UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

In re:	License Renewal Application	Docket Nos.	50-282-LR 50-306-LR
	Submitted by		
	Northern States Power Co., PINGP, Units 1 and 2	ASLBP No.	08-871-01-LR

Prairie Island Indian Community's
Submission of a New Contention on the NRC Safety Evaluation Report

Filed on November 23, 2009

I. INTRODUCTION

The Prairie Island Indian Community in the State of Minnesota ("Community," "Tribe," or "Petitioner"), by and through attorney Philip R. Mahowald, the Community's General Counsel, is submitting a new contention based on the U.S. Nuclear Regulatory Commission's ("NRC" or "Commission") Safety Evaluation Report ("SER") on the Nuclear Management Company LLC's ("applicant" or "NSPM") application for renewal of its license to operate Units 1 and 2 of the Prairie Island Nuclear Generating Plant (PINGP). The Community timely files this petition in accordance with the Licensing Board Order of November 4, 2009.[1]

[1] Licensing Board Order (Conference Call Summary and Scheduling Order) (Nov. 4, 2009) at 3 (unpublished).

II. BACKGROUND

The Prairie Island Indian Community is a Federally-recognized Indian Tribe organized under The Indian Reorganization Act, 25 U.S.C. Section 476. The Prairie Island Indian Reservation is located approximately 30 miles southeast of the Twin Cities of Minneapolis - St. Paul and near the cities of Red Wing and Hastings, Minnesota. It is located on Prairie Island at the confluence of the Vermillion and Mississippi rivers. The Community is immediately adjacent to the PINGP site.[2]

The Community owns and operates Treasure Island Resort and Casino, which employs approximately 1,500 people. The Resort and Casino includes a 480-room hotel, 24-lane bowling alley, and entertainment center. The Resort and Casino offers gaming, dining, live entertainment, a 95-space RV park, and a 137-slip marina to accommodate visitors arriving by the Mississippi River. The marina attracts many thousands of visitors during the summer months.

As noted in its original petition to intervene, the Community is concerned that the renewal of the PINGP license may have a detrimental effect on the health and safety of Community members, and pose a risk to visitors to the reservation. In addition, the renewal of the license may have a detrimental effect on the environment in which the Community is situated. If the renewal is ultimately granted, the Community wants to ensure that the applicant operates the PINGP in the safest manner possible, with the full and careful oversight of the NRC. Our concerns with the safe operation of PINGP are addressed in this petition. Our concerns with the need for an effective and "best available technology" monitoring system to detect increases in radioactive emissions will be

[2] *See, e.g.,* Applicant's Environmental Report – Prairie Island Nuclear Generating Plant License Renewal Application, Appendix E, Figure 2.1-3, p. 2-62.

addressed in the context of the NRC draft Supplemental Environmental Impact Statement.

On December 5, 2008, the Atomic Safety and Licensing Board granted the Community's hearing request, and admitted seven of the Community's contentions challenging the application of NSPM.[3] Since then, the applicant and the Community have resolved six of those contentions. Only one contention, Contention 5 on Environmental Justice, currently remains outstanding.

III. ARGUMENT

A. Standards for New or Amended Contentions

The standards for new or amended contentions is set forth in 10 CFR 2.309(f)(2) of NRC regulations. Section 2.309(f)(2) provides that contentions may be amended or new contentions filed upon a showing that:

(i) The new information upon which the amended or new contention is based was not previously available;
(ii) The information upon which the amended or new contention is based is materially different than information previously available; and
(iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.

In regard to the requirement in Section 2.309(f)(2)(iii), the new contention discussed below has been submitted in a timely manner consistent with the Licensing Board's Order of November 4, 2009. The requirements of Section 2.309(f)(2)(i) and (ii) will be addressed below in the discussion of the submitted contention.

[3] Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2), LBP-08-26, 68 N.R.C. 905 (2008).

B. Contention

1. Contrary to the conclusion in the Safety Evaluation Report (SER), the Community does not believe that "the requirements of 10 CFR 54.29(a) have been met." Due to recent significant non-compliances with NRC regulations, as well as the applicant's failure to address a known potentially serious safety problem identified in the SER, the Community does not believe that there is any justification for a reasonable assurance determination by the NRC that the applicant will "…manag[e] the effects of aging during the period of extended operation on the functionality of structure and components" as required by 10 CFR 54.29(a)(1).

In the SER, the NRC staff has concluded that the requirements of 10 CFR 54.29(a) of the Commission's regulations have been met.[4] 10 CFR 54.29 provides the standards for issuance of a renewed license. Section 54.29(a) provides that the Commission may issue a renewed license if it finds reasonable assurance that the applicant will manage the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under Section 54.21(a)(1). The Community challenges the NRC staff determination that "reasonable assurance" exists. The Community's conclusion is based on material found in the SER in regard to the leakage of borated water from the PINGP Units 1 and 2 refueling cavities since 1998[5] and on applicant's significant non-compliances with NRC regulations. The identification of the refueling cavity leakage was first brought to public attention in late 2008. The non-compliances with NRC regulations occurred in 2008 and 2009. Consequently, the Community's new contention meets the requirements for new or amended contentions in 10 CFR 2.309(f)(2)(i) and (ii), namely that the new information on which the contention is based was not previously available when the

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[4] Safety Evaluation Report, Related to the License Renewal of Prairie Island Nuclear Generating Plant Units 1 and 2, U.S. Nuclear Regulatory Commission, at 6-1 (October 2009).
[5] *Id*. at 3-142.

initial contentions were submitted and that the new information was materially different from information previously available. The Community's new contention also meets the general requirements for contentions found in 10 CFR 2.309(f)(1).

In the NRC license renewal inspection and audit of PINGP in the fall of 2008, the staff "noticed" that PINGP had identified the leakage of borated water from the Unit 1 and 2 refueling.[6] The NRC staff closed this issue by requiring additional applicant commitments for visual and other types of inspections and sampling programs in subsequent refueling outages.[7] While the Community certainly hopes that these additional commitments, if followed by the applicant, will provide assurance that no further damage to the containment vessel will result, the Community's primary concern is that applicant's deficient performance and dereliction of its obligations to promptly and effectively correct deficient conditions call into question the applicant's ability to effectively implement the aging management program during the period of extended operation. See Declaration of Christopher I. Grimes dated November 23, 2009 (Grimes Declaration) ¶ 10. As noted by the applicant's expert at the Advisory Committee on Reactor Safeguards (ACRS) Subcommittee meeting, PINGP has experienced intermittent refueling cavity leakage since the late 1980s.[8] However, the applicant's expert also noted that although there wasn't any evidence of the leak prior to 1987, they assume that leakage has been going on for the entire life of the plant.[9] The cumulative leak rate was estimated to be approximately one to two gallons per hour. Although, the applicant has

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[6] *Id*. at 3-142.
[7] *Id*. at Appendix A, Items 41, 42, and 43.
[8] Transcript, Advisory Committee on Reactor Safeguards Plant License Renewal Subcommittee, Prairie Island Nuclear Generating Station, at 48 (July 7, 2009).
[9] *Id*. at 72.

tried to fix this leak several times, their efforts have not been successful.[10] In fact, after twenty years of leakage, the applicant still cannot identify the exact source of the leak.[11] The potential hazard of this leakage is that the borated water appears to be settling at the bottom of the containment liner, posing a danger to the integrity of the containment.[12]

The SER describes three specific staff concerns related to the refueling cavity leakage:

> (1) the leaking borated water may contact the containment vessel and remain in contact with the vessel between outages, (2) the leaking borated water may contact the concrete reinforcement and cause degradation, and (3) the leaking borated water may react with the concrete and cause degradation.[13]

The allowable containment leakage for a design basis accident is equivalent to a 0.003 square-inch hole in the containment (about one-sixteenth of an inch in diameter).[14] If the leakage from the refueling cavity stays in contact with the steel liner and concrete structure for an extended period, corrosion could eat through the containment liner and weaken the concrete structure to such an extent that, should an accident occur, the

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[10] *Id*. at 57.
[11] *Id*. at 69.
[12] The Community is not now raising a contention on the substantive issue of the potential effects on the containment vessel from the refueling cavity leakage. The full ACRS is addressing the license renewal of PINGP at its December 3, 2009 meeting. The Community reserves the right to file a new contention on this issue if the ACRS identifies any concerns with the refueling cavity issue. Section 5 of the NRC SER is held open for the review of the ACRS. At that time the SER will be "updated". There is no logical reason to treat the "updated" SER that will include the ACRS review any differently than the "final" SER for purposes of filing new or amended contentions.
[13] *Supra*, note 4, Section 3.0.3.2.17, "Structures Monitoring," at 3-148.
[14] See Inspection Manual Chapter 0609, Containment Integrity Significance Determination Process, Appendix H, U.S. Nuclear Regulatory Commission (May 6, 2004).

containment leakage could result in radiological exposures in excess of 10 CFR Part 100. *See* Grimes Declaration ¶ 12.

The statements from ACRS consultants and ACRS members at the Subcommittee meeting captured the issue of concern to the Community in terms of the performance of the applicant. *See* Grimes Declaration ¶ 13. For example, ACRS Consultant John Barton asked, "[t]his thing has gone on for so long. Why now do you decide you're going to fix it?"[15] The applicant's Site Vice-President replied, "It's not acceptable to continue to have this leak. Too many unknowns."[16] Furthermore, as ACRS Member Said Abdel-Khalik stated, "[y]et this has been going on for more than 20 years. Is this sort of a new management attitude?"[17] It is exactly this "attitude" that calls into question the applicant's ability to carry out its aging management program. *See* Grimes Declaration ¶ 13. These leaks could have potentially disastrous consequences for the Community and the populace of the surrounding area. *Id.* Yet, the applicant did not acknowledge the importance of these problems to aging management until the NRC audit in the Fall of 2008 – years after the applicant knew about the problem. The implications of this type of dereliction are further underscored by the enforcement history of the applicant, discussed below. *Id.*

The August 20, 2009, the NRC Mid-Cycle Performance Review and Inspection Plan for PINGP Units 1 and 2 summarized the performance of PINGP for the period from

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[15] *Supra* note 8 at 64.
[16] *Id*. at 65.
[17] *Id*. at 75.

July 1, 2008 through June 30, 2009.[18] PINGP Units 1 and 2 have been placed into the "Regulatory Response" column of the NRC Reactor Oversight Process Action Matrix.[19] The Regulatory Response column identifies plants that are designated for heightened inspection oversight by the NRC because of inspection findings and violations of NRC regulations. *See* Grimes Declaration ¶ 14.

The NRC Regulatory Oversight Process (ROP) is the NRC regulatory framework for inspecting the safety of operating reactors.[20] It consists of three key strategic performance areas: reactor safety, radiation safety, and safeguards. *See* Grimes Declaration ¶ 16. Within each strategic performance are cornerstones that reflect the essential safety aspects of facility operation. *Id.* These seven cornerstones include initiating events, mitigating systems, barrier integrity, emergency preparedness, public radiation safety, occupational radiation safety, and physical protection. *Id.* Satisfactory licensee performance in the cornerstones provides reasonable assurance of safe facility operation. *Id.* NRC inspection findings are classified by color designations that indicate the severity of the inspection concern. *Id.* "Green" designates acceptable performance. *Id.* However, "white", "yellow", and "red" findings indicate more serious safety problems. *Id.*

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[18] Letter of from K. Stephen West, Director of Reactor Projects, U.S. Nuclear Regulatory Commission to Mark A. Schimmel, Site Vice President (Acting), Prairie Island Nuclear Generating Plant, September 1, 2009.
[19] Third Quarter 2009 ROP Action Matrix Summary and Current Regulatory Oversight, U.S. Nuclear Regulatory Commission (2009).
[20] *See* NUREG-1649 for an overview of the Reactor Oversight Process. The Operating Reactor Assessment Program evaluates the overall safety performance of individual operating reactors. Reactor Oversight Process, NUREG-1649, Rev. 3., U.S. Nuclear Regulatory Commission (July 2000).

In addition to the three strategic performance areas, the regulatory framework also evaluates "crosscutting" issues in the areas of human performance, safety conscious work environment, and problem identification and resolution. *See* Grimes Declaration ¶ 17. These crosscutting issues are fundamental performance attributes that extend across all of the cornerstones. *Id.* Of significance to the Community's contention, the crosscutting issues incorporate components that are important to the concept of "safety culture." *Id.* Safety culture is defined as the assembly of characteristics and attitudes in organizations and individuals who establish that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance.[21] A weak licensee safety culture was identified as a root cause of the reactor vessel head degradation at the Davis-Besse nuclear power plant.[22] The components of safety culture are directly related to the crosscutting areas of human performance, a safety conscious work environment, and problem identification and resolution. *See* Grimes Declaration ¶ 17.

As noted above, both PINGP Unit 1 and Unit 2 have been placed in the "Regulatory Response" column of the NRC Action Matrix. *See* Grimes Declaration ¶ 18. For plants in the Regulatory Response column, the NRC conducts additional inspections beyond the normal inspection program, and takes other actions, to focus on potential safety problems (approximately 10 to 20% of all operating reactors are in the Regulatory Response column). *Id.* PINGP Unit 1 is in the Regulatory Response column because of a "White" finding in the Mitigating Systems cornerstone and a White finding

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[21] Inspection Manual Chapter 0305, Operating Reactor Assessment Program, U.S. Nuclear Regulatory Program, at 04.16 (August 11, 2009).

[22] *See generally*, Information on the Changes Made to the Reactor Oversight Process to More Fully Address Safety Culture, Regulatory Issue Summary 2006-13, U.S. Nuclear Regulatory Commission (July 31, 2006).

in the Public Radiation Safety cornerstone. The White finding in the Mitigating Systems cornerstone from the fourth quarter of 2008 involved the failure of the PINGP staff to adequately control the position of a normally open valve necessary for a turbine driven auxiliary feedwater pump to operate.[23] The other White finding involved a radioactive material shipment from PINGP that did not conform to applicable regulations. This White finding also applied to Unit 2.[24] In this case, the NRC found that when the package containing radioactive material from PINGP arrived at its destination, the radiation levels were five times higher than allowed by NRC and Department of Transportation limits. This resulted from "ineffective" packaging and the fact that the PINGP personnel who prepared the package were not properly trained and qualified. In addition, the NRC is also investigating a preliminary White finding for Unit 2 on the inadequate design of the component cooling water system to ensure that it was protected from high energy line breaks, seismic, or tornado events.[25] These events could cause a loss of cooling water and a loss of safety function. *See* Grimes Declaration ¶ 20. All of the above White findings are associated with violations of the NRC requirements and consideration of escalated enforcement action by the NRC. *Id.* ¶ 21.

Most significantly, the NRC has identified an open substantive crosscutting issue in the area of human performance, with crosscutting themes in the aspects of systematic

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[23] Letter from James L. Caldwell, Regional Administrator, U.S. Nuclear Regulatory Commission to Michael D. Wadley, Site Vice President, Prairie Island Nuclear Generating Plant in regard to EA-08-272 (January 27, 2009).
[24] Letter from James L. Caldwell, Regional Administrator, U.S. Nuclear Regulatory Commission to Michael D. Wadley, Site Vice President, Prairie Island Nuclear Generating Plant in regard to EA-08-349 (February 10, 2009).
[25] Letter from Mark A. Satorius, Regional Administrator, U.S. Nuclear Regulatory Commission to Mark A. Schimmel, Acting Site Vice President, Prairie Island nuclear Plant in regard to EA-09-167 (September 3, 2009).

process, conservative assumptions, procedural adequacy, and procedural compliance.[26] These human performance crosscutting issues are one aspect of the NRC's assessment of the "safety culture" at an operating reactor. *Id.* In addition to the human performance crosscutting issue identified in relation to the PINGP White findings, a fundamental characteristic of an effective safety culture is that "[t]he organization ensures that issues potentially impacting safety or security are promptly identified, fully evaluated, and promptly addressed and corrected…."[27] This is directly relevant to the refueling cavity issue. *See* Grimes Declaration ¶ 21. In the NRC Inspection report of PINGP for the period of July 20, 2009 to August 13, 2009, the NRC inspectors continued to have concerns with the applicant's Corrective Action Program (CAP). *Id.* The CAP is the program the applicant relies upon to effectively accomplish the Problem Identification and Resolution expectations of the Reactor Oversight Process. *Id.* The NRC inspection team concluded that the applicant's CAP was "functional," but implementation was lacking in rigor, resulting in inconsistent and undesirable results.[28] Furthermore, "[s]ignificant issues went unrecognized."[29] Note that a licensee's CAP is a safety culture component of the Problem Identification and Resolution crosscutting area in the ROP.

SER Section 3.0.3.2.17 describes the safety-related structures, the applicable aging effects and how the Structures Monitoring Program addresses the elements of an effective aging management program. *See* Grimes Declaration ¶ 22. The SER states that: "The staff found that the program identifies 60 items as listed in Table 8.1

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[26] *Supra* note 18.
[27] *See* U.S. Nuclear Regulatory Commission, Draft Policy Statement on Safety Culture, 74 Fed. Reg. 57525, 57528, (November 6, 2009).
[28] Inspection Report 05000282;05000306/2009-009, U.S. Nuclear Regulatory Commission, at 1 (July 20, 2009 to August 13, 2009).
[29] *Id*.

'Managed Aging Effects' to be monitored or inspected and linked them to the degradation of the particular SCs intended functions."[30] The Standard Review Plan for License Renewal[31] describes the ten elements of an effective aging management program, which include:

7. Corrective actions, including root cause determination and prevention of recurrence, should be timely.

8. Confirmation process should ensure that preventive actions are adequate and that appropriate corrective actions have been completed and are effective.

9. Administrative controls should provide a formal review and approval process.

10. Operating experience should provide objective evidence to support the conclusion that the effects of aging will be managed adequately so that the structure and component intended function(s) will be maintained during the period of extended operation.[32]

See Grimes Declaration ¶ 22. However, in the NRC Information Notice 2009-11, describing the configuration control problems that resulted in the White Finding associated with EA 08-272,[33] the NRC states that "[t]he recent events show that component mispositionings have occurred or remained undetected due to one or more of the following causal factors:

- Failure to use or establish administrative controls, including: proper component labeling, proper valve locking, use of valve checklists, work and testing procedures use of postmaintenance flow testing confirmation (when necessary)

- Dependence on a single administrative control to prevent valve mispositioning events

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[30] *Supra* note 4.
[31] Standard Review Plan for License Renewal, NUREG-1800, Revision 1, U.S. Nuclear Regulatory Commission (2005).
[32] *Id*. Table A.1-1. "Elements of an Aging Management Program for License Renewal."
[33] *Supra* note 23.

- Insufficient training (lack of refresher training) or experience in determination of valve position by individuals, (such as using rising stem position to help confirm valve position)
- Improper independent verification or incorrect valve locking techniques
- Lack of operator awareness of unique valve design or valve operating characteristics
- Unrecognized operator burdens that increase the likelihood of error
- Failure to effectively apply station and industry operating experience."[34]

See Grimes Declaration ¶ 23.

The conclusions in the NRC Information Notice are further evidence that there is a safety culture at Prairie Island that potentially fails to achieve four of the ten elements of an effective management program (items 7 through 10 above). *See* Grimes Declaration ¶ 24. It is not clear how the NRC can now conclude that there is reasonable assurance that NSPM can achieve all ten elements of effective aging management for the period of extended operation. *Id.*

The conclusions in the above Information Notice, the White findings discussed above in regard to PINGP, the identification of a substantive crosscutting issue in the area of human performance, the serious concerns identified by NRC inspectors with the applicant's CAP, and the failure of the applicant to address the potential damage to the containment integrity resulting from the refueling cavity leaks, including the failure to notify the NRC or effectively correct the safety-significant deficiency for a period of 20 years, are all indicative of a weak safety culture at PINGP. *See* Grimes Declaration ¶ 25. It is not clear how, or indeed, whether, the NRC factored the license renewal inspection findings on the refueling cavity leakage issue into the license renewal findings. *Id.* The

[34] Information Notice 2009-11, U.S. Nuclear Regulatory Commission, at 2.

applicant was moving towards a degraded condition in any case. The refueling cavity issue, and what it says about their CAP, should move them into this status. Consequently, the NRC cannot legitimately find that there is reasonable assurance under the requirements of 10 CFR 54.29(a)(1). *Id.* The NRC should direct the applicant to conduct a third party assessment of safety culture as described in Section 10.02 of NRC Inspection Manual Chapter 0305. *Id.* After the review of this third party assessment, the NRC can address what corrective actions by the applicant are necessary before the renewal should be granted. *Id.*

IV. CONCLUSION

For the foregoing reasons, the Community's new contention based on the NRC's Safety Evaluation Report should be admitted in its entirety.

Respectfully Submitted,

/*Signed electronically by Philip R. Mahowald*/

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Dated: November 23, 2009

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(Prairie Island Nuclear Generating Plant,	)	ASLBP No. 08-871-01-LR
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CERTIFICATE OF SERVICE

I hereby certify that copies of "Prairie Island Indian Community's Submission of a New Contention on the NRC Safety Evaluation Report" and "Declaration of Christopher I. Grimes," both dated November 23, 2009, were provided to the Electronic Information Exchange for service on the individuals listed below, this 23rd day of November, 2009.

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