

~~ENCLOSURE 4 CONTAINS PROPRIETARY INFORMATION~~



November 13, 2015

L-PI-15-094
10 CFR 72.48
10 CFR 72.70

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

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

Biennial Report of Changes, Tests and Experiments, Updated Safety Analysis Report (SAR), and Updated Technical Specification (TS) Bases for Prairie Island ISFSI

Pursuant to 10 CFR 72.48(d)(2), 10 CFR 72.70(c)(2) and Prairie Island ISFSI Technical Specification (TS) 5.4.d, Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), by this letter submits a brief description of any changes, tests and experiments, Prairie Island ISFSI SAR page revisions, and Prairie Island ISFSI TS Bases page revisions for the Prairie Island ISFSI. The last update was submitted October 16, 2013 (ADAMS Accession Number ML14022A106).

Enclosure 1 to this letter contains the affidavit, pursuant to the requirements of 10 CFR 2.390(b)(1)(iii), regarding the trade secret information contained in Enclosure 4.

Enclosure 2, 10 CFR 72.48 Changes, Tests and Experiments, contains a brief description of any changes, tests, and experiments made pursuant to 10 CFR 72.48(c), including a summary of the evaluation of each.

Enclosure 3, Information Regarding Changes to the Prairie Island ISFSI SAR, identifies those changes made based on approved license amendments, changes made under the provisions of 10 CFR 72.48, and editorial changes.

Enclosure 4, Updated Prairie Island ISFSI SAR - Proprietary, is a CD-ROM containing the proprietary version of the Prairie Island ISFSI SAR Revision 16 in its entirety. As discussed in Enclosure 1 to this letter, NSPM requests that this proprietary version of

NM5526

the Prairie Island ISFSI SAR be withheld from public disclosure pursuant to 10 CFR 2.390(a)(4). NSPM requests that the proprietary version of the Prairie Island ISFSI SAR Revision 15 be destroyed or marked superseded.

Enclosure 5, Updated Prairie Island ISFSI Safety Analysis Report – Non-Proprietary, is a CD-ROM containing the non-proprietary version of the Prairie Island ISFSI SAR Revision 16 in its entirety. The non-proprietary version of the Prairie Island ISFSI SAR may be disclosed to the public. NSPM requests that the non-proprietary version of the Prairie Island ISFSI SAR Revision 15 be destroyed or marked superseded.

Enclosure 6, ISFSI TS Bases Page Changes, contains three copies of ISFSI TS Bases, Revisions 8 and 9, revised pages and instructions for entering the pages. These revisions are submitted pursuant to ISFSI TS 5.4.d for ISFSI TS Bases changes which have been implemented since the previous ISFSI SAR submittal.

If there are any questions or if additional information is needed, please contact Penny Oleson, Regulatory Analyst, at 651-267-1750.

Summary of Commitments

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

I certify that the ISFSI SAR information presented herein accurately presents changes made since the previous submittal up through September 30, 2015.



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

Enclosures (6)

cc: Administrator, Region III, USNRC
Director, Spent Fuel Project Office, USNRC
NMSS Project Manager, Prairie Island ISFSI, USNRC
NRR Project Manager, Prairie Island Nuclear Generating Plant, USNRC
Resident Inspector, Prairie Island Nuclear Generating Plant, USNRC

ENCLOSURE 1

AFFIDAVIT PURSUANT TO 10 CFR 2.390

2 Pages Follow

**AFFIDAVIT PURSUANT
TO 10 CFR 2.390**

AREVA Inc.)
State of Maryland) SS.
County of Howard)

I, Paul Triska, depose and say that I am a Vice President of AREVA Inc., duly authorized to execute this affidavit, and have reviewed or caused to have reviewed the information which is identified as proprietary and referenced in the paragraph immediately below. I am submitting this affidavit in conformance with the provisions of 10 CFR 2.390 of the Commission's regulations for withholding this information.

The information for which proprietary treatment is sought is contained in the Prairie Island Independent Spent Fuel Storage Installation (ISFSI) Safety Analysis Report (SAR)(Docket Number 72-10, License Number SNM-2506), Revision 16, as listed below:

1. SAR Appendix 3A
2. SAR Appendix 7B
3. Portions of SAR Section A1.5, SAR Drawings TN40HT-72 series, as follows:
 - TN40HT-72-2, Rev 4
 - TN40HT-72-3, Rev 3
 - TN40HT-72-4, Rev 1
 - TN40HT-72-5, Rev 2
 - TN40HT-72-6, Rev 3
 - TN40HT-72-8, Rev 1
 - TN40HT-72-9, Rev 0
 - TN40HT-72-21, Rev 6
 - TN40HT-72-22, Rev 5
4. Portions of SAR Section A3.3.2.2.8
5. SAR Appendix A3A
6. Portions of SAR Section A4.2.3.8, including Tables A4.2-25 and -26 and Figures A4.2-5 through -12
7. Portions of SAR Section A4B.1.5.6
8. Figure A4B.1-1
9. Portions of SAR Appendix A7B.

These documents have been appropriately designated as proprietary.

I have personal knowledge of the criteria and procedures utilized by AREVA Inc. in designating information as a trade secret, privileged, or as confidential commercial or financial information.

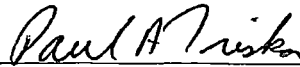
Pursuant to the provisions of paragraph (b) (4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure, included in the above referenced document, should be withheld.

- 1) The information sought to be withheld from public disclosure are portions of certain TN-40 and TN-40HT spent fuel storage cask design drawings and analyses, as included in the Prairie Island ISFSI

SAR, which are owned and have been held in confidence by AREVA Inc.

- 2) The information is of a type customarily held in confidence by AREVA Inc. and not customarily disclosed to the public. AREVA Inc. has a rational basis for determining the types of information customarily held in confidence by it.
- 3) Public disclosure of the information is likely to cause substantial harm to the competitive position of AREVA Inc. because the information consists of descriptions of the design and analysis of dry spent fuel storage systems, the application of which provide a competitive economic advantage. The availability of such information to competitors would enable them to modify their product to better compete with AREVA Inc., take marketing or other actions to improve their product's position or impair the position of AREVA Inc.'s product, and avoid developing similar data and analyses in support of their processes, methods or apparatus.

Further the deponent sayeth not.



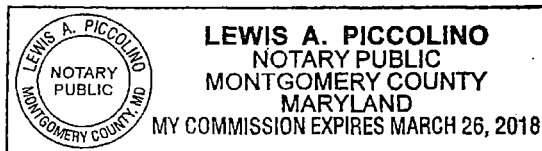
Paul Triska
Vice President, AREVA Inc.

Subscribed and sworn before me this 11th day of November, 2015.



Notary Public

My Commission Expires 03/26/2018



ENCLOSURE 2

10CFR72.48 CHANGES, TESTS and EXPERIMENTS

Below is a brief description and a summary of the safety evaluation for each of those changes, tests, and experiments which were carried out for the Prairie Island Independent Spent Fuel Storage Installation (ISFSI) by Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM") without prior Nuclear Regulatory Commission (NRC) approval, pursuant to the requirements of 10CFR72.48.

10CFR72.48 Evaluation 1113: Decrease total axial thermal expansion gap for basket in Cask 38

Description of Change

The activity changed the basket of a TN40HT cask to allow a zero axial thermal expansion gap between each level of aluminum plates and the adjacent stainless steel support bar during fabrication.

During the fabrication of the basket for Cask 38, the axial thermal expansion gap was measured and found to be outside of the specified tolerances identified in the design drawings.

The purpose of the gap between the stainless steel support bar and the aluminum plates is to provide allowance for thermal expansion. This change could impact the structural design functions of the basket.

Summary of Evaluation

The activity showed that the structural, criticality and thermal properties and design functions are maintained within their design limits during all analyzed conditions that the basket would experience with a zero cold gap fabricated between the aluminum plates and the stainless steel structural support bars.

ENCLOSURE 3

INFORMATION REGARDING CHANGES TO THE ISFSI SAR

Changes were made to the Independent Spent Fuel Storage Installation Safety Analysis Report (ISFSI SAR) which are identified in the following list by their input numbers (with which side-barred changes are denoted). Note that ISFSI SAR Input Numbers can be searched on the ISFSI SAR CD-ROM, Enclosure 4, to locate each change.

ISFSI SAR Input No.	Revised Section	Basis	Description
01409868	3.1.1, A3.1.1	10CFR 72.48 Evaluation 573, Revision 0	Update ISFSI SAR to describe Fuel Assembly Anchors. This revision is being performed to comply with the industry commitment relative to this issue as documented and NRC RIS 2013-11 as well as an NRC observation from the last ISFSI inspection January of 2013
01424752	A3, A9	NRC SER dated March 10, 2014 and 10CFR 72.48 Screening 4764, Revision 0	ISFSI SAR Changes for Implementing Amendment 8 and Reduced Poison Plate Conductivity Calculation for TN40HT Dry Fuel Storage Casks (EC 22278)
01428175	A3.4	Editorial	Add a DBLFPB section to ISFSI SAR Addendum A for TN-40HT
01456577	Figure 5.1-1	Editorial	Revise ISFSI SAR Figure 5.1-1 to fix editorial error
01475731	1, 3, A3, A7	NRC SER dated April 10, 2015 (ML15091A655)	Change ISFSI SAR to implement Amendment 9
01500070	A1	Editorial	Update ISFSI SAR Drawings with latest revisions

Summaries of evaluations prepared under the provisions of 10CFR 72.48 are submitted separately.

ENCLOSURE 4

**UPDATED PRAIRIE ISLAND INDEPENDENT SPENT FUEL STORAGE
INSTALLATION (ISFSI) SAFETY ANALYSIS REPORT (SAR)
PROPRIETARY**

Updating Instructions

A complete copy of the proprietary version of the Prairie Island ISFSI SAR Revision 16 is included on the enclosed CD-ROM.

Contact Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), at 651-267-1750 if you require additional assistance.

The enclosed proprietary version of the Prairie Island ISFSI SAR Revision 16 (CD-ROM) contains the following files:

File name	Size (kilobytes)	Disclosure status
ISFSI SAR-PROP.pdf	97,209	Proprietary
ISFSI SAR ADDENDUM-PROP.pdf	15,370	Proprietary
ISFSI SAR.pdf	687	Proprietary

ENCLOSURE 5

**UPDATED PRAIRIE ISLAND INDEPENDENT SPENT FUEL STORAGE
INSTALLATION (ISFSI) SAFETY ANALYSIS REPORT (SAR)
NON-PROPRIETARY**

Updating Instructions

A complete copy of the non-proprietary version of the Prairie Island ISFSI SAR Revision 16 is included on the enclosed CD-ROM.

Contact Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), at 651-267-1750 if you require additional assistance.

The enclosed non-proprietary version of the Prairie Island ISFSI SAR Revision 16 (CD-ROM) contains the following files:

File name	Size (kilobytes)	Disclosure status
ISFSI SAR – NON-PROP.pdf	29,433	Non-proprietary
ISFSI SAR ADDENDUM – NON-PROP.pdf	16,451	Non-proprietary
ISFSI SAR.pdf	687	Non-proprietary

ENCLOSURE 6

**Prairie Island
Independent Spent Fuel Storage Installation
Bases Page Changes**

Updating Instructions (1 page)

Revision 10 Pages (4 pages x 3 copies)

**Prairie Island
Independent Spent Fuel Storage Installation
Updating Instructions**

Remove and discard individual Bases pages and replace with the new pages provided. Special instructions, where applicable, are included with the replacement pages.

When page removal/replacement is complete, review the Bases Current Pages list to ensure your copy of the Bases is current and complete. Contact Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), at 651-267-1750 if you require additional assistance.

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A	8/27/13	Current Page List	A	7/24/2015
		Table of Contents		

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**PRAIRIE ISLAND NUCLEAR GENERATING PLANT
INDEPENDENT SPENT FUEL STORAGE INSTALLATION
RECORD OF REVISION BASES CHANGES AND LICENSE AMENDMENTS**

NSPM Revision (REV) No.	Date of Issue	License Amendment No.	Remarks
-	-	1 through 6	Original Bases were part of Technical Specifications
7	8/20/2010	7	Initial Issue of revised format and Inclusion of TN-40HT design.
8	12/12/2012	-	Clarify "helium environment" requirement in ISFSI SR 3.1.2.1.
9	8/27/13	-	Revise B 3.1.5 paraphrase of regulatory requirements.
10	7/24/2015	9	Revise SR for B 3.1.2.

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B.1

If a helium cask environment cannot be achieved and maintained, fuel clad temperatures may increase beyond the analyzed condition. Therefore, the cask will be required to be placed back into the spent fuel pool within 7 days and re-flooded. This time is sufficient time to return the cask to the spent fuel pool and re-flood the cask cavity. Once placed in the spent fuel pool, the fuel is provided adequate decay heat removal to maintain the loaded fuel within limits.

SURVEILLANCE
REQUIREMENTS

SR 3.1.2.1

This Surveillance is modified by a Note. The Note clarifies that meeting the Surveillance is not required, and thus there is not a failure to meet the LCO per SR 3.0.1 and SR 3.0.4 does not apply, prior to the specified Frequency.

While, the effective thermal conductivity of the cavity gas is not dependant upon pressure, it is dependant upon the make-up of the gases within the cask cavity. Thermal analyses have shown that maximum fuel cladding temperature limit of 752°F is not exceeded during LOADING OPERATIONS provided a 75% helium environment (based on partial pressure) is established within the cask. Thus, design basis heat removal requirements will be satisfied provided an environment of at least 75% helium has been established, and maintained in the cask cavity within the 34 hour vacuum drying time frame (Reference 3).

SR 3.1.2.2

This Surveillance is modified by a Note. The Note clarifies that meeting the Surveillance is not required, and thus there is not a failure to meet the LCO per SR 3.0.1, and SR 3.0.4 does not apply prior to the specified Frequency.

Evacuating the cask cavity to the specified vacuum prior to pressurization (see SR 3.1.2.3) will ensure that the amount of oxidizing gases remaining in the cavity will be no greater than

SURVEILLANCE
REQUIREMENTS
(continued)

0.25% (volume). Below this concentration, degradation of stored cladding and fuel materials is not expected.

SR 3.1.2.3

This Surveillance is modified by a Note. The Note clarifies that meeting the Surveillance is not required, and thus there is not a failure to meet the LCO per SR 3.0.1 and SR 3.0.4 does not apply, prior to the specified Frequency.

The long-term integrity of the stored fuel is dependent on storage in a dry, inert environment and maintenance of adequate heat transfer mechanisms. Filling the cask cavity with helium at the initial pressure, following the evacuation in SR 3.1.2.2, will ensure that the amount of oxidizing gases remaining in the cavity will be no greater than 0.25% (volume). At this concentration, degradation of stored cladding and fuel materials is not expected. Also, maintaining pressure below the upper limiting value will ensure that cask cavity internal pressure will remain within limits for the life of the cask.

Backfilling with helium at a specified pressure must be performed successfully on each cask prior to performance of leak testing activities and TRANSPORT and STORAGE OPERATIONS.

REFERENCES

1. SAR Section 8.2.
 2. SAR Section A8.2.
 3. SAR Section A3.3.
-

**PRAIRIE ISLAND NUCLEAR GENERATING PLANT
 INDEPENDENT SPENT FUEL STORAGE INSTALLATION
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If a helium cask environment cannot be achieved and maintained, fuel clad temperatures may increase beyond the analyzed condition. Therefore, the cask will be required to be placed back into the spent fuel pool within 7 days and re-flooded. This time is sufficient time to return the cask to the spent fuel pool and re-flood the cask cavity. Once placed in the spent fuel pool, the fuel is provided adequate decay heat removal to maintain the loaded fuel within limits.

SURVEILLANCE
REQUIREMENTSSR 3.1.2.1

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SR 3.1.2.2

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SURVEILLANCE
REQUIREMENTS
(continued)

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B.1

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SURVEILLANCE
REQUIREMENTS

SR 3.1.2.1

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While, the effective thermal conductivity of the cavity gas is not dependant upon pressure, it is dependant upon the make-up of the gases within the cask cavity. Thermal analyses have shown that maximum fuel cladding temperature limit of 752°F is not exceeded during LOADING OPERATIONS provided a 75% helium environment (based on partial pressure) is established within the cask. Thus, design basis heat removal requirements will be satisfied provided an environment of at least 75% helium has been established, and maintained in the cask cavity within the 34 hour vacuum drying time frame (Reference 3).

SR 3.1.2.2

This Surveillance is modified by a Note. The Note clarifies that meeting the Surveillance is not required, and thus there is not a failure to meet the LCO per SR 3.0.1, and SR 3.0.4 does not apply prior to the specified Frequency.

Evacuating the cask cavity to the specified vacuum prior to pressurization (see SR 3.1.2.3) will ensure that the amount of oxidizing gases remaining in the cavity will be no greater than

SURVEILLANCE
REQUIREMENTS
(continued)

0.25% (volume). Below this concentration, degradation of stored cladding and fuel materials is not expected.

SR 3.1.2.3

This Surveillance is modified by a Note. The Note clarifies that meeting the Surveillance is not required, and thus there is not a failure to meet the LCO per SR 3.0.1 and SR 3.0.4 does not apply, prior to the specified Frequency.

The long-term integrity of the stored fuel is dependent on storage in a dry, inert environment and maintenance of adequate heat transfer mechanisms. Filling the cask cavity with helium at the initial pressure, following the evacuation in SR 3.1.2.2, will ensure that the amount of oxidizing gases remaining in the cavity will be no greater than 0.25% (volume). At this concentration, degradation of stored cladding and fuel materials is not expected. Also, maintaining pressure below the upper limiting value will ensure that cask cavity internal pressure will remain within limits for the life of the cask.

Backfilling with helium at a specified pressure must be performed successfully on each cask prior to performance of leak testing activities and TRANSPORT and STORAGE OPERATIONS.

REFERENCES

1. SAR Section 8.2.
 2. SAR Section A8.2.
 3. SAR Section A3.3.
-

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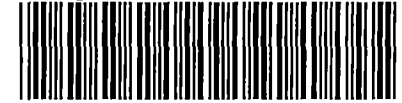
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