**UNITED STATES OF AMERICA**
**NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| Northern States Power Company | ) | Docket No. 72-10-ISFSI-2 |
| | ) | |
| (Prairie Island Nuclear Generating Plant, Independent Spent Fuel Storage Installation) | ) | ASLBP No. 12-922-01-ISFSI-MLR-BRD01 |

**JOINT MOTION FOR APPROVAL OF SETTLEMENT AND DISMISSAL OF PIIC CONTENTION 6 AND TERMINATION OF PROCEEDING**

Pursuant to 10 C.F.R. § 2.338(i), Northern States Power Company, a Minnesota corporation ("NSPM"), the Prairie Island Indian Community ("PIIC" or "the Community") and the NRC Staff (collectively, the "Parties") hereby move this Atomic Safety and Licensing Board (the "Board") to approve a settlement of Contention 6, High Burnup Fuel ("HBF"). The Settlement Agreement between NSPM and PIIC is included as Attachment 1. Based on this settlement and the NRC license condition described below, the Parties seek dismissal of Contention 6, and because Contention 6 is the only remaining contention in this proceeding, the Parties request termination of this proceeding.[1]

On December 20, 2012, the Board admitted three contentions submitted by the PIIC, including Contention 6. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant Independent Spent Fuel Storage Installation), LBP-12-24, 76 N.R.C. 503,528 (2012). As

[1] The parties previously settled the admitted environmental contentions – Amended Contention 2, Renewed and Amended Contention 3, and Contention 4. This Board approved that settlement on March 10, 2015. Order (Approving Settlement and Dismissal of Contentions 2 Through 4)(March 10, 2015). Contention 6 is the only safety contention admitted in this proceeding.

admitted, Contention 6 alleged that "Northern States' application did not sufficiently consider the uncertainties associated with long-term dry storage of high-burnup fuel." *Id*. at 528.

On March 27, 2015, NSPM filed a motion for summary disposition of Contention 6 on the basis that 1) NSPM had addressed the issues raised in Contention 6 through submittal of a HBF aging management program ("HBF AMP") that would gather data from the U.S. Department of Energy's High Burnup Fuel Cask Research and Development Project (the "DOE Project") to confirm the HBF licensing basis; and 2) the NRC Staff had prepared a draft renewed license for the Prairie Island Independent Spent Fuel Storage Installation ("PI ISFSI") that contained a license condition requiring NSPM to submit an analysis of the ability of the HBF cladding to perform its intended function.[2] NSPM's HBF AMP and the NRC's draft license condition were substantially the same as those relied on in the NRC-approved HBF AMP and renewed license for the Calvert Cliff's Nuclear Power Plant ISFSI.[3]

On April 27, 2015, the Community filed its answer to NSPM's Motion as well as a cross motion for partial summary disposition.[4] The NRC Staff filed its answer on the same day.[5] Following these submissions, the parties further consulted on whether the issues raised in PIIC's Contention 6, NSPM's Motion, and PIIC's cross motion could be addressed through settlement. The parties agreed that further settlement discussions would be beneficial and on May 7, 2015, the Parties jointly filed a motion requesting that the Board defer NSPM's and NRC Staff's

---

[2] Northern States Power Company's Motion for Summary Disposition of the Prairie Island Indian Community's Contention 6 (High Burnup Fuel) at 3 (March 27, 2015) ("NSPM's Motion").

[3] Id. at 8. The HBF AMP submitted with the NSPM's Motion was Revision 1.

[4] PIIC's Answer to NSPM's Motion for Summary Disposition of PIIC's Contention 6 (High Burnup Fuel) & Cross Motion for Partial Summary Disposition of PIIC's Contention 6 (High Burnup Fuel) (Apr. 27, 2015).

[5] NRC Staff's Answer to Northern States Power Company's Motion for Summary Disposition of the Prairie Island Indian Community's Contention 6 (High Burnup Fuel)(Apr. 27, 2105).

answer to PIIC's Cross Motion and that the Board defer ruling on NSPM's Motion and PIIC's Cross Motion pending further settlement discussions.[6] The Board granted this motion on May 11, 2015.[7]

The Parties have diligently worked together to resolve the issues raised in Contention 6. The parties agreed to several revisions to NSPM's HBF AMP and to a revised license condition requiring submission of certain related to the continued storage of HBF. The HBF AMP relies on the DOE Project and requires evaluation of data from this project and other sources at certain points in time called "Toll Gates".[8] Prior to the agreed to revisions, the HBF AMP also provided for use of an alternative program meeting NRC Interim Staff Guidance-24,[9] if for any reason NSPM could not rely on the DOE Project.[10] At the time that NSPM submitted its Motion, the NRC Staff had prepared a draft renewed PI ISFSI license containing a license condition requiring submission of the first Toll Gate evaluation.[11]

As set forth in the Settlement Agreement, NSPM has agreed to revise the HBF AMP to (1) provide PIIC with a copy of the evaluation of high burnup fuel performance required by the HBF AMP Tollgate 2 at the same time that it is provided to the NRC Staff; and (2) submit license amendment requests to the NRC under certain circumstances.[12] Attachment 1 at ¶ 1.

---

[6] Joint Motion to Defer Answers to PIIC Cross Motion for Partial Summary Disposition of PIIC's Contention 6 (High Burnup Fuel) and to Defer Ruling on NSPM's Motion for Summary Disposition of PIIC's Contention 6 Pending Settlement Discussions (May 7, 2015).

[7] Order (Approving Deferral of Answers & Ruling on Contention 6 Summary Disposition Motions) (May 11, 2015).

[8] NSPM's Motion at 11.

[9] Interim Staff Guidance-24, *The Use of a Demonstration Program as a Surveillance Tool for Confirmation of Integrity for Continued Storage of High Burnup Fuel Beyond 20 years* (July 11, 2014) ("ISG-24").

[10] NSPM's Motion at 10 n. 9.

[11] NSPM's Motion at 11.

[12] NSPM submitted its revised HBF AMP to the NRC on October 12, 2015. *See* Letter from Scott Sharp, Director, Site Operations, Prairie Island Nuclear Generating Plant to U.S. NRC, re: Supplement to Prairie Island

Specifically, NSPM has agreed to submit a license amendment request to the NRC if the Tollgate 2 evaluation indicates that the HBF will not meet its intended function. *Id.* This license amendment request will identify NSPM's proposed actions for addressing the issues identified by the Tollgate 2 evaluation. NSPM must also submit a license amendment request, if by January 1, 2033, it becomes evident that the DOE Project will not be completed in time to support the Tollgate 2 evaluation. *Id.* This change removes NSPM's ability to rely on an alternative program meeting ISG-24 to gather confirmatory data unless the new program is approved by the NRC through a license amendment request.

The Settlement Agreement also provides an agreement that NSPM and PIIC will meet at six-month intervals to enhance communication and feedback concerning the status of the HBF AMP, the DOE Cask Demonstration Project and other spent fuel storage issues. *Id*. at ¶2. The Settlement Agreement identifies the topics to be discussed at these meetings. *Id.*

In addition to the agreements in the Attachment 1 Settlement Agreement, the Parties agreed that the PI ISFSI renewed license would include the following license condition:

> NSPM shall submit the evaluations related to high burnup fuel performance specified in the toll gates in the "High Burnup Fuel Aging Management Program" in Appendix A, Rev. 2, of the Supplement to the License Renewal Application (ML15285A007) to serve as confirmation that the high burnup fuel continues to meet the requirements in 10 CFR 72.122(h), "Confinement barriers and systems" and 72.122(l), "Retrievability".
>
> a. The first evaluation shall be provided in a letter to the NRC (submitted pursuant to 10 CFR 72.4) by April 4, 2028 (see Section A3.5 Toll Gate 1).
> b. An additional evaluation shall be provided in a letter to the NRC (submitted pursuant to 10 CFR 72.4) by April 4, 2038 (see Section A3.5 Toll Gate 2).

---

Independent Spent Fuel Storage Installation License Renewal Application – Revised Aging Management Plan (TAC. No. L24592) dated October 12, 2015 (Available at ADAMS Accession No. ML15285A007).

In light of the agreements set forth above, PIIC has consented to the dismissal of Contention 6, provided that the Parties comply with the terms to which PIIC has agreed. The Settlement Agreement, attached hereto in accordance with 10 C.F.R. § 2.338(g), sets forth the terms of this consent. Attachment 1 at ¶4.

Accordingly, the Parties request that the Board approve this settlement and dismiss Contention 6. Dismissal of this contention is in the public interest because NSPM and the NRC Staff have taken action to address the PIIC's concerns, and because the Commission encourages settlement of contested issues in licensing proceedings. 10 C.F.R. § 2.338. As required by 10 C.F.R. § 2.338(g), a proposed Consent Order is provided as Attachment 2. Furthermore, with the settlement of Contention 6, there will be no contentions remaining in this proceeding. Therefore, the Parties request that this proceeding be terminated.

PIIC's counsel has authorized NSPM to file this Joint Motion on its behalf. As required by 10 C.F.R. § 2.323(b), counsel for NSPM certifies that he has consulted with the other parties before filing this Motion, and does so with the support of all parties.

Respectfully Submitted,

/Signed electronically by Jay E. Silberg/

_____

Jay E. Silberg
Kimberly A. Harshaw
PILLSBURY WINTHROP SHAW PITTMAN LLP
1200 Seventeenth Street, NW
Washington, DC 20036
Tel. (202) 663-8063

Counsel for Northern States Power Company

Dated: October 16, 2015

**UNITED STATES OF AMERICA**
**NUCLEAR REGULATORY COMMISSION**
Before the Atomic Safety and Licensing Board

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | Docket No. 72-10-ISFSI-2 |
| Northern States Power Co. | ) | |
| | ) | |
| (Prairie Island Nuclear Generating Plant, Independent Spent Fuel Storage Installation) | ) | ASLBP No. 12-922-01-ISFSI-MLR-BRD01 |

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "Joint Motion for Approval of Settlement and Dismissal of PIIC Contention 6 and Termination of Proceeding" has been served through the E-Filing system on the participants in the above-captioned proceeding, this 16th day of October 2015.

/Signed electronically by Kimberly A. Harshaw/

Kimberly A. Harshaw

Attachment 1

**SETTLEMENT AGREEMENT BETWEEN THE PRAIRIE ISLAND INDIAN COMMUNITY AND NORTHERN STATES POWER COMPANY**

This Settlement Agreement is made and entered into as of October 8, 2015, by and between the Prairie Island Indian Community ("PIIC") and Northern States Power Company, a Minnesota corporation ("NSPM"), hereinafter referred to collectively as "Parties."

WHEREAS, NSPM has submitted a License Renewal Application, dated October 20, 2011, ("LRA") to the U.S. Nuclear Regulatory Commission ("NRC"), seeking renewal of the Prairie Island Independent Fuel Storage Installation ("ISFSI") site-specific license, Special Nuclear Material License No. 2506;

WHEREAS, on August 24, 2012, the PIIC filed a Request for Hearing and Petition to Intervene ("Petition") in the NRC proceeding to renew the ISFSI license, Docket No. 72-10. Among the contentions that PIIC raised in its Petition was a contention relating to the potential degradation of high burnup fuel during the extended storage period ("Contention 6");

WHEREAS, on November 8, 2012, the Atomic Safety and Licensing Board established to preside over the proceeding ("ASLB") heard oral arguments regarding the Petition, including the admissibility of PIIC Contention 6;

WHEREAS, on December 20, 2012, the ASLB granted the Petition and admitted three contentions including, as limited by the ASLB, PIIC Contention 6;

WHEREAS, on July 31, 2014, NSPM responded to NRC requests for additional information ("RAI Response") and provided a high burnup fuel aging management program ("AMP") that relies on the Department of Energy's High Burnup Fuel Cask Research and Development Project ("DOE Cask Demonstration Project") to monitor the performance of high burnup fuel during storage;

WHEREAS, on February 27, 2015, NSPM provided a presentation to PIIC representatives regarding the potential degradation of high burnup fuel during storage, NSPM's AMP and the DOE Cask Demonstration Project;

WHEREAS, in order to address the PIIC's concerns, NSPM and PIIC agreed that NSPM's high burnup fuel AMP would be revised and submitted to the NRC in substantially the same form as provided in Attachment A;

WHEREAS, PIIC and NSPM both desire that PIIC remain informed of activities related to NSPM's high burnup fuel AMP and the DOE Cask Demonstration Project results, as well as other developments associated with continued storage of fuel at the ISFSI.

NOW, THEREFORE, in consideration of the premises and mutual promises herein, PIIC and NSPM agree as follows:

1. As provided in the high burnup fuel AMP revision in Attachment A, NSPM agrees to provide the evaluation of high burnup fuel performance required by Tollgate 2 to the NRC with simultaneous copies to PIIC. NSPM further agrees that, if the Tollgate 2 evaluation indicates that the high burnup fuel will not meet its intended function, it will submit a license amendment request to the NRC with its proposed actions to address the issue indicated by the evaluation and to continue safe storage of high burnup fuel. Finally, NSPM agrees that if by January 1, 2033, it becomes evident that the DOE Cask Demonstration Project will not be completed in time to support the Tollgate 2 evaluation, NSPM will submit a license amendment request to the NRC outlining its plans to demonstrate that the fuel performance acceptance criteria specified in the high burnup fuel AMP will continue to be met. This license amendment request will be submitted no later than December 31, 2033.

2. NSPM agrees to meet in person or telephonically with PIIC representatives, its members, and/or its technical expert(s) at six-month intervals (i.e. separately or during quarterly staff meetings) to discuss and receive feedback concerning the status of the high burnup fuel AMP, the DOE Cask Demonstration Project and other spent fuel storage issues. The purpose of these interactions is to enhance open communication and PIIC involvement with and interchange of information concerning the continued storage of spent fuel at NSPM's Prairie Island ISFSI. The updates on the high burnup spent fuel issue will include, among other things: a description of significant licensee, industry, and government meetings on the high burnup spent fuel issue; a discussion of contentions and decisions from other NRC licensing proceedings involving high burnup spent fuel; and other items of interest that may have a bearing on the high burnup spent fuel issue. The meetings will also include a forecast of significant activities over the next six-month period.

3. PIIC agrees that NSPM's revised high burnup fuel AMP and the NRC's license condition requiring submittal of Tollgate 1 and 2 evaluations to the NRC address PIIC's concerns raised in PIIC Contention 6; provided, however, that PIIC reserves the right provided for in NRC regulations to participate in any license amendment proceeding to modify the Tollgate 1 and 2 evaluation requirements set forth in NSPM's revised high burnup fuel AMP or the NRC's license condition requiring submittal of Tollgate 1 and 2 evaluations to the NRC (including any license amendment proceeding initiated in accordance with paragraph 1), and to reassert, without restriction, PIIC's concerns raised in PIIC Contention 6 in any such license amendment proceeding.

4. PIIC consents to the dismissal of PIIC Contention 6 and agrees to take such other actions as may be reasonably necessary to obtain the dismissal of Contention 6. PIIC and NSPM agree to file a joint motion seeking a Consent Order from the ASLB approving this Settlement Agreement and dismissing PIIC Contention 6.

5. NSPM and PIIC expressly waive any and all further procedural steps before the ASLB or any right to challenge or contest the validity of any order entered by that Board in accordance with this Settlement. The Parties also expressly waive all rights to seek administrative and judicial review or otherwise to contest the validity of any order entered by the ASLB approving this Settlement Agreement and the dismissal of PIIC Contention 6, so long as such order is fully consistent with each provision of this Settlement Agreement.

6. NSPM and PIIC agree that an order entered by the ASLB in accordance with this Settlement Agreement will have the same force and effect as an order entered after a full hearing.

7. NSPM and PIIC acknowledge this Settlement Agreement resolves the matters identified in this Settlement Agreement that are required to be adjudicated.

8. This Settlement Agreement shall be effective upon the last signature dated below. In the event that the ASLB disapproves this Settlement Agreement, it shall be null and void.

IN WITNESS WHEREOF, the Parties have caused this Settlement Agreement to be signed by their respective representatives on the dates indicated below.

For NORTHERN STATES POWER COMPANY - MINNESOTA

Kevin Davison 10-6-2015

Kevin Davison Date
Site Vice President,
Prairie Island Nuclear Generating Plant

For the PRAIRIE ISLAND INDIAN COMMUNITY

By:

Ronald John 10.8.15

Ronald Johnson Date
Tribal Council President

These recommendations have been addressed at PINGP and are incorporated in the applicable existing PINGP maintenance procedures.

Precedent License Renewal Applications OE
A review of precedent ISFSI license renewal applications was performed to evaluate any relevant operating experience. ISFSIs included in this review were Calvert Cliffs Nuclear Power Plant, H. B. Robinson Steam Electric Station, and Surry Power Station. The results of these reviews concluded that the Prairie Island ISFSI Inspection and Monitoring Activities Program is effective in monitoring and detecting degradation and taking effective corrective actions as needed to preclude loss of intended function.

Conclusion
The OE, reviews, and monitoring described above confirm that any potential aging effects will be identified, evaluated, and managed effectively, ensuring that these structures and components remain capable of performing their intended functions.

**A2.10.3 Comparison to NUREG-1927 Program Element**

This PINGP program element is consistent with NUREG-1927, Element 10, Operating Experience.

**A3.0 HIGH BURNUP FUEL MONITORING PROGRAM**

The Prairie Island ISFSI provides for long-term dry fuel interim storage for high burnup spent fuel assemblies, i.e., fuel assemblies with discharge burnups greater than 45 GWD/MTU, until such time that the spent fuel assemblies may be shipped off-site for final disposition. The cask system presently utilized at the Prairie Island ISFSI for the storage of high burnup spent fuel is the Transnuclear TN-40HT which has a 40 fuel assembly capacity and is designed for outdoor storage.

The Aging Management Review of the high burnup fuel spent fuel assemblies in a dry inert environment did not identify any aging effects/mechanisms that could lead to a loss of intended function. However, it is recognized that there has been relatively little operating experience, to date, with dry storage of high burnup fuel. Reference A5.8 provides a listing of a significant amount of scientific analysis examining the long term performance of high burnup spent fuel. These analyses provide a sound foundation for the technical basis that long term storage of high burnup fuel, i.e., greater than 20 years, may be performed safely and in compliance with regulations. However, it is also recognized that scientific analysis is not a complete substitute for confirmatory operating experience. Therefore, the purpose of the High Burnup Fuel Monitoring Program is to confirm that the high burnup fuel assemblies' intended function(s) are maintained during the period of extended operations.

A description of the High Burnup Fuel Monitoring Program is provided below. Although the program is a confirmatory program, the description below uses each attribute of an effective AMP as described in NUREG-1927 for the renewal of a site-specific Part 72 license to the extent possible.

### A3.1 AMP Element 1: Scope of the Program

Fuel Stored in a TN-40HT Cask is limited to an assembly average burnup of 60 GWd/MTU (note that the nominal burnup value is lower to account for uncertainties). The cladding materials for the Prairie Island high burnup fuel are Zircaloy-4 and Zirlo™, and the fuel is stored in a dry helium environment. High burnup fuel was first placed into dry storage in a TN-40 HT cask on April 4, 2013.

The High Burnup Fuel Monitoring Program relies upon the joint Electric Power Research Institute (EPRI) and Department of Energy (DOE) "High Burnup Dry Storage Cask Research and Development Project" (HDRP) (Reference A5.9) or an alternative program meeting the guidance in Interim Staff Guidance (ISG) 24, Reference A5.10, as a surrogate program to monitor the condition of high burnup spent fuel assemblies in dry storage.

The HDRP is a program designed to collect data from a spent nuclear fuel storage system containing high burnup fuel in a dry helium environment. The program entails loading and storing a TN-32 bolted lid cask (the Research Project Cask) at Dominion Virginia Power's North Anna Power Station with intact high burnup spent nuclear fuel (with nominal burnups ranging between 53 GWd/MTU and 58 GWd/MTU). The fuel assemblies to be used in the program include four different kinds of cladding (Zircaloy-4, low-tin Zircaloy-4, Zirlo™, and M5™). The Research Project Cask is to be licensed to the temperature limits contained in ISG-11, Reference A5.7, and loaded such that the fuel cladding temperature is as close to the limit as practicable. Aging effects will be determined for material/environment combinations per ISG-24 Rev. 0 or the "High Burnup Dry Storage Cask Research and Development Project" (HDRP).

### A3.2 AMP Element 2: Preventive Actions

The High Burnup Fuel Monitoring Program consists of condition monitoring to confirm there is no degradation of a high burnup fuel assembly that would result in a loss of intended function(s). Other than the initial design limits placed on loading operations, no preventive or mitigating attributes are associated with these activities.

During the initial loading operations of the TN-40HT casks, the design and ISFSI Technical Specifications (TS) require that the fuel be stored in a dry inert environment. TS 3.1.1, "Cask Cavity Vacuum Drying," demonstrates that the cask cavity is dry by maintaining a cavity absolute pressure less than or equal to 10 mbar for a 30 minute period with the cask isolated from the vacuum pump. TS 3.1.2, "Cask Helium Backfill Pressure," requires that the cask then be backfilled with helium. These two TS requirements ensure that the high burnup fuel is stored in an inert environment thus preventing cladding degradation due to oxidation mechanisms. TS 3.1.2 also requires that the helium environment be established within 34 hours of commencing cask draining. This time requirement ensures that the peak cladding temperature remains below 752°F (i.e., the temperature specified in ISG-11), thus mitigating degradation due to cladding creep.

**A3.3 AMP Element 3: Parameters Monitored/ Inspected**

Either the surveillance demonstration program as described in the HDRP or an alternative program should meet the guidance of ISG-24, Rev. 0.

**A3.4 AMP Element 4: Detection of Aging Effects**

Either the surveillance demonstration program as described in the HDRP or an alternative program should meet the guidance of ISG-24, Rev. 0.

**A3.5 AMP Element 5: Monitoring & Trending**

As information/data from a fuel performance surveillance demonstration program becomes available, NSPM will monitor, evaluate, and trend the information via its Operating Experience Program and/or the Corrective Action Program to determine what actions should be taken to manage fuel and cladding performance, if any.

Similarly, NSPM will use its Operating Experience Program and/or Corrective Action Program to determine what actions should be taken if it receives information/ data from other sources than the demonstration program on fuel performance.

Formal evaluations of the aggregate feedback from the HDRP and other sources of information will be performed at the specific points in time during the period of extended operation delineated in the table below. These evaluations will include an assessment of the continued ability of the high burnup fuel assemblies to continue to perform their intended function(s) at each point.

| Toll Gate | Year * | Assessment |
|---|---|---|
| 1 | 2028 | Evaluate information obtained from the HDRP loading and initial period of storage along with other available sources of information. If the HDRP NDE (i.e., cask gas sampling, temperature data) has not been obtained at this point and no other information is available then NSPM has to provide evidence to the NRC that no more than 1% of the HBF has failed. |

| Toll Gate | Year * | Assessment |
|---|---|---|
| 2 | 2038 | 2.a -<br>(i) Evaluate information obtained from the destructive (DE) and non-destructive (NDE) examination of the fuel placed into storage in the HDRP along with other available sources of information and provide the evaluation to the NRC with simultaneous copies to the Prairie Island Indian Community.<br><br>(ii) If the aggregate of this information indicates that the high burnup fuel assemblies will not perform "intended function(s)" – as that term is used in NRC regulations – NSPM will submit a License Amendment Request to NRC with its proposed actions to address the issues indicated by the evaluation and to continue safe storage of high burnup fuel.<br><br>(iii) If the aggregate of this information confirms the ability of the high burnup fuel assemblies to continue to perform intended function(s) for the remainder of the period of extended operations, subsequent assessments may be cancelled.<br><br>2.b If by January 1, 2033 it becomes evident that the HDRP DE of the fuel will not be completed in time to support the assessment required by Toll Gate 2.a, NSPM will submit a License Amendment Request to the NRC outlining its plans to obtain evidence to demonstrate that the fuel performance acceptance criteria 1-4 in element 6 continue to be met. This License Amendment Request will be submitted to the NRC for approval no later than December 31, 2033. The evaluation using this evidence will be completed by 2038. |
| 3 | 2048 | Evaluate any other new information. |

* Assessments are due by April 4 of the year identified in the table

The above assessments are not, by definition, stopping points. No particular action, unless noted in this AMP, other than performing an assessment is required to continue cask operation. To proceed, an assessment of aggregated available operating experience (both domestic and international), including data from monitoring and inspection programs, NRC-generated communications, and other information will be performed. The evaluation will include an assessment

of the ability of the high burnup fuel assemblies to continue to perform their intended function(s).

### A3.6 AMP Element 6: Acceptance Criteria

- The HDRP or any other demonstration used to provide fuel performance data should meet the acceptance criteria guidance of ISG-24 Rev 0.
- If any of the following fuel performance criteria are exceeded in the HDRP or alternative program, a corrective action is required[1]:
    1. Cladding Creep: total creep strain extrapolated to the total approved storage duration based on the best fit to the data, accounting for initial condition uncertainty shall be less than 1%
    2. Hydrogen – maximum hydrogen content of the cover gas over the approved storage period shall be extrapolated from the gas measurements to be less than 5%
    3. Drying – The moisture content in the cask , accounting for measurement uncertainty, shall indicate no greater than one liter of residual water after the drying process is complete
    4. Fuel rod breach – fission gas analysis shall not indicate more than 1% of the fuel rod cladding breaches

### A3.7 AMP Element 7: Corrective Actions

The NSPM Corrective Action Program commensurate with 10 CFR 50 Appendix B will be followed.

In addition, at each of the assessments in AMP Section 5, the impact of the aggregate feedback will be assessed and actions taken when warranted. These evaluations will address any lessons learned and take appropriate corrective actions, including:

- Perform repairs or replacements
- Modify this confirmatory program in a timely manner
- Adjust age-related degradation monitoring and inspection programs (e.g., scope, frequency)
- Actions to prevent reoccurrence
- An evaluation of the DCSS to perform it's safety and retrievability functions
- Evaluation of the effect of the corrective actions on this component to other safety components.

### A3.8 AMP Element 8: Confirmation Process

The confirmation process is part of the NSPM Corrective Action Program and ensures that the corrective actions taken are adequate and appropriate, have been completed, and are effective. The focus of the confirmation process is on the follow-up actions that must be taken to verify effective implementation of corrective actions. The measure of effectiveness is in terms of correcting the

[1] While it is not a fuel performance criteria, the spatial distribution and time history of the temperature must be known to evaluate the relationship between the performance of the rods in the HDRP and the HBF rod behavior expected in the TN-40HT cask.

adverse condition and precluding repetition of significant conditions adverse to quality. Procedures include provisions for timely evaluation of adverse conditions and implementation of any corrective actions required, including root cause evaluations and prevention of recurrence where appropriate. These procedures provide for tracking, coordinating, monitoring, reviewing, verifying, validating, and approving corrective actions, to ensure effective corrective actions are taken.

**A3.9 AMP Element 9: Administrative Controls**

The NSPM Quality Assurance Program, associated formal review and approval processes, and administrative controls applicable to this program and Aging Management Activities, are implemented in accordance with the requirements of the NSPM Quality Assurance Topical Report and 10 CFR Part 50, Appendix B. The administrative controls that govern AMAs at PINGP are established in accordance with the PINGP Administrative Control Program and associated Fleet Procedures.

**A3.10 AMP Element 10: Operating Experience**

Surrogate surveillance demonstration programs with storage conditions and fuel types similar to those in the dry storage system that satisfies the ISG-24 acceptance criteria are a viable method to obtain operating experience. NSPM intends to rely on the information from the HDRP with similar types of HBU fuel. The HDRP is viable as a surrogate surveillance program. Additional data/research to assess fuel performance from both domestic and international sources that are relevant to the fuel in the NSPM casks will also be used.

**A4.0 Summary**

The review of operating experience identified a number of incidents related to dry fuel storage. Although many of these were event-driven and most were not age-related, for those that did involve credible aging effects and mechanisms, evaluations were conducted to assess potential susceptibility. These evaluations indicated that the aging effects and mechanisms that were identified at the Prairie Island ISFSI are bounded by the Aging Management Reviews that were performed for those structures and components identified as within the scope of License Renewal.

Operating experience to date has not indicated any degradation that would affect the structures or component intended function(s). Inspections, monitoring, and surveillances continue to be conducted that would identify deficiencies. The Corrective Action Program is in place to track and correct deficiencies in a timely manner. Corrective actions have been effectively implemented when inspection and monitoring results have indicated degradation. Continued implementation of the ISFSI Inspection and Monitoring Activities Program and the High Burnup Fuel Monitoring Program provide reasonable assurance that the aging effects will be managed such that the intended functions will be maintained during the period of extended operation.

## A5.0 References (Appendix A, Aging Management Program)

A5.1 NUREG-1927, *Standard Review Plan for Renewal of Spent Fuel Dry Cask Storage System Licenses and Certificates of Compliance*, March 2011.

A5.2 EPRI Report 1002882, *Dry Cask Storage Characterization Project, Final Report*, September 2002.

A5.3 Letter from D.A. Christian, Virginia Electric and Power Company to D.A. Cool (NRC), *Surry Independent Spent Fuel Storage Installation License Renewal Application*, dated April 29, 2002, ADAMS Accession Number ML021290068.

A5.4 Transnuclear Information Bulletin, April 2001.

A5.5 Letter from G. L. Stathes, Exelon Generation Company to Director Spent Fuel Project Office (NRC), *Submittal of Independent Spent Fuel Storage Installation (ISFSI) Cask Event Report*, dated December 01, 2010, ADAMS Accession Number ML110060275.

A5.6 American Concrete Institute, ACI 349.3R-96, *Evaluation of Existing Nuclear Safety-Related Concrete Structures*, January 1996.

A5.7 NRC Interim Staff Guidance 11, *Cladding Considerations for the Transportation and Storage of Spent Fuel*, Revision 3, November 17, 2003.

A5.8 Letter from R. McCullum (NEI) to M. Lombard (NRC), dated March 22, 2013, *Industry Analysis and Confirmatory Information Gathering Program to Support the Long-Term Storage of High Burnup Fuel (HBF)*, (ADAMS Accession No. ML13084A045).

A5.9 High Burnup Dry Storage Cask Research and Development Project Final Test Plan, February 27, 2014, DOE Contract No.: DE-NE-0000593.

A5.10 NRC Interim Staff Guidance 24, *The Use of a Demonstration Program as a Surveillance Tool for Confirmation of Integrity for Continued Storage of High Burnup Fuel Beyond 20 Years*, Revision 0, July 11, 2014.

# Attachment 2 - PROPOSED CONSENT ORDER

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Michael M. Gibson, Chairman
Dr. Gary S. Arnold
Nicholas G. Trikouros

| | |
|---|---|
| In the Matter of<br><br>Northern States Power Co.<br><br>(Prairie Island Nuclear Generating Plant, Independent Spent Fuel Storage Installation) | Docket Nos. 72-10-ISFSI-2<br><br>ASLBP No. 12-922-01-ISFSI-MLR-BRD01<br>October ____, 2015 |

**ORDER**
(Approving Settlement and Dismissal of Contention 6 and Terminating proceeding)

On October 16, 2015, the Northern States Power Co., the Prairie Island Indian Community and the NRC Staff (collectively, the "Parties") moved for an order approving settlement and dismissal of Contention 6. In accordance with 10 C.F.R. § 2.338(g), the Parties forwarded the Settlement Agreement and proposed Order to this Board.

Consistent with Commission policy to encourage resolution of contested issues in licensing proceedings through settlement, we find dismissal to be in the public interest. Pursuant to our authority under 10 C.F.R. § 2.338(i), we grant the Joint Motion, dismiss Contention 6 and terminate this proceeding.

It is so ORDERED.

THE ATOMIC SAFETY
AND LICENSING BOARD

_____
Michael M. Gibson, Chairman
ADMINISTRATIVE JUDGE

_____
Dr. Gary S. Arnold
ADMINISTRATIVE JUDGE

_____
Nicholas G. Trikouros
ADMINISTRATIVE JUDGE

Rockville, Maryland
October __, 2015