July 30, 2010

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	Docket Nos. 50-282-LR
Northern States Power Co.	)	50-306-LR
	)	
(Prairie Island Nuclear Generating Plant, Units 1 and 2)	)	ASLBP No. 08-871-01-LR

PRAIRIE ISLAND INDIAN COMMUNITY'S
INITIAL STATEMENT OF POSITION ON SAFETY CULTURE CONTENTION

In accordance with 10 C.F.R. Section 2.107(a)(1) and the Atomic Safety and Licensing Board's ("Board") April 20, 2010 Memorandum and Order (Summarizing Prehearing Conference Call and Amending Hearing Schedule), the Prairie Island Indian Community ("PIIC" or "Community") hereby submits its Initial Statement of Position on the Prairie Island Indian Community's admitted Safety Culture Contention. This Statement is supported by the "Testimony of Christopher I. Grimes on Safety Culture Contention" ("Grimes Dir.") and exhibits thereto.

I. INTRODUCTION

This Statement summarizes PIIC's Safety Culture Contention that a careful examination of events, including NRC inspection reports and enforcement actions, demonstrates that there is a weak safety culture at the Prairie Island Nuclear Generating Plant ("PINGP"). Consequently, the license applicant, Northern States Power, a Minnesota corporation ("NSPM" or "Applicant"), does not meet the requirements of 10 C.F.R. Section 54.29(a) which 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). This finding cannot be made until NSPM can demonstrate through a third party safety culture assessment, and the adoption of the recommendations therein, or by some other means, that steps have been taken to restore an adequate and sufficient safety culture at PINGP.

II. BACKGROUND

On November 23, 2009, the Community submitted a new contention asserting that the evidence of a weak safety culture at PINGP undermined the Applicant's License Renewal Application, and the supporting Safety Analysis Report ("SER"), in terms of the Applicant's ability to manage the effects of aging during the period of extended operation.[1] The Community's safety culture contention was triggered by the NRC staff evaluation of the refueling cavity leakage at Applicant's facility. The NRC staff evaluation of the refueling cavity leakage, and the corresponding deficiencies requiring additional commitments from the Applicant, provided the final link in a series of deficiencies in the Applicant's safety performance that revealed the existence of a potentially serious weakness in the Applicant's safety culture. The Community's contention asserted that the Applicant's treatment of the refueling cavity issue – i.e., knowing about a leak that poses potential safety problems for a number of years, not notifying the NRC of this condition, and failing to fix the leak – was a culminating symptom of a weak safety culture. The series of deficiencies cited by the Community as additional evidence of a weak safety culture were numerous NRC staff inspection and

[1] Prairie Island Indian Community's Submission of a New Contention on the NRC's Safety Evaluation Report (November 23, 2009).

enforcement actions, including a "White" finding Under the Reactor Oversight Program,[2] and an associated cross-cutting decline in human performance at the Applicant's facility.

On January 28, 2010, the Board admitted the Community's safety culture contention, finding that the contention satisfied all of the six contention admissibility criteria in 10 C.F.R Section 2.309(f)(1).[3] The Board emphasized that the PIIC "does not directly challenge . . . operational issues. Rather, it treats them as indications of a weak safety culture – a safety culture too weak to ensure the effectiveness of the Applicant's AMP."[4] The Board also found that "[t]o the extent PIIC's contention challenges Applicant's ability to effectively manage aging, in light of the various events indicating a deficient safety culture, it falls squarely within the scope of this proceeding."[5]

The Community will offer additional evidence of the Applicant's weak safety culture in the Section III of this Statement of Position. However, because the Board has already ruled on the legal challenges brought against the admission of the Community's contention by the Applicant and the Staff, based on various permutations of the "these are operational issues and outside the scope of license renewal" argument, the Community will not re-argue in this evidentiary proceeding the legal issues already decided by the Board. The Community's Statement of Position will instead address the evidence

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[2] *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). *See* Grimes testimony pages 10 to 11.
[3] Order (Narrowing and Admitting PIIC's Safety Culture Contention (January 28, 2010) (unpublished) (Agency Document and Management System Accession ("ADAMS") No. ML 100280537) ("Order").
[4] *Id*. at 11.
[5] *Id*. at 12.

necessary to demonstrate that the renewal of the license should not be granted until safety culture deficiencies at PINGP are remedied.

III. DISCUSSION

A. The Evaluative Framework for Safety Culture

The Commission's recognition of the central importance of a strong safety culture to the protection of public health and safety at licensee facilities has been a core theme in the NRC's regulatory philosophy for the last two decades.[6] Although the NRC's safety culture philosophy is still evolving, there are certain fundamental principles reflected in the Commission's draft Safety Culture Policy Statement,[7] as well as inspection and enforcement procedures associated with the Reactor Oversight Program,[8] that can be looked to as a guide to assess a licensee's safety culture. A licensee's or license applicant's inspection and enforcement record, as well its own assessments of its safety culture, can provide telling information as to the strength or weakness of its safety culture. Finally the principles and experience of other organizations, such as the International Atomic Energy Agency ("IAEA")[9] or the Institute of Nuclear Power Operations ("INPO"),[10] can provide guidance for assessing a licensee or licensee's safety culture. As recognized in the Commission's draft Safety Culture Policy, a weakness in

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[6] *See* Safety Culture Policy, SECY-09-0075, U.S. Nuclear Regulatory Commission (May 18, 2009).
[7] Draft Policy Statement on Safety Culture, U.S. Nuclear Regulatory Commission, 74 Fed. Reg. 57525 (November 6, 2009).
[8] *Supra* note 2. *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).
[9] International Atomic Energy Agency, International Nuclear safety Advisory Group, Safety Culture, Safety Series No. 75-INSAG-4, Vienna (1991).
[10] Institute of Nuclear Power Operations, "Principles for a Strong Nuclear Safety Culture," November 2004.

the safety culture at a licensee or license applicant's facility can be revealed in a pattern of events over a period of time.[11] INPO has noted, ". . . recent events, such as the discovery of degradation of the Davis-Besse Nuclear Power Station reactor vessel head, have highlighted problems that develop when the safety environment at a plant receives insufficient attention. A theme common in these cases is that, over time, problems crept in, often related to or a direct result of the culture at the plant. Had these problems been recognized and resolved, the events could have been prevented or their severity lessened."[12] The objective of the Community's safety culture contention is to ensure that the safety environment at the Applicant's facilities receives sufficient attention to ensure that a significant safety event does not occur at PINGP.

Although the Commission's Safety Culture Policy Statement has only been issued in draft form, it does reflect current Commission thinking and positions on safety culture. It also is an integration of commonly accepted principles on safety culture, drawn from organizations such as the IAEA and INPO. As noted in the draft Policy Statement, the NRC based its development of the safety culture components on a review of a variety of sources of information including the Institute of Nuclear Power Operations; the IAEA; the Nuclear Energy Agency; the regulatory approaches of other domestic and

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[11] *Supra* note 7 at 57527.

[12] *Supra* note 10, at ii. In this regard, the recent findings of the National Transportation Safety Board ("NTSB") in regard the 2009 fatal collision of two Washington Metropolitan Transit Authority ("WMATA") trains on the Red line in Washington D.C. emphasize the importance of paying attention to individual events over a period of time that may culminate in a serious accident as a result of a weak safety culture. The NTSB cited WMATA's lack of a work culture devoted to safety as a contributing factor to the crash. Referring to the many harbingers of a potential catastrophic event such as the crash, NTSB Chairman Deborah A.P Hersler, stated, "METRO was on a collision course long before this accident." Washington Post, July 28, 2010, at A11. A synopsis of the NTSB report is available on the NTSB website, www.ntsb.gov.

international organizations; and the organizational behavior, safety culture, and safety climate research literature."[13] Drawing on these sources, the Commission identifies a number of characteristics that are indicative of a positive safety culture.[14] Perhaps the most relevant of these to Community's belief that the safety culture at PINGP is weak is:

> The organization ensures that issues potentially impacting safety or security are promptly identified, fully evaluated, and promptly addressed and corrected, commensurate with their significance.[15]

This principle is reflected in the NRC cross-cutting area component for a Corrective Action Program and also corresponds to the INPO safety culture principles. Time and again the Applicant has failed to timely identify and respond to issues and deficiencies directly having an impact on safety or security at PINGP. The Community will address deficiencies in the safety culture at PINGP in the next section of this Position Statement.

B. Evidence of a Weak Safety Culture at PINGP

In its original pleading on the safety culture contention, the Community offered several examples, as evidence of what it believes demonstrates a weak safety culture at PINGP. In addition to those examples, the Community will now provide additional evidence of the weak safety culture at PINGP, supported by the testimony of Reactor Safety Expert, Mr. Christopher I. Grimes.[16] The Community will present these examples in summary fashion and elaborate in Mr. Grimes' testimony. The following series of individual events suggests a pattern demonstrating a weak safety culture at PINGP:

- According to the NRC Safety Evaluation Report, the staff "noticed," in its license renewal inspection of PINGP in the fall of 2008, that PINGP had identified the

[13] Supra note 7 at 57528.
[14] *Id*.
[15] *Id*.
[16] Grimes Direct Testimony and Ex. 1.

leakage of borated water from the Unit 1 and 2 refueling cavity.[17] As noted by the Applicant's expert at the Advisory Committee on Reactor safeguards (ACRS) Subcommittee meeting on the license renewal application for PINGP, the plants had experienced intermittent refueling cavity leakage since the late 1980s.[18] The potential hazard of this leak is that borated water is accumulating at the bottom head of the reactor vessel itself, posing a danger of corrosion of the containment vessel. This could have potentially disastrous consequences for the populace around PINGP, including the Community. Yet the Applicant did not reveal this leakage to the NRC until the fall of 2008, approximately twenty-five years after the Applicant knew about the problem. The Applicant's October 19, 2009 "TRD" on the refueling cavity leakage stated that "[r]efueling cavity leakage has been an issue since the early 1980's and the leakage could become a potential license renewal issue."[19]

- In the NRC Mid Cycle Performance Review Report of September 9, 2009, the NRC issued a preliminary White finding for PINGP Unit 2 in the Mitigating Systems Cornerstone.[20] This was due to the failure of the Applicant to design the component cooling water system ("CCWS") such that it would be protected from a high-energy line break ("HELB"), or seismic or tornado events. A high-energy line break would result in flooding effects, which could lead to the failure of redundant safety systems. The confirmation of this White finding for the inadequate design of the CCWS placed Unit 2 in the Regulatory Response column of the ROP Action Matrix.[21] It also resulted in an NRC enforcement action against the applicant for violating 10 C.F.R. Part 50, Appendix B, Criterion III.[22] As with the refueling cavity leakage issue, the Applicant knew of the HELB issue for many years but no evaluation was made of the potential effects on the turbine building.[23]

- A repetitive theme found in NRC inspection reports since 2003, has been that the Applicant's corrective actions have focused on increased operator inspections to uncover problems rather than in preventing the problems from occurring in the

[17] 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).
[18] Transcript, Advisory Committee on Reactor Safeguards Plant License Renewal Subcommittee, Prairie Island Nuclear Generating Station, at 48 (July 7, 2009).
[19] Summary of Recent Site Refueling Cavity Leakage Activities, TRD, Northern States Power Minnesota, at 1(October 10, 2009). *See* Grimes Testimony at pages 6 to 8.
[20] Mid-Cycle performance Review and inspection plan- Prairie Island Nuclear Generating Plant, Unit 1 and 2, U.S. Nuclear Regulatory Commission (September 1, 2009).
[21] Annual Assessment Letter – Prairie Island Nuclear Generating plant, Units 1 and 2, U.S. Nuclear Regulatory Commission (March 3, 2008).
[22] *See* NRC Inspection Report 2009003 and EA 10-070. *See* Grimes testimony 13 and 14.
[23] *Id*.

first place.[24] NRC inspectors in a December 21, 2007 Problem Identification and Resolution Inspection Report ("PI&R") noted that "a common theme during the last four PI&R inspection reports was that the licensee tended to focus on detection problems rather than preventing problems.[25] In a 2008 assessment of safety culture by an independent contractor commissioned by the Applicant, the contractor found that a culture of prevention has not been embraced and that there is a perception that the plant is challenged with problem solving. Plant employees interviewed as part of the assessment indicated that they do not have time to be proactive and as a result always seem to be in the reactive mode. Being in the reactive mode prevents focusing on backlog, improving cumbersome processes, and monitoring low level indicators to identify precursors before they reveal themselves as events.[26] As noted by the independent consultant, "prevention" is an item that provides a foundation for much of nuclear safety culture.[27] In the Nuclear Oversight Assessment that the Applicant performed in the first quarter of 2010, the report noted "[t]he station has two Cultural Behaviors that are challenging the station from reaching industry excellence in performance. They are a culture of recovery rather than prevention and a culture of informality with processes, procedures, and plant evolutions."[28] In terms of the culture of recovery, the assessment went on to explain the "the mindset that the station can fix or detect an adverse condition after it occurs has been reinforced and in some cases rewarded."

- In the September 25, 2009 NRC Biennial PI&R Inspection Report, the NRC noted that the Corrective Action program ("CAP") at PINGP was "functional" but implementation was lacking in rigor resulting in inconsistent and undesirable results.[29] The inspectors emphasized, "the backlog of corrective actions was large and growing." At the time of the last NRC PI&R inspection in 2007, inspectors concluded that performance had declined. Some corrective actions are years old and completion priority is not linked to potential safety significance. The Applicant performed an assessment of the CAP in 2009 and found that the station

[24] Prairie Island Nuclear Generating Plant, Units 1 and 2 NRC Problem Identification and Resolution Inspection Report, U.S. Nuclear Regulatory Commission ((September 6, 2005) and Prairie Island Nuclear Generating Plant, Units 1 and 2 NRC Problem and Resolution Inspection Report, U.S. Nuclear Regulatory Commission (October 16, 2003).
[25] Prairie Island Nuclear Generating Plant, Units 1 and 2 NRC Problem Identification and Resolution Inspection Report, U.S. Nuclear Regulatory Commission (December 21, 2007).
[26] Prairie Island Nuclear Generating Plant, Nuclear Safety Culture Assessment, conducted by Utilities Service Alliance, Xcel Energy (August 25-29, 2008).
[27] *Id*.
[28] Nuclear Oversight 1st Quarter of 2010 Assessment Report for Prairie Island, Xcel Energy (June 10, 2010).
[29] Prairie Island Nuclear Generating plant, Units 1 and 2, NRC Biennial Problem Identification and Resolution Inspection report, U.S. Nuclear Regulatory Commission (September 25, 2009). *See* Grimes testimony at 16.

was adequately implementing the CAP.[30] However, after reviewing this report, the inspectors still concluded that recognizable improvement in most areas of the CAP was lacking. Notably, one conclusion of the Applicant's CAP assessment was that "[t]he site believes that failure to achieve effective and timely problem resolution is due to inadequate program management and **a weak safety culture**."[31] Emphasis added.

- As noted in the Community's original contention, the NRC made a White finding, in the Public Radiation Cornerstone and issued a Notice of Violation, for an incident involving a radioactive material shipment from PINGP that arrived at its destination with radiation levels five times higher than allowed by the NRC and Department of Transportation limits.[32] Although the White finding on this incident has now been cleared, the NRC noted in a Supplemental Inspection Report in January 2010, that the licensee RCE determined that several safety culture components had an impact on this performance issue and contributed to the White finding. Specifically, decision-making, resources, work control practices, and operating experience all had an impact on the radioactive shipment incident. NSPM has initiated a Human Performance Improvement Plan to address these issues. Given the skepticism expressed by the NRC about the condition of the Corrective Action program, however, the Community has no confidence that these or other Human Performance and safety culture issues will be fixed at PINGP. It is "all heat and no light" in our opinion.[33]

IV. CONCLUSION

In summary, the Community believes that the above events and reports provide very strong and substantial evidence that the safety culture at PINGP is in serious disarray. Consequently, the Applicant cannot demonstrate that they can meet the requirements of 10 C.F.R. 54.29(a)(1) that there is reasonable assurance that the Applicant will manage the effects of aging during the period of extended operation. The Community would ask the Board to deny the application for license renewal until the Applicant can demonstrate that the safety culture inadequacies have been fixed – not that

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[30] SCAQ Inadequate CAP Resolution of Significant Issues, Xcel Energy (January 26, 2009).
[31] *Id*. (emphasis added).
[32] *See* 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).
[33] *See* Grimes testimony at 17 through 19.

they will be fixed, but they have been fixed. The history of NRC inspection and enforcement actions at the site are replete with promises from the licensee to fix Corrective Action program and human performance deficiencies. It is still broken.

Respectfully Submitted,

/*Signed electronically by Philip R. Mahowald*/

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