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10 CFR 72.56

U S Nuclear Regulatory Commission
ATTN: Document Control Desk,
Director, Spent Fuel Project Office,
Office of Nuclear Material Safety and Safeguards
Washington, DC 20555-0001

Prairie Island Independent Spent Fuel Storage Installation
Docket No. 72-10
Materials License No. SNM-2506

Supplement to License Amendment Request (LAR) to Modify TN-40 Cask Design (Designated as TN-40HT) (TAC No. L24203)

References: 1. Prairie Island Independent Spent Fuel Storage Installation, "License Amendment Request (LAR) to Modify TN-40 Cask Design (Designated as TN-40HT)", dated March 28, 2008, Accession Number ML081190039.

In Reference 1, Nuclear Management Company, LLC, (NMC) submitted an LAR to revise the Special Nuclear Materials (SNM) license and Technical Specifications (TS) for the Prairie Island Independent Spent Fuel Storage Installation (PIISFSI), to modify the TN-40 cask for storage of higher enrichment and burnup fuel. Pursuant to NRC Staff request, enclosed are updated pages to the Environmental Report (ER) which was previously provided in support of the PIISFSI license request.

Enclosure 1 to this letter contains the oath or affirmation statement for this supplement required pursuant to 10 CFR 72.16(b).

NMC reviewed the PIISFSI ER and identified sections in which the information is directly affected by the proposed TN-40 design changes for storage of higher enrichment and burnup fuel. Enclosure 2 to this letter contains updated ER pages and update instructions.

If there are any questions or if additional information is needed, please contact Mr. Dale Vincent, P.E., at 651-388-1121.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.

Michael D. Wadley
Site Vice President, Prairie Island Nuclear Generating Plant Units 1 and 2
Nuclear Management Company, LLC

Enclosures (2)

cc: Administrator, Region III, USNRC
SFPO Project Manager, Prairie Island, USNRC
NRR Project Manager, Prairie Island, USNRC
Resident Inspector, Prairie Island, USNRC
State of Minnesota

ENCLOSURE 1

Nuclear Management Company Affidavit

1 page follows

UNITED STATES NUCLEAR REGULATORY COMMISSION

NUCLEAR MANAGEMENT COMPANY, LLC

PRAIRIE ISLAND INDEPENDENT SPENT FUEL STORAGE FACILITY
DOCKET NO. 72-10

REQUEST FOR AMENDMENT TO
MATERIALS LICENSE No. SNM-2506

SUPPLEMENT TO LICENSE AMENDMENT REQUEST
TO MODIFY TN-40 CASK DESIGN (DESIGNATED AS TN-40HT)

The Nuclear Management Company, LLC, a Wisconsin corporation, supplements the March 28, 2008 request for changes to the Prairie Island Independent Spent Fuel Storage Facility Materials License and Appendix A as shown in the cover letter and attached Enclosure 2.

This letter contains no restricted or other defense information.

NUCLEAR MANAGEMENT COMPANY, LLC

By Michael D Wadley
Michael D. Wadley
Site Vice President,
Prairie Island Nuclear Generating Plant
Nuclear Management Company, LLC

State of Minnesota

County of Dakota

On this, 29 day of August before me a notary public acting in said County, personally appeared Michael D. Wadley, Site Vice President, Prairie Island Nuclear Generating Plant, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Nuclear Management Company, LLC, that he knows the contents thereof, and that to the best of his knowledge, information, and belief the statements made in it are true.

Janet Louise Swanson

ENCLOSURE 2

PI ISFSI Environmental Report Update Pages

18 pages follow

PRAIRIE ISLAND INDEPENDENT SPENT FUEL STORAGE INSTALLATION
ENVIRONMENTAL REPORT
UPDATING INSTRUCTIONS
Revision 2

PI ISFSI ENVIRONMENTAL REPORT

REMOVE			**INSERT**	
Page	**Previous Revision #**		**Page**	**Revision #**
1.1-1*	0		1.1-1	0
-	-		1.1-2	2
1.2-1*	0		1.2-1	0
3.1-1	1		3.1-1	2
3.2-1*	0		3.2-1	0
3.3-1*	0		3.3-1	0
3.4-1	0		3.4-1	2
3.5-1	1		3.5-1	2
3.6-1*	0		3.6-1	0
-	-		Figure 3.1-4	2
5.1-1*	0		5.1-1	0
5.2-1	1		5.2-1	2
5.5-1*	0		5.5-1	0
5.6-1	1		5.6-1	2
7.1-1	1		7.1-1	2
7.2-1*	0		7.2-1	0
12.1-1	0		12.1-1	2

* While there are no changes on these pages, they must be replaced due to the duplex format of the report.

CHAPTER 1

INTRODUCTION AND PURPOSE OF THE PROPOSED FACILITY

1.1 INTRODUCTION

Discharged spent fuel assemblies from Prairie Island Nuclear Generating Plant, Units 1 and 2, are currently stored on-site in a spent fuel pool. The spent fuel pool provides for long term storage of 1386 assemblies in high density storage racks. Typically, 48 spent fuel assemblies per unit are discharged to the spent fuel pool each cycle, which occurs approximately every 16 months. Additional information concerning the Prairie Island Nuclear Generating Plant is contained in the Prairie Island USAR (Reference 1).

Under the current fuel cycle management strategy, the spent fuel pool will lose capacity for discharge of a full core in 1993. Storage capacity will be exhausted completely in 1994. Accordingly, additional spent fuel storage capacity is needed.

To support this need and provide storage until the Department of Energy (DOE) accepts title to spent fuel under the requirements of the Nuclear Waste Policy Act of 1982, as amended in 1987, Northern States Power Company (NSP) is requesting permission to build and operate an on-site Independent Spent Fuel Storage Installation (ISFSI) in compliance with restrictions and requirements of 10CRF72. A Safety Analysis Report (SAR) has been prepared pursuant to guidelines contained in Regulatory Guide 3.62 (Reference 2).

The ISFSI will store spent fuel from Prairie Island Nuclear Generating Plant, Units 1 and 2, in the dry cask storage system designed by Transnuclear, Inc. The TN-40 system is more fully described in the Safety Analysis Report.

Construction of the ISFSI is scheduled to commence in March 1992. The ISFSI is scheduled to begin operation in February 1993.

The capacity of the ISFSI will enable NSP to store an additional 1920 spent fuel assemblies in 48 casks. The ISFSI will provide adequate capacity to enable Units 1 and 2 to continue operation until expiration of their respective Operating Licenses in 2013 and 2014.

Each application for an ISFSI license under 10CFR72 must be accompanied by an Environmental Report (ER) which meets the requirements of 10CFR51, Subpart A. This Environmental Report has been developed to assess the environmental impacts associated with construction, operation, and decommissioning of the ISFSI in accordance with these regulatory requirements. The Environmental Report format and content are in accordance with guidelines set forth in Regulatory Guide 4.2 (Reference 3), to the extent the guidelines are applicable to a facility of this type.

To support operation during plant life extension, dry fuel storage of fuel with a higher initial enrichment and higher accumulative burnup than that allowed in the TN-40 cask design is necessary. To accommodate this fuel, modifications were made to the TN-40 cask design. The modified cask design is referred to as the TN-40HT. The TN-40HT system is more fully described in Appendix A of the Safety Analysis Report.

1.2 REFERENCES

1. Northern States Power Company, Prairie Island Nuclear Generating Plant Updated Safety Analysis Report, Revision 8, Docket No. 50-282 (Unit 1) and 50-306 (Unit 2).

2. U.S. Nuclear Regulatory Commission, Regulatory Guide 3.62, Standard Format and Content for the Safety Analyses Report for Onsite Storage of Spent Fuel Casks, February, 1989.

3. U.S. Nuclear Regulatory Commission, Regulatory Guide 4.2, Preparation of Environmental Reports for Nuclear Power Stations, Revision 2, July 1976.

CHAPTER 3

THE FACILITY

3.1 EXTERNAL APPEARANCE

Casks will be stored within the proposed fenced facility site. Two parallel rows of 12 casks will be placed on each of two 216 x 36 foot concrete pads. The cask arrangement is shown on Figure 3.1-1. Figure 3.1-2 shows a TN-40 storage cask. Figure 3.1-4 shows a TN-40HT storage cask. Each cask is approximately 8 ft. -5 in. in diameter and 16 ft.-10 in. (16ft.-8 in. for the TN-40HT) in height. The exterior surface of each cask is made of steel and painted white.

An Equipment Storage Building will be located on the ISFSI site. Figure 3.1-3 shows the plan and elevation drawings for this building. The building will be a steel frame structure with painted steel wall and roof panels.

The ISFSI will be surrounded by 8 ft. high protected area and nuisance chain link fences. In addition, a 17 ft. high earthen berm will be constructed around the ISFSI, except for the access road opening. The berm will visually screen the facility from plant exclusion area boundaries.

3.2 REACTOR AND STEAM - ELECTRIC SYSTEM

This section does not apply because these systems are not part of the ISFSI.

3.3 FACILITY WATER USE

The safety functions of the ISFSI can be accomplished without the use of a water supply.

3.4 HEAT DISSIPATION SYSTEM

Each TN-40 cask will be designed to dissipate up to 27 kW of decay heat (32 kW for each TN-40HT cask) generated by the stored spent fuel by the mechanisms of convection, thermal radiation, and conduction.

3.5 RADWASTE SYSTEMS AND SOURCE TERMS

Operation of the ISFSI will not result in the generation of gaseous, liquid, or solid radwastes other than those resulting from the decontamination of the outside surface of the casks. Decontamination of the casks will take place in the Auxiliary Building prior to transfer of the casks to the ISFSI. Liquid and solid wastes generated in the decontamination process will be processed and handled by the existing radwastes facilities in existence at the Prairie Island Nuclear Generating Plant. Detailed descriptions of the decontamination process and waste treatment are provided in Chapter 6 of the ISFSI Safety Analysis Report.

The ISFSI will be designed to accommodate a total of 48 dry spent fuel storage casks. Each of the casks will be capable of accommodating 40 fuel assemblies. Each fuel assembly has between 0.36 and 0.40 MTU.

The Actual surface dose rate for the TN-40 cask will be less than 58 mrem per hour. The actual surface dose rate along the side of a TN-40HT cask will be less than 61 mrem per hour. The aggregate dose rate from all casks at the ISFSI is discussed in Section A7A of the ISFSI SAR.

3.6 CHEMICAL AND BIOCIDE WASTES

No chemical or biocide wastes are associated with operation of the ISFSI.

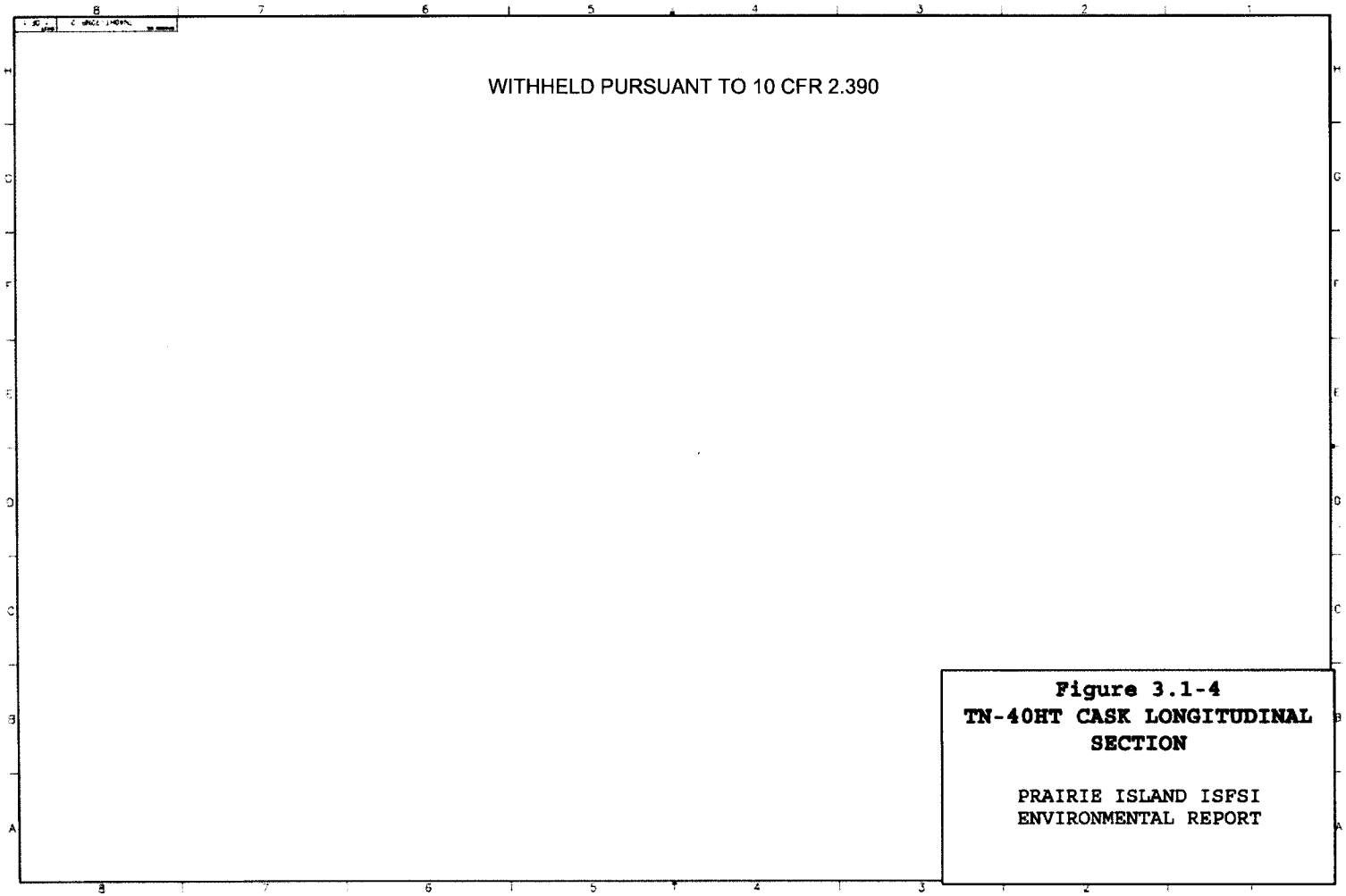

Figure 3.1-4
TN-40HT CASK LONGITUDINAL SECTION

PRAIRIE ISLAND ISFSI
ENVIRONMENTAL REPORT

CHAPTER 5

ENVIRONMENTAL EFFECTS OF FACILITY OPERATION

5.1 EFFECTS OF OPERATION OF HEAT DISSIPATION SYSTEM

The operation of the ISFSI requires no active heat dissipation system. Accordingly, there will be no impact on surface or ground water quality or aquatic biology.

An insignificant amount of heat is passively dissipated by convection, conduction, and thermal radiation to the environment in the immediate vicinity of the ISFSI. The local climatological effects of this heat dissipation are presented and discussed in Section 5.6.2. No other environmental effects are postulated.

5.2 RADIOLOGICAL IMPACT FROM ROUTINE OPERATION

5.2.1 Analysis of ISFSI Contribution

The radiological impact of the operation of the ISFSI is analyzed in Section A7 of the ISFSI Safety Analysis Report (SAR). Based on the conservative assumptions used in the SAR, the dose rates to the offsite permanent and transient individuals subject to the highest exposures were calculated to be 2.42E-4 mrem/hr and 2.64E-5 mrem/hr respectively. Using these dose rates and the conservative assumption that all permanent residents within 2 miles are located at the same distance from the ISFSI as the nearest resident and all transient individuals within 2 miles are located 0.8 miles from the ISFSI, the collective annual dose from ISFSI operations would be 3.60 person rems. The conservative calculation of dose to resident within 2 miles and the rapid attenuation of neutron and gamma dose rates with distance make the collective doses for the more distant population negligible.

Note that this is the maximum dose rate that would occur with 48 casks. It would occur when the last 2 casks are placed in the ISFSI. Thereafter, the dose rate would constantly decrease due to decay.

5.2.2 Analysis of Multiple Contribution

The annual dose to the nearest permanent resident due to ISFSI operations has been conservatively calculated to be 2.20 mrem per year. The maximum annual dose to the nearest permanent resident from the Prairie Island Nuclear Generating Plant has been calculated to be 0.0027 mrem due to liquid effluents and 0.334 mrem due to gaseous effluents (Reference 1). The maximum total annual dose to the nearest permanent resident therefore, would be less than 3.0 mrem.

The dose to the nearest permanent resident from the ISFSI operation, in combination with the maximum permissible dose from the Prairie Island Nuclear Generating Plant, will not exceed the 25 mrem per year limit specified in 10CFR72.104 and 40CFR190. Other radioactive sources on site have a negligible effect on the offsite dose.

5.5 EFFECTS OF OPERATION AND MAINTENANCE OF THE TRANSMISSION SYSTEM

This section does not apply because there is no transmission system associated with the ISFSI.

5.6 OTHER EFFECTS

5.6.1 Noise Impact

The only operational noise associated with the proposed action will result from the transfer of spent fuel from the spent fuel pool facility to the dry cask storage facility. Since the noise associated with this operation is expected to be minimal, no adverse impacts are expected.

5.6.2 Climatological Impact

The installation of the ISFSI is not expected to affect the climate of the region. As the cask surface temperature may approach 240°F (260°F for a TN-40HT cask), the air temperature in the immediate vicinity of the casks will be higher than the ambient temperature. The affected area is relatively small and localized. During rainy days, precipitation may vaporize at the cask surface because of the relatively high cask surface temperature.

In order to determine whether a cask-generated water vapor plume will produce fogging, water vapor concentrations were calculated by using the Environmental Protection Agency (EPA) Industrial Source Complex Dispersion Model (ISC). ISC is a multi-source Gaussian plume atmospheric dispersion model for non-reactive pollutants and can be used to model point, area or volume sources (Reference 2).

Climatological data for Minneapolis, Minnesota (References 3 and 4) and Faribault, Minnesota (Reference 5) were used to perform the analysis, since these are the closest locations to the Prairie Island site where detailed climatological data is available. Minneapolis is located about 28 miles north of Prairie Island and Faribault is located within a few miles of the site. Both locations should be reasonably representative of the climatological conditions of the site. Precipitation data were taken from Minneapolis since this location had the highest value while temperature data was taken from Faribault since this location was considered more representative of temperature at the prairie Island site than Minneapolis.

Since any cask-induced fogging episodes will have the greatest impact at locations where visibility is important, the county road to the west of the ISFSI site and the location of the nearest residence to the site were chosen as the receptors where water vapor impacts were calculated. The point along the county road nearest to the ISFSI site was chosen to represent the impacts along the road. This receptor is located approximately 900 ft. west of the ISFSI site while the nearest residence is located 2400 ft. northwest of the ISFSI site.

The source of water vapor is evaporated rain from the surface of 48 casks. These casks are situated on two concrete pads each with a dimension of 36 ft. by 216 ft. Each pad contains 24 casks. The two pads were modeled as an area source with a release height of 16 ft. (i.e., cask height). Since the pads

CHAPTER 7

ENVIRONMENTAL EFFECTS OF ACCIDENTS

7.1 FACILITY ACCIDENTS INVOLVING RADIOACTIVITY

An evaluation of the safety of the ISFSI with respect to postulated accidents is presented in Chapter 8 of the ISFSI Safety Analysis Report (SAR) for operation with a TN-40 cask and in Section A8 for operation with a TN-40HT cask.

Although not considered to be a credible event, a complete loss of confinement barrier for a TN-40 cask was postulated. The dose to an individual at the nearest site boundary was calculated to be 0.15 rem, which is well within the 5 rem criteria set forth in 10CFR72.106(b).

For a TN-40HT cask, the analysis of a loss of confinement barrier assumed a leak of the inner seal in addition to a failure of the pressure boundary of the overpressure monitoring system. The results of the calculations indicated that at the site boundary (110m from the cask), for a 30 day release, the total effective dose equivalent is 24 mrem. The total organ dose equivalent to any individual organ (the critical organ in this case is the bone surface) is 244 mrem for a 30 day release. The lens dose equivalent to the lens of the eye is 24.1 mrem for a 30 day release. These values are well below the limiting off site doses defined in 10 CFR 72.106(b).

7.2 TRANSPORTATION ACCIDENTS INVOLVING RADIOACTIVITY

Cask handling and transfer operations will be totally within the Prairie Island Nuclear Generating Plant site. The onsite transfer route is shown on Figure 2.1-3. Since there is no offsite cask transportation, offsite transportation accident analyses are not required.

CHAPTER 12

ENVIRONMENT APPROVALS AND CONSULTATION

NSP is required to obtain a Certificate of Need from the Minnesota Public Utilities Commission in order to proceed with construction of the project. The Minnesota Environmental Quality Board will prepare an Environmental Impact Statement assessing impacts of ISFSI construction and operation.

While there are no approvals, permits, or environmental impact statements required from the State of Minnesota for the use of the TN-40HT cask design, a Certificate of Need is required from the Minnesota Public Utilities Commission for the dry fuel storage needed to support operation during the plant life extension. As part of the Certificate of Need process, the commissioner of the Minnesota Department of Commerce is the governmental unit responsible for preparing an environmental impact statement (EIS).