



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

January 12, 2010

EA-08-349

Mr. Mark Schimmel  
Site Vice President  
Prairie Island Nuclear Generating Plant  
Northern States Power Company, Minnesota  
1717 Wakonade Drive East  
Welch, MN 55089

**SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2, NRC  
SUPPLEMENTAL INSPECTION REPORT 05000282/2009015;  
05000306/2009015**

Dear Mr. Schimmel:

On December 4, 2009, the U. S. Nuclear Regulatory Commission (NRC) completed a supplemental inspection pursuant to Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," at your Prairie Island Nuclear Generating Plant. The enclosed report documents the inspection results, which were discussed at the combined exit and regulatory performance meeting conducted on December 4, 2009, with Messrs. Bradley Sawatzke, Kevin Ryan and other members of your staff.

As required by the NRC Reactor Oversight Process Action Matrix, this supplemental inspection was performed due to a White performance issue in the Public Radiation Safety Cornerstone. Specifically, on May 6, 2009, the NRC issued its Final Significance Determination and Notice of Violation (NRC Inspection Report 05000282/2009008 and 05000306/2009008) for a White finding that involved the failure to properly prepare and ship a package containing radioactive material in a manner that assured conformance with Department of Transportation (DOT) radiation level limits specified in 49 CFR 173.441. The NRC staff was informed on October 30, 2009, of your staff's readiness for this inspection.

The objectives of this supplemental inspection were to provide assurance that: (1) the root causes and the contributing causes for the White performance issue were understood; (2) the extent of condition and extent of cause were identified; and (3) corrective actions were or will be sufficient to address and preclude repetition of the root and contributing causes. The inspection consisted of examination of activities conducted under your license as they related to safety, compliance with the Commission's rules and regulations, and the conditions of your operating license.

The inspectors determined that your staff performed a comprehensive evaluation of the White finding using systematic techniques to determine the root and contributory causes of the performance issue. Your staff's evaluation identified that the root causes centered on poor processes and procedure quality, and insufficient oversight including the lack of a risk management process associated with the shipment program. In particular, your staff correctly concluded that

the root causes involved programmatic issues and that the singular failure of a human performance barrier was not a major contributor to the overall problems that led to the incident. Corrective actions were implemented to address the identified causes and contributors, which included significant modification to existing procedures along with the development of new procedures. Also, the training and qualification program for staff involved in shipment activities was enhanced. Additionally, an integrated risk management process was developed that incorporates risk insights and thresholds to ensure the proper level of management engagement in shipment related activities.

Although issues with aspects of your staff's extent of cause review for the White performance issue were identified by our inspectors and documentation deficiencies associated with your staff's root cause evaluation report were noted, based on the results of this inspection, no findings of significance were identified.

Given your acceptable performance in addressing this performance issue, the White finding was considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." Consequently, this issue has been removed from consideration of future agency actions because four quarters has elapsed following our input of the original finding in the assessment program (i.e., the end of the fourth quarter 2009). Although this finding is removed from consideration in the Action Matrix, Unit 2 remains in the regulatory response band (column 2) of the matrix based on a White finding in the mitigating systems cornerstone assessed during the third quarter of 2009. We have assessed Unit 1 as returning to the licensee response band (column 1) based on successful completion of this supplemental inspection.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

Anne T. Boland, Director  
Division of Reactor Safety

Docket Nos. 50-282; 50-306; 72-010  
License Nos. DPR-42; DPR-60

Enclosure: IR 05000282/2009015; 05000306/2009015  
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION  
REGION III

Docket Nos: 50-282; 50-306  
License Nos: DPR-42; DPR-60

Report No: 05000282/2009015; 05000306/2009015

Licensee: Northern States Power Company, Minnesota

Facility: Prairie Island Nuclear Generating Plant, Units 1 & 2

Location: Welch, MN

Dates: November 30 through December 4, 2009

Inspectors: W. Slawinski, Senior Health Physicist  
M. Phalen, Health Physicist

Approved by: A. Boland, Director  
Division of Reactor Safety

## SUMMARY OF FINDINGS

IR 05000282/2009015; 05000306/2009015; 11/30/2009 – 12/04/2009; Prairie Island Nuclear Generating Plant, Units 1 & 2; Supplemental Inspection 95001.

This report covers an announced supplemental inspection by two regional health physics inspectors. No findings were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Cross-cutting aspects, as applicable, were determined using Inspection Manual Chapter 0305, "Operating Reactor Assessment Program." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### **Cornerstone: Public Radiation Safety**

The NRC staff performed this supplemental inspection in accordance with Inspection Procedure (IP) 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," to assess the licensee's evaluation associated with the failure to properly prepare and ship a package containing radioactive material in October 2008, in a manner that assured conformance with the Department of Transportation (DOT) radiation level limits specified in 49 CFR 173.441. The NRC staff previously characterized this issue as having low to moderate safety significance (White), as documented in NRC IR 05000282/2009008; 05000306/2009008. During this supplemental inspection, the inspectors determined that the licensee performed a comprehensive evaluation of the specific performance issue and that appropriate corrective actions were taken to address each of the root and contributing causes. The licensee determined that the performance issue had two root causes identified as: (1) inadequate procedures and methods to successfully evaluate, package and ship radioactive materials in accordance with NRC and DOT regulations; and (2) lack of a risk management process leading to inadequate management oversight of the radioactive material shipment program. Contributing causes were identified as: (1) ineffective incorporation of industry operating experiences into the radioactive material shipment program; and (2) deficient training and certification programs for radiation protection personnel that perform shipment related activities. Corrective actions focused on development of new procedures and enhancement of existing ones, improvements to the training and qualification program for staff involved in shipment activities, and the development of an integrated risk management program to drive management engagement and ensure proper oversight of potentially risk significant shipments.

Given the licensee's acceptable performance in addressing the failure to evaluate, package and transport a radioactive material shipment to satisfy DOT/NRC radiological limits that resulted in the White finding, this public radiation safety cornerstone performance issue will not be held open beyond the normal four quarters provided in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." The four quarters elapsed at the end of the fourth quarter of 2009.

No findings of significance were identified.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA4 Supplemental Inspection (95001)

##### .01 Inspection Scope

The NRC staff performed this supplemental inspection in accordance with IP 95001 to assess the licensee's evaluation of a White finding, which affected the public radiation safety cornerstone in the radiation safety strategic performance area. The inspection objectives were to:

- provide assurance that the root and contributing causes of risk-significant issues were understood;
- provide assurance that the extent of condition and extent of cause of risk-significant issues were identified; and
- provide assurance that the licensee's corrective actions for risk-significant issues were or will be sufficient to address the root and contributing causes to preclude repetition.

The licensee entered the Regulatory Response Column of the NRC's Action Matrix in the first quarter of 2009 as a result of one inspection finding of low to moderate safety significance (White). Specifically, on October 29, 2008, the Prairie Island Nuclear Generating Plant shipped contaminated fuel sipping equipment to a vendor in Pennsylvania following decontamination of the equipment after its removal from the spent fuel pool. The equipment was surveyed, radiologically characterized, and packaged by both licensee and contractor staff and shipped as a surface contaminated object (SCO) in an open transport vehicle. Upon receipt by the vendor two-days later, package surface dose rates were found to exceed applicable DOT limits primarily due to a discrete radioactive particle that was embedded in the fuel sipping equipment. The fuel sipping equipment was found not to be properly braced or secured and shifted within the package during transport. A preliminary Yellow finding and an associated apparent violation were issued in NRC Inspection Report 05000282/2008009; 05000306/2008009. Based on the results of a radiological risk assessment employing both the public radiation safety and qualitative criteria significance determination processes, a final significance determination for a White finding and an associated Notice of Violation was issued by letter dated May 6, 2009.

The licensee staff informed the NRC staff that they were ready for the supplemental inspection on October 30, 2009. The licensee performed a root cause evaluation (RCE), No. 01157726, Revision 2, to identify the root and contributing causes and other causal factors which allowed the risk-significant finding to occur, and to determine the organizational attributes that resulted in the White finding. The licensee also addressed safety culture in the RCE.

The inspectors reviewed the licensee's RCE as well as other evaluations conducted in support and as a result of the RCE. The inspectors reviewed corrective actions that were taken or planned to address each of the identified causes and contributors. The inspectors also held discussions with licensee personnel to ensure that the root and contributing causes and the safety culture components were understood, and that corrective actions taken or planned were appropriate to address the causes and preclude repetition.

## .02 Evaluation of Inspection Requirements

### 02.01 Problem Identification

- a. Inspection Procedure 95001 requires that the inspection staff determine that the licensee's evaluation of the issue documents who identified the issue (i.e., licensee-identified, self-revealing, or NRC-identified) and the conditions under which the issue was identified.

The excessive radiation levels on the package were revealed to the licensee by a vendor that identified the conditions upon package receipt at its facility in Pennsylvania. The elevated radiation levels were determined by the vendor through its routine package receipt survey practices. The inspectors verified that this information was documented in records maintained within the licensee's corrective action program including the licensee's RCE.

- b. Inspection Procedure 95001 requires that the inspection staff determine that the licensee's evaluation of the issue documents how long the issue existed and prior opportunities for identification.

The DOT compliance issue existed for two-days while the shipment was en route from the Prairie Island facility to the vendor's site in Pennsylvania.

As part of its root cause evaluation, the licensee reviewed the specific circumstances associated with this incident to determine if opportunities existed for the problem to have been identified during the shipment preparation process before the shipment was released from the Prairie Island site. The licensee recognized that it missed opportunities to self-identify the issue because its radioactive material shipment program was not robust. Additionally, the licensee reviewed its corrective action program and internal/external operating experience databases and determined that prior opportunities to identify flaws in its radioactive material transportation program existed along with precursor incidents which the licensee failed to effectively address.

- c. Inspection Procedure 95001 requires that the inspection staff determine that the licensee's evaluation documents the plant specific risk consequences, as applicable, and compliance concerns associated with the issue.

A plant specific probabilistic risk-assessment was not applicable to this issue. However, the licensee evaluated the radiological risk to the public based on the actual circumstances of the incident including the potential for unnecessary dose to members of the public that could have come into contact with the shipment. Using risk insights provided in the significance determination process (SDP) for public radiation safety (Appendix D of Manual Chapter 0609) and the SDP that provides qualitative criteria

(Appendix M of Manual Chapter 0609), the NRC concluded the performance issue represented a White finding primarily due to the limited actual radiological risk to the public. The NRC's final risk determination and finding were issued on May 6, 2009. The licensee's RCE also documented that the finding associated with this issue was a violation of DOT and NRC requirements which limit package radiation levels to prescribed values.

d. Findings

No findings of significance were identified.

02.02 Root Cause, Extent of Condition, and Extent of Cause Evaluation

- a. Inspection Procedure 95001 requires that the inspection staff determine that the licensee evaluated the issue using a systematic methodology to identify the root and contributing causes.

The licensee conducted a root cause analysis of the performance issue using fleet guidance document FG-PA-RCE-01, "Root Cause Evaluation Manual," Revision 14, and other implementing procedures. The licensee used the following systematic methods to complete the RCE:

- data gathering through interviews and document review;
- events and causal factor charting;
- task, barrier and change analyses; and
- why staircase analysis.

The inspectors assessed the RCE report against the criteria in the licensee's guidance document and procedures, and determined that the evaluation followed the procedural requirements. Overall, the inspectors determined that the licensee evaluated the issue using systematic methodologies to adequately identify the root and contributing causes.

- b. Inspection Procedure 95001 requires that the inspection staff determine that the licensee's RCE was conducted to a level of detail commensurate with the significance of the issue.

The licensee's RCE employed various systematic methods to identify the causes of the performance issue as delineated above. Different methodologies were used to ensure the root and contributory causes were identified and aligned with those determined through alternate means. The licensee's RCE determined the root causes of the performance issue were: (1) inadequate procedures and methods to successfully evaluate, package and ship radioactive materials in accordance with NRC and DOT regulations; and (2) the lack of a risk management process leading to inadequate management oversight of the radioactive material shipment program. In particular, the licensee's RCE correctly concluded that the root causes involved systemic issues with the radioactive material transportation program and that the failure of a human

performance barrier or other singular barrier was not a major contributor to the overall problems that led to the incident.

Two contributing causes were identified as: (1) ineffective incorporation of industry operating experiences into the radioactive material transportation program; and (2) deficient training and certification programs for personnel that perform shipment related activities.

The inspectors determined that the licensee's evaluation was comprehensive and of sufficient scope and depth to reach the proper conclusions. As a result, the inspectors concluded that the root cause evaluation was conducted to a level of detail commensurate with the significance of the problem.

- c. Inspection Procedure 95001 requires that the inspection staff determine that the licensee's RCE included a consideration of prior occurrences of the issue and knowledge of operating experience (OE).

As part of the RCE, the licensee reviewed its corrective action program and internal/external operating experience databases and determined that prior opportunities to identify flaws in its radioactive material transportation program existed along with precursor incidents which the licensee failed to effectively address. Previous corrective actions were limited in scope and focused on singular barriers such as worker performance rather than addressing broader programmatic flaws. Consequently, previous actions were not broadly effective. Moreover, the licensee determined there were numerous opportunities following the issuance of NRC Information Notice 88-101 for Prairie Island to respond to industry trends associated with radioactive material shipments containing discrete radioactive particles. The licensee determined that industry operating experiences related to radioactive material shipments were not formally evaluated. Consequently, the licensee concluded that industry operating experiences had not been effectively incorporated into its shipment program and this failure was a contributing cause of the White performance issue.

Based on the licensee's detailed evaluation and conclusions, the inspectors determined that the licensee's RCE included consideration of prior occurrences of the problem and knowledge of OE.

- d. Inspection Procedure 95001 requires that the inspection staff determine that the licensee's RCE addresses the extent of condition and extent of cause of the issue(s).

The licensee's evaluation considered the extent to which the actual condition (failure to meet shipment regulations) exists within other plant processes, equipment or human performance. The licensee's evaluation considered the potential for extent of condition within any of its hazardous material shipment programs including chemical and other non-radiological hazardous shipments. The licensee's extent of condition evaluation determined that no significant issues existed with other shipments of hazardous material based on a review of its corrective action program dating back to 2006.

The licensee's evaluation considered the extent to which the root causes of the radioactive material shipment problem impacted other plant processes, equipment or human performance. Five distinct areas of the licensee's hazardous material shipment program were evaluated in an effort to answer the following questions:

- Environment - Do the causes impact other work environments/locations ?
- Equipment - Do the causes impact other equipment, systems or components?
- People - Do the causes impact other personnel or other human performance issues?
- Organization - Do the causes impact other crews, departments or organizations?
- Process - Are there similar processes or procedures that were impacted by the causes?

To conduct its review, the licensee evaluated each of its hazardous material shipment programs in the five areas listed above to determine the actual or potential impact of the root causes. The review was performed for the licensee's warehouse and security organizations and the environmental, chemistry, and construction departments, all of which were involved in hazardous material shipment activities to varying degrees. These shipment programs were reviewed to assess procedure adequacy, to determine if the activities were adequately covered under a work management risk process and to assess the quality of the associated training and certification programs. Overall, the licensee identified no significant conditions adverse to quality associated with its other (non-radiological) hazardous material shipment programs; however, the licensee identified procedural deficiencies and process flaws which were being addressed through the corrective action program.

The inspectors concluded that the licensee's RCE addressed the extent of condition and the extent of cause for the White performance issue. However, the inspectors identified a deficiency with the validation method for one of the licensee's extent of cause conclusions. Specifically, the RCE validated that staff involved in non-radiological hazardous material shipments were trained and qualified based solely on interviews, but failed to validate that requirements were met through more effective means such as record reviews. A corrective action document was generated by the licensee to address the validation issue identified by the inspectors.

Additionally, some of the conclusions in the extent of cause review were not supported in the RCE report. Specifically, the root cause report failed to document the basis for concluding that certain non-radiological hazardous material shipment procedures were adequate and that those procedures did not impact the root cause. Similarly, the report failed to document the basis for concluding that the "work environment" and "equipment" associated with the extent of cause review did not impact the root cause. The inspectors determined through interviews that the licensee reached its conclusions using sound methodologies, but failed to document how those conclusions were derived. Corrective action document was generated by the licensee to address RCE report deficiencies identified by the inspectors.

- e. Inspection Procedure 95001 requires that the inspection staff determine that the licensee's root cause, extent of condition, and extent of cause evaluations appropriately considered the safety culture components as described in IMC 0305.

The inspectors concluded that the safety culture aspects associated with the performance issue were appropriately considered in the licensee's RCE and included consideration whether a weakness in any safety culture component was a root cause or a significant contributing cause of the issue.

The RCE determined that several safety culture components had impact on the performance issue and contributed to the White finding. Specifically, decision making (H.1), resources (H.2), work control and work practices (H.3 & H.4), and operating experience (P.2) all impacted the radioactive material shipment program and collectively led to the shipment incident. Each of these safety culture components had corrective actions to address the issues.

The inspectors determined that the root cause report erroneously documented that the corrective action program (P.1) did not impact the performance issue. Nevertheless, actions had been taken by the licensee to address this safety culture component. The error was attributed to a documentation flaw in the final revision (Revision 2) of the RCE report.

f. Findings

No findings of significance were identified.

02.03 Corrective Actions

- a. Inspection Procedure 95001 requires that the inspection staff determine that: (1) the licensee specified appropriate corrective actions for each root and/or contributing cause; or (2) an evaluation that states no actions are necessary is adequate.

The licensee's corrective actions focused on the programmatic problems associated with the identified root and contributing causes, and centered on the most risk significant activities to drive staff and management involvement. Those activities related to the radiological characterization of material to be shipped including the identification of discrete radioactive particles, the packaging of the material and its loading into shipping containers, the evaluation of radiological survey differences and resolution of anomalous radiological data, and delineating thresholds and levels of management engagement consistent with shipment risk.

Corrective actions were developed to address the identified causes and the contributors so as to prevent recurrence of the performance issue. Corrective actions as documented in the root cause report included but were not limited to:

- Revisions to the suite of radioactive material shipment procedures to define, improve and enhance a variety of procedural attributes that impact shipment compliance.
- Revisions to radiation protection procedures to address methods to assist in the identification of discrete radioactive particles, package labeling and notification requirements should particles exist.
- Development of procedures for packaging of radioactive material.

- Development of a training and qualification program for shipping specialists and improvements in training for those involved in radioactive material shipment activities.
- Development of an integrated risk management assessment process that includes radioactive material shipment activities.
- Enhancements to the licensee's self-assessment program and audit activities for the radioactive material shipment program.

To address the safety culture components related to human performance, the licensee had initiated a Human Performance Improvement Plan as part of a larger Performance Recovery Project. These plans address multiple aspects of human performance and are tracked in the corrective action program.

The inspectors determined that the corrective actions were appropriate for the associated causes. However, the inspectors found that the RCE report failed to document all of the corrective actions which the licensee implemented to prevent recurrence. Specifically, several additional corrective actions were taken to address the causes developed but were not documented in the RCE report. These included actions to notify the shipment coordinator under certain circumstances, to identify inconsistencies in package versus equipment radiological conditions, and the measures to ensure staff are trained before involvement in certain shipping activities. A corrective action document was generated by the licensee to address inspector identified RCE report deficiencies.

- b. Inspection Procedure 95001 requires that the inspection staff determine that the licensee prioritized corrective actions with consideration of risk significance and regulatory compliance.

The licensee's ceased all further radioactive material shipments following the vendor's notification to the licensee of the problem. The licensee dispatched members of the Prairie Island and corporate health physics staff to the vendor's site to facilitate its investigation. Various interim actions were taken before shipment activities recommenced which focused on radiological characterization and surveys, proper packaging to prevent migration of contaminants, and additional shipping specialist and management involvement in high risk shipments. Effectiveness reviews were performed following the development of corrective actions to ensure their adequacy.

The inspectors determined that the corrective actions were prioritized with consideration of the risk significance and regulatory compliance.

- c. Inspection Procedure 95001 requires that the inspection staff determine that the licensee established a schedule for implementing and completing the corrective actions.

The licensee established adequate schedules for the completion of its corrective actions associated with the RCE. All actions associated specifically with shipment evaluation, packaging and preparation were completed in 2009, including effectiveness reviews to determine risk significant shipment readiness. The remaining actions were on schedule for completion in early 2010. The inspectors reviewed the completed corrective actions

and concluded that they had been implemented timely and effectively. No concerns were identified with the scheduling or completion of corrective actions.

- d. Inspection Procedure 95001 requires that the inspection staff determine that the licensee developed quantitative and/or qualitative measures of success for determining the effectiveness of the corrective actions to preclude repetition.

The licensee developed means to validate the effectiveness of its corrective actions for the White performance issue. These were documented in the RCE and consisted of direct observations of risk significant shipment activities by industry peers, site management and the nuclear oversight organization, an external assessment of the radioactive material shipment program and a pending evaluation of recent operating experience reviews. Action items were entered into the corrective action program to ensure the effectiveness reviews were performed. The inspectors determined that quantitative and qualitative measures of success had been developed for determining the effectiveness of the corrective actions to preclude repetition.

- e. Inspection Procedure 95001 requires that the inspection staff determine that the licensee's planned or taken corrective actions adequately address a Notice of Violation (NOV) that was the basis for the supplemental inspection, if applicable.

The NRC issued its final significance determination and NOV ((05000282/2009008; 05000306/2009008), Radioactive Material Shipment Package Radiation Levels Exceeded) to the licensee on May 6, 2009. The NRC concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved, was already adequately addressed on the docket in Inspection Report No. 05000282/2008009; 05000306/2008009. The NRC staff did not require a response from the licensee; therefore, this inspection requirement was not applicable.

- f. Findings

No findings of significance were identified.

#### 4OA6 Exit Meeting - Regulatory Performance Meeting Summary

On December 4, 2009, the inspectors presented the inspection results to Messrs. B. Sawatzke, Site Director, and K. Ryan, Plant Manager, and other members of the Prairie Island and Excel Energy staffs, who acknowledged the conclusions. As part of this meeting, in accordance with IMC 0305, Section 10.01(a), Mr. K. O'Brien and other NRC staff discussed the issues related to the White finding that resulted in Prairie Island being placed in the Regulatory Response Column of the Action matrix. The discussions included the causes, corrective actions, extent of condition, and extent of cause associated with the White performance issue in the public radiation safety cornerstone.

The inspectors asked the licensee if any of the material examined during the inspection should be considered proprietary. The licensee did not identify any information considered proprietary.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

B. Sawatzke, Director, Site Operations  
K. Ryan, Plant Manager  
J. Anderson, Regulatory Affairs Manager  
R. Hite, Radiation Protection and Chemistry Manager  
J. LeClair, CAP Project Engineering Supervisor/RCE Team Leader  
C. England, General Supervisor, Radiation Protection  
S. Nelson, Fleet Radiation Protection and Chemistry Manager  
S. Derleth, Radioactive Material Shipping Coordinator  
C. Sweet, Radioactive Material Shipping Coordinator  
K. Mews, Regulatory Affairs Engineer

#### Nuclear Regulatory Commission

K. O'Brien, Deputy Director, Division of Reactor Safety  
J. Giessner, Chief, Reactor Projects Branch 4  
K. Stoedter, Senior Resident Inspector  
P. Zurawski, Resident Inspector

### LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

#### Opened

None

#### Closed

05000282 and 05000306/2009008-01	VIO	Radioactive Material Shipment Package Radiation Levels Exceeded
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## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

### 4OA4 Supplemental Inspection

#### Procedures

FP-RP-JPP-01; RP Job Planning; Revision 4 & 5

FG-PA-RCE-01; Root Cause Evaluation Manual; Revision 14

RPP-D11; Radioactive Material Shipment; Revision 17

RPP-D11.7; Radioactive Material Shipment - LSA/SCO/LTD to a Licensed Facility; Revision 21

RPIP 1303; Packaging of Radioactive Material for Shipment; Revision 5

RPIP 1319; Loading of LSA Boxes and Containers; Revision 17

FP-WM-IRM-01; Integrated Risk Management; Revision 3

FP-WM-PLA-01; Work Order Planning Process; Revision 5

QF-2010; Work Order Risk Screening Worksheet; Revision 4

FP-PA-OE-01; Operating Experience Program; Revision 12

RPIP 1122; Discrete Radioactive Particle Program; Revision 16

#### Evaluations

Root Cause Evaluation Report No. 01157726; Radioactive Material Shipment Exceeded DOT Limits; Revision 2

Nuclear Oversight Observation Report No. 2009-02-006 & 2009-04-005; Radwaste Shipping & Radioactive Material Shipment; May 29, 2009 & October 12, 2009, respectively

Focused Self-Assessment No. 011832521; Transportation 95001 Inspection Preparation; August 17, 2009

Prairie Island High Risk Shipment Assessment; October 29, 2009

#### Miscellaneous

AR-01209032; Extent of Cause Improvement Opportunity; December 2, 2009

AR-01209175; RCE Report Corrective Action Documentation; December 3, 2009

Lesson Plan No. P9030L-001; Radioactive Material Shipment; Revision 8

Lesson Plan No. P9030L-002; Radioactive Material and Fuel Receipt; Revision 6

Lesson Plan No. P9070L-004; Radioactive Material Shipment/Receipt; Revision 2

Lesson Plan No. P9070L-052; Human Performance Case Studies; Revision 0

### **LIST OF ACRONYMS USED**

CAP	Corrective Action Program
CFR	Code of Federal Regulations
DOT	Department of Transportation
IP	Inspection Procedure
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OE	Operating Experience
RCE	Root Cause Evaluation
SDP	Significance Determination Process

the root causes involved programmatic issues and that the singular failure of a human performance barrier was not a major contributor to the overall problems that led to the incident. Corrective actions were implemented to address the identified causes and contributors, which included significant modification to existing procedures along with the development of new procedures. Also, the training and qualification program for staff involved in shipment activities was enhanced. Additionally, an integrated risk management process was developed that incorporates risk insights and thresholds to ensure the proper level of management engagement in shipment related activities.

Although issues with aspects of your staff's extent of cause review for the White performance issue were identified by our inspectors and documentation deficiencies associated with your staff's root cause evaluation report were noted, based on the results of this inspection, no findings of significance were identified.

Given your acceptable performance in addressing this performance issue, the White finding was only considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." Consequently, this issue has been removed from consideration of future agency actions because four quarters has elapsed following our input of the original finding in the assessment program (i.e., the end of the fourth quarter 2009). Although this finding is removed from consideration in the Action Matrix, Unit-2 remains in the regulatory response band (column 2) of the matrix based on a White finding in the mitigating systems cornerstone assessed during the third quarter of 2009.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,  
**/RA/**  
 Anne T. Boland, Director  
 Division of Reactor Safety

Docket Nos. 50-282; 50-306  
 License Nos. DPR-42; DPR-60

Enclosure: IR 05000282/2009015; 05000306/2009015  
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Letter to Mark Schimmel from Anne T. Boland dated January 12, 2010

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, NRC SUPPLEMENTAL  
INSPECTION REPORT 05000282/2009015; 05000306/2009015

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