EIS was published, the final MPUC EIS for the Monticello ISFSI (MPUC, 2009b, p. 73) explains why MPUC (2005, p. 37) was revised.

The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.

Comment: 3-10
The commenter states that the NRC staff has insufficient experience with the TN–40HT dry casks to rely on assumptions of experience and robustness for storage of higher initial enrichment and high burnup fuel at the PI ISFSI. The commenter notes that the TN–40HT dry casks were first manufactured in 2009.

Response: The scope of this PI ISFSI EA is the evaluation of environmental impacts from continued storage of the spent fuel in the ISFSI for an additional 40 years. As explained in the response to Comment 3-11, the NRC staff incorporates relevant NRC safety documents by reference in the EA. In 2010, at the request of the licensee, the NRC staff amended the PI ISFSI license to allow NSPM to use the TN–40HT cask. This modified storage cask is designed to accommodate the dry storage of fuel with higher enrichment and high burnup. The NRC staff conducted a safety analysis and an EA in support of this license amendment request. The development of this EA was closely coordinated with the safety analysis conducted in support of this license renewal request. The NRC staff considers both the environmental and safety reviews before making licensing decisions.

The NRC staff determined that the EA incorporates by reference relevant cask safety reviews. Thus, the NRC staff did not revise the EA in response to this comment.

Comment: 3-18
The commenter notes that spent fuel assemblies will still be stored in the PINGP spent fuel pool when the PINGP ceases operations, and that this continued storage will continue to impact the City of Red Wing. The commenter states that neither the storage of spent fuel in the PINGP spent fuel pool nor the closure of the PINGP were addressed in the EA.

Response: NRC staff recognizes the commenter's concern regarding storage of spent fuel in the PINGP spent fuel pool after PINGP operations cease. The potential environmental impacts from storing spent fuel in the PINGP spent fuel pool are addressed in the reactor relicensing rather than the ISFSI relicensing [see NRC, 2011, PINGP license renewal supplemental EIS (SEIS)]. The PI ISFSI would need to be expanded in order to store all of the PINGP spent fuel generated through the end of the current operating licenses for Units 1 and 2. NRC staff evaluated the potential impacts from ISFSI expansion to accommodate the spent fuel generated through the life of PINGP Units 1 and 2 as part of the cumulative impact analysis in EA Section 4.14. As explained in the EA alternatives analysis (see EA Section 2.1.1), the NRC staff addressed the impacts that arise directly as a result of the PINGP Units 1 and 2 shutdown as part of the no-action alternative.

The NRC staff determined that the EA appropriately incorporates analysis of spent fuel pool storage when the PINGP ceases operations by referencing the PINGP license renewal SEIS and impacts that arise directly as a result of the PINGP Units 1 and 2 shutdown. Thus, the NRC staff did not revise the EA in response to this comment.

Comment: 4-19
The commenter references the discussion in EA Section 4.11.3 under "Loss of Confinement Barrier" as being overly confident in light of the rapid advances in weaponry available throughout the world today, including the enemy's demonstrated ability to modify weapons to penetrate armored military vehicles. The commenter asks how NRC can claim that the PI ISFSI is inherently safe in light of today's modern weaponries.

Response: NRC recognizes the commenter's concern regarding safety. "Inherent safety" is a common engineering term based on the principle that protective systems have been put in place that reduce, but not eliminate all, safety risks. This should not be confused with the interpretation of "inherent" meaning something is permanent or inseparable. The NRC staff recognizes this terminology may create confusion for individuals who are not familiar with this usage. The NRC staff revised EA Section 4.11.3 so that there is no confusion regarding this terminology.

Comment: 4-21
The commenter takes issue with the NRC staff conclusion that potential impacts resulting from accidents discussed in EA Section 4.11.3 would be small. The commenter states that an act of terrorism targeting the PI ISFSI would be devastating to the PIIC whether or not an attempt is successful. The commenter states that the EA must include an analysis of potential impacts from terrorism similar to the NEPA reviews for facilities located within the Ninth Circuit Federal Circuit Court of Appeals for the Ninth Circuit. The commenter states that a terrorism analysis is necessary to demonstrate NRC's trust responsibility to the PIIC.

Response: The NRC staff recognizes the commenter's concerns regarding terrorist attacks, attempted or successful, targeting the PI ISFSI. The NRC staff's strategy for protecting public health and safety, common defense and security, and the environment focuses on ensuring that its requirements, in combination with the design features of storage casks, are effective in protecting against the potential effects of terrorist attacks on ISFSIs. NRC regulations require evaluation of potential radiological impacts resulting from a suite of postulated accidents. The applicant has demonstrated that for both the TN–40 and TN–40HT casks, either dose consequences are not expected or the accident dose rates for the accident scenarios are below the 10 CFR 72.106 regulatory limits. The NRC staff conducted safety analyses for both TN–40 and TN–40HT casks documented in the staff's SERs (NRC, 2010, 1993) and determined that the applicant has adequately demonstrated that both cask systems are designed to meet the criteria of 10 CFR 72.106. Therefore, potential radiological impacts resulting from postulated accidents are considered to be not significant.

The NRC considered the potential impacts of terrorist acts in the development and implementation of its 10 CFR Part 73 security requirements (72 FR 12705). The Commission has issued orders to all licensees of operating ISFSIs to implement additional security enhancements identified in the NRC staff's ongoing comprehensive review of its safeguards and security programs and requirements. The details of specific security measures for each facility are designated as safeguards information, in accordance with the Atomic Energy Act, Section 147 and 10 CFR 73.21, and, for that reason, cannot be released to the public. For facilities located in the Ninth Circuit, the NRC does perform a NEPA terrorism review (see response to Comment 3-17 for further explanation), although these reviews do not include an assessment of the psychological effects. The NRC staff determined that the PINGP and the PI ISFSI are not located in the Ninth Circuit, and thus the NRC staff will not perform a NEPA terrorism review for the PI ISFSI. Therefore, the NRC staff did not revise the EA in response to this comment.

B.5.9 Environmental Resource Areas

B.5.9.1 Land Use

Comment: 3-25
The commenter states that the analysis of land use in the EA must be expanded to include a discussion of potential land use impacts beyond the PINGP and PI ISFSI footprints and the future development of the City of Red Wing during the next 40 years. The commenter notes that the city's natural growth pattern is to the northwest between the river and Highway 61 and that, while such growth has occurred along Highway 61, the city suggests that the area between Highway 61 and the river be made available for use by new business. The commenter concludes that the land where the PINGP and the PI ISFSI are located prohibits such development and growth. The commenter states that the views of the city regarding land use, including the chilling effect of the PI ISFSI, should be included in the EA similar to the discussion regarding PIIC's land use concerns in EA Section 4.1.

Response: The NRC staff recognizes the commenter's concern regarding land use impacts with respect to the City of Red Wing because the PI ISFSI is located within the city boundaries. The EA considers the land uses for the site and its vicinity. As noted in Section 3.1 of the EA, nuclear power plant sites are zoned for industrial use and the PI ISFSI is located within the PINGP site. In addition, the applicant's proposed license renewal does not request any construction or ground-disturbing activities. Thus, the proposed continued operation and

maintenance of the PI ISFSI would not require the use of any land beyond that which was cleared and graded during facility construction.

As explained in the response to Comment 3-20, the NRC staff considered socioeconomic issues, including economic trends and population growth with the region of influence. In addition, the NRC staff reviewed population projections of the City of Red Wing using the best available data. The NRC staff is not aware of restrictions on the City of Red Wing from developing the roughly 23 km^2 [9 mi^2] of land between Highway 61 and the Mississippi River due to the presence of the commercially owned PINGP and PI ISFSI.

For this license review, the NRC and the PIIC entered into an MOU. EA Section 1.5 explains the MOU between the NRC and the PIIC as a cooperating agency. The MOU defined the roles and responsibilities of both entities and the process they will use when preparing this EA, including the incorporation of PIIC's views in their areas of special expertise. It is under this agreement that the PIIC contributed to the development of this EA. However, participation of the PIIC as a cooperating agency does not expand the scope of the EA land use review. The EA incorporates the PIIC's views as provided by the PIIC, and therefore the PIIC may address topics that are out of scope of the EA. PIIC submissions are indented in the body of the EA to help differentiate the text the PIIC provided from the NRC staff analysis. NRC staff contacted stakeholders prior to the development of the EA, including the City of Red Wing in November 2012 (NRC, 2012b). The City of Red Wing responded to NRC's request for information in March 2013 (EA Table 5-1). The NRC staff determined that they appropriately considered both the PIIC's and the city's input during development of the EA, and thus the NRC staff did not revise the EA in response to this comment.

B.5.9.2 Socioeconomics

Comment: 1-16
The commenter noted that in the Letter of Agreement for Emergency Response Services, the City of Red Wing stated that it is prepared to and will provide emergency response to any such incidents. The commenter noted that it is not aware of any changes to this letter of agreement. The commenter provided a copy of the Letter of Agreement for Emergency Response Services.

Response: The NRC staff revised EA Section 3.3 under Utilities and Services to include the reference for the Letter of Agreement for Emergency Response Services.

Comment: 1-38
The commenter suggests referencing Section 3.3, Demography and Socioeconomics/PIIC Local Finance, in Section 4.3 of the EA.

Response: The NRC staff determined that insertion of a reference to another section of the EA is not necessary and would be inconsistent with the other conclusion statements made in EA Chapter 4. Thus, the NRC staff did not revise the EA in response to this comment.

Comment: 1-39
The commenter notes that the PIIC's input in Section 4.3 of the EA includes statements that "the PIIC receives a very limited financial benefit" from the ISFSI and that the community members "receive virtually no benefit." The commenter notes that EA Section 3.3 discusses a settlement agreement between NSPM and the PIIC that allocates funds to the PIIC.

Response: The NRC staff determined that the comment does not provide new or significant information, but notes information that is provided in the EA. Thus, the NRC staff did not revise the EA in response to this comment.

Comments: 3-2, 3-3, 3-16, 3-21, 3-30, 3-31
The commenter made several comments and states that the City of Red Wing is uniquely situated to provide input on the EA because the city is obligated by state and federal law to maintain sufficient structures, equipment, and personnel to respond to any incident at the PINGP and PI ISFSI. The commenter suggests that the EA should discuss the historic decline of tax revenues to the City of Red Wing from PINGP operations since 1996, changes in state tax laws that have reduced tax revenues from utilities, and impacts from changes in tax revenue when PINGP Units 1 and 2 cease operations. The commenter notes that information regarding historic tax revenues may be available in NSPM's 2008 application for a certificate of need (CON) for the PI dry cask storage facility. The commenter also notes that the CON submitted to the Minnesota Public Utilities Commission may no longer be reliable and both the city and NSPM should provide NRC with updated or revised information.

The commenter explains that because the City of Red Wing has incurred financial stress in order to maintain the necessary equipment and personnel to respond to any incident at the PINGP or PI ISFSI, the city has increased property taxes over 188 percent since 1996. The commenter states that, although the EA recognizes the continued expenses to communities in the radius of influence during PINGP-related actions, the EA does not, and must, provide further analysis of what those continued expenses mean for the city for the next 40 years.

To demonstrate an example of declining tax revenues to the City of Red Wing from PINGP operations, the commenter explains that one reason the property taxes that NSPM pays the City of Red Wing have decreased is because of the PINGP's age and the Minnesota Department of Revenue (DOR) amendments to its rules in 2006 regarding property tax valuations. The commenter also points out that as a result of the Minnesota Department of Revenue amendments, the State of Minnesota enacted a utility valuation transition aid measure to make up for the difference between the amounts that would have been paid under the old DOR rules and the amended rules. This measure, however, expired in 2011. The commenter also references pollution control property tax exemptions that NSPM uses.

The commenter states that, at the time, the PINGP license renewal SEIS socioeconomic analysis considered the planned power uprates for PINGP Units 1 and 2 as a factor that would raise the tax valuation of the PINGP. However, since the time the NRC staff issued the SEIS, Xcel Energy no longer plans on pursuing a power uprate for PINGP Units 1 and 2. The commenter notes that this change of plan affects the City of Red Wing's tax revenues that were considered in the SEIS. Further, the commenter notes that revenues will decrease even more when PINGP Units 1 and 2 cease operations in 2033 and 2034. Because of these factors, the commenter asserts that the EA should be revised to reflect these socioeconomic impacts.

Response: NRC staff reviewed available information, as referenced in the EA, including economic trends, past population growth data of both the City of Red Wing and three counties within the socioeconomic ROI, and the available population projections within the area (see response to Comment 3-19). The NRC staff also reviewed the PINGP license renewal SEIS (NRC, 2011) and NSPM's PI ISFSI license renewal application (NSPM, 2011) to identify additional information regarding tax revenue trends. In the PINGP license renewal SEIS, the NRC staff recognized the downward trend of overall taxes received by the City of Red Wing (NRC, 2011).

Potential socioeconomic impacts from continued PINGP operations, including impacts that arise directly as a result of power plant shutdown, were evaluated in the PINGP license renewal SEIS (NRC, 2011, Section 8.6). The SEIS discusses the potential changes to state tax codes in SEIS Section 2.2.8 and notes, "Historically, annual property taxes have been gradually decreasing due to depreciation and the growth in Minnesota's residential and commercial tax bases. Additionally, state lawmakers have been conducting hearings for a rule change that could affect the way commercial businesses depreciate their facilities. Currently, NSPM is unable to fully depreciate PINGP 1 and 2. Should the rule change, NSPM may be able to increase the depreciation on PINGP 1 and 2 to further reduce the plant's value and tax payments." The NRC's SEIS goes on to discuss the following potential changes to state utility valuations. "The Minnesota DOR is in the process of possibly revising its current utility company valuation rule. According to a fiscal impact study prepared by the DOR and based on the latest draft of the revised rule, the amount of property tax revenue received by the City of Red Wing and Goodhue County would decrease by approximately $1.4 million and $1.2 million annually, respectively. In order to stabilize these communities for their anticipated loss of property tax revenue from NSPM due to a rule change, NSPM executed revenue stabilization agreements with Red Wing and Goodhue County representatives in November 2006." SEIS Section 4.9.4 discusses tax-revenue-related impacts from relicensing the PINGP. NRC concluded that "there would be no significant land use impacts related to tax revenue during the license renewal term beyond what has already been experienced." Any changes in tax revenues following utility deregulation would not occur as a direct result of license renewal (NRC, 2003).

The NRC staff recognizes the commenter's interest in providing the NRC staff with updated information since 2010; however, the information considered during SEIS development includes the downward trend of income to the City of Red Wing due to potential tax code changes. EA Section 4.3 states that no new employment is expected over the life of the proposed action, and no additional burden on the community to provide housing and public services is anticipated. In addition, the EA notes in Section 4.3 that local financial burdens, such as expenses associated with participation in PINGP-related actions, emergency planning, and steps required in the event of an accident [e.g., educating the public on risks and procedures; maintaining special medical supplies (iodine tablets), equipment, and trained professionals], would also not change. Thus, impacts on local finances would continue to impact, in the same manner, all communities within the region of influence.

The NRC staff recognizes the commenter's concern regarding changes in tax revenues related to the PINGP. Potential socioeconomic impacts from continued PINGP operations, including impacts that arise directly as a result of refurbishment and power plant shutdown, were evaluated in the PINGP license renewal SEIS (NRC, 2011, Sections 3.2 and 8.6). The NRC has no role in the decisions of state and local tax and utility officials in determining what is taxed, how taxes are collected, and how tax revenue is allocated.

The NRC staff revised EA Section 3.3 to recognize the downward trend of overall taxes received by the City of Red Wing as part of the socioeconomic affected environment discussion. The NRC staff also revised the cumulative impacts discussion in EA Section 4.14 to clarify that the NRC staff recognized the downward trend of overall taxes received by the City of Red Wing in the PINGP license renewal SEIS and the conclusion provided in the PINGP license renewal SEIS regarding tax revenues. The conclusions in Section 4.14, however, have not changed given the result of these incorporations. The NRC staff made no other changes to the EA in response to these comments.

Comments: 3-15, 3-20
The commenter made two comments and states that the EA does not provide sufficient analysis on the negative impacts of continued storage of spent fuel at the PI ISFSI, including the chilling effect it has on the City of Red Wing, the effect on the city's growth, and future land use. The commenter also states that the EA solely focuses on positive socioeconomic impacts, such as continued taxes and employment and the growth of the housing market.

The commenter states that the EA must discuss the negative impacts that the proposed action would have on the development of the City of Red Wing and land use in the surrounding area. The commenter references statements made by the Blue Ribbon Commission that spent fuel has a well-deserved stigma attached to it and the PIIC's input to EA Section 4.0 regarding the exposure to spent fuel. The commenter requests that such negative stigma be addressed in the EA. The commenter goes on to explain that continued storage of spent fuel at the PI ISFSI has a psychological impact on citizens in the area. The commenter provides examples of negative effects the EA should analyze, including the stunted growth of the city due to the presence of the PI ISFSI, the effects on businesses located in the city, and loss of tax revenues.

Response: Potential socioeconomic impacts are discussed in EA Section 4.3. As discussed in this section, direct employment, taxes, and services would not be expected to change as a result of the proposed action. This statement of no expected change as a result of relicensing the PI ISFSI is neither positive nor negative, but it does reflect NRC staff's evaluation of the potential impacts from the proposed action. The NRC staff explicitly recognized in EA Section 4.3 that "[f]inancial burdens, such as expenses associated with participation in PINGP-related actions, emergency planning, and steps required in the event of an accident [e.g., educating the public on risks and procedures; maintaining special medical supplies (iodine tablets), equipment, and trained professionals], would also not change and would continue to impact, in the same manner, communities within the ROI."

Regarding the commenter's concern that the negative stigma from storing spent fuel at the PI ISFSI, based on Metropolitan Ed. Co v., People Against Nuclear Energy (460 U.S. 766, 779, 1983), agencies need not consider psychological impacts resulting from the presence of a nuclear facility as part of their NEPA analyses. Regarding the commenter's statements that other negative effects, such as stunted growth of the City of Red Wing and lost tax revenues, must be analyzed in the EA, the NRC staff notes that potential land use and socioeconomic impacts are considered in the EA under Sections 3.1, 3.3, 4.1, 4.3, and 4.14.

EA Section 3.3 identifies the socioeconomic ROI as the area in which PINGP Units 1 and 2 and PI ISFSI employees and their families reside, spend their income, and use their benefits, thereby affecting economic conditions in the region, which are Goodhue and Dakota Counties, Minnesota, and Pierce County, Wisconsin. The NRC staff reviewed available information as referenced in the EA including economic trends, past population growth data of both the City of Red Wing and three counties within the socioeconomic ROI, and the available population projections within the area (see response to Comment 3-19). The NRC staff also reviewed the PINGP license renewal SEIS (NRC, 2011) and NSPM's PI ISFSI license renewal application (NSPM, 2011) to identify additional information regarding tax revenue trends. In the PINGP license renewal SEIS, the NRC staff recognized the downward trend of overall taxes received by the city. Further explanation of tax-revenue-related impacts is provided in response to Section B.5.9.2, Comments 3-2 and 3-21 in this comment response document.

The NRC staff determined that there would be no tax revenue changes as a direct result of this license renewal. Thus, potential impacts on land use and socioeconomics would not be

significant and would not have a significant contribution to cumulative impacts. The NRC staff further determined that the best available data are referenced in the EA; thus, the NRC staff did not revise the EA in response to this comment.

Comment: 3-26
The commenter states that EA Section 4.3 must be modified to address the City of Red Wing as the responsible first responder to incidents at the PINGP and PI ISFSI. The commenter notes that the EA Section 4.3 states "no change (direct or indirect) to the local economy would result from the proposed action and that potential socioeconomic impacts would be SMALL." The commenter states that the basis provided in the EA for this conclusion recognizes the burdens of a first responder and the impact of any taxes paid to the city, as well as financial burdens for continued emergency preparedness. The commenter asserts that, weighing these factors, the impacts of the proposed action will be large and significant.

Response: The NRC staff recognizes the City of Red Wing as a responder to incidents in the area of the PINGP and PI ISFSI in EA Section 4.3. The NRC staff revised EA Section 4.3 to clarify that the Red Wing Police Department has primary authority in the area of the PINGP and has the ability to request additional response resources from other organizations, such as the PIIC (NSPM, 2013).

In EA Section 4.3, the NRC staff recognizes that there are continued financial burdens associated with the proximity of the PINGP and PI ISFSI to communities within the region of influence; however, as explained in the EA, those burdens will not change as a result of relicensing the PI ISFSI for an additional 40 years. The NRC staff determined that the NRC has no role in decisions of state and local tax and utility officials in determining what is taxed, how taxes are collected, and how tax revenue is allocated. Thus, the NRC staff did not revise the EA in response to this comment regarding taxes or emergency preparedness.

Comment: 3-27
The commenter states that the notion of the PIIC as a host community and first responder is not supportable. The commenter points out that the PIIC does not have sufficient equipment support needed to respond to some incidents, such as fire, breach of a containment facilities, or treating resulting injuries, that may occur at the PINGP or PI ISFSI. The commenter explains that the PI ISFSI is located within the limits of the City of Red Wing, and that the city is obligated to pay for the necessary preparedness to respond to an incident at the PINGP or PI ISFSI.

Response: The NRC staff recognizes the City of Red Wing is a responder to incidents in the area of the PINGP and PI ISFSI. The NRC staff revised EA Section 4.3 in response to Comment 3-22 to clarify that the Red Wing Police Department has primary authority in the area of the PINGP and has the ability to request additional response resources from other organizations, such as the PIIC (NSPM, 2013). Further, the NRC staff revised EA Section 4.3 to clarify that in addition to police services, the City of Red Wing provides necessary services for fire, breach of containment facilities, and the ability to treat injuries that may result from providing these services.

Comment: 3-28
The commenter states that the City of Red Wing is responsible for providing fire safety services for an area of 165.7 square kilometers (km^2) [64 square miles (mi^2)] and ambulance services for an area over 1,196.5 km^2 [462 mi^2]. The commenter also provides a 2008 public services report conducted for the City of Red Wing as an attachment. The commenter indicates that the report concluded that the city needs to increase its public safety services in order to effectively serve

the public. The commenter highlighted recommendations in the report that include constructing two fire stations, adding 36 fire fighters, and purchasing necessary equipment. The commenter states that since the report was completed, the city developed a plan to reduce its expenditures of public safety services and provides some examples of such reductions. The commenter notes that the city's ability to continue to provide the critical and necessary public safety services has been compromised.

Response: The NRC staff recognizes that the City of Red Wing is responsible for providing public safety services for areas beyond the borders of the city and the PINGP. The NRC staff revised EA Section 4.3 in response to Comment 3-22 to clarify that the Red Wing Police Department has primary authority in the area of the PINGP and has the ability to request additional response resources from other organizations. The NRC staff determined that the NRC staff's regulatory purview does not extend beyond the scope of potential impacts as a result of the proposed action; thus, the NRC staff did not review the public services report provided as an attachment and did not revise the EA in response to this comment.

Comment: 3-29
The commenter references input provided by the PIIC in EA Section 4.3, Socioeconomics, regarding the financial resources the PIIC invests in participating in state and federal regulatory proceedings for the PINGP Units 1 and 2 and the ISFSI. The commenter notes that the PIIC is prohibited from participating in certain proceedings and that the PIIC has chosen not to participate in other state legislative lobbying efforts to change state laws regarding continued storage of spent fuel.

Response: The NRC staff acknowledges the comments made regarding the PIIC's involvement in legal proceedings. The scope of this EA focuses on the proposed 40 years of continued operation of the PI ISFSI. The NRC staff did not revise the EA in response to this comment.

B.5.9.3 Water Resources

Comment: 1-4
The commenter suggests clarifying that water level is controlled by the U.S. Army Corps of Engineers Lock and Dam No. 3.

Response: The NRC staff revised EA Section 1.3.1 in response to this comment.

B.5.9.4 Historic and Cultural Resources

Comments: 1-20, 1-23
The commenter suggests revising the description of archaeological sites listed in Table 3-6 to reflect that one additional site in the list is reported but not field confirmed and eight historic finds have not been assigned archaeological site numbers. The commenter also suggested including additional clarifications about the description of the sites with "PS" identifiers.

Response: The NRC staff revised EA Section 3.10.1 and Table 3-6 in response to these comments.

Comment: 1-24
The commenter suggests directly referencing the settlement agreement between the PIIC and NSPM, in Section 3.10.1 of the EA, that was established during the PINGP Units 1 and 2

license renewal proceedings, rather than citing the agreement as part of the Boden 2009 document prepared by Merjent, Inc.

Response: EA Section 3.10.1 states during the license renewal review for PINGP Units 1 and 2, NSPM entered into a settlement agreement with the PIIC that addresses certain activities related to the preservation of historic and cultural resources. The settlement agreement and the results were included in the 2009 Boden document, which the NRC staff reviewed as part of this EA. The settlement agreement between the PIIC and NSPM and the other portions of the 2009 Boden document are not publicly available, because they contain the location of sensitive historic resources. The NRC staff revised the EA in response to this comment. NRC staff removed the 2009 Boden reference to eliminate any confusion regarding the scope of the settlement agreement.

Comment: 1-26
The commenter suggests including a statement in Section 3.10.1 to clarify that the Minnesota Historical Society, BIA, Office of the State Archaeologist, and PIIC also were given the opportunity to comment on the Cultural Resource Management Plan (CRMP).

Response: The NRC staff revised EA Section 3.10.1 to clarify that NSPM sought comments on the CRMP from the Minnesota Historical Society, BIA, Office of the State Archaeologist, and PIIC.

Comment: 1-29
The commenter suggests adding a statement in EA Section 3.10.1 that none of the burial sites identified in recent studies are within the ISFSI site or area.

Response: The NRC staff revised EA Section 3.10.1 to clarify that none of the reported burial mound sites from the two recent archaeological investigations are within the PI ISFSI boundary or the area of potential affect for this proposed action.

Comment: 1-30
The commenter suggests changing the statement, “Additional testing or evaluation is required …” to “Additional testing or evaluation would be required...” for the seven historic artifact concentrations to confirm the presence of archaeological deposits before a state site number is assigned in Section 3.10.2. The commenter also suggests adding a note to reference Section 3.10.1 for current archaeological survey of ISFSI site.

Response: The NRC staff revised EA Section 3.10.1 response to these comments.

Comment: 4-11
The commenter notes that locations of medicinal plants, in addition to archaeological sites, are considered sacred areas important to the Dakota culture.

Response: The NRC staff revised EA Section 3.10.1 to clarify that locations of medicinal plants are considered sacred areas important to the Dakota culture.

Comment: 4-12
The commenter notes that the PIIC initiated the repatriation of human remains removed from Site 21GD058/061.

Response: The NRC staff revised EA Section 3.10.1 to clarify that the PIIC initiated the repatriation of human remains removed from Site 21GD058/061.

B.5.9.5 Public and Occupational Health and Safety

Comment: 1-5
The commenter suggests adding locations of thermoluminescent dosimeters (TLDs) to Figure 1-5 or deleting the statements in Sections 1.3.4 and 3.11 that TLDs are shown on the figure.

Response: The NRC staff removed statements referencing TLD locations on Figure 1-5 in EA Sections 1.3.4 and 3.11 in response to this comment.

Comment: 1-34
A commenter states that there is only one control TLD reported in the PINGP Radiological Environmental Monitoring Program.

Response: The NRC staff revised EA Section 3.11 and removed the term "control" with respect to offsite PINGP TLDs.

Comment: 1-37
The commenter notes that the discussion in EA Section 3.12.2 regarding environmental sampling states "no samples (other than water) are collected on tribal lands." The commenter suggests adding a statement clarifying that environmental sampling as part of the Radiological Environmental Monitoring Program (REMP) includes vegetation from the surrounding area and fish from the Mississippi River that is shared with the PIIC; these sample results are representative of the radiation levels present in vegetation and fish in the area, including vegetation and fish on the PIIC reservation lands. In addition, the commenter suggests clarifying that the data collected as part of the REMP are reviewed and approved by the NRC.

Response: The NRC staff revised EA Section 3.12.2 to state that results of environmental sampling as part of the REMP, including vegetation from the surrounding area and fish from the Mississippi River, are shared with the PIIC.

Comment: 1-40
The commenter notes that the CRMP discussed in EA Section 4.10 was provided for comment to the PIIC, as previously stated in Section 3.10.1.

Response: The NRC staff determined that the commenter does not provide new or significantly different information, but rather notes information found in the draft EA; thus, the NRC staff did not revise the EA in response to this comment.

Comment: 1-42
The commenter references discussion in EA Section 4.11.2.2 regarding annual dose estimates. The commenter notes that the applicant did provide projected dose rates for 98 casks at the PI ISFSI. The commenter states that implying this is misleading. The commenter notes that the MPUC determined a projected dose rate by doubling the applicant's safety analysis dose rate for 48 TN–40HT casks and concluded that it would remain below 0.05 milliSieverts per year (mSv/yr) [5 millirems per year (mrem/yr)].

Response: The NRC staff revised EA Section 4.11.2.2 in response to this comment to clarify the projected dose rates are based on doubling NSPM projections.

Comment: 1-46

The commenter suggests clarifying that the REMP report includes the PI ISFSI, but is not prepared specifically for the PI ISFSI.

Response: The NRC staff revised EA Section 4.13 in response to this comment to clarify that the PI ISFSI is included as part of the REMP report.

Comment: 4-20

The commenter references EA Section 4.11.3, paragraph 9, Loss of Confinement Barrier, and asks what the radiological consequences would be of a release of more than one cask. The commenter also asks how many casks would need to be breached before the offsite doses would be above regulatory limits under 10 CFR 72.106(b).

Response: The requirements in 10 CFR Part 72 are to maintain confinement at all times under normal, off-normal, and accident conditions. For the PI ISFSI, the applicant's SER includes additional analysis of the radiological consequences of a release of the entire gaseous inventory in a cask containing 40 fuel assemblies. Although this analysis is not required under 10 CFR Part 72, the applicant voluntarily provided the analysis to support defense in depth. The NRC staff conducted safety analyses for both TN–40 and TN–40HT casks documented in the staff's SERs (NRC, 2010, 1993) and determined that the applicant has adequately demonstrated that both cask systems are designed to meet the criteria of 10 CFR 72.106. The NRC staff evaluated the public dose estimates from direct radiation from the accident conditions and found them acceptable and in compliance with appropriate guidance and/or regulations.

The development of this EA was closely coordinated with the safety analysis conducted in support of this license renewal request. As part of the safety review, the NRC staff is evaluating radiological and nonradiological consequences from accident conditions. The NRC staff's review of the AMP will be documented in the SER for this license renewal request. The NRC staff determined that this comment provided no new and significant information; thus, the NRC staff did not revise the EA in response to this comment.

B.5.9.5.1 Accidents

Comment: 3-23

The commenter states that EA Section 3.11 should have a separate section that discusses emergency preparedness beyond reliance on the robustness of the casks to prevent any incident. The commenter states that a separate section that discusses emergency preparedness should include an analysis from the manufacturer's perspective regarding the composition of the casks, the warranty periods, and useful life. The commenter states the EA should also discuss what an emergency preparedness plan would look like (what components or requirements would it have) in 2033 and 2034 after the PINGP Units 1 and 2 cease operations.

Response: As also addressed in response to Comment 3-22, the NRC staff has determined that this topic is out of scope for the environmental review of the proposed license renewal. Determination of the adequacy of the emergency response planning is part of the NRC's regulatory process, which is applied to all operating reactors regardless of time in operation, rather than an issue considered separately in license renewal. NSPM is required to comply with the provisions set forth in 10 CFR 72.32(c), and thus the PINGP emergency plan covers the PI

ISFSI. In addition, during the PINGP license renewal, the NRC staff noted that "… Through the NRC's regulations, required exercises, and Reactor Oversight Process inspections, NRC reviews existing emergency preparedness plans throughout the life of a plant. Therefore, NRC has determined that reviewing a plant's emergency plan as part of the license renewal process is not needed."

The NRC regulations for dry cask storage ensure the protection of public health and safety and the environment. The NRC staff reviews each dry cask storage design for resistance to accident conditions such as floods, earthquakes, tornado missiles, and temperature extremes. In addition, the NRC staff reviews the storage of spent nuclear fuel at an ISFSI. When approved, the NRC staff periodically inspects the design, manufacturing, and use of dry casks. These inspections ensure licensees and vendors are following safety and security requirements and meeting the terms of their licenses and quality assurance programs. NRC inspectors also observe practice runs before utilities begin moving their spent fuel into dry casks (NRC, 2014b).

In 2011, the NRC amended the regulations in 10 CFR Part 72 to require that applicants for storage cask specific licenses and certificate of compliance renewals describe a program, in their applications, for the management of issues associated with aging that could adversely affect SSCs (76 FR 8872). As discussed in the EA, the NRC staff is also conducting a safety analysis that will be documented in a separate SER. The scope of the safety analysis includes, but is not limited to, accidents analysis, aging management, and programs intended to protect the health and safety of workers and public and protect the environment.

The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.

Comment: 3-24
The commenter states that the MPUC placed a condition on NSPM's license to expand the PI ISFSI regarding emergency preparedness. The commenter states that the MPUC also requires the City of Red Wing to provide reasonable assurances that it can meet the requirements of the emergency preparedness plan for the PINGP and PI ISFSI. The commenter states that the EA should be revised to reflect these circumstances.

Response: As the commenter states, during the MPUC preceding for NSPM's application for additional dry cask storage, the administrative law judge recommended that "Regulation of the emergency response plan at the Prairie Island Plant and ISFSI is the responsibility of the NRC." Xcel's compliance with NRC rules will ensure that there is an effective emergency response plan in place. It is reasonable to require Xcel Energy to file an annual status report on implementation of its Emergency Response Plan (ERP). The recommendation that Xcel Energy provide an update of the current emergency response plans in its annual status reports to the MPUC became a license condition (MPUC, 2009a). To assure the ability of offsite agencies to participate and support the plant's emergency response plans, a Letter of Agreement for Emergency Response Services was entered into between the City of Red Wing and NSPM (NSPM, 2013). As stated in the response to Comment 3-22, NRC staff revised EA Section 3.3 to include the reference for the Letter of Agreement for Emergency Response Services. The NRC staff revised EA Section 1.4 to include the MPUC license conditions.

Comment: 4-15
The commenter states that EA Section 4.11.3 must be revised to include a more realistic analysis of accidents as well as an analysis of impacts to the PIIC from accidents. In particular, the commenter notes the accident discussed in EA Section 4.11.3 involving a jumbo barge

explosion on the Mississippi River. The commenter states that there is no discussion of a resulting fire on the banks of the Mississippi River from this explosion and whether the fire would have a negative effect on the PI ISFSI and the PIIC.

Response: EA Section 4.11.3 discusses postulated impacts from a 15-minute engulfing fire around a cask. The NRC staff determined that no release of radioactive materials is expected from fire (NRC, 2010). Although the postulated fire source discussed in the EA is from a ruptured fuel tank of the cask transporter transport vehicle, the analysis is valid for any engulfing fire that meets the same assumptions of time and temperature. It should be noted that the dry casks at the PI ISFSI are placed on concrete pads surrounded by gravel, which are not combustible materials. The only combustible materials in the ISFSI are in the form of insulation on instrumentation wiring and paint on the outside surface of the storage casks (NSPM, 2008a, SER Section A8.2.5.1), and thus, no fires other than small electrical fires are considered credible at the ISFSI.

The development of this EA was closely coordinated with the safety analysis conducted in support of this license renewal request. As part of the safety review, the NRC staff is evaluating potential impacts from hypothetical fire accident conditions. The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.

Comment: 4-16
The commenter states that the EA should discuss and assess the possibility of an engulfing fire resulting from a derailment of flammable materials that are routinely transported to the PINGP via rail. The commenter states that the rail lines are 0.4 km [0.25 mi] away from the ISFSI, and that the number of cars traveling on these rail lines annually numbers in the hundreds of thousands. The commenter states that recent rail accidents in Quebec, New York, and Minnesota indicate the same could happen on Prairie Island. The commenter states that derailment of flammable liquids during drought conditions would impact the PI ISFSI and the PIIC.

Response: As previously discussed in the response to Comment 4-15, the only combustible materials in the ISFSI are in the form of insulation on instrumentation wiring and paint on the outside surface of the storage casks (NSPM, 2008a, SER Section A8.2.5.1), and thus, no fires other than small electrical fires are considered credible at the ISFSI. The NRC staff have evaluated fire accident conditions at the PI ISFSI, and the NRC staff's review of the AMP will be documented in the SER. The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.

Comment: 4-18
The commenter states that in EA Section 4.11.3, loss of confinement barrier is not considered credible, but loss of confinement barrier was hypothesized solely to demonstrate the inherent safety of the PI ISFSI by subjecting it to a set of simultaneous multiple failures beyond the capability of natural phenomena or man-made hazards. The commenter asks how far beyond the capability of natural phenomena or man-made hazards was inherent safety demonstrated. The commenter also asks whether the multiple failures include impacts from fires, such as fire caused by a fully fueled jet.

Response: The NRC regulations in 10 CFR Part 72 for independent storage of spent fuel and in 10 CFR Part 20 for radiation protection require an applicant to analyze the consequences of a loss of confinement barrier. EA Section 4.11.3 references the applicant's safety analysis report (SAR), which does describe that loss of confinement barrier is not considered credible at the PI

ISFSI. Demonstration of inherent safety means that protective systems have been put in place that reduce, but do not eliminate all, safety risks.

As further discussed in response to Comment 4-17, the PINGP and the PI ISFSI are not located in the Ninth Circuit, and thus the NRC will not perform a NEPA terrorism review. Environmental consequences of accidents are considered within the scope of the EA, and the results of potential terrorist actions may be similar to accidents. Accidents are considered because there is a reasonably close causal relationship between the federal action of licensing a facility and potential accidents at the licensed facility. NRC has established requirements in 10 CFR Part 73 and has initiated several actions designed to provide high assurance that a terrorist attack would not lead to a significant radiological event at an ISFSI.

As part of the safety review, the NRC staff is valuating radiological and nonradiological consequences from accident conditions. The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.

B.5.9.6 Waste Management

Comment: 3-5
The commenter notes that the exact number of casks needed to store the spent fuel generated during operations of PINGP Units 1 and 2 has not been determined, because PINGP now uses different fuel assemblies that are larger and burn hotter and longer compared to the assemblies used during initial PINGP operations. Thus, the number of casks necessary to store PINGP spent fuel through the end of the current license period may be different than originally calculated. The commenter notes that after PINGP decommissioning, low-level waste will continue to be stored onsite until it can be disposed of properly per the responsibility of the licensee, not the Federal Government.

Response: Since 1990, PINGP has been operating with higher enrichment and high burnup fuel. In 2010, the NRC staff amended the PI ISFSI license, at the request of the licensee, to allow NSPM to use a modified storage cask design, the TN–40HT, to accommodate the dry storage of fuel with higher enrichment and high burnup. As stated in its 2008 MPUC CON application, the PI ISFSI could accommodate a total of 100 casks without having to change the security perimeter (NSPM, 2008b, p. 3A–12). The applicant has had sufficient operating experience with higher enrichment and high burnup fuel and placement of that the fuel at the PI ISFSI to adequately project the number of casks needed to store the spent fuel generated during operations of PINGP Units 1 and 2.

Regarding low-level waste management as part of PINGP decommissioning, the no-action alternative described in EA Section 2.1.1 explains that after the reactors cease operations, decommissioning of PINGP Units 1 and 2 would begin in accordance with 10 CFR 50.82. The environmental impacts from decommissioning nuclear power plants, including low-level waste disposal, have previously been evaluated in NUREG–0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities" (NRC, 2002, Supplement 1). The environmental impacts of reactor license renewal on decommissioning were addressed in the SEIS for PINGP Units 1 and 2 (NRC, 2011).

EA Section 1.3.5 describes NSPM and NRC roles for the PI ISFSI decommissioning process. Section 4.12 of the EA explains that NSPM would handle potential low-level radioactive wastes generated during PI ISFSI decommissioning according to regulatory requirements and doses to

workers and the public would be below regulatory limits. Therefore, the NRC staff concludes that the potential impacts of decommissioning on waste management would not be significant.

The NRC staff determined that no new or significant information was provided as part of this comment, and thus, the NRC staff did not revise the EA in response to this comment.

B.5.9.7 Environmental Justice

Comment: 1-44
The commenter states that EA Sections 3.11 and 4.11 do not support the PIIC-provided statement that "Spent nuclear fuel poses a dangerous, long-term health and environmental risk."

Response: Statements the PIIC provided are included in the EA to present the PIIC's viewpoint. Although EA Sections 3.11 or 4.11 may not support the PIIC's viewpoint, EA Sections 3.11 and 4.11 are referenced for the reader to easily refer to discussions regarding Public and Occupational Health and Safety. The NRC staff determined that no new or significant information was provided as part of this comment, and thus, the NRC staff did not revise the EA in response to this comment.

Comment: 1-45
Statements the PIIC provided on draft EA p. 4-28 and similar discussions address issues that are currently being addressed separately by the waste confidence rule and supporting GEIS. This is a separate action, and comments are not provided here.

Response: Statements the PIIC wrote are included in the EA, unabridged, to present its viewpoint. The NRC staff determined that no new or significant information was provided as part of this comment, and thus, the NRC staff did not revise the EA in response to this comment.

B.5.10 Cumulative Effects

Comment: 1-49
The commenter notes that EA Section 4.14 does not use the impact significance levels SMALL, MODERATE, or LARGE for the cumulative impact analysis, consistent with the impact levels discussed in Section 4.10. The commenter recommends revising EA Section 4.14 for consistency.

Response: NUREG–1748 (NRC, 2003, Section 3.4.6.2) addresses the assessment of cumulative impacts in an EA. It notes that such assessment is not required in an EA, but that the EA should include a discussion explaining the NRC staff's efforts to identify activities that could result in cumulative impacts and whether there are significant cumulative impacts. The NRC staff, however, identified past, present, and reasonably foreseeable future activities, and assessed whether the impact resulting from the incremental impact of the proposed continued operation of the PI ISFSI when added to these activities would be significant. The NRC staff determined that conclusions for cumulative impacts are appropriately provided in EA Section 4.14; thus, the NRC staff did not revise the EA in response to this comment.

Comment: 4-6
The commenter believes that the NRC should expand the cumulative public and occupational health and safety analysis and cumulative historic and cultural impact analysis beyond the minimum analysis required to protect the general public.

Response: NUREG–1748 (NRC, 2003, Section 3.4.6.2) addresses the assessment of cumulative impacts in an EA. It notes that such assessment is not required in an EA, but that the EA should include a discussion explaining the NRC staff's efforts to identify activities that could result in cumulative impacts and whether there are significant cumulative impacts. The NRC staff, however, identified past, present, and reasonably foreseeable future activities, and assessed whether the impact resulting from the incremental impact of the proposed continued operation of the PI ISFSI when added to these activities would be significant. The NRC staff determined that continued operation of the PI ISFSI would not have a significant incremental contribution to historic and cultural cumulative impacts or public and occupational health and safety cumulative impacts (see EA Section 4.14). The NRC staff revised the historic and cultural cumulative impacts section of this EA to clarify the aspects considered in the cumulative impacts as a result of a potential future ISFSI expansion.

Comment: 4-26
The commenter states that the EA fails to mention that the draft waste confidence (continued storage) GEIS considers a second 20-year relicensing of a nuclear power plant. The commenter finds that if the waste confidence (continued storage) GEIS considers a potential second 20-year relicensing of the PINGP, then this EA should also analyze the potential impacts of storing the additional spent fuel generated during that time.

Response: As the commenter notes, the continued storage GEIS (NRC, 2014a) considers, as part of a reactor's licensed life, 40 years of reactor operations under an original license, and up to two license renewals of 20 years each. As noted in the comment, PINGP Units 1 and 2 operated during their original 40-year license and are currently licensed to operate for another 20 years until 2033 and 2034, respectively. The NRC staff recognizes the commenter's concern with the possibility of the PINGP being relicensed for a second 20-year period after the current licenses expire, which would in theory extend PINGP operations to 2053 and 2054 and by extension the life of the PI ISFSI. Currently, there are no limitations of a reactor licensee to apply for a second 20-year relicensing period (NRC, 2012c).

The NRC had to make assumptions in the continued storage GEIS to evaluate the potential environmental impacts of continued storage. These assumptions were made specifically for the purposes of generically analyzing the environmental impacts of continued storage. Conversely, the PI ISFSI relicensing EA evaluates the environmental impacts of the proposed license renewal of the operation of the PI ISFSI for an additional 40 years. For this EA, the NRC staff evaluated potential impacts of storage of the spent fuel generated by the PINGP through the end of the current PINGP operation license. The NRC finds that this assumption is reasonable because, at this time, there is no indication that the PINGP Units 1 and 2 would be renewed for a second term.

The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.

B.5.10.1 Transportation Cumulative Effects

Comment: 4-30
The commenter states that the discussion of how dry casks containing high burnup fuel will be transported from the PI ISFSI before decommissioning should be included in the EA. The commenter states that the EA fails to consider long-term effects of storing high burnup fuel at the PI ISFSI, especially degradation of fuel assemblies and internal cask components and cladding. The commenter expresses concern that as the casks age for long periods of indefinite storage, especially beyond the 40-year proposed action, the uncertainty and potential impacts from transporting the casks increase. The commenter states that the EA should assess these potential impacts of transporting high burnup fuel during the proposed action and for longer periods of indefinite storage.

Response: If approved, the proposed action would allow continued temporary dry storage of the PINGP spent nuclear fuel at the PI ISFSI, including storage of high burnup fuel. As part of the alternative analysis in the EA (see Section 2.0 of the EA), the NRC considered shipping the spent fuel to an offsite location; however, an offsite location is not reasonably available and, thus, the NRC determined the alternative was not reasonable (see response to Comment 4-9). Nonetheless, as discussed in NUREG–2157 (NRC, 2014a), the NRC is aware that high burnup fuel may be subject to increased degradation of the spent fuel and cladding. NUREG–2157 discusses the technical feasibility of dry cask storage, including low degradation rates of spent fuel in dry cask storage (see NUREG–2157, Appendix B). As discussed in NUREG–2157, the NRC staff continues to conduct research into the extended storage of spent fuel. As part of this effort, the NRC is examining the technical needs and potential changes to the regulatory framework that may be needed to continue licensing of spent fuel storage facilities over periods beyond 120 years. In 2014, the NRC published "Identification and Prioritization of the Technical Information Needs Affecting Potential Regulation of Extended Storage and Transportation of Spent Nuclear Fuel" (NRC, 2014c). This report considered high burnup uranium oxide fuel. NUREG–2157, Appendix I also provides additional information about high burnup uranium oxide spent fuel.

The NRC regulates transportation of spent fuel through a combination of safety and security requirements, certification of transportation casks, and inspections. The NRC must approve any package used for shipping nuclear material before shipment. If the package meets NRC requirements, the NRC issues a certificate of compliance in accordance with 10 CFR Part 71. NSPM has not applied for transportation approval of any casks currently located at the ISFSI. At such time as an application is received for approval to transport the relevant casks, the NRC staff's subsequent safety review, under 10 CFR Part 71, would take into consideration any technical issues related to high burnup fuel.

While there is ongoing research about the storage and transportation of high burnup spent fuel, the evaluation in this EA is properly focused on the scope of the proposed action. Cumulative transportation impacts beyond the license term of an operating reactor are addressed in NUREG–2157, Section 6.4.15. This analysis addresses the radiological impacts from transportation of spent fuel to a repository and concludes that the radiological impacts for incident- and accident-free transportation of spent fuel from a single at-reactor storage facility to a repository would be small based on the generic determination in 10 CFR 51.52, Table S–4 and other spent fuel transportation impact analyses discussed in NUREG–2157.

The NRC staff did not revise the EA in response to this comment, because the comment is not within the scope of this EA.

B.5.10.2 Cultural and Historic Cumulative Effects

Comment: 1-33
The commenter suggests adding a statement in EA Section 3.10.2 that the archaeological sites discussed as being within the PINGP property are not within the ISFSI site or area.

Response: The NRC staff revised EA Section 3.10.2 to clarify that the archaeological sites discussed in this section are not within the area of potential effect for the proposed action.

Comment: 1-56
The commenter recommends changing the impact significance levels for the cumulative socioeconomic impact analysis to be consistent with the impact levels discussed in EA Section 4.10. The commenter also suggests using similar wording in EA Section 4.14, with respect to activities that have the potential to cause disturbance to historic and cultural resource section if the PI ISFSI were to be expanded.

Response: NUREG–1748 (NRC, 2003, Section 3.4.6.2) addresses the assessment of cumulative impacts in an EA. It notes that such assessment is not required in an EA, but that the EA should include a discussion explaining the NRC staff's efforts to identify activities that could result in cumulative impacts and whether there are significant cumulative impacts. The NRC staff, however, identified past, present, and reasonably foreseeable future activities and assessed whether the impact resulting from the incremental impact of the proposed continued operation of the PI ISFSI when added to these activities would be significant. The NRC staff determined that continued operation of the PI ISFSI would not have a significant incremental contribution to historic and cultural cumulative impacts (see Section 4.14 of this EA). The NRC staff revised the historic and cultural cumulative impacts section of this EA to clarify the aspects considered in the cumulative impacts, as a result of a potential, future ISFSI expansion.

Comment: 1-57
The commenter suggests revising the wording in the cumulative impacts discussion (EA Section 4.14), with respect to environmental justice, to be similar to the language used in the historic and cultural resources impact section (EA Section 4.10) about activities that have the potential to cause disturbance.

Response: The conclusion in EA Section 4.10 does not need to be repeated in Section 4.14. As the commenter points out, much of the information suggested to be added is already stated in Section 4.10 of the EA. The NRC staff revised Section 4.14 to include a reference to Section 4.10 and clarify that NSPM employees are required under the CRMP to notify and consult with a variety of federal, state, tribal, and local agencies and entities, depending on the nature and scope of planned activities and applicable laws and regulations. In addition, the NRC staff revised Section 4.14 to state that NSPM has agreed to maintain and implement its CRMP as long as NSPM owns or controls the plant site (NSPM, 2013). NSPM developed the CRMP to protect historical, archaeological, and cultural resources that may currently exist on the site.

Comment: 4-23
The commenter indicates that there is no discussion in the EA regarding potential mitigation and states that NRC relies on the applicant to conduct additional archeological surveys in the area of potential PI ISFSI expansion prior to submitting a future license amendment application.

Response: In the historic and cultural cumulative impacts discussion in EA Section 4.14, the NRC staff recognized that the PINGP site, including the PI ISFSI, is an archaeologically sensitive area. The NRC staff also recognized that there remains the potential for unknown historic and cultural resources in the PINGP site. As noted in the EA, a potential future expansion of the ISFSI would require that an application be submitted to the NRC for review and approval. NSPM has not yet filed an application for the expansion of the ISFSI to the NRC. Therefore, the NRC staff's cumulative impacts analysis is limited because the NRC cannot project with certainty the details of the potential expansion. Nevertheless, in September 2014, NSPM hired Westwood Professional Services, Inc. to conduct a Phase I Archaeological Survey to evaluate whether any archaeological deposits were present within the area of potential effect (APE) for this proposed action in anticipation of expected future ISFSI expansion activities. The NRC staff considered the results of this survey as part of its evaluation on potential historic and cultural cumulative impacts from ISFSI expansion and identified mitigation measures currently available to and implemented by the applicant that could mitigate impacts to historic and cultural resources from ISFSI expansion. For example, the applicant's CRMP is referenced several times throughout the EA and serves as a tool to identify historic and cultural resources, impacts, and mitigation measures. The CRMP identifies the types of activities that have the potential to cause disturbance, establishes procedures for proper review, and gives notification and consultation prior to any ground disturbance activity. Additional mitigation measures would be identified during the NRC's review of the license application, which would also trigger consultation requirements pursuant to the NHPA.

The NRC staff did not revise the EA in response to this comment.

B.5.10.3 Public and Occupational Health Cumulative Effects

Comment: 4-22
The commenter references the Council on Environmental Quality definition of cumulative effects found in 40 CFR 1508.7. The commenter explains that a primary tenet of Dakota culture is the belief that all things are related, and that health, well-being, and culture of the community are dependent on the health of the environment. The water, fish, birds, air, plants, and cultural sites are all interrelated as part of the ecosystem on Prairie Island. The commenter explains that the PIIC views the PINGP and PI ISFSI the same way—they are not separate and have a cumulative and integrative impact on the members of the PIIC. The commenter states that if a national repository were available, the PI ISFSI would not be relicensed or expanded. Thus, the current national dilemma regarding spent fuel has a profound impact on the PIIC.

Response: Operation of the PINGP Units 1 and 2 and expansion of the PI ISFSI (i.e., expansion of up to 64 casks and expansion of up to 98 casks) are discussed in the EA cumulative impacts analysis in Section 4.14. The NRC staff reviewed the PINGP Units 1 and 2 license renewal SEIS (NRC, 2011) and considered the impacts of the continued operation within the cumulative impact analysis. With respect to public health and safety, the SEIS concluded that public and occupational doses have been below the regulatory dose limits in 10 CFR Part 20. The dose limits are protective of health and safety. In addition, licensees are required to maintain doses as low as reasonably achievable.

In addition, the NRC staff considered an expansion of the ISFSI to accommodate up to 64 casks. This future potential licensing action was considered based on the NSPM's 2008 Certificate of Need application to the MPUC that subsequently authorized NSPM to expand the ISFSI to accommodate up to 64 casks. The NRC staff, however, in response to the PIIC's concerns and recommendations, and in light of no available repository, also considered the

potential expansion of the PI ISFSI to accommodate up to 98 casks as part of the cumulative impact analysis. The EA discusses potential cumulative impacts for all resource areas, including air quality, water resources, wildlife, and historic and cultural resources. However, the NRC staff's consideration and analysis of the potential expansion of the ISFSI to up to 98 casks as part of the cumulative impact analysis are commensurate with the level of information available.

The NRC staff determined that no new or significant information was provided as part of this comment, and thus, the NRC staff did not revise the EA in response to this comment.

Comment: 4-24
The commenter notes that the EA discusses the potential expansion of the PI ISFSI to accommodate up to 98 casks. The commenter is concerned about the potential cumulative and integrated radiological impacts from all PINGP-related activities, including the PINGP and associated high voltage lines, and the potentially expanded PI ISFSI.

Response: The NRC regulatory dose limits established in 10 CFR Parts 20 and 72 set standards for protection against radiation and are protective of health and safety. Dose limits are the sum of all potential radiological sources from a licensed operation. The operations of the PINGP Units 1 and 2, the PI ISFSI, and associated transmission lines are required to remain below the regulatory dose limits in 10 CFR Parts 20 and 72. PINGP Units 1 and 2 license renewal SEIS and this EA concluded that public and occupational dose have been below the regulatory dose limits in 10 CFR Parts 20 and 72—1 mSv/yr [100 mrem/yr] from all man-made sources (10 CFR Part 20) and 0.25 mSv/yr [25 mrem/yr] from ISFSI operations (10 CFR Part 72). For comparison, 1 mSv [100 mrem] is approximately equivalent to one-tenth of the radiation dose from a full-body computed tomography scan (also called CT scan or CAT Scan). Licensees are required to perform routine monitoring. In addition, licensees are required to maintain doses as low as reasonably achievable. At the PINGP and PI ISFSI, NSPM uses TLDs, which are instruments that measure the ambient or total gamma radiation levels attributed to nuclear facilities and naturally occurring radiation fields emitted from the atmosphere (cosmic radiation) and the Earth. Therefore, PINGP- and PI ISFSI-related activities that emit gamma radiation, including power lines, are monitored and documented in annual REMP reports.

The NRC staff recognizes that the potential cumulative effects of electromagnetic fields (EMFs) associated with nuclear plants and associated transmission lines are uncertain. However, studies of 60-Hz EMFs have not uncovered consistent evidence linking harmful effects with field exposures (NRC, 2013b). In addition to the ionizing radiation, electric shock is a potential impact from EMFs. The NRC staff determined that potential impact from EMF shock is not significant (NRC, 2011). Although there is sufficient information to make conclusions regarding potential impacts related to electric shock from EMFs, no scientific consensus has been reached on other health implications of these fields. EMFs are unlike other agents that have a toxic effect (e.g., toxic chemicals and ionizing radiation) in that dramatic acute effects cannot be forced and longer term effects, if real, are subtle. While the NRC staff agrees that additional data are needed to evaluate chronic effects of EMFs, this evaluation is properly limited to the staff's technical review. Any potential environmental impacts beyond what have already been considered for EMFs are too remote and speculative at this time to require an evaluation in the staff's EA. If in the future, the Commission finds that, contrary to current indications, a consensus has been reached by appropriate federal health agencies that there are adverse health effects due to EMFs, the Commission will require applicants to submit plant-specific reviews of these health effects as part of their license renewal applications. Until such time,

applicants for license renewal are not required to submit information on this issue (10 CFR Part 51, Subpart A, Appendix B, Table B–1, Footnote 5).

The NRC staff determined that no new or significant information was provided as part of this comment, and thus, the NRC staff did not revise the EA in response to this comment

Comment: 4-25
The commenter states that it is not clearly explained in EA Section 4.14 whether the NRC staff assessed and tested the radiological dose analysis that NSPM submitted as part of its 2008 application for the CON from the MPUC. The commenter states that the MPUC awarded NRC great deference with respect to radiological emissions and impacts during the CON proceedings. The commenter states that the PIIC believes the NRC should do its own independent analysis to verify that NSPM's analysis in the MPUC proceedings is correct. The commenter also states the NRC should serve NSPM with a request for additional information for said analysis.

Response: The MPUC developed an EIS in response to NSPM's CON application to expand the existing PI ISFSI to accommodate an additional 35 casks of spent nuclear fuel (MPUC, 2009b). MPUC's EIS (MPUC, 2009b, Section 1.1) states that primary sources used in developing the EIS include Xcel Energy's "Application for a Certificate of Need for Additional Dry Cask Storage" (NSPM, 2008b) and Xcel Energy's license amendment request to the NRC and associated SAR (NSPM, 2008a). EA Sections 4.11.2.2 and 4.14 explain that NSPM provided the same SAR (dated March 28, 2008) to the MPUC for NSPM's CON application and to NRC for its license amendment request to modify the TN–40 cask design. Thus, the NRC staff did evaluate NSPM's analysis that was presented in the MPUC proceedings. The NRC staff revised EA Sections 4.11.2.2 and 4.14 to clarify that after review of NSPM's license amendment request and associated supplements to modify the TN–40 cask design, the NRC staff completed an SER (NRC, 2010) for the modified storage cask design, the TN–40HT, to accommodate the dry storage of fuel with higher enrichment and high burnup fuel.

Comment: 4-27
The commenter notes that cumulative impacts discussion in EA Section 4.14 states that placement of 98 casks would increase skyshine radiation exposure to the public in addition to the radiological impacts expected from the currently licensed 48 casks. The commenter also notes that the EA states that radiation exposure from storing up to 98 casks at the PI ISFSI and from PINGP Unit 1 and 2 operations would not exceed the NRC regulatory limits. The commenter states that when the PI ISFSI contains 98 casks, the PINGP Units 1 and 2 will not be operating.

Response: The commenter is correct that under the current licensing regulations, the PINGP Units 1 and 2 will cease operations in 2033 and 2034. Therefore, the estimate of radiation exposure, including skyshine, from storing up to 98 casks at the PI ISFSI and from PINGP Units 1 and 2 operations is bounding and conservative, because after the PINGP Units 1 and 2 cease operations, radiation exposure will decrease. After PINGP Units 1 and 2 stop operating, NSPM would continue to monitor, control entry to, and restrict access to the area until the PI ISFSI is suitable for release. The NRC staff determined that no new or significant information was provided as part of this comment, and thus, the NRC staff did not revise the EA in response to this comment.

Comment: 4-28
The commenter states that the EA does not provide a complete understanding of what the cumulative and integrated radiation exposure is to the PIIC from the PI ISFSI and the PINGP Units 1 and 2, as well as from high voltage lines. In addition, the commenter would like to know the cancer risks to the PIIC from these sources.

Response: The NRC's regulatory limits for radiological protection are established to provide an adequate level of protection for public health and safety and the environment. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects (i.e., cancer and other biological impacts) of radiation to humans. The NRC continuously evaluates the latest radiation protection recommendations from international and national scientific bodies to establish the requirements for nuclear power plant licensees. Applicants are required to maintain annual public and occupational doses below the annual dose limits established by 10 CFR Part 72 for the public and 10 CFR Part 20 for occupational personnel. Licensed facilities are also required by the previously mentioned regulations to maintain an as low as reasonably achievable program, which would likely reduce the doses even further.

In addition, EA Section 3.11 discusses that an NRC-sponsored study to evaluate cancer risks in populations living near NRC-licensed nuclear power and fuel cycle facilities was completed by the National Academy of Sciences (NAS), (2012). The NRC staff plan to proceed with pilot studies at seven power plants to further analyze the cancer risks in populations near nuclear facilities. The EA directs the reader to the following NAS Web site for more information: <http://dels.nas.edu/global/nrsb/CancerRisk>. *The NRC staff determined that because no other information is available at this time and no new information is provided in the comment, no changes to the EA are necessary in response to this comment.*

Comment: 4-29
The commenter states that an important aspect of MPUC's EIS developed in response to NSPM's CON application to expand the existing PI ISFSI is the discussion of health risks (i.e., cancer) related to potential long-term exposure to low-level skyshine radiation. The commenter states the EIS estimated that if residents lived 0.72 km [0.45 mi] away and outside of a building for 70 years, that the cancer rate would be 1 in 2,850 persons, and 1 out of 5,700 would die from cancer. The commenter states that similar to the MPUC EIS, the EA should include a discussion of the expected cancer risk to the PIIC from reactor operations, EMFs, and additional dry casks as part of the cumulative impact analysis. The commenter acknowledges that the EA references the NRC-sponsored cancer studies; however, the PINGP is not one of the facilities included in the pilot study. The commenter states that although the NRC did not choose which plants were included in the pilot study, an important opportunity was missed by not selecting the PINGP where an Indian tribe is located immediately adjacent to the plant and ISFSI.

Response: The NRC staff recognize the commenter's concern regarding cancer risks associated with the PINGP and PI ISFSI. The NRC staff also recognize that if the PINGP were included in the NRC-sponsored cancer studies, there may be additional site-specific data available to the PIIC. The NRC's regulations continue to be adequately protective of public health and safety and the environment. The amount of radioactive material released from nuclear facilities is well measured, well monitored, and known to be very small. The doses of radiation that are received by members of the public as a result of exposure are so low that resulting cancers have not been observed and would not be expected. A number of studies of cancer incidence in the vicinity of nuclear power facilities have been conducted (see NRC,

2011, p. A–281 for a list of studies), and there are no studies to date that are accepted by the scientific community that show a correlation between radiation dose from nuclear power facilities and cancer incidence in the general public.

Regarding the MPUC's conclusions in its additional dry cask storage EIS, it should be noted that the EIS as well as annual monitoring reports submitted to NRC and made publicly available conclude that TLDs monitored by the Minnesota Department of Health (MDH) indicate exposure rates near the PINGP are at background radiation levels (MPUC, 2009b). The MPUC EIS states that, in the real world scenario where approximately 450 PIIC residents live within a 3.2-km [2-mi] radius of the PI ISFSI, there would be a hypothetical 0.013 additional cancer diagnoses and 0.006 additional cancer deaths among these residents over a period of 70 years (MPUC, 2009b). Results of the annual NRC-required PINGP REMP continue to demonstrate that the operation of PINGP Units 1 and 2 and the PI ISFSI do not result in a significant measurable dose to a member of the general population or adversely impact the environment as a result of radiological effluents. The annual REMP reports continue to demonstrate that the dose to a member of the public from the operation of PINGP Units 1 and 2 and the PI ISFSI remains significantly below the federally required dose limits specified in 10 CFR Parts 20 and 72 and 40 CFR Part 190—1 mSv/yr [100 mrem/yr] from all man-made sources (10 CFR Part 20) and 0.25 mSv/yr [25 mrem/yr] from ISFSI operations (10 CFR Part 72).

In the spring of 2006, the National Research Council of the National Academies published "Health Risks from Exposure to Low Levels of Ionizing Radiation, BEIR VII Phase 2" (author, year). The major conclusion of the report is that current scientific evidence is consistent with the hypothesis that there is a linear, no-threshold dose response relationship between exposure to ionizing radiation and the development of cancer in humans. This conclusion is consistent with the system of radiological protection that the NRC uses to develop its regulations. The NRC evaluated the BEIR VII report and discussed its findings in a report to the Commission (NRC, 2005). The NRC concluded that the BEIR VII report does not support the need for fundamental revision to International Commission on Radiological Protection recommendations. Therefore, the NRC's regulations continue to be adequately protective of public health and safety and the environment. None of the findings in the BEIR VII report warrant changes to the NRC regulations. The BEIR VII report does not say there is no safe level of exposure to radiation; it does not address "safe versus not safe." It does continue to support the conclusion that there is some amount of cancer risk associated with any amount of radiation exposure and that risk increases with exposure and exposure rate. It does conclude that risk of cancer induction at the dose levels in the NRC's and EPA's radiation standards is very small. Similar conclusions have been made in all of the associated BEIR reports since 1972 (BEIR I, III, and V). In addition, as explained in the previous response to Comment 4-28, an NRC-sponsored study to evaluate cancer risks in populations living near NRC-licensed nuclear power and fuel cycle facilities was completed by the NAS (2012). The NRC staff plan to proceed with pilot studies at seven power plants to further analyze the cancer risks in populations near nuclear facilities.

In summary, there are no studies to date that are accepted by the nation's leading scientific authorities that indicate a causative relationship between radiation dose from nuclear power facilities and cancer in the general public. The NRC staff determined that because no other information is available at this time and no new information is provided in the comment, no changes to the EA are necessary in response to this comment.

B.5.11 Miscellaneous

Comment: 1-3
The commenter notes that the current license will not expire on October 31, 2013, because an application for license renewal was submitted at least 2 years prior to the expiration date. The commenter suggests revising the description of the status of the PI ISFSI license to reflect that "The current license continues in effect under the timely renewal doctrine, as described in 10 CFR 72.42(c)."

Response: The NRC staff revised EA Section 1.3 to clarify that current license continues in effect in accordance with 10 CFR 72.429(c).

B.5.12 Editorial

Comments: 1-1; 1-2; 1-6; 1-7; 1-9; 1-10; 1-11; 1-12; 1-13; 1-14; 1-15; 1-17; 1-18; 1-19; 1-22; 1-25; 1-27; 1-28; 1-31; 1-32; 1-35; 1-36; 1-41; 1-43; 1-47; 1-48; 1-50; 1-51; 1-52; 1-53; 1-54; 1-55; 1-58; 1-59
The commenters suggest rewording and correcting typographical errors, misspellings, and grammatical errors in the draft EA.

Response: The NRC staff revised the EA in response to the comments when appropriate. Where the commenters intended to correct inaccuracies or inconsistencies, the NRC staff reviewed the suggested revisions for accuracy prior to revising the EA. The NRC staff revised the EA Executive Summary and Sections 1.1, 1.4, 2.1.1, 2.1.4, 3.1, 3.2, 3.3, 3.5, 3.7.3, 3.10.1, 3.10.2, 3.12.1, 4.11.2.1, 4.11.3, and 4.14 in response to these editorial suggestions.

B.5.13 Comments Concerning Issues Outside of the Scope of this License Renewal

Comments: 3-22, 3-32
The commenter believes the EA discussion of utilities and services underestimates what is needed to respond to an incident, and that EA Section 3.3 should be amended to reflect the City of Red Wing's responsibilities as the primary first responder to incidents at the PINGP and PI ISFSI.

The commenter states that EA Section 4.11 discusses a number of potential incidents that could impact the PI ISFSI; however, the EA does not discuss the emergency response if an incident did occur at the PINGP or PI ISFSI. The commenter provides the example of fire resulting from a jet crashing into the ISFSI. The commenter states that an effective mitigation method to this type of incident is to invoke the City of Red Wing Emergency Response Plan. The commenter states that the EA should evaluate the need for an emergency response plan, what an effective response to an incident would be, and the impact if an effective response is not provided. The commenter states that the socioeconomic impacts of a lack of a response are too significant to ignore. The commenter states that because the federal and state licensing agencies require reasonable assurance from the City of Red Wing that an emergency response plan is in place, the EA should provide an analysis of emergency response and preparedness.

Response: The NRC recognizes the commenter's concern that emergency related issues are not discussed extensively in the EA. As a cooperating agency, the PIIC raised concerns regarding emergency response and preparedness and provided information, which was

included in the EA, about this matter. The NRC, however, has determined that this topic is out of scope for the environmental review of the proposed license renewal. Determination of the adequacy of the emergency response planning is part of the NRC's regulatory process, which is applied to all operating reactors regardless of time in operation, rather than an issue considered separately in license renewal. NSPM is required to comply with the provisions set forth in 10 CFR 72.32(c), and thus, the PINGP emergency plan covers the PI ISFSI. In addition, during the PINGP license renewal, the NRC staff noted that "…Through the NRC's regulations, required exercises, and Reactor Oversight Process inspections, the NRC staff reviews existing emergency preparedness plans throughout the life of a plant. Therefore, the NRC staff have determined that reviewing a plant's emergency plan as part of the license renewal process is not needed."

In a previous comment, a commenter provided the NRC staff with a copy of the Letter of Agreement for Emergency Response Services Between the City of Red Wing, City of Red Wing Office of Emergency Management, City of Red Wing Police Department, City of Red Wing Fire Department, and Northern States Power Company, a Minnesota Corporation (NSPM, 2013). The NRC staff revised the utilities and services discussion under EA Section 3.3 to include the reference for the Letter of Agreement for Emergency Response Services.

Regarding Comment 3-22, the NRC staff revised the utilities and services discussion under EA Section 3.3 to clarify that the Red Wing Police Department has primary authority in the area of the PINGP and has the ability to request additional response resources. The NRC staff did not revise the EA in response to Comment 3-32, because an analysis of emergency response and preparedness is not within the scope of the EA.

Comment: 4-5
The commenter states that the EA is insufficient because it does not consider the long-term viability of the Prairie Island Reservation as a homeland for the tribe against the risks of continued, indefinite storage of an ever-increasing amount of spent nuclear fuel. The commenter also notes that a spent fuel accident or act of sabotage could have a devastating impact on the PIIC.

Response: The scope of this EA does not include consideration of indefinite storage of spent fuel at the PI ISFSI, but rather evaluates the environmental impacts of the proposed license renewal of the operation of the PI ISFSI for an additional 40 years. On September 19, 2014, the NRC published a revised rule at 10 CFR 51.23, "Environmental Impacts of Continued Storage of Spent Nuclear Fuel Beyond the Licensed Life for Operations of a Reactor" (79 FR 56238). The rule codifies the NRC's generic determinations in NUREG–2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel," (NRC, 2014b) regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license (i.e., those impacts that could occur as a result of the storage of spent nuclear fuel at at-reactor or away-from-reactor sites after a reactor's licensed life for operation and until a permanent repository becomes available). The timeframes analyzed in NUREG–2157 include the short-term timeframe (60 years beyond the licensed life of a reactor), the long-term timeframe (an additional 100 years after the short-term timeframe), and an indefinite timeframe. In CLI–14–08, the Commission held that the revised 10 CFR 51.23 and associated NUREG–2157 cure the deficiencies identified by the court in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012) and stated that the rule satisfies the NRC's NEPA obligations with respect to continued storage. The revised rule requires that EAs prepared for future reactor and spent fuel storage facility licensing actions consider the environmental impacts of continued storage, if the impacts of continued storage of spent fuel are relevant to the proposed action. Section 4.15 of

this EA provides the NRC staff's consideration of the generic environmental impacts of NUREG–2157 for the proposed renewal of the Prairie Island ISFSI specific license.

Regarding the accidents or acts of sabotage, NEPA does not require the NRC to consider the environmental impacts from hypothetical terrorist attacks [see Amergen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI–07–8, 65 NRC 124 (72 FR 48694)]. The Commission position rests on Supreme Court NEPA decisions that require a showing of a close causal relationship—analogous to the "proximate cause" requirement in tort law—between agency action and environmental consequences that require NEPA analysis. The Commission has found that there is no such relationship between NRC licensing actions and terrorism. The federal courts are split on the issue, with the Third Circuit upholding the Commission's view, and the Ninth Circuit disagreeing with it. Hence, for facilities located in the Ninth Circuit, the NRC staff does perform a NEPA terrorism review. The NRC staff determined that because the PI ISFSI is not in the Ninth Circuit, staff will not perform a NEPA terrorism review for this licensing action.

The NRC staff did not revise the EA in response to these comments.

Comment: 4-17
The commenter suggests that the scope of the EA include explosions or fires from acts of terrorism.

Response: The NRC acknowledges the commenter's concern about the scope of the EA. The Commission has ruled in a series of adjudicatory decisions that NEPA does not require the NRC to consider the environmental impacts from hypothetical terrorist attacks [see Amergen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI–07–8, 65 NRC 124 (72 FR 48694)]. The Commission position rests on Supreme Court NEPA decisions that require a showing of a close causal relationship—analogous to the "proximate cause" requirement in tort law—between agency action and environmental consequences that require NEPA analysis. The Commission has found that there is no such relationship between NRC licensing actions and terrorism. The federal courts are split on the issue, with the Third Circuit upholding the Commission's view, and the Ninth Circuit disagreeing with it. Hence, for facilities located in the Ninth Circuit, the NRC does perform a NEPA terrorism review. The NRC staff determined that because the PINGP and the PI ISFSI are not located in the Ninth Circuit, staff will not perform a NEPA terrorism review for this licensing action; thus, the NRC staff did not revised the EA in response to this comment.

Nonetheless, the NRC staff does consider the environmental consequences of accidents within the scope of the EA. The results of some accidents considered may have similar results to potential terrorist actions. Accidents are considered because there is a reasonably close causal relationship between the federal action of licensing a facility and potential accidents at the licensed facility. The NRC has established requirements in 10 CFR Part 73 and has initiated several actions designed to provide high assurance that a terrorist attack would not lead to a significant radiological event at an ISFSI. These include (i) the continual evaluation of the threat environment by the NRC, in coordination with the intelligence and law enforcement communities, which provides, in part, the basis for the protective measures currently required; (ii) the protective measures that are in place to reduce the chance of an attack that leads to a significant release of radiation; (iii) the robust design of storage casks, which provides substantial resistance to penetration; and (iv) the NRC security assessments of the potential consequences of terrorist attacks against ISFSIs that inform the decisions made regarding the types and level of protective measures. Over the past 20 years, there have been no known or

suspected attempts to sabotage, or to steal, radioactive material from storage casks at ISFSIs, or to directly attack an ISFSI. Nevertheless, the NRC staff is continually evaluating the threat environment to determine whether any specific threat to ISFSIs exists.

B.5.14 References

Comment: 1-21
The commenter suggests adding a reference to Table 3-6 regarding an "*" note that refers to information provided by PIIC.

Response: The NRC staff revised the reference in response to this comment.

B.6 References

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Xcel Energy®

Prairie Island Nuclear Generating Plant
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December 17, 2013

L-PI-13-110
10 CFR 72.42
10 CFR 51.33

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Ms. Cindy Bladey
Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mailstop 3WFN 6A44

Prairie Island Independent Spent Fuel Storage Installation
Docket No. 72-0010
License No. SNM-2506

NSPM Comments on NRC Draft Environmental Assessment for the Proposed Renewal of License No. SNM-2506 for the Prairie Island Independent Spent Fuel Storage Installation – Docket ID NRC-2013-0251

By letter dated October 20, 2011, Northern States Power Company, a Minnesota Corporation, (NSPM) submitted an application for the renewal of the site-specific license for the Prairie Island Independent Spent Fuel Storage Installation (ISFSI). As part of the review of this application, the Nuclear Regulatory Commission (NRC) prepared a draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI). By letter dated November 15, 2013 (ADAMS Accession No. ML13175A068) and in Federal Register Notice 78 FR 69460, the NRC notified NSPM that the draft EA and draft FONSI were available for public review and comment. The enclosure to this letter provides NSPM's comments on the draft EA.

If there are any questions or if additional information is needed, please contact Mr. Eugene Eckholt, Projects Licensing Manager at 651-267-1742.

Summary of Commitments

This letter contains no new commitments or changes to existing commitments.

Kevin K. Davison
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosure

cc:

Administrator, Region III, USNRC (letter only)
SFST Project Manager, PI ISFSI, USNRC
Environmental Project Manager, PI ISFSI, USNRC
NRR Project Manager, Prairie Island Nuclear Generating Plant, USNRC
Resident Inspector, Prairie Island Nuclear Generating Plant, USNRC (letter only)
Minnesota Department of Commerce (letter only)

ENCLOSURE

NSPM Comments on Draft Environmental Assessment For Prairie Island ISFSI License Renewal

Including Additional Reference Document as Attachment: Letter of Agreement for Emergency Response Services

9 pages follow (not including letter Attachment)

NSPM Comments on Draft Environmental Assessment for Prairie Island ISFSI License Renewal

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
1	v	Exec Summary, 3rd paragraph (Line 4)	Add space between § and 4321	1-1
2	1-1	Section 1.1, 1st paragraph (2nd sentence)	Change "TN-40 high thermal (TN-40HT) casks" to "TN-40HT casks" as the "high thermal" description is not included in the Safety Analysis Report or license	1-2
3	1-2	Section 1.3, 1st paragraph (Lines 1-2)	The current license will not expire on October 31, 2013 because an application for license renewal was submitted at least two years prior to the expiration date. Change to "The current license continues in effect under the timely renewal doctrine, as described in 10 CFR 72.42(c)."	1-3
4	1-2	Section 1.3.1, 2nd paragraph (next to last sentence)	"Normal water level is 205.6 m [674.5 ft] AMSL." Add explanation: Water level is controlled by the U.S. Army Corps of Engineers Lock and Dam No. 3 located on the Mississippi River.	1-4
5	1-7	Figure 1.3-5	Add locations of TLDs, as stated in Section 1.3.4, 1st paragraph, and in Section 3.11, 4th paragraph; alternatively, delete statements in Sections 1.3.4 and 3.11.	1-5
6	1-9	Section 1.4, 2nd paragraph (Line 2)	The statement regarding storage of up to 16 additional casks is confusing. The application for a CON requested storage of 35 additional casks beyond the 29 currently stored. This represents 16 additional casks beyond the 48 previously authorized. The maximum number of casks requested is 64. Suggest stating "...to store up to a total of 64 casks ..."	1-6
7	1-9	Section 1.4, 2nd paragraph (last sentence)	The last sentence in the paragraph on the MPUC granting NSPM a CON "for additional storage" should clarify that the CON approved additional storage for up to a total of 64 casks within the PI ISFSI.	1-7

NSPM Comments on Draft Environmental Assessment for Prairie Island ISFSI License Renewal

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
8	1-9	Section 1.4, 3rd paragraph	1. Clarify NSPM's NPDES permit discharge authorization to state that "NSPM is authorized to discharge industrial waste water and storm water to the Mississippi River under National Pollutant Discharge Elimination System (NPDES) Permit MN0004006." [add underlined wording] 2. Clarify that "The permit regulates the amount of river water the PINGP Units 1 and 2 can use for cooling and limits effluents ~~NSPM discharges~~ associated with the PINGP." 3. Add new sentence as the third sentence in this paragraph for clarification: Operation of the PI ISFSI does not result in any industrial waste water discharge.	1-8
9	2-1	Section 2.1.1, 1st paragraph	The fifth sentence (line 7) says that access to the area would be restricted until "they" are suitable for release. It is not clear what "they" refers to. Consider changing "they are" to "the ISFSI is".	1-9
10	2-1	Section 2.1.1, 3rd paragraph (Line 6)	Delete second "in the" prior to "SEIS for PINGP Units 1 and 2".	1-10
11	2-1	Section 2.1.1, 4th paragraph (last sentence)	Suggest rewording the last sentence for clarification to state that "Potential environmental impacts associated with decommissioning the ISFSI are described in Chapter 4 of this draft EA for decommissioning after the proposed action."	1-11
12	2-2	Section 2.1.4, 2nd paragraph, (2nd line from bottom)	Remove the word "conducted"	1-12
13	3-2	Section 3.1, Offsite (last sentence)	Remove parentheses	1-13
14	3-5	Top paragraph (3rd sentence)	Delete "is expected to be used for" – the replacement steam generators for Unit 2 were delivered using barges as described for Unit 1.	1-14
15	3-8	2nd paragraph (Line 3)	Replace "represented" with "represent"	1-15

NSPM Comments on Draft Environmental Assessment for Prairie Island ISFSI License Renewal

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
16	3-9	3rd paragraph (2nd sentence)	In the discussion of Utilities and Services, the City of Red Wing is reported to have stated that the city "receives inadequate revenue to fund the necessary equipment and personnel required to respond to any incidents at the PINGP or the PI ISFSI (Harlan, 2013a)." It is noted that in a Letter of Agreement for Emergency Response Services dated February 14, 2011, the City of Red Wing stated that it is prepared to and will provide emergency response to any such incidents. NSPM has not been made aware of any changes to this Letter of Agreement. A copy of this letter is attached for reference.	1-16
17	3-11	Section 3.5, 1st paragraph (4th sentence)	Remove "a" before sandstone	1-17
18	3-11	Section 3.5, 1st paragraph (last line)	Move period to after the reference consistent with format in remainder of document.	1-18
19	3-15	3rd paragraph (last line)	Remove "to" before "the potential"	1-19
20	3-16	Section 3.10.1, 2nd paragraph (last sentence)	The text reads "Two additional unconfirmed sites are also included in the list." Suggest the following as a more correct statement: "One additional site in the list is a reported, but not field confirmed, mound site. Eight historic finds, also listed in Table 3.10-1, have not been assigned archaeological site numbers."	1-20
21	3-16	Table 3.10-1	The right hand column includes an "*" note that refers to "information provided by PIIC – May 2013." There is no reference in Section 8 from the PIIC in May 2013. Suggest providing further information to identify this reference.	1-21
22	3-17	Table 3.10-1, 1st row	In Table 3.10-1, first column, first row the site number should read 21GD058/061 vs. 21GD058/601.	1-22

NSPM Comments on Draft Environmental Assessment for Prairie Island ISFSI License Renewal

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
23	3-18	Table 3.10-1	In Table 3.10-1, page 3-18, suggest the following clarifications: • Sites with "PS" identifiers should be designated as historic find spots or cultural finds that do not meet the criteria for archaeological sites. • For the line identified as "no site number," the Description should state "Unconfirmed subsurface remains of District Schoolhouse (1873-1953)." • For the lines with "PS" identifiers, the National Register of Historic Places column entry would be more correctly stated as "Lack of Site Integrity" because these sites were determined to not meet the minimum criteria to be considered archaeological sites. • For the lines with "PS" identifiers, if there is no state site form, the "Site Condition per State Site File" column entry would be more correctly stated as "No form."	1-23
24	3-18	1st paragraph after table (1st sentence)	The citation of Boden, 2009 as the source of the statement that NSPM entered into a Settlement Agreement with the PIIC could be misleading. The more correct citation would be to the Settlement Agreement itself. Suggest changing the reference for this statement.	1-24
25	3-18	1st paragraph after table (next to last sentence)	Change Office of the "State Architect" to "State Archaeologist"	1-25
26	3-18	1st paragraph after table (next to last sentence)	Add before final sentence: "The Minnesota Historical Society, BIA, Office of the State Archaeologist, and PIIC also were given the opportunity to comment on the CRMP."	1-26
27	3-18	2nd paragraph after table (1st sentence)	Clarify "...of this agreement..." to "of the Settlement Agreement..."	1-27
28	3-18	2nd paragraph after table (1st sentence)	Remove "was executed"	1-28
29	3-19	1st and 2nd paragraphs	Suggest adding a statement that none of the burial sites identified in these two paragraphs are within the ISFSI site or area.	1-29

NSPM Comments on Draft Environmental Assessment for Prairie Island ISFSI License Renewal

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
30	3-20	Section 3.10.2, 3rd paragraph (last sentence)	Change statement that "Additional testing or evaluation is required..." to "Additional testing or evaluation would be required..." for the seven historic artifact concentrations to confirm the presence of archaeological deposits before a state site number is assigned. Also, add a note to refer to Section 3.10.1 for current archaeological survey of ISFSI site.	1-30
31	3-20	Section 3.10.2, 4th paragraph (1st sentence)	Add "to be" or "as" between "determined" and "eligible"	1-31
32	3-20	Section 3.10.2, 4th paragraph (2nd sentence)	Add "to be" or "as" between "recommended" and "eligible"	1-32
33	3-20	Section 3.10.2, 3rd and 4th paragraphs	Suggest adding statement that none of the archaeological sites mentioned in these two paragraphs are within the ISFSI site or area.	1-33
34	3-21	Table 3.11-1 Last column	The 15 TLDs located between 4 and 5 miles of PINGP are not Control TLDs. There is only one "control TLD" which is located 11.1 miles from the plant, Refer to Section 3.2 of the REMP report.	1-34
35	3-23	Section 3.12.1, 2nd paragraph (1st sentence)	Add space between "are" and "located"	1-35
36	3-23	Section 3.12.1, 2nd paragraph (3rd sentence)	Change "is a minority populations" to "are minority populations"	1-36
37	3-27	3rd paragraph	The discussion regarding environmental sampling notes that "no samples (other than water) are collected on tribal lands". Suggest adding statement that: Environmental sampling as part of the REMP includes vegetation from the surrounding area and fish from the Mississippi River that is shared with the PIIC; these samples are representative of the area, including the PIIC. The REMP program is reviewed and approved by the NRC.	1-37

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
38	4-4	Section 4.3, 1st paragraph	At the end of the first paragraph, add reference to Section 3.3, Demography and Socioeconomics/PIIC Local Finance	1-38
39	4-4	Section 4.3, 1st paragraph of the PIIC input (last sentence)	The PIIC input to the socioeconomics discussion includes statements that "the PIIC receives a very limited financial benefit" from the ISFSI and that community members "receive virtually no benefit." It is noted that Section 3.3, Prairie Island Indian Community Local Finances (page 3-10), discusses a settlement agreement between NSPM and the PIIC that allocates funds to the PIIC.	1-39
40	4-10	Last paragraph (last line)	It is noted that the CRMP cited in this discussion was provided for comment to the PIIC, as stated in Section 3.10.1 (page 3-18).	1-40
41	4-12	Sec 4.11.2.1, 1st paragraph, (2nd sentence)	Delete "of the inlet and outlet vent." There are no "inlet and outlet" vents associated with the TN-40 or TN-40HT cask designs.	1-41
42	4-14	Sec 4.11.2.2, 2nd full paragraph, (2nd and 3rd sentences)	The draft EA states "NSPM projects the annual dose to the nearest residence located at 0.72 km [0.45 mi] from the ISFSI, where 29 TN-40 and 69 TN-40HT casks would be stored, to be no greater than 0.05 mSv/year [5 mrem/yr]." This is misleading because NSPM did not provide any information of the expected radiologic impacts or projected annual dose to the nearest resident for storage of 98 casks. The MPUC determined a projected dose rate by doubling the safety analysis dose rate for 48 casks contained in the ISFSI SAR and concluded that it would remain below 5 mrem/yr.	1-42
43	4-16	Subsection (6) (last sentence)	Missing parenthesis before "NSPM"	1-43
44	4-20	2nd full paragraph, (2nd sentence)	The PIIC input states "Spent nuclear fuel poses a dangerous, long-term health and environmental risk (see Public and Occupational Health and Safety Sections 3.11 and 4.11)." This statement is not supported by either Section 3.11 or 4.11.	1-44
45	4-21	3rd paragraph	This paragraph and other discussions on page 4-28 address issues that are currently being addressed separately by the Waste Confidence rule and supporting EIS. This is a separate action and comments are not provided here.	1-45

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
46	4-23	2nd full paragraph, 4th sentence	While the REMP report does "include" ISFSI related information, it is not prepared "specifically" for the PI ISFSI. Change to "Annual REMPs that include the PI ISFSI indicate…"	1-46
47	4-24	Section 4.14, 1st paragraph (last sentence)	Remove the word "power"	1-47
48	4-24	Section 4.14, 3rd paragraph (last line)	Change NSMP to NSPM	1-48
49	4-24	Section 4.14	The impacts for topics within this section are described as not "significant," which is inconsistent with the categories identified in Section 4.0 (e.g., SMALL or MODERATE). Suggest revising for consistency.	1-49
50	4-25	1st paragraph (1st sentence)	Remove the word "of" after the word "expand"	1-50
51	4-25	3rd paragraph (3rd sentence)	It is noted that the word "fuel" should be included after "spent nuclear"	1-51
52	4-29	3rd paragraph (Line 5)	Change "trip" to "trips"	1-52
53	4-30	2nd paragraph (Line 2)	The statement that NSPM expects expansion of the ISFSI to require six additional construction labor workers is not consistent with the NSPM source document. Reference NSPM, 2013a stated that NSPM expects this project to involve 13 additional workers (page 15) and six additional commuter vehicles. This is also consistent with the statement on page 4-40 of the Draft EA.	1-53
54	4-30	4th paragraph (Line 4)	Insert space before "would"	1-54
55	4-35	2nd paragraph (Line 6)	It is noted that the word "buried" should be included after "deeply"	1-55

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
56	4-35	3rd paragraph (last line)	Recommend adding a conclusion at end of paragraph that states, similar to Section 4.10 page 4-11, that the ISFSI expansion would have SMALL or MODERATE impact depending on the results of subsurface testing. E.g. "NSPM has agreed to maintain and implement its CRMP as long as NSPM owns or controls the plant site. In accordance with the CRMP, if the ISFSI expansion is determined to have the potential to cause disturbance to previously undisturbed soils with potential to contain archaeological resources, then subsurface testing would be required to determine the significance of resources that may be present. Archaeological testing may also be required to determine if unreported human burials are present in accordance with Minnesota's Private Cemeteries Act prior to ground disturbance. Through implementation of NSPM's CRMP and compliance with federal, state, and local requirements, the potential impacts of an ISFSI expansion to historic and cultural resources could be SMALL to MODERATE depending on the results of the subsurface tests."	1-56
57	4-40	4th paragraph (2nd sentence)	Recommend replacing "it is assumed that NSPM will use best management practices…" to wording similar to Section 4.10 page 4-11 and add a conclusion regarding the impacts from the ISFSI expansion. Such as: "NSPM has agreed to maintain and implement its CRMP as long as NSPM owns or controls the plant site. In accordance with the CRMP, if the ISFSI expansion is determined to have the potential to cause disturbance to previously undisturbed soils with potential to contain archaeological resources, then subsurface testing would be required to determine the significance of resources that may be present. Archaeological testing may also be required to determine if unreported human burials are present in accordance with Minnesota's Private Cemeteries Act prior to ground disturbance. Through implementation of NSPM's CRMP and compliance with federal, state, and local requirements, the potential impacts of an ISFSI expansion to historic and cultural resources could be SMALL to MODERATE depending on the results of the subsurface tests. Thus, there will not be significant impacts to archaeological, cultural, and historical resources."	1-57

NSPM Comments on Draft Environmental Assessment for Prairie Island ISFSI License Renewal

Comment Number	Page Number	Location Section/Paragraph (Line/sentence)	Comment / Proposed Change	
58	6-1	Sec 6.0, 1st paragraph, 2nd sentence	The sentence is not complete. Change to "...stores spent fuel at the ISFSI."	1-58
59	8-7	10th Reference	Add blank line between references NSPM, 2012c and NSPM, 2011a	1-59

Attachment:

Letter of Agreement for Emergency Response Services, Between the City of Red Wing, City of Red Wing Office of Emergency Management, City of Red Wing Police Department, City of Red Wing Fire Department, and Northern States Power Company, a Minnesota Corporation, February 14, 2011.

LETTER OF AGREEMENT FOR EMERGENCY RESPONSE SERVICES

BETWEEN THE CITY OF RED WING, CITY OF RED WING OFFICE OF EMERGENCY MANAGEMENT, CITY OF RED WING POLICE DEPARTMENT, CITY OF RED WING FIRE DEPARTMENT, AND NORTHERN STATES POWER COMPANY, A MINNESOTA CORPORATION

Pursuant to the terms of this Letter of Agreement ("Agreement"), the City of Red Wing ("City"), including the City of Red Wing Office of Emergency Management ("Red Wing Emergency Management"), City of Red Wing Police Department ("Red Wing Police Department"), City of Red Wing Fire Department ("Red Wing Fire Department"), and Northern States Power Company, a Minnesota corporation ("NSPM"), agree to provide emergency response services to the Prairie Island Nuclear Generating Plant ("PINGP") as follows:

1. The City and NSPM (together, "Parties") have reviewed the Prairie Island Emergency Plan ("Prairie Island Plan") and each party understands its responsibilities pursuant to the Prairie Island Plan and NUREG 0654. In the event of an emergency at PINGP, the Parties are prepared to and will respond to a request for assistance as set forth in the Prairie Island Plan.

2. The following responsibilities are outlined in the City of Red Wing/Goodhue County Emergency Plan ("City/County Plan") and each party affirms it can perform its responsibilities as outlined in the City/County Plan as set forth below and as otherwise outlined in the City/County Plan as well as the Prairie Island Plan (together, "Plans"):

    - The Red Wing Police Department has primary authority in the area of the PINGP and shall be the normal single point-of-contact for a response outside of the PINGP. The Red Wing Police Department has the ability to request additional response resources from neighboring agencies (i.e. the primary source of additional resources will be the Goodhue County Sheriff's Office with the ability to request assistance from other neighboring agencies as necessary) to assist them in response to any emergency situation at PINGP.

    - In the event that NSPM has declared a General Emergency as defined in the City/County Plan, the Goodhue County Sheriff's Office shall assume operational control over all emergency operations.

    - Law enforcement and traffic control will be provided by the Red Wing Police Department, Goodhue County Sheriff's Office, the Minnesota State Patrol or other entity as specified in the Plans.

- The Red Wing Department of Public Works and the Goodhue County Engineering Department will provide supplemental support to law enforcement.

- Fire and rescue services will be provided by and under the control of the Red Wing Fire Department.

- The Red Wing Fire Department has the ability to request additional response resources from neighboring and regional agencies (i.e. mutual aid fire, emergency medical or other resources) to assist them in response to any emergency situation at PINGP.

- Ambulances from the Red Wing Fire Department have the capability to and will transport radiologically contaminated patients within the Red Wing Fire Department's Minnesota and Wisconsin service areas to Fairview-Red Wing Medical Center. The Red Wing Fire Department also has the capability to and will transport such radiologically contaminated patients to Regions Hospital in Saint Paul, Minnesota, or to other medical facilities designated to treat radiological patients as directed by a physician.

- The Red Wing Fire Department has the capability to and will provide fire, rescue and other non-fire fighting services within the Red Wing Fire Department's Minnesota and Wisconsin service areas in PINGP's emergency planning zone. The Red Wing Fire Department has various firefighting apparatus, including pumpers and an aerial platform. Red Wing Fire Department apparatus may be used to perform both fire fighting and non-firefighting tasks, including rescue operations, including spraying water to contain radiological releases and pumping water into the plant for refilling and/or cooling purposes. In all cases, such operations may begin only when the radiological and security threats are mitigated to insure the safety of both plant personnel and fire fighters. The Red Wing Fire Department facility shall be the location for the Emergency Worker Decontamination.

- All other agencies, areas and levels of responsibilities are outlined in the City/County Emergency Plan.

- The City, including Red Wing Emergency Management, Red Wing Police Department, Red Wing Fire Department, and NSPM have mutually adopted and agreed to use the Emergency Action Levels as specified in the Prairie Island Plan.

3. This Agreement shall become effective on the date of the last signature by the authorized representatives of the Parties. The Agreement may be amended by mutual consent of the Parties. Either party may withdraw from the Agreement by providing ninety (90) days' written notice of intent to withdraw from the Agreement to the other party.

Agreed to: _____ 15 Feb 2011
Acting Mayor — Date
City of Red Wing

_____ 15 Feb 2011
City Council President — Date
City of Red Wing

_____ 2-17-11
Tim Sletten — Date
Chief
Red Wing Police Department
City of Red Wing

_____ 15 Feb 2011
Tom Schneider — Date
Chief
Red Wing Fire and Ambulance Department
City of Red Wing

_____ 2/17/11
Roger Hand — Date
Emergency Management Director
City of Red Wing

_____ 2/24/2011
Mark Schimmel — Date
Site Vice President
Prairie Island Nuclear Generating Plant

Cc: Prairie Island Tribal Council
Goodhue County Sheriff
Goodhue County Engineering

PUBLIC SUBMISSION

As of: January 03, 2014
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Submission Type: Web

Docket: NRC-2013-0251
Proposed License Renewal for the Prairie Island Independent Spent Fuel Storage Installation

Comment On: NRC-2013-0251-0001
Proposed License Renewal of the Prairie Island Independent Spent Fuel Storage Installation

Document: NRC-2013-0251-DRAFT-0002
Comment on FR Doc # 2013-27730

Submitter Information

11/19/2013
78 FR 69460
(2)

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Submitter's Representative: Jamie Schrenzel
Organization: Minnesota Department of Natural Resources
Government Agency Type: State
Government Agency: Minnesota Department of Natural Resources

General Comment

The Minnesota Department of Natural Resources (MDNR) reviewed the Draft Environmental Assessment (EA) for the proposed 40-Year License Renewal of the Prairie Island Independent Spent Fuel Storage Installation (PI ISFSI) in Goodhue County, Minnesota (Materials License Number SNM-2506). The MDNR provided input to the Nuclear Regulatory Commission previously and appreciates the inclusion of recommended topics in the Draft EA. The MDNR has no further comments at this time. 2-1

Sincerely,

Jamie Schrenzel
Principal Planner
Environmental Review Unit
(651) 259-5115

SUNSI Review Complete
Template = ADM – 013
E-RIDS= ADM-03
Add= J. Trefethen (JAT2)

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Submitter Information

11/19/2013
78 FR 69460
(3)

Name: Anonymous Anonymous
Submitter's Representative: Thomas P. Harlan, Esq.
Organization: City of Red Wing

General Comment

Please see attached.

Attachments

Bladey121913

Bladey122013

RWFD Master Plan

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December 19, 2013

Ms. Cindy Bladey
Chief
Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop: 3WFN 6A44
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Ms. Bladey:

Re: City of Red Wing's Comments to the Draft Environmental Assessment for the Proposed 40-year License Renewal of the Prairie Island Independent Fuel Storage Installation in Red Wing, Minnesota
Docket ID NRC-2013-0251

As you are aware, this firm represents the City of Red Wing, Minnesota (the "City") with respect to the above-referenced matter. We submit these comments on behalf of the City to the Nuclear Regulatory Commission (the "NRC" or "Commission") in response to the Draft Environmental Assessment (the "Draft EA") prepared by the Commission as part of the relicensing of the independent spent fuel storage installation (the "ISFSI") located outside the Prairie Island Nuclear Generating Plant (the "PINGP"). These comments by the City should be read in conjunction with its comments to the Commission on the draft Environmental Impact Statement (the "Draft GEIS") currently being completed. A copy of the City's comments to the Draft GEIS are attached hereto. The City thanks the Commission for the opportunity to submit comments to the Draft EA and looks forward to working with the Commission, its staff, and consultants to address the very important issue of the relicensing of the ISFSI of the PINGP.

BACKGROUND

The City is the host community to the PINGP, which is a dual reactor 1118 MW facility. Immediately adjacent to the PINGP, sits approximately twenty-nine (29) individual dry casks in which are stored spent nuclear fuel rods. In addition, the PINGP spent fuel pool, like all others, contains spent fuel that has been unloaded from the reactors and is waiting to be transferred and stored in certain specifically designed casks. It is anticipated that at the end of the life of the PINGP, which is currently scheduled in 2033 and 2034, and following the

appropriate holding or cooling off period for the rods, there will be approximately ninety-nine (99) casks located on the ISFSI.[1] Like the PINGP, the ISFSI is within the City's limits.

The City and Northern States Power Company d/b/a Xcel Energy (the "Company") have worked together over the years to first site and thereafter solve many of the issues associated with the PINGP. The City has been supportive of the Company and its efforts to maintain not only the PINGP but the ISFSI in a reasonable and safe fashion. However, the City, like many other host communities, is now facing a scenario that it did not, under any set of circumstances, envision: the failure of the Federal Government to honor its contractual agreement with the Company and remove the spent fuel from the PINGP to either an interim storage facility or a long-term or permanent repository. 3-1

The City is uniquely situated to provide input on the Draft EA. The City, in all respects, is a first and primary responder to any incident at the PINGP or the ISFSI. It is obligated, under both federal and state law, to provide reasonable assurance that it has the necessary facilities and infrastructure to meet and respond to any incident at either facility. The City, to honor this social compact, is obligated to maintain a steady state of readiness through an investment in and maintenance of the necessary equipment and personnel, as well as the necessary buildings to locate the same. The City has and continues to do so despite the continued reduction of revenue to the City from the Company for taxes on the PINGP. The City, in turn, has been forced to shift this burden to its other taxpayers who, since 1996, have seen their property taxes increase over 188%. This is a burden that they cannot continue to bear. 3-2 3-3

THE DRAFT EA AND CITY'S COMMENTS

According to the Draft EA, there has not been a determination whether a final EA should be issued or if the Commission, for purposes of the relicensing of the PINGP ISFSI, can meet its obligation with a FONSI. The City does not believe that a FONSI is warranted or can be supported. The Draft EA, with its intermittent narrow and expanded focus on the various factors that are to be evaluated for such a determination, fails to take into account crucial, material information. 3-4

This includes, without limitation, a truly comprehensive review of the immediate and cumulative impacts of the continued storage of spent fuel. Like the Draft GEIS, the Draft EA artificially segregates issues and analysis deferring to other reports or studies. As detailed below, these reports and studies were completed outside of the newly recognized reality:

[1] The precise number of casks that will hold spent fuel has not yet been determined since the PINGP is using a different fuel assembly that burns hotter and longer in the reactor and thus requires replacement or refueling at a different rate. Accordingly, the number of casks originally calculated as being necessary for end of life storage of spent fuel may be lower or higher depending on often refueling occurs and how many fuel assemblies can be placed into the casks. Though the casks are larger to accommodate the larger fuel assemblies, it is unknown if the new casks will hold the same number of spent fuel assemblies as the casks that are currently being used. In addition, as noted by the PINGP's owner and operator, Northern States Power Company d/b/a Xcel Energy after the decommissioning of the PINGP, low level nuclear waste will continue to be stored on-site until the same can be disposed of properly. It should be noted that this low level nuclear waste is the responsibility of the generator (i.e. the Company) to dispose of – not the Federal Government. 3-5

spent fuel storage is going to continue indefinitely at the ISFSI and other storage facilities around the country. With this understanding, the City believes that the relicensing of the PINGP ISFSI for an additional forty (40) year period will have a material impact on the City, as well as the general area in which it provides services. 3-4 cont'd.

In presenting its comments, the City will break these out into two (2) categories. The first category is general comments. This is an overview of the Draft EA in certain areas and an analysis of where the same is deficient. This will also include, but not be limited to, a review of assumptions made by the Commission in preparing the Draft EA. The second category will address specific points within the Draft EA itself with a discussion on what could or should be supplemented. This also includes a discussion on missing items and follow-up in order to make the Draft EA more complete. 3-6

The import of these two categories of comments leads to the unrebuttable conclusion that an EA, in complete form, is necessary in order to evaluate the relicensing of the PINGP ISFSI. The proposed action of relicensing the ISFSI for another forty (40) years does have a large and significant impact on the human and material environments that surround the ISFSI.

A. General Comments.

1. The Draft EA assumes that past experience of storage and the robustness of the equipment that comprises the ISFSI are sufficient. The Draft EA, like the Draft GEIS, makes a number of assumptions to reach a presumptive conclusion that the continued storage of spent fuel is safe and does not pose a risk. This conclusion is simply not supportable.

   a. Experience.

   The Draft EA relies upon and references the experience associated with dry cask storage. This experience must be discounted because the Commission, like the industry as a whole, is learning in real time. When the PINGP, or any other nuclear power plant was built, there was no consideration given to dry cask storage, or, for the PINGP, that spent fuel would still be on site in 2013 – 25 years after it was to be removed and 40 years after operations started. Rather, there was a belief that there would be, this time, not only the development of a permanent depositorium but the removal of the spent fuel from the PINGP. This removal was to start in 1987 and, given a PINGP's queue position, would be complete by today. 3-7

   The experience for the ISFSI is one garnered by necessity not plan. When it became apparent that spent fuel was not going to be removed from the PINGP in a timely fashion, there were accommodations made to increase storage of spent fuel assemblies in the spent fuel pool. After a decade or two of racking and re-racking spent fuel rod assemblies, the Company in the early 1990's was forced to move to dry cask storage. That "temporary storage" has continued for over 20

years in casks that were not designed to be transfer casks or permanent storage casks, but simply temporary storage casks. But for how long? What was the original thought behind that storage? Thus, the experience the Commission cites is being realized by each passing day, not by a process that has been completed and is now being repeated. The Commission, like the City, finds itself in a position that it never anticipated and is struggling to determine how to best address the issues associated with continued storage. Experience, then, is not a factor the Commission can rely upon.

In fact, experience would lead to the opposite conclusion: storage will not be limited to 40 years or any other time frame. Rather, it is permanent. The City uses the word permanent because there is no other time frame that will apply. It is unknown when the spent fuel will be removed. Any indicators that this removal will occur in the near future have been removed or not acted upon. Yucca Mountain has been removed as a solution and there is no action on any resolution suggested by the Blue Ribbon Commission Report. Removal is no closer today than it was in 1973 when operations at the PINGP commenced. 3-7 cont'd.

On many levels, patience with the creation of a solution has been exhausted. Nowhere is this more obvious than in the Federal courts. The deference given to the Commission and the Department of Energy has simply evaporated over the issue on the Waste Confidence Rule and the continued collection of fees for permanent storage. The Federal courts, like the stakeholders, have lost confidence a solution is imminent and no longer have the patience to pretend this is so.

Experience, then, instructs that no solution on permanent storage or removal is forthcoming. With that reality, the experience associated with the unintended practice of spent fuel storage in casks at the ISFSI or anywhere else is not a substitute that the Commission can rely upon in the Draft EA.

b. Robust Equipment.

The Draft EA, as a corollary to experience, cites to the robustness of the TN-40 casks and the newly authorized TN-40HT casks as being a reason storage is or should not pose a risk. However, it does not have any analysis of the casks themselves by the manufacturers of the same. There is no discussion of the manufacturer's warranty of the casks that are being used or useful life associated with the same. Instead, the Draft EA, like the Draft GEIS, simply draws its own conclusions without any further support. 3-8

It would seem obvious that the manufacturer's statements/information/limitations of the equipment being used would be included in the Draft EA. This is especially true where the Draft EA's very purpose is to evaluate whether continued storage will have an impact on the natural and socioeconomic

environments in which the ISFSI is to be located. However, the Draft EA does not even give a perfunctory analysis or treatment of any comments by the manufacturer. 3-8 cont'd.

The Draft EA also ignores any information associated with the components of the equipment being used at the PINGP ISFSI. The TN-40 and TN-40HT casks are iron and concrete. There is no analysis on whether these components will degrade over time or, if so, how the same can be maintained. This is particularly important given the analysis of the Department of Energy in the Yucca Mountain Environmental Impact Statement and its use and reliance upon a concrete study done in St. Cloud, Minnesota. This concrete study is neither mentioned nor in any way included in a Draft EA. 3-9

Finally, in addition to the lack of experience cited above, there is no experience with the TN-40HT cask and the new fuel rods. The TN-40HT cask, in fact, did not even go into production until 2009. Its purpose was to store the new fuel assemblies that were to be (and are now being) used at the PINGP. These fuel rod assemblies burn hotter and longer than the rods that were previously used. There simply is no experience with them. The Draft EA, then, should not rely on assumptions of experience and robustness of the equipment used where none exists. 3-10

Instead of these assumptions (which mirror nuclear industry assumption that nothing will go wrong-until it does), the Draft EA should specifically work through the characteristics and qualities of the casks. This should be done in light of the manufacturers' warranties, the past statements on the use/durability of the casks (especially when these were first being put in place) and the anticipated storage life of the same. This last point should also include reference to the Draft GEIS and its storage timelines. 3-11

2. <u>The Draft GEIS is essentially ignored.</u> The purpose of the Draft EA is to examine site specific impacts associated with the PINGP ISFSI. In doing so, the Draft EA, at different parts, references the Draft GEIS being completed and its general coverage of certain issue outside of the scope of the Draft EA.

   The problem is, of course, the Draft GEIS is just that: a draft. It is not complete and will not be complete in time for the analysis under the Draft EA. As such it is impossible for the Draft EA to incorporate this incomplete document into its own analysis or to utilize that to support a FONSI determination. 3-12

   This is a fatal flaw in the Draft EA and runs contrary to the Commission's own directive that re-licensing activities reliant upon the old Waste Confidence Rule be put on hold. With the purported interplay between the Draft EA and Draft GEIS, the Draft EA and any determinations regarding the same must be put on hold.

The lack of interplay between the Draft EA and the Draft GEIS also represents a fundamental flaw in the scope of analysis by the Commission as it relates to the PINGP and ISFSI, in particular, and the continued storage of spent fuel, in general. There is, between the two, an unnatural segregation of scope and responsibility so much so that two rarely cross over to provide any substantive analysis. 3-12 cont'd.

Comprehensive analysis is avoided not only through this segregation but also through various assumptions and reliance upon other reports that were done years ago. These reports may no longer be reliable. The reason for this potential lack of reliability is three-fold: first, the Commission, along with everyone else, is learning in real time. The date(s) for removal of the spent fuel have come and gone, and the systems for storage were developed out of necessity rather than design. Second, these reports all, in part, may have been created in reliance upon or with the old Waste Confidence Rule in mind. Since that Rule is no longer effective, these reports may likewise be tainted. Third, if the directive of the Draft GEIS is to be fully implemented then the past reports/analysis must be viewed in light of the no-build scenario. That directive must find its way into the Draft EA. 3-13

The reality is that the spent fuel generated by the PINGP is going to be permanently stored at the ISFSI within the City's limits. There is, and has been, no substantive plan by the Federal Government to remove this waste. There is simply no long-term solution and the limited forty (40) year of the license does not give the Commission a fair and full analysis of the real impacts of continued storage. Likewise, the Draft GEIS excludes any analysis to site specifics and instead simply discusses generalities. It too, as is stated by the City in its comments to the same, is for the purposes of continued spent fuel storage, flawed. 3-14

3. <u>There is insufficient analysis on negative impact of continued storage.</u> The Draft EA, in part, does not provide sufficient analysis of the negative impacts of continued storage. Instead it focuses solely on the positive impact in the form of continued employment, growing housing, and continued taxes. It does not contain a complete analysis of the chilling effect of continued storage. While the Draft EA does, in part, address this issue relative to the Prairie Island Indian Community (the "PIIC") it does not do so with respect to the City. In order to have a full evaluation of the impact during the next forty (40) years, the Draft EA must fairly consider the nature of the items being stored within the City limits: some of the most toxic material known to man. 3-15

   The chilling effect must be analyzed through, among other things, the impact on the City's growth and its land use in the future.

4. There is no analysis on PINGP closure.

The Draft EA also does not fully evaluate the timing of what is to occur with the PINGP and the ISFSI over the next relicensing period. In the Draft EA, relicensing for the ISFSI is evaluated for an additional forty (40) years.[2] This extends the ISFSI license to 2052. However, by 2033 and 2034, respectively, the PINGP as a nuclear generating electrical plant, will cease operations. What does this mean? What will be the impact on the City from a tax revenue standpoint? What will be the impact on the City to continue to maintain the necessary readiness to respond to an incident? Is it possible for the City to reduce its readiness because of the purported robustness of the equipment used in the ISFSI?

The answer to this last question is, of course, no. The City must be ready for any incident, radiological or non-radiological, regardless of whether the same comes from plant operations or continued storage[3]. As is noted by the Draft EA, in section 4.3, the City will face the same "financial burdens such as expenses associated with participation and PINGP-related actions, emergency planning, and steps required in the event of an accident [e.g. educating the public on risks and procedures; maintaining special medical supplies (iodine tablets), equipment, in trained professionals] would also not change and would continue to impact, in the same manner, communities within the ROI." Draft EA, section 4.3, pg. 4-4. The Draft EA does not evaluate this statement any further nor analyze what it would mean to the City. This must be included in order to fully evaluate the immediate and cumulative impact on the socioeconomics associated with continued storage for an additional 40 years. 3-16

As provided in more detail below, the impact of continued storage on the City is large and significant. The Draft EA must include and further develop this analysis.

B. Specific Draft EA Comments.

With respect to the specific comments on the Draft EA, these are organized by the appropriate section within the Draft EA. In addition, please note that some of the comments refer to a report that is attached to these comments as well as documents that are outside the same.

[2] Indeed, the best approach is to relicense the ISFSI for 20 years, not 40 years. By limiting the relicensing to 20 years, the next relicensing will occur at a time contemporaneously with the termination of the PINGP's operation. By coordinating the expiration of the license for the ISFSI with the cessation of operations of the PINGP, the Commission will have the ability to fully examine the impact of the closure of the PINGP and the true costs and requirements of continued storage at the ISFSI. 3-17

[3] It should be noted that numerous spent fuel assemblies will still be in the cooling pool since the same will be too radioactive to transfer to dry cask storage. This factor, as well as the closing of the plant, was not addressed in the Draft EA. 3-18

1. The concept of the affected environment is too narrow. In section 3.0 of the Draft EA, the Commission lists, as the affected environment, the one that "currently exists at or around the PI ISFSI. The existing conditions that have shaped the environment or at least partially the result of past construction and operation of PINGP 1 and 2 and the PI ISFSI." Draft EA, Section 3.0, page 3-1. This definition is too narrow for a number of reasons. 3-19

   First, the purpose of the Draft EA is not to evaluate the affected environment in a static fashion but to do so dynamically and over the period of the purposed relicensing timeframe. It does not do so. The proposed relicensing runs to 2052 or 2053. The City will grow and expand during this time. To limit the affected environment to the area that currently exists at or around the ISFSI does not fit within the purpose parameter of the Draft EA.

   Second, the Draft EA does not take into effect the negative impact that continued storage of spent fuel will have on land use in the surrounding areas. As is acknowledged in the 2011 Blue Ribbon Commission Report, spent fuel has a well-deserved stigma attached to it. It is, by definition, some of the most toxic material known to man. The radioactivity of the spent fuel is so intense that exposure to it at a different time frame may cause immediate death. Draft EA, Section 4.0, page 4-20, fn. 1. The continued storage, then, of spent fuel in casks within the City will have a negative impact on its development and/or land use well into the future. Accordingly, the concept of land use and the impact on land use must include this negative stigma. 3-20

   Finally, the narrow description provided in section 3 is, in part, contradicted by the Draft EA's later analysis of land use of the PIIC. While admittedly, the use of land by the City will be different than the use of land by the members of the PIIC, the psychological impact is the same: people do not want to locate their homes or businesses next to dry cask storage. The Draft EA must include an analysis of the negative impact on land use continued storage would have on the City – especially since the ISFSI will remain in the City's limits. This analysis would include, but not be limited to, an analysis on the stunted growth of the City, as the host community, and what this would mean to businesses that are already located there. This could also extend to an analysis on the lost taxes or revenue that would flow to the City from the same.

2. Section 3.3, demography and socioeconomics, is too narrow.

   Section 3.3, which broadly covers a number of different socioeconomic issues, fails to appropriately identify or analyze the same in depth. The

result, then, is that the impact of continued storage is not effectively evaluated.

- Local Finance. On page 3-8, the Draft EA describes local finance. This only addresses payments to the City by the PINGP in the year 2010. There is no historical data about how these payments have declined over time, how the tax burden has shifted to other tax payers in the City since 1996, or how this declining revenue has impacted the City.

  Likewise, there is no discussion of how the changes to the state tax code for utility companies in Minnesota have resulted in a 26% reduction in taxes to the City or how the PINGP and the ISFSI can use state tax exemptions to shield improvements, upgrades and maintenance from being taxed.

  Finally, the concept of local finance does not take into account what taxes will be paid to the City after the PINGP ceases operations in 2033 and 2034. There is a possibility that the ISFSI will be taxed in such a limited fashion that it will be the equivalent of a parking lot. The Draft EA must be amended to reflect the history and decline of tax revenue and the impact of the same. This is information that both the City and the Company should provide to the Commission. While some of this may be found in the documents filed in the Company's Certificate of Need proceeding before the Minnesota Public Utilities Commission for additional dry cask storage in 2008, that information is no longer fully reliable and needs to be updated and/or revised in light of changed circumstances.

3-21

- Utilities and Services. Under utilities and services, the Draft EA goes to great length to discuss the police department that is maintained by the PIIC and how it will respond to incident at the PINGP or the ISFSI. This analysis exhibits a lack of understanding on what is necessary to respond to an incident at a facility that uses and stores nuclear fuel.

  As noted by the Draft EA, the PIIC has developed and maintained its own private police force and the City has a mutual aid agreement with the PIIC regarding that force. However, the City has a mutual aid agreement with virtually every local municipality and county in a forty (40) mile radius of its borders. This is done for two (2) purposes: first, to ensure that this continuity in providing services to the citizens of that area, and second, to ensure that those entities, in the event that the City needs additional

3-22

support, will come to their aid and have the jurisdiction to do so.

But before any mutual aid agreement is invoked and a response from the PIIC or any other community requested, the City for all incidents within its borders, must first respond, assess and then request that aid be provided. This is fundamental to the jurisdiction of the City and instrumental under all of the mutual aid agreements it has in place-including the mutual aid agreement with the PIIC.

With respect to the necessary equipment and facilities and personnel required to respond to an incident at the PINGP or the ISFSI, it should be pointed out that the PIIC does not have any ambulance, paramedic or fire services. In fact, the PIIC, like the other residents in the 462 square miles around the City of Red Wing, rely upon the City to provide those services. The PIIC does not have an emergency coordinator nor are its facilities designated by the state and federal governments as being the facilities in which to coordinate a response. 3-22 cont'd.

It is the City that signs off and provides reasonable assurance to the State of Minnesota and to the NRC that an emergency preparedness plan is in place and that, in the event of an incident, an appropriate response will be provided.

Accordingly, the section on utilities and services must be modified to reflect that the City, in all respects, is the primary and first responder. It provides the necessary public safety services to respond in the event of an incident and the PINGP or ISFSI. While the PIIC may assist in this process, its assistance will be limited to only police and not to any of the other fire or ambulance or paramedic services that will more than likely be necessary in the event of an incident.

3. Under Section 3.11, there needs to be a discussion of Emergency Preparedness. Section 3.11 addresses public and occupational health and safety. It identifies, in very general terms, certain incidents and concludes that there is or would not be a likelihood of any release from the systems being used. The Draft EA, again, relies on the robustness of the casks that contain the spent fuel as being able to withstand the incident. 3-23

Simple reliance on the robustness of the casks is insufficient. The Draft EA should have a separate section on Emergency Preparedness to address the issue of what if the containers or casks would break down. Included within this Emergency Preparedness section would be an analysis of the

TN-40 and TN-40HT from the manufacturer's perspective including, but not limited to, the precise makeup or composition of the casks, the warranty period, as well as a useful life.

In discussing the Emergency Preparedness plan, the Draft EA should analyze what that currently entails with respect to the continued operation of the PINGP as well as what that will look like once that operation ceases. In other words, in 2033 and 2034, respectively, what will the Emergency Preparedness plan look like or be required? Emergency Preparedness is an absolute necessity. The NRC, for operations of the PINGP and the ISFSI, requires reasonable assurances that such a plan is in place and that there will be a response in the event of an incident. It also conducts annual exercises to evaluate the same. 3-23 cont'd.

In the Certificate of Need proceeding for the Minnesota Public Utilities Commission regarding expanded storage of spent fuel outside of the PINGP, the Minnesota Public Utilities Commission (the "Minnesota PUC"), upon the recommendation of the administrative law judge, placed a condition on the Company's license. The Minnesota PUC also requires that the City provide reasonable assurances that it can meet the requirements of the Emergency Preparedness Plan for the PINGP and ISFSI. The Draft EA should be modified to reflect these circumstances. 3-24

4. Under Section 4.1, Land Use, the Draft EA must expand beyond the physical imprint of the ISFSI. Section 4.1 of the Draft EA limits the impact on land use to the specific area that compromises or is next to the ISFSI. In other words, there is no analysis, whatsoever, on the chilling effect that the continued storage would have on the natural development and growth of the area around the ISFSI for the City.

   The analysis of land use under the Draft EA must be expanded to include an analysis of future land growth in the next 40 years. As previously noted, the PINGP and ISFSI are both within the City's limits. It is a natural and progressive process that will lead the City to develop in and around the area that both of these are currently located. The chilling effect of continued storage must be considered. 3-25

   This area would not be available for growth and could have the effect of stagnating growth within the City. The EA should note that the City, in many ways, is geographically restricted on how it can grow: with the Mississippi to the east and bluffs and other hills to the south and west, the natural growth pattern is to the north. While this has occurred along Highway 61 running to the north, it is only natural that the area between Highway 61 and the river be made available for and be used by new businesses. This is precisely where the ISFSI is located.

Not only is this analysis necessary in order to fully address the impact of continued storage, it is fair given the additional scope of review provided by the Draft EA regarding land use by PIIC. Specifically, on page 4-2, and carrying over to 4-3, the Draft EA addresses the use of the land by the members of the PIIC. The language describes, in essence, the chilling effect that continued storage would have on the use of their land adjacent to the ISFSI. The City too will suffer from the continued presence of the ISFSI as it relates to the development of the land around the same. Accordingly, fairness dictates that this be included, from the City's perspective, within the Draft EA. 3-25 cont'd.

5. Section 4.3, Socioeconomics, must be modified to address the City as first responder and its role regarding the same, taxes and change the impact from small to large. Section 4.3, which addresses socioeconomics, cites to a number of factors to reach the conclusion that "no change (direct or indirect) to the local economy would result from the proposed action and thus the potential socioeconomic impacts will be SMALL and, thus, would not be significant." See Draft EA, Section 4.3 at p. 4-4. In support of this conclusion the Draft EA cites to the burdens of a first responder, the impact of any taxes being paid to the City, as well as the financial burdens for continued emergency preparedness. After these factors are appropriately weighed, it is clear that the proposed action of continued storage will have a significant and large impact.. 3-26

   a. City as first responder.

   Section 4.3 at the outset fails to appropriately recognize the role of the City as the first responder. It is the City that provides reasonable assurances to the State and Federal government that it will respond to an incident at the PINGP or ISFSI.

   The PIIC makes reference to the fact that it is a de facto host community and that it is a first responder to any incident due to its police department. While the PIIC has also been and continues to be materially impacted by the storage of spent fuel, the assertion of host city and first responder are not supportable. The spent fuel has and will continue to be stored within the City limits. The City has, and will continue to be, obligated to respond to any incident at the PINGP and/or ISFSI using all of its reserves. The City and its citizens has and will continue to be obligated to pay for this heightened and exaggerated state of preparedness necessary to respond to such an incident. 3-27

   While the PIIC has only recently developed and maintained a police force, it has not invested in ambulance, fire trucks, or other buildings, personnel

or equipment. Rather, the PIIC, like many others in the region, depends upon the City to provide these services in the event of an incident, including one at either the PINGP or Treasure Island, the casino that the PIIC owns and operates on its own tribal land. While the PIIC police department will undoubtedly enforce the law and respond when requested by the City, it cannot meaningfully respond to an incident that involves a fire, a breach to any of the containment facilities, or an injury that results from the same. Nor does it have (or can provide) any coordination of the delivery of any of these services. This too is provided by the City.[4]

3-27 cont'd.

b. The City's Responsibilities and Capabilities.

The Company and PIIC are not the only group or entity that rely upon the public safety services of the City. The City serves over 64 square miles of coverage for its fire safety services and over 462 square miles of coverage for its ambulance services. This extended area includes an area just south of Hastings, Minnesota to north of Lake City, Minnesota, and then east into Wisconsin.

In 2008, the City had an independent study completed to assist it in assessing its ability to provide public safety services. This report, which is referred to as the 2008 Public Services Report (the "Report"), concluded that the City needs to increase its public safety services in order to effectively serve the City and other areas that it is responsible for serving. A copy of the Report is attached hereto. The Report recognized not only the wide range over which the City provided services, but also recognized the widely scattered high risks within the City including targets such PINGP and the PIIC Treasure Island Casino. Indeed, each of these were specifically identified and described in detail.

3-28

The Report recommended that the City add two additional fire stations, increase its full time and full time equivalent fire/ambulance services by 36 fire fighters, and purchase the necessary equipment to support the same.[5] The City has not implemented any portion of the recommendations

[4] The PIIC also stated that it expends "considerable financial resources participating in state and federal regulatory proceedings for the PINGP units 1 and 2 and the ISFSI (federal only). There is no other governmental entity (e.g. City of Red Wing, Goodhue County, or the State of Minnesota) participating in these proceedings at the same level as a PIIC." Draft EA, Section 4.3, p. 4-4. While it is true that the PIIC has participated in certain proceedings, it should be noted that it is prohibited from participating in others. The agreement the PIIC and the Company reached regarding the storage of spent fuel prohibits the PIIC from participating in certain proceedings in exchange for payments in the future. In addition, the PIIC has chosen not to participate in lobbying the Minnesota legislature for changes to some of the underlying laws regarding the continued storage of spent fuel in the state of Minnesota. This includes, but is not limited to, the changes to the calculations for the decommissioning of the PINGP and how ISFSI should be accounted for as part of the same.

3-29

[5] Interestingly, one of the additional fire stations was to be located close to the Treasure Island Casino in order to service the high number of calls that originate from that facility.

of the Report. In fact, the City went in the opposite direction: it developed a plan to reduce its expenditures of public safety services. The plan included, but was not limited to, a plan for not filling open positions; cutting or freezing expenditures (such as, for example, the proposed increases recommended by the Report); and cutting positions, including positions in public safety. As a result of this plan to reduce expenditures and other changes that have been implemented to date, the City's ability to continue to provide the critical and necessary public safety services has been compromised. 3-28

c. Revenues to the City will decrease but its obligations and financial burdens will remain the same.

Section 4.3 also fails to take into consideration that during the time frame of the proposed action, the PINGP will cease operations. This cessation of operations will have a significant impact on the taxes the Company pays to the City. Property taxes paid by the Company on the PINGP have decreased from approximately $23.4 million dollars in 1996 to $10.7 million dollars in 2010. It is anticipated, by the Company, that these amounts will steadily decrease over time. Application for License for Additional Dry Cask Storage to the Minnesota Public Utilities Commission, Exhibit J, page 2-28. There are many reasons for this decrease. First, the general age of the PINGP itself has resulted in a reduction in the overall taxable base upon which taxes are calculated for the Company. Second, in 2006, effective for the calendar years 2008, 2009 and 2010, the Minnesota Department of Revenue established amended rules regarding how the PINGP's property and equipment would be assessed and valued for property tax purposes. The result of these amended rules provided the Company with a tax break for its power generating facilities, including the PINGP. 3-30

To address the deficiency created by the Department of Revenue changes, the state passed a measure called Utility Valuation Transition Aid. The sole purpose of this statute was to make up for the deficiency between the amounts that would have been paid under the old Department of Revenue rules and those that are now being paid utilizing the amended rules. Utility Valuation Transition Aid expired in 2011.

Finally, the Company has continued and expanded its use of pollution control property tax exemptions. The State of Minnesota, in recognition of the generation of electricity from "green alternatives", has afforded the Company, and other electricity generators, exemptions for many of the improvements, replacements and upgrades to various generating facilities. This includes the PINGP. The PINGP is exempt because it does not emit carbon as a byproduct of its operations and thus is considered a green

alternative for a generation. Indeed, it is possible for Xcel Energy to declare all of its spent fuel casks as being pollution control equipment and therefore exempt from property taxation.[6] Accordingly, the amount of reduction in the payment of property taxes following cessation of operations at the PINGP will be significant. 3-30 cont'd.

During the course of the Certificate of Need proceeding, the Company introduced evidence that a planned power uprate of the PINGP would more than offset any of its acknowledged reduction in property taxes. The Company reasoned that the improvements to the facility, which were projected to be in the hundreds of millions of dollars, would result in a significant increase in property taxes that would be paid to the City.[7] However, the Company has since abandoned its plans for the power uprate. While there has been investment into the PINGP, it is unknown what impact this would have on tax revenues to the City. Regardless of any temporary increase this may bring, as the Company itself has acknowledged in its Environmental Impact Statement in support of its application to relicense the PINGP, there will be a continued and steady reduction and payment of property taxes to the City over the remaining life of the PINGP. And in 2033 and 2034, it will be reduced dramatically. 3-31

[6] This statement came on the cross-examination of Joseph Rheinberger, an expert appearing on behalf of the Company during its Certificate of Need proceeding for the Minnesota Public Utilities Commission. However, the City has since learned that the Company, many years ago, agreed to not declare the casks as being exempt from taxation as pollution control devices. However, with the changes on how property taxes are calculated under the new Department of Revenue rules, it is uncertain if the casks, and the underlying ISFSI, will be considered anything other than an empty undeveloped field owned by the Company. Spent fuel, and the storage of the same, is not considered as an externality in the production of electricity.

[7] In addition, the Company argued that any incremental costs to the City to support an emergency response plan are reimbursed under Minn. Stat. § 12.14. The evidence presented by the Company was not credible. The Company's witness had neither operated nor managed an emergency response program, or had he researched, examined, applied for or reviewed the kind of expenditures that are approved under Minn. Stat. §12.14. The Company's witness, in fact, had no experience with either an emergency response plan, in general, or the one for the ISFSI, specifically, or Minn. Stat. §12.14.

The Company also argued that any loss of revenue to the City would be made up by Utility Transition Aid. This program expired in 2011.

Finally, the Company argued that the emergency response plan will remain effective due to the Company's own fire brigade and mutual aid agreements between the City and other local governmental entities. Regarding the fire brigade, the Company could not establish, one way or another, whether that brigade would be available in the event of an incident. The makeup of the brigade are Company employees who may be busy attending to their own job responsibilities in the event of an incident.

Regarding mutual aid, the Company, again, presented it through a witness who had no experience or understanding of the same. Moreover, mutual aid is not a substitute because it involves the request and response of other cities and municipalities who may or may not have the same equipment or even be able or willing to respond to a request for mutual aid. In short, all of the arguments presented by the Company, including their argument for additional revenue as part of a planned power uprate, cannot be supported. In short, it is the City and its emergency response plan that is key to responding to any incident.

"Despite this reduction in the payment of property taxes, the City, as the first responder, will be obligated to maintain its continued state of readiness to respond to any incident at the PINGP. Indeed, as the Draft EA acknowledges, the "financial burdens, such as expenses associated with participation in PINGP related actions, emergency planning and steps required in the event of an accident [e.g. educating on risks and procedures; maintaining special medical supplies (iodine tablets), equipment and trained professionals] would also not change and would continue to impact in the same manner communities within the ROI."

This begs the question: How is this gap going to be filled? The other citizens of the City have already seen a 188% increase in their property taxes from 1996 to present. The City cannot go to them again. The state's supplemental fund for incremental financing (Minn. Stat. 12.14) does not allow the City to tap it for new firehouses, equipment, or to pay full time employees. There is no additional revenue coming from the PINGP as the result of a power uprate and, as the Company acknowledged, the tax rate will continue to decrease over the life of the PINGP. 3-31

Based on all of these factors, the potential socioeconomic impact of the proposed action is large and the Draft EA should be amended to reflect the same.

6. Under Section 4.11, an Emergency Preparedness Plan should be addressed. Under Section 4.11, the Draft EA goes to great lengths to discuss a number of potential incidents that may impact the ISFSI. For each of these, it concludes, based upon experience and the robustness of the casks used, that there is a small likelihood that there will be any release or threatened release from the same.

But what happens if there was a release? What happens if the systems are not as robust as the Draft EA assumes they are going to be? This is where it is appropriate to evaluate emergency preparedness or an emergency response plan. The lack of an effective response to an incident at the PINGP or the ISFSI, whether that incident is radiological or non-radiological, may result in that incident spiraling out of control. There will not be effective suppression, containment or mitigation. 3-32

An example of necessary effective emergency preparedness or an emergency response plan would be in response to the fire scenario presented in the ISFSI on page 4-16 of the Draft EA. There, assuming a 757-L is a Boeing 757 plane, the presumption set out are simply unrealistic. First, the jet fuel from a plane would burn much hotter and much longer, assuming that there was material from the plane that would

burn as well. The assumption regarding a 12 or 15 minute burn or a limited temperature burn from this type of activity are not realistic.

Second, the fire would not go out on its own but would do so only when properly suppressed (i.e. through firefighting equipment). Third, the fire would not be contained in the ISFSI but would spread out over the debris field created by the aircraft. Indeed, part of this debris field may contain casks that are displaced by the incoming, or as the Draft EA states "bounding 757-L", aircraft.

An effective mitigation method to this scenario is to invoke the emergency response plan in place with the City. This emergency response would include, but not be limited to, fire and ambulance to suppress fire and minimize any impact or, if there has been an impact or release, to contain the same. The ambulance can address any injury suffered by any ISFSI personnel or any other parties that may have been injured by the inbound 757-L.

An emergency response is crucial to contain and mitigate this or any other incident at the ISFSI. This fact is recognized by the Commission in its requirements to obtain a license to operate an independent spent fuel storage system with or without plant operation. It was recognized by the Company in its Application for Additional Dry Cask Storage to the Minnesota Public Utilities Commission (the "Application"), and by the Environmental Impact Statement (the "State EIS") completed by the Minnesota Department of Commerce in connection with the Company's Application. In fact, the State EIS specifically referenced an effective emergency response plan and concluded that without one, or an effective response to an incident (radiological or non-radiological) could result in that incident spiraling out of control. State EIS, Chapter 2, pgs. 22, 27, 33-35. This will have a negative impact on the human and natural environment. Id. The Draft EA, to be effective, needs to be modified to likewise evaluate the need for an emergency response plan, an effective response to an incident and the impact if an effective response is not provided.

3-32 cont'd.

The socioeconomic environmental impacts of a lack of response, and the cause associated with the same, are simply too significant for the Draft EA to ignore.

The inclusion of an analysis of an emergency response plan or emergency preparedness is also, as briefly mentioned before, part of a fabric of oversight by the Federal and State Governments of the PINGP. Specifically, each of them require, whether as part of general operations of the PINGP or, when those operations cease, as part of the licensing of the

ISFSI, verification, through reasonable assurances from the City, that an emergency response plan or emergency preparedness is adequately in place. With this requirement, it makes sense that the EA also include an analysis in order to appropriately weigh the impact of continued storage on the natural and human environments that surround the ISFSI. 3-32 cont'd.

CONCLUSION

As set forth above, the Draft EA must be completed and modified. Unless this occurs, the Draft EA fails its essential purpose.

If there are any questions or if additional information needs to be provided, please do not hesitate to contact me or anyone at the City.

Very truly yours,

MADIGAN, DAHL & HARLAN

Thomas P. Harlan

TPH/kk
Enclosures
cc: The City of Red Wing, Minnesota (via e-mail)

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December 20, 2013

Ms. Cindy Bladey
Chief, Rules, Announcements, and Directives
Branch (RADB)
Office of Administration
Mail Stop: TWB-05-B01M
U.S. Nuclear Regulatory Commission
Washington DC, 20555-0001

RE: Consideration of Environmental Impacts of Temporary Storage of Spent Fuel
Docket No.: NRC-2012-0246
Comments of the City of Red Wing, Minnesota on the Draft Generic Environment Impact Statement

Dear Ms. Bladey:

This firm represents the City of Red Wing, Minnesota (the "City") with respect to the above-referenced matter. We submit these comments on behalf of the City to the Nuclear Regulatory Commission (the "NRC" or "Commission") in response to its request for feedback or comments on the Draft Generic Environmental Impact Statement (the "Draft GEIS") that was prepared by the Commission in support of or as a substitute for its Waste Confidence Rule. The City has also submitted comments on a Draft Environmental Assessment (the "Draft EA") that has been completed as part of the re-licensing of the independent spent fuel storage installation for the Prairie Island Nuclear Generating Plant. Those Draft EA comments should be read in conjunction with and the City hereby incorporates the same into this letter. The Draft EA comments are attached hereto and incorporated herein.

3-33

At the outset, the City thanks the Commission for the opportunity to submit comments on the Draft GEIS. The City looks forward to working with the Commission, its staff, and consultants to address this very important issue of the storage of spent fuel from nuclear reactors across the United States.

By way of background, the City is a host community to the Prairie Island Nuclear Generating Plant (the "PINGP"), which is a dual reactor 1118 MW facility. Immediately adjacent to the PINGP, sits approximately thirty-one (31) individual dry casks in which are stored spent nuclear fuel rods. In addition, the PINGP spent fuel pool, like all others, contains spent fuel that has been unloaded from the reactors and is waiting to be stored or transferred into the casks. It is anticipated that at the end of the

life of the PINGP, which is currently scheduled in 2033 and 2034, and following the appropriate holding or cooling off period for the rods, there will be approximately one hundred (100) casks located on the independent spent fuel storage system (the "ISFSI").[1] This does not include any casks or other storage systems for other classes of waste originating from the decommissioning of the PINGP.

The operator of the PINGP, and the associated ISFSI, is Northern States Power Company d/b/a Xcel Energy (the "Company"). The City and Company have worked together over the years to first site and thereafter solve many of the issues associated with the PINGP. The City has been supportive of the Company and its efforts to maintain not only the PINGP but the ISFSI in a reasonable and safe fashion.

However, the City, like many other host communities, is now facing a scenario that it did not, under any set of circumstances, envision: the failure of the Federal Government to honor its contractual agreement with the Company and remove the spent fuel from the PINGP to either an interim storage facility or a long-term or permanent repository. Despite any other contention or disagreement with the Company, the City stands resolute with the Company that the continued storage of spent fuel outside of the PINGP is not a workable solution. With no plan or process in place for its removal, storage, which was to be short (if at all), has become, for all practical purposes, permanent. 3-33 cont'd.

The City, as the host city to the PINGP and the ISFSI, is uniquely situated to provide input on the Draft GEIS by the Commission. The City, in all respects, is a first responder to any incident at the PINGP or the ISFSI. It is obligated, under both federal and state law, to annually provide reasonable assurance that it has the necessary facilities and infrastructure to meet and respond to any incident at either facility. The City, then, is obligated to maintain a steady state of readiness through its investment in and maintenance of the necessary equipment and personnel, as well as the necessary buildings to locate the same, in order to meet its obligations. It has and continues to do so despite the continued reduction of revenue to the City from the Company for taxes on the PINGP. The City, in turn, has been forced to shift this burden to its other taxpayers who, since 1996, have seen their property taxes increase over 188%.

Thus, the City is uniquely qualified to provide comments to the Draft GEIS. In addition, as outlined below, the actual ISFSI is located within the boundaries of the

[1] The precise number of casks that will hold spent fuel has not yet been determined since the PINGP is using a different fuel assembly that burns hotter and longer in the reactor and thus requires replacement or refueling at a different rate. Accordingly, the number of casks originally calculated as being necessary for end of life storage of spent fuel may be lower or higher depending on often refueling occurs and how many fuel assemblies can be placed into the casks. Though the casks are larger to accommodate the larger fuel assemblies, it is unknown if the new casks will hold the same number of spent fuel assemblies as the casks that are currently being used.

City. Thus, the City is and will continue to be impacted by the spent fuel that is located in the ISFSI.

In providing its comments to the Draft GEIS, the City breaks these comments into three (3) separate categories: the scoping of the Draft GEIS itself, including but not limited to, a fundamental premise of the Waste Confidence Rule is to cessation of operation of a nuclear power plant; an overview of the Draft GEIS and, the specific comments to the Draft GEIS.

1. **Scoping.** While the City understands that the scoping decision for the Draft GEIS has been completed, there was never an opportunity to respond *after* the scoping decision for the Draft GEIS was finalized. In other words, while parties had an opportunity to weigh in, as the City did in its January 2, 2013, Comment Letter (which is identified as Document No: 291), there was no period or timeframe for comments after the parties comments were considered and required. While the City focuses its comments below on the scoping decision, these comments also apply to the Draft GEIS and should be considered equally with the same.

(i). The Waste Confidence Rule Should Start After Spent Fuel is Placed In Dry Storage. Throughout the scoping decision and the Draft GEIS, the timeframe being analyzed by the NRC commences with when a particular plant ceases operation. In other words, the NRC is expressing its confidence the waste can safely be stored for a period of time after a plant ceases operation. 3-33 cont'd.

This timeframe misses the mark. The origin of the Waste Confidence Rule stems from the failure of the Federal Government to remove spent fuel to a temporary or permanent repository after an appropriate cooling period. The Waste Management Rule was recognition that spent fuel had to be stored on site for a period of time and an expression by the Commission that such storage could be accomplished safety for a set and re-set period of time. The origin, then, of the confidence for the storage of spent fuel had nothing to do with the continued operations of the plant which generated the fuel that needed to be removed. Rather, it was an expression that it could be safely stored at the plant until such time that temporary or permanent repository could be found.

An analysis that starts upon cessation of operations of a power plant that generates a spent fuel also provides a false mark for the storage periods being analyzed in the Draft GEIS. For example, at the PINGP storage in dry casks began in 1993. The plant, however, will not cease operations until 2033 and 2034, respectively. Accordingly, storage in dry casks will be ongoing for over forty (40) years prior to the PINGP's cessation of operations. Applying the logic of the Draft GEIS, replacement would not occur until one hundred (100) years after the PINGP's cessation. This would mean that the casks, first filled in 1991, would be over one hundred-forty (140)

years old before replacement of the same would occur. This is inconsistent, the presumption that dry casks need to be changed every one hundred (100) years.

Accordingly, the best mark to start or use is the timeframe that spent fuel goes into dry cask storage. This timeframe would not include mandatory time it has spent in the spent fuel pool to ensure that the fuel assemblies have sufficiently cooled for handling and radio activity. [2]

(ii). Mitigation Through Emergency Preparedness/Emergency Response Needs to be Included. In order for the EIS to meet NEPA, an analysis of mitigation through emergency preparedness and/or emergency response must be included. The core concept of NEPA is to evaluate a certain activity and its potential impact on the human and natural environment. As part of that, there are a number of alternatives that are examined including how certain adverse impacts may be avoided. The inclusion of possible mitigation measures serves one of NEPA's basic functions. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351-52, 109 s.Ct. 183 (1989).

Mitigation is defined as measures that are intended to avoid and, minimize, rectify, reduce, or compensate for environmental impacts. *See* 40 CFR § 1508.20. Not only is a federal agency, or in this case, the NRC, obligated to discuss possible mitigation measures as part of the scope of its Draft GEIS but it should discuss alternatives to the proposed action and the consequences of the same and as alternatives. In other words, it needs to address how mitigation plays out in the Draft GEIS. *See* 40 CFR § 1505.

3-33 cont'd.

The purpose of the Draft GEIS is to evaluate the impact of continued storage over the stated periods of time. It is also to evaluate, as it does to a great extent with spent fuel pools, the impact of potential release into the environment and the impact it would have on the human and natural environments. The general discussion of the robust nature of the storage systems is not a substitute for evaluating mitigation. Indeed, it is the systems themselves that must be evaluated for release and potential release – and then mitigation as a result of that activity.

Mitigation here comes in the sense of a response and effort to contain or potentially stop any release. The emergency preparedness of any first responder is required as part of the reasonable assurance that each is required to provide annually.

Accordingly, the failure to include a complete discussion and analysis of mitigation, which would include emergency preparedness and certain base levels for the same, defeats the very goal the NRC set out to accomplish: the creation of an EIS

[2] This argument assumes, and the NRC should require, that spent fuel is moved to dry storage in a commercially reasonable timeframe after the same has sufficiently cooled in a spent fuel pool. The NRC should limit spent fuel pool storage.

that meets NEPA qualifications.[3] Mitigation and an evaluation of emergency preparedness need to be included in the Draft GEIS.

2. **Overall Draft GEIS Review**. In addition to the generic comments set forth above, the City has provided an overall view to the Draft GEIS that addresses its perceived deficiencies. These deficiencies lead, in the opinion of the City, to a lack of analysis which results in the failure of the NRC to meet its obligations under NEPA. In addition, these deficiencies create inconsistencies in the Draft GEIS itself and leave it open to challenge.

(i). **The Draft GEIS Provides and Incomplete Analysis on the Impact of Taxes from Continued Storage.** In evaluating the impacts of continued storage, the Draft GEIS simply concludes that tax payments will continue. While it does, in some sense, appropriately defer this analysis based on local and state taxing ordinances, regulations, and codes, it does not appropriately or discuss the impact that a reduction in taxes will have as there is a switch form plant operation to storage only. It does not evaluate what impact this will have on the host community and its ability to maintain the necessary public safety services to respond to an incident at the storage facility. That host community will still be obligated to respond to an incident but not receive the same tax revenue to do so. As noted by the NRC in the Draft EA, the financial burden on first responders such as the City of Red Wing is not going to diminish over time. Draft EA, Section 4.4, page 4-3. It is going to stay the same as long as the spent fuel is stored on site. How does this burden impact the City and other host communities? What will happen when there is the precipitous drop in revenue to them generated by the power plants? These issues related to revenue need to be further evaluated. 3-33 cont'd.

The Draft GEIS Does Not Evaluate the Chilling Effect on the Local Economy. The Draft GEIS, while evaluating the positive impact that continued storage will have on the local economy, does not evaluate the chilling effect of the same. As set out before, the City finds itself in the untenable position of continuing to be a host community for the spent fuel that has been generated by the PINGP. Based on what is currently known, as well as past experiences and statements by the Federal Government, the City believes that this hosting or better yet storage will go on indefinitely. This will have a chilling effect on the City's economy and its development. It will impact its ability to grow in the area where the spent fuel is stored, including any adjacent parcels. The chilling effect will also extend to the City's ability to attract new businesses and to otherwise present itself in a positive

[3] It could be said regarding the new Waste Confidence Rule that is being proposed: the only true measure of confidence is to include an analysis about what will happen in the event of an incident, whether radiological or non-radiological, at a storage facility. To be confident that nothing is going to happen and no response will be needed is not confident or reassuring at all. It is naïve. The probability may be small but if there is an incident and no appropriate response, the results will be catastrophic.

fashion. All of this will stymie the City's ability to naturally develop and compete with other cities to attract and maintain businesses.

This chilling effect of continued storage was noted by the Blue Ribbon Commission and served, in part, as a basis for its recommendation that temporary storage be developed. The Blue Ribbon Commission recognized that cities such as the City of Red Wing were, in many ways, hostages to the spent fuel: their futures were tied to the uncertainty of continued storage. The chilling effect was also noted in this Draft EA as it relates to the Prairie Island Indian Community (the "PIIC") and its use of the land adjacent to the spent fuel storage area. The City, as noted in its comments to the Draft EA attached hereto, contends that this analysis should extend to the City's land use and development. This point needs to be further developed within the scope of the Draft GEIS so that a true evaluation on the impact to the human environment is addressed.

(ii). <u>The Draft GEIS Lacks any Reference to Manufacturers' Requirements for the Storage Systems.</u> The Draft GEIS assumes that there will be dry cask storage after (or during) the one hundred (100) year period following cessation of plant operations. The Draft GEIS further assumes that these robust systems of storage will be adequate for that time though, after 100 years, they will need to be transferred into a second storage cask or a cask that may be used for transfer. [4]

3-33 cont'd.

Despite these assumptions, there is no reference to any manufacturers' analysis on the useful life of the casks. Nowhere is there any reference to any warranty that is provided or other information that would tend to support the conclusions that are reached within the Draft GEIS on storage. There is no reference to any experiences to date on attempted transfer. There is not a sufficient period of empirical evidence that would otherwise support the conclusions reached by the Draft GEIS. Simply put, there has not been storage over the stated period times that would support the same conclusions. Rather, the Draft GEIS makes and relies on these assumptions being made without any substantive analysis or support.

In order to support the conclusions set forth within the Draft GEIS, manufacturers' information must be included. The Draft GEIS must also set out what historically has been said about storage and the use and limitation of the current storage systems.

(iii). <u>The Assumption of Institutional Control Needs to be Removed.</u> A principle assumption throughout the Draft GEIS is that there will be institutional control to meet the necessary obligations for long-term storage of spent fuel. At its

[4] As noted previously, the confidence expressed in the 100 year timeframe for storage is inconsistent with the base line assumption that storage will start on the day that a plant ceases operation. Storage starts the day the spent fuel assemblies are transferred to the dry cask storage.

core, this assumption concludes that the corporations and limited liability companies that generating the spent fuel will have sufficient funds to meet the requirements for long-term storage and that the regulations promulgated and enforced by the Commission will be enough to ensure safety, maintenance and good storage procedures. There is nothing in the Draft GEIS, other than this statement, to support this conclusion. [5]

Unlike decommissioning funds, which are required to be set aside in order to decommission a power plant or return it to its natural habitat, there are no such funds for the handling and storage of spent fuel. Likewise, there is no assurance that an entity will even be viable in 100 years. This assumption of institutional control must be addressed – and removed.

3. **Specific Comments on the Draft GEIS.** In addition to the more generalized comments set forth in Sections One and Two above, the City submits the following specific comments to the Draft GEIS. In doing so, the City will identify a section, page number and line in which its comments are focused. This will allow for ease of reference for the NRC staff. The City's comments are as follows:

A. **Executive Summary.** 3-33 cont'd.

1. Under section ES.2, page xxiv, lines 5-7, the Draft GEIS needs to include a mitigation analysis (including emergency preparedness) to meet its NEPA requirements. The failure to do so is an assumption that there will not be an incident at any storage facility, wet or dry, for which a response will be required. This assumption is not appropriate in an environmental impact statement and, fundamentally, defies common sense. There must be a mitigation analysis.

2. Under section ES.9, page xxvii, lines 10-21, the Draft GEIS sets forth some of the assumptions that were made in preparing the same. As described below, these assumptions have no empirical or other evidence to support the validity of the same. Rather, the conclusions/assumptions are based upon the experience of the NRC and its continued management of the nuclear industry. However, as the NRC has noted, the Draft GEIS, is in response to the unique set of facts that the NRC is facing relative to spent nuclear fuel. The experience that purportedly is being relied upon is not experience realized through completion of a similar exercise and then repeating that same task but rather is garnered in real time. That is not the

[5] Interestingly, as is described in more detail below, the Draft GEIS focuses on oversight and regulatory control on being controlling and providing the basis for an assumption of institutional control. It does not because it presumes there is an entity to oversee and regulate. The real issue is not an entity to control, it is the availability of the funds to ensure that the activities necessary to ensure storage, transfer and transport are completed.

definition of experience. Accordingly, any assumption, in keeping with basic NEPA principles, should be supported in an articulable way.

3. Under section ES.12, page xxxi-xxxii, under table ES-1, there is no articulable public safety component and how it would play into various affected areas identified in the Draft GEIS. In addition, consistent with the general objections, the narrowness of the affected area, as defined in the Draft GEIS, is too narrow to effectively analyze the impact of continued storage on both the human and natural environments. Public safety has to be included in the analysis and the analysis itself must be expanded to include indirect impacts of continued storage.

4. Under section ES.13, page xxxiv, lines 15-27, the Draft GEIS concludes that the impact of continued storage would be small under the various scenarios that it is analyzing. However, the analysis does not weigh the chilling effect that continued storage will have, the drain on public safety services as first responders (like the City) are required to maintain the necessary readiness to respond to an incident or are any of the other factor that will have a negative impact on the development and growth of the area surrounding the ISFSI. 3-33 cont'd.

The simple notion that the socioeconomic impact, as determined by the number of workers, the construction on any ISFSI replacement or its ongoing operations, by itself, is a measure of the impact of continued storage would have upon cities and other areas simply falls short of any meaningful analysis. One of the fundamental NEPA mandates is to evaluate how the proposed action, in this place long-term storage, would have a *negative* impact upon the human environment in which it is based. Part of that human environment consists of the socioeconomics of the area surrounding the storage. As such, an appropriate analysis would not be limited to just the direct impact (e.g. the number of workers at the storage facility), but would be the indirect impact – especially in the unique circumstances presented by stored, but continuing, radioactive material.

5. Under section ES13.1.15, pages xli and xlii, lines 21-34, and 1-11, respectively, lower level waste management or disposal of the same is assumed to be available. However, as described in more detail below, this presumption may prove to be false since currently there are very limited options for the disposal of low level waste. With the continued radioactivity in these wastes, there is a possibility that there may not be a private facility open or one that would accept certain levels of waste unless this was supported by the Federal Government. This analysis must be supplemented and described in more detail.

6. Under section ES13.2.16, page lvii, lines 5-29, in that portion of the executive summary which addresses away from reactor storage sites, the analysis on transportation misses the mark. There needs to be an analysis on the risks associated with that process including but not limited to a discussion of the various canisters that are to be used for such transportation, the transfer into those casks and the risks of the transport.

7. Under section ES.16.2, page lix, lines 15-35, there is no reference whatsoever to any mitigation, emergency response or emergency preparedness. All of these factors must be included within in an analysis of the spent fuel fire – or any other analysis of an incident or threatened incident. To merely rely on general statements of the robustness of the container or "mitigation measures implemented by licensees as a result of NRC orders" are insufficient. This does not analyze any impact of the proposed action because it assumes there will be no impact of the proposed action. This assumption, then, foregoes any analysis under NEPA. The Draft GEIS should set out the necessary mitigation to control or contain any incident.

B. Introduction. 3-33 cont'd.

1. Under section 1.2, page 1-4, lines 17-21, the language regarding the timeframe in which the continued storage should be analyzed must exclude any language relative to the end of a reactors license life for operation. The appropriate timeframe for beginning the analysis on storage is the date in which the spent fuel is actually stored. This analysis shall be separate and distinct from any licensing and further separate and distinct from any operations or decommissioning.

2. Under section 1.3, page 1-5, lines 16-21, the Draft GEIS should add that past licensing has been based, in part, on the Waste Confidence Rule. This Waste Confidence Rule was done or completed without the benefit of an EIS or any determination of long-term impact. There was simply the assumption that continued storage was safe. As it currently exists, the Draft GEIS is exactly the same. The City hopes it comments are appropriately weighed so that any final report avoids this flaw.

The Draft GEIS should also add while the NRC has experience with licensing and spent fuel storage from the 1950's, dry cask storage has not extended back that far and the technology associated with higher burn rates for fuel assemblies has changed. A Draft GEIS should specifically reference that the storage being determined by the Draft GEIS was never contemplated and therefore is unique in both analysis and application.

This also applies to the various reports the Draft EIS cites to and relies upon. Those reports may be based upon assumptions of experience or that the Commission, as contemplated by the old Waste Confidence Rule, will simply remove the fuel in a stated period of time. Thus, while there is an analysis of some aspect of storage, the equipment or components used and various threats to the same, there is not an inclusion of a specific time element and the natural decay or degradation of the examined equipment or components. The Commission must be careful in its reliance on these types of reports – as well as the assumptions in the Executive Summary or its risks concluding, without analysis, that continued storage need not be analyzed.

3. Under section 1.8.2, starting on page 1-12 and continuing to 1-13, the entire section should delete any reference to the storage timeframe including operations of the plant. As noted before, the continued operation of the plant is separate and distinct from storage.

4. Under section 1.8.3, starting on page 1-13 and carrying over to 1-17, the Draft GEIS makes a number of assumptions that are then carried forward throughout the document. These assumptions are, in many ways, not supported by any substantive evaluation, analysis or any other empirical evidence. There is no reference to any report, study, or other governmental or non-governmental review. As such, these assumptions, rather than support and provide depth to the Draft GEIS, pull away from it and create opportunities to challenge the same for failure to meet NEPA requirements. These assumptions are as follows: 3-33 cont'd.

- On page 1-14, lines 13-18, there is an assumption regarding normal life of the storage facilities. This assumption is based upon the knowledge and experience with structure and operation of these storage facilities. This assumption does not, in any way, reference the manufacturers' information on the casks including, without limitation, any warranties or anticipated life. Rather, it is based solely upon the NRC's experience with the same. This assumption does not pass muster since the NRC does not have any experience relative to the lifetime of the structure to store the spent fuel. A full evaluation of the proposed storage facilities needs to be provided.

- On page 1-14, lines 19-22 and carrying over to 1-15, lines 1-5, there are assumptions on institutional control. The assumption with institutional control is that the Federal Government will somehow provide safe storage of spent fuel through regulation. However, that is not what is happening in the field. The obligation to temporarily store spent fuel belongs to the generator of that fuel.

Even corrected, the assumption of institutional control misses the mark. There is no reference, whatsoever, to how the generators are going to pay or provide for safe storage or whether these corporate entities are even going to exist. This assumption must be removed.

- On page 1-15, lines 6-15, the assumption regarding institutional control continues. Again the Draft GEIS solely focuses on Federal control. This is not the Federal Government's obligation. Institutional control needs to be analyzed through the generators and the measures in place to ensure responsible storage and maintenance.

- Page 1-15, lines 16 and 17, reference is made to a dry transfer system and the construction of the same to facilitate spent fuel transfer and handling. Like the assumption of the storage facilities, there is no empirical evidence whatsoever with respect to the construction or operation of a dry transfer system (the "DTS"). The industry has no experience in building a DTS or, more importantly, transferring spent fuel or fuel assemblies from one cask to another. Will the spent fuel assemblies be intact enough to transfer in 100 years? The only experience to date does not support this supposition. The use of a DTS and the acceptability of the casks for the same must be more fully developed and cannot simply be an assumption.

3-33 cont'd.

- On page 1-16, lines 1-4, the Draft GEIS contradicts itself by indicating that storage in a single cask can go beyond the one hundred (100) year cycle. There is no experience or evidence to support this assumption. There is no evidence to support that casks can even last 100 years. This assumption must be removed.

- On page 1-16, lines 10-12, there is an assumption on aging management. This assumption should be blended into institutional control and measured from the stand point of a generator's ability to provide systems and appropriate funding for age management of the storage systems. Again, this assumption is made without any empirical evidence or support that generators would have the necessary funds and capabilities to ensure maintenance and safety.

- On page 1-16, lines 32-36, there is an assumption that a DTS is going to be replaced once during the life cycle of storage. This assumption is premised upon the robustness of the storage casks themselves and the ability of the generator to properly maintain the same. This assumption therefore is faulty because it is built on two other assumptions for which there is no experience or information to support the same.

- On page 1-17, lines 16-20, there is assumption that sufficient low-level waste will be disposed of properly. This assumption is false. The industry today is facing difficulty in disposing of low-level waste and it is anticipated that low-level waste will be stored at the facility until such time that it is disposed of properly. Because of this storage alongside of spent fuel, the assumption must be removed and properly analyzed within the scope of the Draft GEIS.

C. Generic Facility Descriptions and activities.

1. Under section 2.1.1.2, page 2-5, lines 10-13, the assumption regarding decommissioning and removal of spent fuel within sixty (60) years should be modified. Rather, the assumption should be that spent fuel should be moved to dry cask storage as soon as commercially reasonable. In no event, this should exceed five (5) years after the same has sufficiently cooled.

2. Under section 2.1.2.2, page 2-14, lines 1-9, the Draft GEIS should clarify, at the outset, that it has not designated any casks for transportation. Accordingly, prior to transportation, all spent fuel should be required to be transferred to transportation casks. 3-33 cont'd.

3. On page 2-14, lines 25-28, the Draft GEIS should indicate, in some fashion, that there are certain minimum requirements associated with storage. This should include statements regarding emergency preparedness and a specific analysis of the same.

4. Under section 2.1.4, pages 2-19 - 2-21, the Draft GEIS addresses a DTS. The Draft GEIS should be modified to include a statement that a DTS is going to be necessary based upon the assumptions within the Draft GEIS. Not only is it going to be necessary based on these assumptions, but it will be required once interim storage or permanent disposal becomes an option. None of the casks currently used for storage are approved for transport and therefore the concept of a DTS is necessary. The Draft GEIS should also reference that one may be needed earlier if there is an incident involving a breach of the storage system. What happens in the interim when the DTS is being constructed? Is there a spent fuel pool or other containment facility? This needs to be addressed.

D. Affected Environment.

1. As an overview, the Draft GEIS is flawed because it does not address a broader scope of the affected environment. Indeed, it looks solely at direct impacts (employment, transportation, and land use of the storage system

itself) and does not consider a broader indirect impact on the local community that hosts spent fuel or the surrounding area. The view on the affected environment should mirror the more expensive view taken in the Draft GEIS when an examination of social justice is provided. There, there is a more detailed and specific analysis of the impact of continued storage on minority, low-income, and other vulnerable communities.

The failure to have a broader view in the Draft GEIS diminishes the impact of continued storage on the other stakeholders. Accordingly, the analysis should be broadened or it will not fully evaluate the impact of the proposed action on the human environment.

2. Under section 3.1, page 3-1 and carrying over to 3-4, the Draft GEIS addresses land use. However, as set forth above, the focus is too narrow. For example, the PINGP is located within the City's limits. The PINGP's spent fuel, wet or dry, is also temporarily stored within the City's limits. It is not outside, not near, nor close to but located specifically within the City's limits. The continued storage of spent fuel will have a material impact on the development of the City in both the short-term and long-term timeframes. It will be the center of a dead zone that will have little if any commercial activity and will disproportionally use public safety services. Moreover, and more appropriately for land use, it will have a chilling effect on the ability of the City to develop the area around it because of the continued stigma associated with the radioactivity, the spent fuel assemblies, and the uncertainty of disposal and, for purposes of the Draft GEIS, storage. The concept of land use must be expanded.

3-33 cont'd.

3. Under section 3.2, pages 3-4 – 3-8, the Draft GEIS is woefully deficient in its analysis of the socioeconomics associated with continued storage. The Draft GEIS focuses only upon the direct impact that continued storage will have and not on the indirect impact associated with the continued storage. This includes but is not limited to the chilling effect that it will have on other land development in that area. This, in turn, will have a fall out related to employment and income, taxes, demography, and housing that this development would naturally bring. The continued storage will also disproportionally utilize public safety services because the City will have to maintain the necessary preparedness to respond to an incident at the storage facility. This burden is unlike any other that the City would have to maintain for a normal commercial operation within the City limits.

Continued storage will not provide sufficient taxes that would otherwise offset the need for the heightened public safety services and the necessary emergency preparedness associated with the requirements of

responding to an incident. All of these factors need to be addressed and weighed.

4. Under section 3.2.2, page 3-6, lines 5-24, the Draft GEIS identifies a number of instances where there is continued tax payment for storage facilities after plant operations cease. The Draft GEIS analysis must continue to analyze what impact this reduction of tax payments has on public safety services and how that is spread throughout the community. As noted in the Draft EA, the financial burden on the host cities will not lessen – but the revenue from property taxes will decrease. What is the impact of this? Can there be a lower level of public safety services provided?

In doing so, the Draft GEIS should also address the necessary emergency preparedness and the costs associated with the same. This is a direct material impact that continued storage has on hosts communities such as the City and it must be analyzed under the Draft GEIS.

5. Under section 3.3, page 3-10, lines 31-37, the Draft GEIS should be amended to reference that the PINGP is located within the City limits. 3-33 cont'd.

6. The Draft GEIS, on page 3-41, should include a new section on mitigation. Mitigation is a specific and necessary requirement for an appropriate NEPA analysis. This section would include, but not be limited to, a general description of the necessary emergency preparedness steps and requirements.

This can relate back to the impact of the ISFSI or storage system on the host community.

The failure to include any analysis, mitigation efforts, or even to address it, is a fatal shortcoming of the Draft GEIS.

E. <u>Environmental Impacts of Reactor Continued Storage of Spent Fuel.</u>

1. The opening section of Chapter 4 should be modified to reflect the prior comments set forth in this letter. This should include, but not be limited to, modification of the timeframe in which the analysis should take place, modification of the assumptions set forth in section 1.8.3 and further expansion of the analysis to include both direct and indirect impacts of the proposed action. Finally, chapter 4 should be amended to include a discussion on mitigation, emergency preparedness, and other impacts that a host community would be facing.

2. Under section 4.1, page 4-4 to 4-6, land use, the analysis for all time frames should be expanded to include an analysis of the chilling effect that continued storage would have on development. This would include, but not be limited to, actual land use, development of roads, sewer and gutter, as well as actual land development itself. The Draft GEIS does not, in any way, take into account the stigma associated with continued storage.

3. Under section 4.2, pages 4-6 – 4-8, the Draft GEIS should be modified to include a discussion on the indirect socioeconomic impacts of continued storage. This would include, but not be limited to, the inability to develop the land around the storage facility, decreased taxes, the continued requirement to maintain heightened public safety services and the other impacts associated with the same. There is nothing within the Draft GEIS that addresses the socioeconomic impact that this would have on an area.

4. Under section 4.12, page 4-47, lines 33 – 37 and carrying over to page 4-48, lines 1 and 2, there is reference to the rule making for certification of the cask design. It describes the various environmental requirements that are met for the same. The reader is left with a distinct impression that there was not, for the cask design, an EIS or EA completed. Despite this, the Draft GEIS indicates that it is simply relying on the same. 3-33 cont'd.

This reliance is inappropriate. The cask itself will be the storage vehicle for spent fuel, and as such, the analysis of the cask itself must be included within the Draft GEIS.[6] As stated before, this analysis should include but not be limited to information from the manufacturers as to warranty and anticipated life, the original estimates for the casks and other information.

5. Under section 4.15.2.1, starting on page 4-58 and carrying over to page 4-59, the Draft GEIS discusses low-level radioactive waste that is going to be created as a result of continued storage. The underlying presumption, again, is that this low-level waste is going to be properly disposed of by the industry. This assumption, as stated before, may not be accurate. Currently, there are some facilities for the storage of low-level waste until a permanent depository can be created. However, this is not available for all generators and therefore must be stored until a facility is made available. [7]

[6] This is a bit ironic since there is an underlying assumption that the storage system (i.e. cask) is so sturdy and robust there will not be a release from the same.

[7] Interestingly enough, the Draft GEIS, consistent with current practice, assumes that the responsibility for the disposal of low-level waste lies with the generator and assumes that the industry will take care of this particular issue. Yet, for purposes of institutional control, the Draft GEIS substitutes in the Federal Government for the generator and its obligations to maintain storage until such time that the spent fuel is retrieved for either interim or permanent disposal. To be consistent, the Draft GEIS should analyze institutional control with the generator being the institution.

6. Under section 4.17, starting on page 4-64 and carrying over to page 4-66, the Draft GEIS addresses public and occupational health. The Draft GEIS should be modified to include an analysis regarding mitigation. There is nothing to establish or support that there would be any mitigation in the event of an incident. The inclusion of this must be analyzed in order to meet NEPA requirements.

7. Under section 4.18, starting on page 4-67 and carrying over to page 4-83, there is an analysis of the environmental impacts and postulated accidents. On page 4-68, lines 1-9, there are discussions of "additional measures... designed to mitigated the consequences of failures in the first line of defense." The discussion goes on to reference emergency preparedness plans and protective action measures. And that is it. There is no further analysis. In order to meet NEPA requirements, the emergency preparedness plans and other proactive measures must be more fully discussed and explored. These are, as acknowledged in the Draft GEIS, the mitigating measures used in a failure of the containment vessel.

3-33 cont'd.

8. Under section 4.20, starting on page 4-90 and carrying over to page 4-91, Table 4.2 should be modified to reflect the changes in the analysis set forth by the City in this letter. In particular, land use and socioeconomics, for all timeframes, should be modified from small or moderate to large. Likewise, public and occupational health should be modified from small/moderate to large for all timeframes.

5. Cumulative Impacts

A. Overview. The deficiencies cited by the City with the Draft GEIS previously set forth in this letter carry forward and manifest themselves in the analysis of the cumulative impacts of continued storage. These include, without limitation, the failure to analyze the indirect impact of continued storage, the failure to address mitigation and emergency preparedness, the continued reliance upon the assumptions set forth in section 1.8.3 as well as the absence of any discussion on the chilling effect that continued storage will have upon future development in the area.

It is this last deficiency that is particularly poignant in the Draft GEIS's analysis of cumulative impacts. For the City, the cumulative impact is quite simple: continued storage of radioactive material, for short or long-term, will not allow for the natural growth and progression of the City. Development in that area will either lag or become unrealized since no one will want to be located next to the storage facility. The facility, itself, will have a disproportionate drag on public safety services since readiness demands that

the City be prepared for an incident involving a radiological release. At that same time, the tax revenue from development that could normally offset this obligation would decrease or not materialize at all thereby shifting the burden of public safety costs on the other citizens of the City especially after the PINGP ceases operations.

Despite these clear impacts, an analysis of these in the Draft GEIS is missing. In order to fully complete an analysis of the cumulative impact of continued storage to satisfy NEPA requirements, this analysis must be included in the Draft GEIS.

B. Section 6.3.1, page 6-4 and running through 6-8, identifies general trends and activities upon which the cumulative impacts are analyzed. These trends, while identified and supportable, are insufficient for analysis. The primary reason for the deficiency is that they do not take into account the chilling or negative effect that continued storage of spent fuel has or will have on an immediate area. So while table 6-1 can provide guidance on positive future events there is no guidance on the negative aspect of continued spent fuel. This too needs to be identified and evaluated within the scope of the Draft GEIS. 3-33 cont'd.

C. Under section 6.4.1, starting on page 6-10 and going to 6-11, the Draft GEIS analyzes land use using the aforementioned general trends and activities. Nowhere does it reference the fact that there may be no development and that continued storage will be a deterrent to development. This analysis must be amended.

D. Under section 6.4.1.3, the Draft GEIS concludes that cumulative impact of continued storage on land use will be small. The City believes there is insufficient information to come to this conclusion especially when the Draft GEIS does not analyze the chilling effect of continued storage. The cumulative impact should be changed from moderate to large after the analysis described above on the negative impact of continued storage is completed.

E. Under section 6.4.2, starting on page 6-12 going through 6-15, the Draft GEIS analyzes cumulative trends and their impact on socioeconomics. Like previous sections within the Draft GEIS, there is no reference to the negative impact of continued storage. There is no reference to the costs associated with the emergency preparedness, the shift of the burden for the preparation of the same, the decrease in taxes, the inability to develop land around the spent storage system and the inability to adequately pay for street, sewer, water for such development, among other things. All of these factors need to be appropriately weighed and set forth in this section.

F. Under section 6.4.14, starting on page 6-45 and running to 6-50, the Draft GEIS analyzes the cumulative impacts of waste management. Its analysis must be modified to include, or at least account for, the fact that there may not be a facility available at any time in the near future to handle the waste generated by continued storage. The alternative, of course, is that even after removal of the spent fuel the low-level radioactive waste will continue to need to be stored and paid for by the generator.

G. Under section 6.4.16 and 6.4.17, running from pages 6-53 – 6-57, an analysis of mitigation needs to be set forth. Mitigation is a necessary NEPA component that must be addressed. A failure to do so is a flaw that may result in a challenge to the Draft GEIS or the GEIS in its final form.

6. Summary of Environmental Impact.

A. Overview. The summary of environmental impacts, overall, needs to be modified to include the City's recommended modifications to the Draft GEIS. In addition, the summary should, as a separate section under the same, include an analysis of mitigation. 3-33 cont'd.

B. Under section 8.1, starting on page 8-2 and running to page 8-5, the Draft GEIS sets forth a number of tables that summarize the impact from continued storage both at a reactor and away from a reactor. These tables should be modified to reflect comments of the City and to increase the impact on land use, socioeconomic and other areas from small to moderate or large. Moreover, each of these should indicate that the impact is going to be site specific and will be dependent upon the immediate surrounding area. Again, for the City, with a location of the PINGP and the storage within the City limits, the impact on all of these will be large.

C. Under section 8.4, starting on page 8-9 and continuing to 8-10, the productivity analysis needs to be expanded. This expanded analysis would include an evaluation of the long-term impact on productivity where there is an indefinite storage at a site. There is an indirect impact or chilling effect that continued storage will have on the natural development of the area around it. There will also be opportunity costs for the City (or any other entity that continues to provide first responder services) associated with the costs of continuing to maintain an emergency preparedness plan. These costs must be analyzed or at least put forth for an analysis in section 8-4. [8]

[8] This analysis would also find its way back into the cost benefit analysis set forth in chapter 7 of the Draft GEIS.

D. Under section 8.7, page 8-12, the Draft GEIS, and the NRC recommendation, is to select the proposed action. The City agrees with this recommendation. However, the necessary changes in the Draft and Final GEIS, as described by the City, should be included.

7. Miscellaneous.

A. Miscellaneous is intended to cover the exhibits or appendix attached to the Draft GEIS. Again, the comments of the City set forth above should be considered in light of these and incorporated in the suggested changes below.

a. Appendix B

i. Appendix B addresses the technical feasibility of continued storage and repository availability. The technical feasibility of continued storage is based upon a series of underlying assumptions and conclusion about the robustness of the storage facilities. These assumptions, among other things, fail to include any sort of analysis from the manufacturer in the form of warranties or recommended useful life. Moreover, again, there is no discussion of mitigation which is necessary to address the steps associated with an incident to contain any adverse environmental impact.

3-33 cont'd.

ii. Under section B.3.2, the Draft GEIS addresses technical feasibility of dry cask storage. Within its analysis, it includes a discussion of the "robust design of dry cask storage systems." As state above, this assumption has no support for the time frames being analyzed.

iii. Under section B.3.3, there is analysis of the regulatory oversight of wet and dry spent fuel storage. In this analysis, there is an assumption of institutional control through regulatory oversight and license compliance. Institutional control goes beyond oversight and must include an analysis, or at least a description, of the entities that are to be providing the structures, systems and programs for responsible storage before a permanent repository can be found. In addition, the analysis must identify where the funds will come from to properly ensure these items are completed.

b. Appendix E

i. Appendix E provides an analysis of spent fuel pool leaks. However, it does not contain any analysis of mitigation including a description of the emergency preparedness or what will be required in the event of a pool leak. In short, the Appendix does not provide the necessary support for an appropriate NEAP analysis on mitigation.

3-33 cont'd.

The City again would like to thank the NRC staff and all those responsible for this important undertaking. The City looks forward to continuing to work with the NRC and all of its staff to address this very important issue.

If the City can provide any further information or expand upon the comments set forth herein please do not hesitate to reach out and contact me.

Very truly yours,

MADIGAN, DAHL & HARLAN, P.A.

Thomas P. Harlan
TPH/kk
cc: The City of Red Wing, Minnesota

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Submitter Information

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Name: Philip Mahowald
Submitter's Representative: General Counsel
Government Agency Type: Tribal
Government Agency: Prairie Island Indian Community

General Comment

See attached file(s)

Attachments

PIIC Comments on Draft EA 12-19-13-2

PRAIRIE ISLAND INDIAN COMMUNITY LEGAL DEPARMENT

December 19, 2013

Cindy Bladey, Chief
Rules, Announcements, and Directives Branch
Office of Administration
Mail Stop 3WFN-06-44M
US Nuclear Regulatory Commission
Washington, DC 20555-0001

RE: Comments on Draft Environmental Assessment for the Prairie Island Independent Spent Fuel Storage Installation License Renewal, NRC Docket 2013-0251

Dear Ms. Bladey:

The Prairie Island Indian Community (Community or Tribe) offers the following comments regarding the above-referenced draft Environmental Assessment (EA) prepared by the US Nuclear Regulatory Commission (NRC) for the Prairie Island Independent Spent Fuel Storage Installation (PI ISFSI) 40 year license renewal application (NRC License No. SNM-2506), as required by the National Environmental Policy Act (NEPA).

Executive Summary

While we do realize that the Executive Summary is a summary of the larger document, we are nevertheless disappointed that there is no mention of the Prairie Island Indian Community's Cooperating Agency status with the NRC for purposes of developing certain aspects of the draft EA. Although the Executive Summary mentions that the NRC "consulted with" federally recognized Indian Tribes as part of its environmental review process, the Prairie Island Indian Community is the only tribe participating in the development of the draft EA. The Executive Summary of the final EA should contain a brief statement of the Cooperating Agency status of the Prairie Island Indian Community and the Tribe's contribution to the EA (i.e., similar to the discussion on page 1-10). 4-1

Purpose and Need (Section 1.2)

The stated purpose and need of the proposed action (i.e., the PI ISFSI license renewal) "is to provide an *option* that allows for the continued temporary storage of spent nuclear fuel generated by the PINGP Units 1 and 2." Draft EA at page 1-1 (emphasis added). Given that the Yucca Mountain national repository has all but been abandoned and that there seems to be no action on siting and developing a different repository location, the continued storage of spent nuclear fuel at Prairie Island seems neither *optional* nor *temporary*. Unless and until the draft EA honestly addresses the long and complicated history of our Nation's failed nuclear waste policy, the Federal Government's ongoing violation of the Nuclear Waste Policy Act, and the possibility that this relicensing action will result in larger quantities of spent nuclear fuel being left stranded indefinitely on Prairie Island, to refer to the purpose and need of the proposed action as "an option for continued temporary storage" simply perpetuates the fiction of our Nation's failed nuclear waste policy. 4-2

Trust Responsibility (Section 1.5)

The draft EA states that the Federal Government has a trust responsibility to federally recognized Indian tribes. The NRC states that it discharges its obligations under the doctrine of trust responsibility by complying with regulations and statutes designed to protect the public (emphasis added). As a threshold matter, since the NRC is currently in violation of the NWPA for failing to timely consider the U.S. Department of Energy's Yucca Mountain license application, how can the NRC claim that it has fulfilled its trust responsibility to the Tribe? The NRC cannot comply with the law by ignoring it. Assuming *arguendo* that compliance with existing statutes and regulations is a minimum requirement for fulfilling the NRC's trust responsibility to the Tribe, some analysis of the NRC's ongoing breach of the NWPA is required. 4-3

In our view, trust responsibility means more than simply complying with existing statutes and regulations. As stated above, this type of compliance is no different than what is owed to the general public. In order for the trust responsibility to have any vitality, Federal agencies must exercise a higher responsibility when taking actions that may affect a federally recognized Indian tribe, its people, land and cultural and natural resources. 4-4

It is precisely this trust responsibility that led federal officials to refuse to approve the construction of an ISFSI on reservation lands of the Skull Valley Band of Goshute Indians, even though the tribe *wanted* to host that facility. In its Record of Decision, the Bureau of Indian Affairs noted that it was acting as a "fiduciary" with respect to

reservation lands, which were held in trust for the Skull Valley Band.[1] "As trustee-delegate, the Secretary has the complex task of weighing the long-term viability of the Skull Valley Goshute reservation as a homeland for the Band (and the implications for preservation of Tribal culture and life) against the benefits and risks from economic development activities proposed for property held in trust by the United States for the benefit of the Band."[2] Because of the delay in constructing a permanent repository to store nuclear waste, the Secretary was concerned that even though the reservation lease was only for a 25-year storage term, in fact, the nuclear waste might end up staying much longer.[3] The Secretary stated that its "primary duty as trustee-delegate" was "the protection of the trust *res* as a future homeland and productive land base for the Band through the prudent exercise of informed discretion after considering all relevant factors."[4] In that case, the Secretary concluded "that it is not consistent with the conduct expected of a prudent trustee to approve a proposed lease that promotes storing [spent nuclear fuel] on the reservation."[5] A critical consideration of the Secretary was that "years-long delays in construction of a permanent [spent nuclear fuel] repository, reflected in the Waste Confidence Decisions of the NRC, provide[] no firm basis to determine when and under what circumstances [spent nuclear fuel] might be taken away from trust land if the proposed ISFSI is built."[6]

4-4 cont'd.

The same considerations ought to apply to the ongoing – indeed, potentially indefinite – storage of spent nuclear fuel on Prairie Island. The draft EA is insufficient because it fails to adequately consider and weigh the long-term viability of the Prairie Island Reservation as a homeland for the Tribe (and the implications for preservation of Tribal

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[1]Record of Decision (ROD) at 17. The RODs are available at: (http://www.deq.utah.gov/Issues/topics/highlevelwaste/docs/2006/Sep/ROD%20PFS%2009072006.pdf).
[2]ROD at 18.
[3]ROD at 19.
[4] ROD at 18-19.
[5] ROD at 19. The Secretary's decision was ultimately vacated and remanded by the U.S. District Court for the District of Utah, because the Secretary's ROD did not even mention 25 C.F.R. § 162.107(a). That provision requires the Secretary to defer, "to the maximum extent possible," to the tribe's determination that the lease was in its best interests. 728 F.Supp.2d 1287 (D. Utah 2010). Since the Skull Valley Band was in favor of storing nuclear waste on its reservation, the Secretary needed to at least explain why it was not possible to defer to this determination. This decision is irrelevant here, because the PIIC has consistently opposed the storage of nuclear waste near its Reservation. The Secretary's concerns about the impact of long term SNF storage and the federal government's trust responsibility seems prescient in light of the withdrawal of the Yucca Mountain license application and the invalidation of the NRC Waste Confidence Decision and the Temporary Storage Rule. To date, the Secretary has not taken further action on the subject lease or right of way.
[6] ROD at 19.

life and culture) against the risks of continued, indefinite storage of an ever-increasing amount of spent nuclear fuel. A spent fuel accident or act of sabotage (even if unsuccessful) could have a devastating impact on the Tribe, and perhaps render the Tribe's reservation homeland uninhabitable. 4-5 cont'd.

We do recognize and appreciate the efforts of the NRC to work with the Prairie Island Indian Community on a government-to-government basis to develop portions of this EA. We believe, however, there are a few areas where the NRC needs to do more than just protect the general public, such as potential cumulative health impacts and cumulative historic and cultural resources impacts (discussed later in these comments). 4-6

2.0 Alternatives

We would like to see the Alternatives analysis expanded so that a full comparison can be made. We do not believe that enough information was considered or provided to allow an informed choice among the alternatives 4-7

In our view, the No Action alternative is no different than the Proposed Action. The only difference is that NSPM would not be allowed to place any additional casks on the ISFSI. Denying NSPM's license application changes nothing—the PI ISFSI would remain and the current inventory of dry casks would stay the same. The No Action alternative analysis should be expanded to include a discussion of whether the PINGP 1 and 2 might just opt for a general licensee (to store waste), instead of shutting down, and where that general license ISFSI might be located, and whether there are any environmental impacts associated with constructing a general license ISFSI. 4-8

Another aspect of Alternatives involves shipment to an off-site facility (federal or interim). Section 2.1.5 concludes by stating that this alternative is not a reasonable alternative because there is no facility in the United States. There is an NRC licensed facility on the reservation of the Skull Valley Band of Goshute Indians in Utah (Private Fuel Storage or PFS). The PFS license has not been terminated by the NRC, therefore it is still a licensed facility. This alternative should be more fully discussed to gain a better understanding of the environmental and socioeconomic impacts in order to compare it with the Proposed Action. 4-9

The Alternatives analysis should also include a discussion of the transportation of spent nuclear fuel, especially the higher burn-up fuel, as this is an important aspect that could potentially cause spent nuclear fuel to be stored on-site much longer than anticipated. 4-10

3.10 Historic and Cultural Resources

Traditional Cultural Properties (page 3-19)

It should be noted that locations of medicinal plants, in addition to archaeological sites, such as burial mounds and habitation sites, are considered to be sacred areas important to Dakota culture. 4-11

It should also be noted that it was the Prairie Island Indian Community that initiated the repatriation of the human remains removed from Site 21GD058/061 in the 1960s. 4-12

4.0 Environmental Impacts

Waste Confidence (page 4-1)

We understand and appreciate that licensing decisions are on hold pending the finalization of the Waste Confidence Generic Environmental Impact Statement (GEIS). While we do recognize that the Waste Confidence Decision (WCD) and Temporary Storage Rule (TSR) rule do not explicitly *authorize* individual licensing actions (i.e., reactor and ISFSI), it is important to note that the WCD and TSR *allow* for indefinate on-site storage of spent nuclear fuel. During the process to relicense the PINGP 1 and 2, we raised the issue of the environmental impacts of indefinite on-site storage of spent nuclear fuel in the EIS scoping process. The response from the NRC was that on-site storage of spent nuclear was a Category 1 issue (i.e., generic to all nuclear power plants) that would not be evaluated in the Supplemental EIS for the PINGP 1 and 2 reactor renewal and that the existence of the WCD and TSR meant that waste could safely be stored on-site and that there was *reasonable assurance* that waste would not be stored on-site forever.

Recent events tell us that there is no assurance whatsoever that waste will ever leave Prairie Island or any site (in spite of an updated WCD and TSR). The WCD and TSR have been updated or revised over the last 20 years to reflect changing realities. Each subsequent revision or update changes the date by which a repository will be available or increases the amount of time spent nuclear fuel can "safely" remain on-site beyond the licensed life of a plant. In 2010, after 25 years of study and $25 Billion spent on Yucca Mountain, the Administration declared that we can do better and we must start over. Toward that end, the Blue Ribbon Commission (BRC) on America's Nuclear Future was established in 2010 to develop a new path forward. The BRC's work culminated in a January 2012 report that laid out several recommendations, including the need for a geologic repository. In January 2013 the Department of Energy (DOE) has released its plan for implementing the recommendations of the BRC. A Senate bill has been drafted that, if enacted, would implement some of these recommendations. The bill, however, has not moved out of the Senate Energy and Natural Resources Committee and it remains to be seen whether a companion bill will be introduced in the House. Moreover, considering the DOE's abrupt and unlawful abandonment of the Yucca Mountain Repository – the geologic repository established and required by the NWPA (i.e. the current law of the land) – there can simply be no assurance that any future laws will be enacted or enforced. 4-13

This history is relevant because the WCD and TSR are inextricably linked to the development of a national repository. The legal responsibility for developing the repository, however, currently rests with a different federal agency, which has abandoned the effort. Given past history, as articulated above, how can anyone reasonably believe that spent nuclear fuel will ever leave reactor sites? 4-13 cont'd.

Page 4-2 states that the updated Waste Confidence Decision and Rule and supporting GEIS will provide the necessary NEPA analyses of waste-confidence related environmental issues. As we understand it, some site-specific issues will be evaluated during subsequent license renewals for ISFSIs (i.e., 40-year renewal terms). Because each license term is limited to 40-year intervals, we will never have a chance to truly evaluate and understand the long-term environmental consequences of indefinite spent nuclear fuel storage, especially high burn-up fuel, on Prairie Island. 4-14

4.11.3 Accidents

Section 4.11.3 must be revised to include a more realistic analysis of accidents as well as an analysis of impacts to the Prairie Island Indian Community resulting from the accidents. Paragraph 4 states that a transportation accident involving a jumbo barge explosion on the Mississippi River would be the worst case impact on the operation of the PI ISFSI, due to a resulting pressure wave. There is no mention of whether a fire on the banks of the Mississippi River could result from this explosion (especially during a dry summer) and whether the fire would have a negative impact on the PI ISFSI and the Prairie Island Indian Community. 4-15

Paragraph 5 discusses an accident resulting in an engulfing fire from the ruptured fuel tank of the cask transporter vehicle. The EA should also discuss and assess the possibility of an engulfing fire resulting from a derailment of flammable materials that are routinely transported on the rail lines just one-quarter mile from the ISFSI. On any given day there are hundreds of railcars with fuels and other flammable materials travelling on these rail lines adjacent to the PI ISFSI and through the Prairie Island Indian Community; the annual number of tanker cars would be hundreds of thousands. Recent derailments in the news—the devastating accident in Quebec, one just outside of New York City, and most recently in Duluth, MN—reminds us that its not a question of if, but when, it may might happen on Prairie Island. A possible train derailment of flammable liquids, coupled with very dry drought conditions, like those experienced in 2012, would have an impact on the PI ISFSI and the Prairie Island Indian Community that must be evaluated in the final EA. 4-16

There is also no detailed discussion in the draft EA of explosions or fires resulting from acts of terrorism or sabotage. Every day our society is confronted by the reality that there are suicide bombers willing to harm our nation to make political or religious statements. The PI ISFSI is an attractive target. Paragraph 5 should include a discussion of a fire caused by a fully-fueled jet, including the anticipated temperature and duration of such a fire. History has shown what happens when assumptions are proven wrong and design 4-17

basis boundaries are proven inadequate. What would be the consequences of an engulfing fire on the metal seals of the cask if it burned hotter and longer than a 200-gallon fuel fire? For example the fire in the World Trade Center in New York in 2001 was reported to be as hot as 1,800-2,000 °F. What would happen to the metallic lid seals in a similar fire? 4-17 cont'd.

Paragraph 9 – Loss of Confinement Barrier – states that for the TN-40 cask, the loss of confinement barrier "was not considered to be credible in the PI ISFSI SAR (NSPM, 2011b), but was hypothesized solely to demonstrate the inherent safety of the PI ISFSI by subjecting it to a set of simultaneous multiple failures, any of which is far beyond the capability of natural phenomena or man-made hazards to produce." Precisely how far beyond the capability of natural phenomena or man-made hazards to produce was the inherent safety demonstrated? Do the "multiple failures" include impacts and fires such as those discussed in the previous paragraph? 4-18

Considering the rapid advances in weaponry available throughout the world today, both in terms of range, accuracy and explosive force, not to mention the enemy's demonstrated ability to modify weapons (i.e. improvised explosive devices, rocket propelled grenades, etc.) to penetrate armored military vehicles, "far beyond the capability of man-made hazards to produce" seems overly confident, if not irresponsibly exaggerated. How can anyone credibly claim such "inherent safety" over the next 40-year period of extended operation of the ISFSI? How much more accurate and powerful are today's "man-made hazards" and weaponry compared to those at the end of the conflict in Vietnam? 4-19

Further with respect to Paragraph 9, what would the radiological consequences of a release of more than one cask be? How many casks would need to be breached before the offsite doses would be above the regulatory limits for offsite doses defined in 10 CFR 72.106(b)? 4-20

The Tribe also takes issue with the notion the environmental impact of these types of accident scenarios would be SMALL and not significant. An act of terrorism targeting the PI ISFSI would have devastating economic consequences on the Prairie Island Indian Community over and above any radiological consequences. This analysis must be included in the final PI ISFSI EA, like the EAs the NRC routinely drafts for facilities located within the confines of the Federal Circuit Court of Appeals for the 9th Circuit. This is an area where the NRC must exercise its Trust Responsibility for the Prairie Island Indian Community and go beyond the protection of the general public. 4-21

4.14 Cumulative Impacts

With respect to cumulative impacts, we appreciate the NRC's inclusion of impacts resulting from the future expansion of the PI ISFSI. Nevertheless, we have some issues that we believe were not fully analyzed.

The Council on Environmental Quality (CEQ) regulations define cumulative effects as "the impact on the environment which results from the action when added to other (emphasis added) past, present, and future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." (40 CFR1508.7).

A primary tenet of Dakota culture is the belief that all things are related, "Mitakuye Oyasin," and that one cannot separate one aspect of the environment from another. Mitakuye Oyasin, literally translated, means "to all my relations" or "we are all related." Mitakuye Oyasin is a prayer, an acknowledgement that honors the sacredness of all people and of all life. In other words, the community's health and well-being and culture are dependent upon the health of the natural environment—the water, the fish, the birds, the air, the plants, cultural sites, that are all interrelated as part of an ecosystem that is Prairie Island. The tribe also takes the same view when it comes to the PINGP and the ISFSI—that they are not separate and all aspects of the PINGP (the two reactors, the ISFSI, the transmission lines) have a cumulative and integrative impact on members of the tribe. Moreover, if it wasn't for a lack of a national repository, the ISFSI would not to be relicensed, let alone expanded. Thus the current national dilemma regarding spent nuclear fuel disposal has a profound impact on the Prairie Island Indian Community. 4-22

Cumulative Impacts on Historic and Cultural Resources (page 4-34)

While the EA recognizes that the PI ISFSI will have to be expanded to accommodate the additional dry casks needed to allow the PINGP 1 and 2 to operate until the end of its current licenses, the NRC is relying on the applicant to undertake any additional archaeological surveys prior to submitting a future license amendment application. The EA states correctly that there is still a high probability that additional unrecorded cultural resources may exist within the PINGP property.

There is no discussion of potential mitigation. We feel strongly that additional survey work must be done now, as the expansion of the ISFSI is a reasonably foreseeable future activity. The NRC relies on the implementation of PINGP's Cultural Resources Management Plan (CRMP) to ensure that any potential historic and cultural resources identified would be protected. The CRMP doesn't require that the tribe be notified before any archaeological work is conducted. In the case of this application, we were notified of the survey work after it had been completed. Had we been notified in advance, we would have made suggestions that could have improved the survey work completed by Westwood (and in the process, satisfied ourselves that there are no historic and cultural resources in the Area of Potential Effect). 4-23

It should be underscored that we do not in any way doubt the sincerity and commitment of NSPM staff that devoted so many hours to developing the CRMP. But the fact is, it is not a regulation or requirement. We have no idea whether any of the dedicated staff (who either developed the CRMP or who have knowledge of its existence) will even be working for NSPM when the ISFSI license amendment for expansion is submitted. What

we do know is that the PI ISFSI will be expanded and there is a high probability for additional unrecorded archaeological and cultural resources within the PINGP site. 4-23 cont'd.

Cumulative Impacts on Public Human Health, Trust Responsibility and Environmental Justice

It is not clear whether the cumulative and integrative health impacts have been analyzed as a whole or just separately (i.e., looking at REMP reports). Our concerns relate to the Trust responsibility and Environmental Justice aspects of human health impacts. In other words, we are asking whether the NRC done everything possible to ensure that the health of Prairie Island Indian Community members is being properly evaluated and protected and that tribal members are not disproportionately impacted by the PI ISFSI, the PINGP 1 and 2, and associated high-voltage lines?

As was discussed in the EA, the PI ISFSI will have to be expanded to accommodate the 64 casks needed to allow the PINGP to reach the end of its current licensed life (2034). A total of 98 casks will eventually be needed to decommission the PINGP 1 and 2. Thus, depending on the cask-loading schedule, there may be up to 64 casks on the ISFSI by the time PINGP Units 1 and 2 cease operations in 2033 and 2034.[7] As such, we are concerned about the potential cumulative and integrated radiological impacts from the continued operation of the PINGP 1 and 2, the associated high voltage lines, and the expanded ISFSI (possibly storing up to 64 casks during the period of the PINGP's continued operation), and not just the eventual expansion of the ISFSI to 98 casks. When the ISFSI has 98 casks, the reactors will have ceased operating. 4-24

Page 4-36 of the EA discusses the expansion of the PI ISFSI and expected radiological dose rate increase to members of the public. The draft EA also discusses the analysis provided by the Minnesota Public Utility Commission's (MPUC) Environmental Impact Statement (EIS) for the Certificate of Need (CON) application filed by NSPM in 2008.

It's unclear from the draft EA the extent, if any, to which the NRC assessed and tested the analysis provided by NSPM during the MPUC proceedings. It must be noted that great deference was given to the NRC's preemptive expertise regarding radiological emissions and impacts by the MPUC during those proceedings. The Tribe believes that the NRC should do its own independent analysis to verify that NSPM's analysis in the MPUC proceedings is correct. At a minimum, the NRC should serve NSPM with a RAI and have them submit an analysis in this NRC proceeding. 4-25

[7] The EA also fails to mention that the NRC's draft Waste Confidence Generic Environmental Impact Statement (GEIS) contemplates a second twenty-year renewal period. If the NRC can assume a second 20-year renewal term in the DGEIS, then it ought to fully analyze the potential impacts of the additional spent nuclear fuel generated during that additional renewal term. 4-26

Page 4-39 of the draft EA states that the placement of 98 casks would increase skyshine radiation exposure to the public in addition to the radiological impacts expected from the licensed 48 casks. The EA further states "radiation exposure from up to 98 casks including the operation of the PINGP 1 and 2 would not exceed NRC regulatory limits." It is important to note that when the ISFSI contains 98 casks, the PINGP 1 and 2 will not be operating. 4-27

In our view, the EA does not provide a complete understanding of what the cumulative and integrated radiation exposure is to members of the Prairie Island Indian Community from the PI ISFSI and PINGP 1 and 2, as well as from the high voltage lines. Moreover, we would like to know what the cancer risk to community members would be from these sources. 4-28

As mentioned above, the NRC reviewed the EIS developed by the MPUC for the PI ISFSI expansion CON. An important aspect of the MPUC EIS is discussion of health risks (i.e., cancer) related to potential long-term exposure to low-level skyshine radiation (estimated to be 4.40 mrem/year for 98 casks):

> Assuming that the nearest residents (0.45 mile away) live outside for 70 years, it is estimated that an additional 1 person in 2,850 (35 in 100,000) would be diagnosed with cancer and an additional 1 person in 5,700 would die from cancer.

What is expected the cancer risk to members of the Prairie Island Indian Community from reactor operations, EMFs and the additional dry casks? Shouldn't these three sources—skyshine from dry casks, releases from the plant, and EMFs—be included in the cumulative impacts analysis (past, present, and future)? The Tribe is not solely concerned about increased radiation and risks from additional casks, but rather the additional casks, in addition to the releases from the plant. Furthermore, there is nothing in EA about cancer risks, other than a discussion in Chapter 3 regarding the pending National Academy of Sciences' (NAS) National Research Council update to the 1990 Cancer Institute Study (page 3-22). This is an important factor as the NRC requested that the National Research Council provide an assessment of cancer risks in populations near U.S.NRC-licensed nuclear facilities. While we realize that it may not have been the NRC's decision on which plants were selected to be studied further by the NAS cancer study, we feel they are missing an important opportunity to evaluate the cancer impacts of the only reactor where a Indian tribe is located immediately adjacent to a nuclear plant and spent fuel storage installation. 4-29

We would like the NRC to include a discussion of health risks (cancer) from all sources—the PINGP 1 and 2, the PI ISFSI and high voltage lines—in the final EA. This is another area where the Prairie Island Indian Community expects the NRC to go beyond what they do for the general public.

Transportation of spent nuclear fuel

Throughout the document references are made to the eventual decommissioning and dismantling of the PI ISFSI. What is missing from the discussion is how the dry casks containing high burn-up fuel (TN-40 HT) will be transported from the PI ISFSI before it is decommissioned. We understand that the TN-40 casks are licensed for transportation, but the TN-40 HT is not (currently, no cask is licensed to transport high burn-up fuel). If the final EA includes some discussion related to impacts from decommissioning the PI ISFSI, the final EA must also include some discussion as to how (and whether) spent nuclear fuel will be transported from the ISFSI prior to decommissioning.

The draft EA fails to adequately address the considerable uncertainty regarding the long-term effects of high burnup fuel during extended dry cask storage, including still-unresolved concerns associated with degradation of fuel assemblies and internal cask components and cladding. Potential problems are less likely to occur during the proposed extended license term (i.e., up to 40 years), but beyond that term there is far more uncertainty. As a result, the potential transportation of these casks will become more problematic the longer the spent nuclear fuel is stored onsite. The draft EA should assess the consequences and potential impacts of storing high burnup fuel not only for the proposed extended license term, but also for longer periods of indefinite onsite storage. The longer high burnup fuel is stored at the PI ISFSI, the more likely the potential problems associated with high burnup fuel will manifest themselves, making transportation of those casks more dangerous, more risky, and therefore, less likely. 4-30

Conclusion

The continued operation of the PI ISFSI and PINGP Units 1 and 2 are the most important issues for the Tribe. The Tribe has devoted considerable resources to ensure that the Community is able to participate in these proceedings (as a Cooperating Agency for the EA and as an Intervener in the Adjudicatory Proceedings).

We look forward to continuing our Cooperating Agency relationship with the NRC to finalize the Environmental Assessment or assist with the preparation of an Environmental Impact Statement for the PI ISFSI license renewal.

Respectfully submitted,

Signed (electronically) by Philip R. Mahowald

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