

August 14, 2007

Mr. Michael D. Wadley  
Site Vice President  
Prairie Island Nuclear Generating Plant  
Nuclear Management Company, LLC  
1717 Wakonade Drive East  
Welch, MN 55089

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2  
NRC INTEGRATED INSPECTION REPORT 05000282/2007003 AND  
05000306/2007003

Dear Mr. Wadley:

On June 30, 2007, the U. S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Prairie Island Nuclear Generating Plant, Units 1 and 2. The enclosed report documents the inspection findings which were discussed on July 12, 2007, with you and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and to compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, two findings were noted during the inspection. Both findings were considered to be of very low safety significance. The first finding was inspector-identified and involved two violations of NRC requirements. In addition, one licensee-identified violation which was determined to be of very low safety significance is listed in this report. Because of its very low safety significance, and because these issues were entered into your corrective action program, the NRC is treating the issues as Non-Cited Violations (NCVs) in accordance with Section VI.A.1 of the NRC's Enforcement Policy. The second finding was self-revealed and did not involve a violation of NRC requirements.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the Resident Inspector Office at the Prairie Island Nuclear Generating Plant.

M. Wadley

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Sincerely,

*/RA/*

Richard A. Skokowski, Chief  
Branch 3  
Division of Reactor Projects

Docket Nos. 50-282; 50-306; 72-010  
License Nos. DPR-42; DPR-60; SNM-2506

Enclosure: Inspection Report 05000282/2007003 and 05000306/2007003  
w/Attachment: Supplemental Information

cc w/encl: D. Cooper, Senior Vice President and Chief  
Nuclear Officer  
M. Sellman, President and Chief Executive Officer  
Regulatory Affairs Manager  
J. Rogoff, Vice President, Counsel & Secretary  
Nuclear Asset Manager  
State Liaison Officer, Minnesota Department of Health  
Tribal Council, Prairie Island Indian Community  
Administrator, Goodhue County Courthouse  
Commissioner, Minnesota Department  
of Commerce  
Manager, Environmental Protection Division  
Office of the Attorney General of Minnesota

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M. Sellman, President and Chief Executive Officer  
Regulatory Affairs Manager  
J. Rogoff, Vice President, Counsel & Secretary  
Nuclear Asset Manager  
State Liaison Officer, Minnesota Department of Health  
Tribal Council, Prairie Island Indian Community  
Administrator, Goodhue County Courthouse  
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of Commerce  
Manager, Environmental Protection Division  
Office of the Attorney General of Minnesota

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Letter to Mr. Michael D. Wadley from Richard A. Skokowski dated August 14, 2007

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2  
NRC INTEGRATED INSPECTION REPORT 05000282/2007003 AND  
05000306/2007003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-282; 50-306; 72-010  
License Nos: DPR-42; DPR-60; SNM-2506

Report No: 05000282/2007003 and 05000306/2007003

Licensee: Nuclear Management Company, LLC

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

Location: Welch, MN 55089

Dates: April 1 through June 30, 2007

Inspectors: J. Adams, Senior Resident Inspector  
D. Karjala, Resident Inspector  
M. Phalen, Health Physicist  
R. Jickling, Senior Emergency Preparedness Analyst  
N. Valos, Senior Operations Engineer  
M. Gryglak, Reactor Inspector  
S. Bakhsh, Health Physicist

Approved by: R. Skokowski, Chief  
Branch 3  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000282/2007003, 05000306/2007003; 04/01/07 - 06/30/07; Prairie Island Nuclear Generating Plant, Units 1 and 2; Occupational Radiation Safety and Identification and Resolution of Problems.

This report covers a three-month period of baseline resident inspection and announced baseline inspection on radiation protection and emergency preparedness. In addition to the baseline inspections, this report also documents the results of a routine fuel storage inspection. The inspection was conducted by the resident inspectors, and regional emergency preparedness, radiation protection, and fuel storage facility inspectors. Two Green findings, one of which involved Non-Cited Violations (NVCs), were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). 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.

### **A. Inspector-Identified and Self-Revealed Findings**

#### **Cornerstone: Initiating Events**

Green. A finding of very low safety significance was self-revealed when a Unit 2 train A safeguards actuation and reactor trip occurred during the performance of the safeguards logic test at power. The actuation occurred because of a failure of the actuation relay to reset. The relay did not reset because of high electrical resistance across the relay contacts due to an oxide layer that accumulated through time. The oxide layer was due to a failure to perform periodic preventive maintenance on the reset contacts as recommended by the manufacturer and failure to periodically replace the relays as recommended by industry guidance. The licensee has entered this finding into the corrective action program. The immediate corrective actions were to replace the Unit 2 train A safeguards relays with new ones and to revise the logic test procedures to keep the relays in the test mode until the reset is verified. The procedure enhancement would not be required if the reset functioned as designed. Planned actions to prevent recurrence included replacement of all similar relays during the next refueling outage and implementation of a preventive maintenance optimization project.

This finding was greater than minor significance because it was associated with the Initiating Events cornerstone attribute of "Equipment Performance," and affected the cornerstone objective to limit those events which upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding was determined to be of very low safety significance because it did not contribute to the likelihood that mitigation equipment or functions would be unavailable. No violation of NRC requirements occurred. The cause for the finding affected the cross-cutting area of problem identification and resolution in the operating experience aspect because the licensee did not effectively use internally generated lessons learned and vendor recommendations to institutionalize changes to the station preventive maintenance process (P.2(b)). (Section 40A2.2)

## **Cornerstone: Occupational Radiation Safety**

Green. A finding of very low safety significance and two associated NCVs were identified by the inspectors. Specifically, the licensee failed to adequately implement radiation safety procedures concerning the control and response to airborne radiological conditions in containment during the Unit 2 refueling outage (U2R24). After airborne radiological conditions were identified, station personnel continued to access the Unit 2 containment on radiation work permits that did not allow work in a posted airborne radioactivity area. Additionally, once elevated airborne radiation conditions were detected, all personnel were not evacuated from the area as required by station procedures. The licensee entered the issue into the corrective action program. Licensee corrective actions for this issue included changes to outage planning and scheduling activities to minimize the likelihood of creating airborne conditions in containment and reinforcing the necessity for procedural compliance.

The finding was more than minor because it was associated with the Program/Process attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. The finding was determined to be of very low safety significance, using the significance determination process, because the finding did not involve As-Low-As-Reasonably-Achievable planning, collective dose as a factor, an overexposure, a substantial potential for a worker overexposure, and any level of compromise of the licensee's ability to assess worker dose. The cause of the finding is related to a cross-cutting aspect in the area of human performance in work practices. Specifically, the licensee did not effectively follow procedures and communicate expectations regarding procedural compliance and follow procedures (H.4(b)). (Section 2OS1.1)

### **B. Licensee-Identified Violations**

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and the corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 operated at or near full power throughout the inspection period except that power was reduced to about 63 percent on April 26, 2007, for condenser tube cleaning and maintenance on the 12 main feedwater pump. While returning to full power, the 12 feedwater pump was secured due to high vibration. Power was reduced to about 56 percent until May 11, 2007, when the unit was shut down to repair the 12 feedwater pump. The reactor was restarted and the generator placed online on May 19, 2007. Full power was achieved on May 21, 2007, and the unit operated at or near full power for the remainder of the inspection period.

Unit 2 operated at or near full power until April 6, 2007, when an automatic reactor trip occurred while performing a surveillance test of the train A safeguards logic system. The reactor was restarted and the generator placed online on April 7, 2007. The unit was brought to full power on April 10, 2007, and operated at or near full power for the remainder of the inspection period.

### **1. REACTOR SAFETY**

#### **Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 High Winds/Tornado

##### a. Inspection Scope

On April 2, 2007, the inspectors completed a detailed in-office review of the licensee's procedures and a physical walkdown of three risk-significant systems to assess the licensee's preparations for imminent adverse weather conditions that could result from nearby tornados or high wind conditions. This effort completed the imminent adverse weather inspection sample. The inspectors verified that required surveillance tests were scheduled, properly performed at the specified frequency, and that plant conditions specified in the surveillance procedure acceptance criteria were maintained. The inspectors conducted a walkdown of the following systems that were required to be protected from adverse effects of high wind including wind-driven missiles:

- plant switchyard and substation;
- cooling tower substation system including transformers CT-11 and CT-12; and
- auxiliary and standby transformer system.

The inspectors performed a detailed review of the tornado and high winds hazard procedures to verify that appropriate information was exchanged between plant operators and the transmission system operator when issues arise that could impact the offsite power system. The inspectors also reviewed the Updated Safety Analysis Report (USAR), design basis documents for the Unit 1 and Unit 2 switchyard, and the Prairie Island Individual Plant Examination of External Events (IPEEE). The inspectors also reviewed the corrective action program action requests (CAPs) to verify that the

licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The documents listed in the Attachment were utilized to evaluate the potential for an inspection finding.

b. Findings

No findings of significance were identified.

.2 Hot Weather Preparations

a. Inspection Scope

On April 18 through 23, 2007, the inspectors performed an in-office review of the summer plant operation program, the USAR, applicable Technical Specifications (TS), and the Prairie Island IPEEE. The inspectors performed in-plant walkdowns of selected systems and verified that the as-found conditions of those systems were consistent with the description provided in system alignment procedures and checklists. The inspectors verified that the material conditions and system configurations supported the systems' availability and operability under adverse hot weather conditions; and that additional cooling equipment, where specified in the summer plant operation procedure, were available and operable.

The inspectors performed in-plant walkdowns of the following risk-significant mitigating system support systems completing the required hot weather preparation inspection sample:

- diesel generator D1 and D2 ventilation system;
- diesel generator D5 and D6 ventilation system; and
- safeguard greenhouse equipment cooling.

The inspectors verified that a common understanding existed between plant and the transmission system operators associated with potential detrimental effect that hot weather conditions combined with high demands for electrical power can have on the stability and reliability of the offsite alternating current power sources. The inspectors discussed with plant operators the communication protocols used to promptly communicate such conditions.

The inspectors also reviewed the CAPs, listed in the Attachment, to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment - Partial Walkdowns (71111.04)

a. Inspection Scope

The inspectors performed three partial system equipment alignment inspection samples comprised of in-plant walkdowns of accessible portions of trains of risk-significant equipment associated with the mitigating systems and barrier integrity cornerstones. The inspectors conducted the inspections during times when the trains were of increased importance due to the redundant trains or other related equipment being unavailable. The inspectors also reviewed documents entering deficient conditions associated with equipment alignment issues into the corrective action program to verify that the licensee was identifying issues at an appropriate threshold and entering those issues into their corrective action program in accordance with the corrective action procedures.

The inspectors utilized the valve and electric breaker checklists, where applicable, to verify that the components were properly positioned and that support systems were lined up as needed. The inspectors also examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious performance deficiencies. The inspectors reviewed outstanding work requests, work orders (WOs), and CAPs associated with the operable trains to verify that those documents did not reveal issues that could affect the completion of the available train's safety functions. The inspectors used the information in the appropriate sections of the USAR to determine the functional requirements of the systems.

The inspectors verified the alignment of the following trains:

- D5 diesel generator during the unavailability of D6 diesel generator for planned maintenance on April 9, 2007;
- MV-32189 valve, Unit 2 emergency boration to charging pump suction, clearance restoration on April 12, 2007; and
- 12 diesel-driven cooling pump during the unavailability of the 22 diesel-driven cooling water pump for planned maintenance with the 121 motor-driven cooling water pump operating in a non-safety-related configuration on June 12, 2007.

The documents listed in the Attachment were utilized to evaluate the potential for an inspection finding.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Protection Area Walkdowns

a. Inspection Scope

The inspectors conducted in-office and in-plant reviews of portions of the licensee's Fire Hazards Analysis and Fire Strategies to verify consistency between these documents and the as-found configuration of the installed fire protection equipment and features in the fire protection areas listed below. The inspectors selected fire areas for inspection based on their overall contribution to internal fire risk as documented in the IPEEE, their potential to impact equipment that could initiate a plant transient, or their impact on the plant's ability to respond to a security event. The inspectors assessed the control of transient combustibles and ignition sources, the material and operational condition of fire protection systems and equipment, and the status of fire barriers. In addition, the inspectors reviewed CAPs associated with fire protection issues to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with corrective action procedures. The documents listed in the Attachment were utilized to evaluate the potential for an inspection finding.

The following nine fire areas were inspected by in-plant walkdowns supporting the completion of nine fire protection zone walkdown samples:

- Fire Area 18, Relay and Cable Spreading Room, on April 10, 2007;
- Fire Area 20, Bus 15 Switchgear Room, on April 10, 2007;
- Fire Area 81, Bus 16 Switchgear Room, on April 10, 2007;
- Fire Area 104, D6 Diesel Generator Control Room, on April 11, 2007;
- Fire Area 118, Bus 26 Room, on April 11, 2007;
- Fire Area 102, D6 Diesel Generator Room, on April 11, 2007;
- Fire Area 103, D5 Diesel Generator Control Room, on April 12, 2007;
- Fire Area 101, D5 Diesel Generator Room, on April 12, 2007; and
- Fire Area 117, Bus 25 Room, on April 12, 2007.

b. Findings

No findings of significance were identified.

.2 Annual Fire Drill Observation

a. Inspection Scope

On May 4, 2007, inspectors observed a fire brigade drill. An electrical fire was simulated in the neutralizing tank house. The inspectors observed the fire brigade's response at the scene of the simulated fire, which completed the required annual fire drill observation sample.

The inspectors verified that the fire brigade donned the appropriate turnout gear and self-contained breathing apparatus, that plant personnel adequately controlled access to

the affected area, that the fire brigade made a controlled approach to the fire, that the fire brigade responded with sufficient equipment of the appropriate type to extinguish the fire, that communications between the fire brigade and fire brigade leader were clear and concise, and that fire brigade members checked for victims and for fire propagation into other plant areas. The inspectors verified that the licensee was identifying fire protection issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The documents listed in the Attachment were utilized to evaluate the potential for an inspection finding.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On April 24, 2007, the inspectors performed an in-plant walkdown of the Unit 1 and 2 safety-related cooling water pump, containment spray pump, and auxiliary feedwater pump rooms which completed one internal flood protection inspection sample. These areas of Unit 1 and 2 contain safety-related and risk-significant equipment including both safety-related trains of cooling water pumps, the Unit 1 and 2 safety-related containment spray pumps, flood seals for piping penetrations between the containment spray and residual heat removal (RHR) pump rooms, and auxiliary feedwater pump room drainage paths. The inspectors reviewed the applicable sections of the USAR, Individual Plant Examination, and plant procedures associated with internal flooding for each pump room and adjacent areas. The inspectors verified by in-plant inspection that the licensee maintained the material condition of piping systems in these areas. The inspectors also verified that drain paths from these areas had been maintained and that there was no accumulation of loose materials that could plug drain paths.

The inspectors reviewed a CAP to verify that problems associated with plant equipment relied upon to prevent or minimize flooding were identified at an appropriate threshold, and that corrective actions commensurate with the significance of the issue were identified and implemented. The documents reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On April 16, 2007, the inspectors performed a quarterly review of licensed operator requalification training in the simulator, which completed one licensed operator requalification inspection sample. The inspectors observed a crew during an evaluated exercise in the plant's simulator facility. The inspectors

compared crew performance to licensee management expectations. The inspectors verified that the crew completed all of the critical tasks for each exercise scenario. For any weaknesses identified, the inspectors observed that the licensee evaluators noted the weaknesses and discussed them in the critique at the end of the session.

The inspectors assessed the licensee's effectiveness in evaluating the requalification program to ensure that licensed individuals would operate the facility safely and within the conditions of their licenses, and licensed operator mastery of high-risk operator actions were properly evaluated. The inspection activities included, but were not limited to, a review of high-risk activities, emergency plan performance, incorporation of lessons learned, clarity and formality of communications, task prioritization, timeliness of actions, alarm response actions, control board operations, procedural adequacy and implementation, supervisory oversight, group dynamics, interpretations of TS, simulator fidelity, and licensee critique of performance. The inspectors also reviewed the CAPs, listed in the Attachment, to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed repetitive maintenance activities to assess maintenance effectiveness, including Maintenance Rule (10 CFR 50.65) activities, work practices, and common cause issues. The inspectors performed three issue/problem-oriented maintenance effectiveness samples under the mitigating systems and barrier integrity cornerstones. The inspectors assessed the licensee's maintenance effectiveness associated with problems on the following systems:

- pressurizer power operated relief valve repeat failures;
- 22 RHR pump unavailability due to repetitive mechanical seal leakage; and
- 12 safety injection (SI) pump breaker failure.

The inspectors conducted in-office reviews of the licensee's maintenance rule evaluations of equipment failures for maintenance preventable functional failures and equipment unavailability time calculations, comparing the licensee's evaluation conclusions to applicable Maintenance Rule (a)(1) performance criteria. Additionally, the inspectors reviewed scoping, goal-setting (where applicable), performance monitoring, short-term and long-term corrective actions, functional failure definitions, and current equipment performance status.

The inspectors reviewed CAPs for significant equipment failures associated with risk-significant and safety-related mitigating equipment to ensure that those failures were properly identified, classified, and corrected. The inspectors reviewed other CAPs to assess the licensee's problem identification threshold for degraded conditions, the appropriateness of specified corrective actions, and that the timeliness of the implementation of corrective actions were commensurate with the safety significance of the identified issues. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors conducted in-plant walkdowns and in-office reviews of risk assessments for four planned maintenance activities and two maintenance activities that involved emergent equipment failures with the following combinations of equipment unavailability, which completed six risk assessment and emergent work control inspection samples:

- planned unavailability of the Red Rock 2 transmission line, 22 main feedwater pump, and train A safety injection actuation relays on April 6, 2007;
- emergent failure of three trains of water treatment with Unit 1 in Mode 2 and condensate storage tanks approaching the minimum level for operability on May 17, 2007;
- planned unavailability of the 12 condensate pump, the 11 charging pump, the 123 instrument air compressor, and switchyard breaker 8H13 on May 23, 2007;
- emergent unavailability of diesel generator D5 with the planned unavailability of the 11 charging pump, the 21 charging pump, and the 12 condensate pump on May 29, 2007;
- planned unavailability of the 12 condensate pump, the 124 station air compressor, and the 22 diesel-driven cooling water pump along with the emergent condition of the transmission system in an Orange condition on June 12, 2007; and
- planned unavailability of the 12 condensate pump, the 11 reactor make-up pump, the 12 diesel-driven cooling water pump, the 121 instrument air compressor, and maintenance on switchyard breakers 8H9 and 8H19 on June 19, 2007.

The inspectors also reviewed the CAPs, listed in the Attachment, to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the technical adequacy of five operability evaluations, which completed five operability evaluation inspection samples. The inspectors conducted these inspections by in-office review of associated documents and in-plant walkdowns of affected areas and plant equipment.

The inspectors compared degraded or nonconforming conditions of risk-significant structures, systems, or components, associated with barrier integrity and mitigating systems, against the functional requirements described in the TS, USAR, and other design basis documents; determined whether compensatory measures, if needed, were implemented; and determined whether the licensee's completed evaluations were consistent with the requirements of Administrative Work Instruction 5AWI 3.15.5, "Operability Determinations." The following operability evaluations were reviewed by inspectors:

- prompt operability determination for CAP 01086608 associated with the Unit 2 turbine trip on April 8, 2007;
- prompt operability determination contained in CAP 01089285 for operability of the 11 turbine-driven auxiliary feedwater pump with high bearing temperatures on April 26, 2007;
- Operability Recommendation OPR 01087705 that documented the operability of the 122 safeguards traveling screen with the differential pressure switch reading less than zero on April 30, 2007;
- prompt operability determination for CAP 01092817 associated with extended operation at reduced power and loss of coolant accident blowdown loads on May 16, 2007; and
- prompt operability determination contained in CAP 01092845 for operability of the 11 and 12 component cooling heat exchangers with scaffold constructed between them without an engineering evaluation on May 17, 2007.

The inspectors also reviewed the CAPs, listed in the Attachment, to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

## 1R19 Post-Maintenance Testing (71111.19)

### a. Inspection Scope

The inspectors assessed post-maintenance tests completing five post-maintenance test inspection samples. The inspectors selected post-maintenance tests associated with important mitigating, initiating events, and barrier integrity systems to ensure that the testing was performed adequately, demonstrated that the maintenance was successful, and that operability of associated equipment and/or systems was restored. The inspectors conducted these inspections by in-office review of documents, in-plant walkdowns of associated plant equipment, and interviews with responsible personnel. The inspectors observed and assessed the post-maintenance testing activities for the following maintenance activities:

- 12 SI pump breaker 16-7 replacement on April 4, 2007;
- 2SIA-A1 and 2SIA-A2, Unit 2 safeguards logic train A MG-6 relays replacement on April 7, 2007;
- D6 diesel generator coupling replacement on April 12, 2007;
- D5 diesel generator fuel rack position indicator replacement on June 13, 2007; and
- 111E-6 circuit breaker, 121 instrument air compressor following corrective maintenance on June 21, 2007.

The inspectors reviewed the appropriate sections of the TS, USAR, and maintenance documents to determine the systems' safety functions and the scope of the maintenance. The inspectors also reviewed CAPs to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with the licensee's corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

### b. Findings

No findings of significance were identified.

## 1R20 Refueling and Other Outage Activities (71111.20)

### .1 Unit 2 Forced Outage Due to Reactor Trip During Surveillance Testing

#### a. Inspection Scope

On April 5, 2007, the inspectors responded to the control room following a public address system announcement of a reactor trip with safety injection on Unit 2. The inspectors monitored operator actions until Mode 3 (Hot Standby) conditions were established on the unit. This inspection activity represented one outage inspection sample. The licensee implemented troubleshooting of the safeguards logic train A with the subsequent replacement of MG-6 relays, 2SIA-A1 and 2SIA-A2, on April 7, 2007. The reactor was restarted and the generator placed online on April 7, 2007. The unit achieved full power on April 10, 2007.

This inspection consisted of an in-office review of the licensee's outage schedule and procedures governing the outage. Specifically, the inspectors assessed whether the licensee planned to effectively manage elements of risk pertaining to reactivity control, inventory control, electrical power availability, and containment integrity. The inspectors also reviewed the CAPs to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

The inspectors conducted in-plant observations of the following outage activities:

- attended outage management turnover meetings to verify that the current shutdown risk status was accurate, well understood, and adequately communicated;
- performed walkdowns of the main control room to observe the alignment of systems important to risk; and
- performed walkdowns to observe ongoing work activities and foreign material exclusion control; and
- observed portions of the plant startup and power ascension.

b. Findings

No findings of significance were identified.

.2 12 Feedwater Pump Maintenance Outage

a. Inspection Scope

The inspectors observed the licensee's performance during a planned Unit 1 maintenance outage (1F2401HS) conducted from May 10, 2007, through May 19, 2007, to repair the 12 main feedwater pump. This inspection activity represented one outage inspection sample.

This inspection consisted of an in-office review of the licensee's outage schedule and procedures governing the outage. Specifically, the inspectors assessed whether the licensee planned to effectively manage elements of risk pertaining to reactivity control, inventory control, electrical power availability, and containment integrity. The inspectors also reviewed the CAPs to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

The inspectors conducted in-plant observations of the following outage activities:

- attended outage management turnover meetings to verify that the current shutdown risk status was accurate, well understood, and adequately communicated;
- performed walkdowns of the main control room to observe the alignment of systems important to risk;

- performed walkdowns to observe ongoing work activities and foreign material exclusion control; and
- observed portions of the plant startup and power ascension.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

During this inspection period, the inspectors completed six surveillance inspection samples. Observation of surveillance procedures (SP) 2088, SP 2102, and the American Society of Mechanical Engineers (ASME) Comprehensive Cooling Water Test contained elements that fulfilled ASME testing requirements for pumps and/or valves and fulfills the quarterly inspection procedure (IP) requirement to observe inservice testing (IST) of a risk-significant pump or valve. The observation of SP 2001AA completed the requirement to observe a reactor coolant system (RCS) leakage calculation. The observation of a reactor coolant activity sample and analysis was performed by a Region III radiation protection inspector fulfilling the requirement contained in IP 71151, Performance Indicator Verification, Section 03.01, Paragraph 6, but was not counted as a surveillance inspection sample.

The inspectors selected the following surveillance testing activities as samples:

- SP 1322, Electrical Equipment Verification, as performed on March 21, March 28, and April 3, 2007 (IST);
- SP 2088, Train A Safety Injection Quarterly Test, on April 16, 2007;
- SP 1032B, Safeguards Logic Test At Power - Train B, on April 19, 2007;
- 12, 22, and 121 Cooling Water Pump ASME Comprehensive Test, on May 2 through May 4, 2007 (IST);
- SP 2102, 22 Turbine-Driven Auxiliary Feedwater Pump Monthly Test, on May 8, 2007 (IST); and
- SP 2001AA, Reactor Coolant System Leakage Test, on May 10, 2007 (RCS leakrate).

During completion of the inspection samples, the inspectors observed in-plant activities and reviewed procedures and associated records to verify, when applicable, that:

- preconditioning did not occur;
- effects of the testing had been adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- plant equipment calibration was correct, accurate, properly documented, and the calibration frequency was in accordance with TS, USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;

- test equipment was used within the required range and accuracy;
- prerequisites described in the test procedures were satisfied;
- test frequency met TS requirements to demonstrate operability and reliability;
- tests were performed in accordance with the test procedures and other applicable procedures;
- jumpers and lifted leads were controlled and restored where used;
- test data/results were accurate, complete, and valid;
- test equipment was removed after testing;
- inservice testing was performed in accordance with the applicable version of ASME Code, Section XI, and reference values were consistent with the system design basis;
- test results, where applicable, not meeting acceptance criteria were addressed with an adequate operability evaluation or declared inoperable;
- safety-related instrument control surveillance tests, where applicable, reference setting data have been accurately incorporated in the test procedure;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- problems identified during the testing were appropriately documented in the corrective action program.

The inspectors also reviewed CAPs, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

On April 3, 2007, during the performance of SP 1322, "Safeguards Busses Weekly Inspection - Operating," Revision 20, operators identified that the closing springs were discharged on Breaker 16-7. Breaker 16-7 is the 4.16 kilovolt (KV) alternating current breaker for the 12 SI pump, a safety-related and risk-significant mitigating system component. Operators declared the 12 SI pump inoperable and entered TS Limiting Condition for Operation (LCO) 3.5.2, Condition A, at 7:29 p.m. Operators verified that breaker control power was available and the breaker was racked into bus 16 with auxiliary contacts properly engaged. Based on the actions taken by the operators, the problem was suspected to be internal to the breaker; therefore, the licensee replaced Breaker 16-7 with a spare breaker. Operators demonstrated operability of the 12 SI pump, and exited LCO 3.5.2, Condition A, at 4:01 a.m. on April 4, 2007. The licensee entered the deficient condition into the corrective action program with CAP 01085806.

Electrical maintenance personnel performed failure analysis of Breaker 16-7 under WO 323973. During initial bench testing, Breaker 16-7 operated sporadically. Electrical maintenance personnel measured the resistance of the closing spring charging motor and observed that resistance varied from several ohms to seven mega-ohms. On closer inspection of the closing spring charging motor, electrical maintenance personnel observed that one of the motor brushes demonstrated excessive wear. Signs of arcing and charring were also observed between the brush and commutator.

The inspectors reviewed the licensee's historical operability evaluation CAP 01085806, Action 07, with respect to determining when the failure occurred. The licensee concluded that the closing springs failed to charge the last time the breaker was closed. The operating logs indicated the 12 SI pump breaker was last closed on March 15, 2007, when the 12 SI pump was run for a routine surveillance test. The inspectors reviewed the breaker operating sequence in the technical manual and compared the sequence described to the logic used by the licensee in the determination of the time of failure. The inspectors found that the licensee's conclusion was supported by the technical manual. Based on the evaluation of historical operability, the 12 SI pump would not have been available if required from March 15 through April 4, 2007.

The inspectors reviewed all operating log records associated with the 12 SI pump from March 15 to April 3, 2007, noting that SP 1322 had been performed by operators on two previous occasions (March 20 and March 27, 2007) prior to the discovery on April 3, 2007, of the discharged closing spring on Breaker 16-7. Step 11.2.10 of SP 1322 directed the performer of the procedure to verify that the closing springs were charged for all bus 16 breakers that were in service. The inspector reviewed CAP 01085806, Action 10, that reviewed operator performance. Based on interviews of the operators that performed SP 1322 on March 20 and March 27, 2007, both operators accurately described what was thought to be the proper method to verify the charged status of the closing springs. A more detailed review of the operator actions is being evaluated as part of the root cause evaluation which is not yet complete.

The root cause evaluation team evaluated the possibility that the closing spring was partially charged following operation of the 12 SI pump March 15, 2007. The potential exist that the operators performing the 12 SI pump breaker checks on March 20 and on March 27, 2007, observed the yellow coloring on the tags on the closing spring guides when viewed through the shutter door opening in the breaker door. Per SP 1322, the ability to see yellow on the tags on the closing spring guides would indicate the spring was in the charged state.

The inspectors observed an operator check the state of the charge of a closing spring on a similar breaker and compared the observed action to the direction provided in Step 11.2.10 of SP 1322. The inspectors noted that operators could possibly conclude that the closing spring was charged when it was actually still in the discharged state. This observation was discussed with the shift manager and additional investigation was initiated by the licensee for this aspect of the issue. The licensee concluded that knowledge and methodology differences existed among operators performing checks of 4.16 KV closing spring breakers. The licensee entered this condition into their corrective action program with CAP 01098025 on June 20, 2007.

This issue is considered an Unresolved Item (URI) 05000282/2007003-01 pending completion of the licensee's root cause evaluation. The inspectors' subsequent review of the evaluation will determine whether the 12 SI pump motor circuit breaker would have closed with the partially charged closing spring, and the adequacy of the procedure for performing the 4.16 KV closing spring surveillance.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors conducted in-plant observations of changes to the equipment that were accessible and an in-office review of documentation associated with one temporary modification. This constituted one temporary modification inspection sample. The inspectors reviewed Temporary Modification Engineering Change (EC) 8315, which was implemented to replace damaged intermediate range nuclear instrument, 1N36, high-voltage and compensating voltage cables with existing spare cables.

The inspection activities included a review of design documents, safety screening documents, and the USAR to determine whether the temporary modification was consistent with modification documents, drawings, and procedures. The inspectors also reviewed the post-installation test results to confirm that tests were satisfactory. The inspectors also verified that there was no actual adverse impact from the temporary modification on the permanent system or interfacing systems. Additionally, the inspectors reviewed the corrective action documentation associated with an identified problem with the air supply to the power operated relief valves to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action. The key documents reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP2 Alert and Notification System (ANS) Evaluation (71114.02)

a. Inspection Scope

The inspectors discussed with emergency preparedness (EP) staff the operation, maintenance, and periodic testing of the ANS in the Prairie Island Nuclear Generating Plant's (PING) plume pathway Emergency Planning Zone to determine whether the ANS equipment was adequately maintained and tested in accordance with emergency plan commitments and procedures. The inspectors reviewed the June 2005 through February 2007 monthly trend reports and siren test failures, as well as the October 2005 through October 2006 maintenance checklists.

These activities completed one inspection sample. The inspectors also reviewed the CAPs, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed and discussed with plant EP staff the emergency plan commitments and procedures that addressed the primary and alternate methods of initiating an ERO activation to augment the on-shift ERO as well as the provisions for maintaining the plant's ERO call-out roster. The inspectors also reviewed reports and a sample of corrective action program records of unannounced off-hour augmentation tests, which were conducted March 15, 2005, through January 17, 2007, to determine the adequacy of the drills' critiques and associated corrective actions. The inspectors also reviewed the EP training records of a sample of approximately 16 Prairie Island ERO personnel, who were assigned to key and support positions, to determine whether they were currently trained for their assigned ERO positions.

These activities completed one inspection sample. The inspectors also reviewed CAPs, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed a sample of Nuclear Oversight staff's 2006 and 2007 audits of the PINGP emergency preparedness program to verify that these independent assessments met the requirements of 10 CFR 50.54(t). The inspectors also reviewed critique reports and samples of corrective action program records associated with the 2006 biennial exercise, as well as various EP drills conducted in 2005, in order to verify that the licensee fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities. Additionally, the inspectors reviewed a sample of EP items, corrective action program, and corrective actions related to the facility's EP program and activities to determine whether corrective actions were acceptably completed.

These activities completed one inspection sample. The documents reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed a licensed shift operating crew perform an exercise on the simulator on April 16, 2007, which completed one emergency planning simulator exercise sample. The inspectors observed activities in the control room simulator that include event classification and notification as well as the post-exercise critique. The inspectors evaluated the drill performance and verified that licensee evaluators' observations were consistent with those of the inspectors, and that deficiencies were entered into the corrective action program. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Radiation Work Permit Reviews

a. Inspection Scope

The inspectors reviewed selected plant documents, including radiation work permits (RWPs), radiological surveys, radiation protection implementing procedures (RPIPs), and work control instructions that control access to radiologically significant areas of the plant, including airborne radioactivity areas. Additionally, selected condition reports and management evaluations of station radiological issues were reviewed. These reviews were conducted to determine if the established controls and requirements provided adequate worker protection, and minimized worker exposure to the identified radiological conditions in plant work areas. The inspectors' review included, but was not limited to:

- RWP 00000143; Radiation Area 10-50 millirem (mRem)/Class 2;
- RWP 00000179; Group 1 High Radiation Area 250-500 mRem/Class 2;
- RWP 00000571; Steam Generation Preparation and Closure, Includes Tent Set-Up and Removal, Decontamination; and
- RWP 00000640; High Radiation Area (HRA), High Contamination Area Labor/Decontamination Work.

This review represented one sample. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

Introduction: An NRC-identified Green finding and two associated NCVs were identified for the failure to adequately implement radiation safety procedures concerning the control and response to airborne radiological conditions in Unit 2 containment during the fall 2006 refueling outage (U2R24).

Description: On November 18, 2006, Unit 2 containment was initially posted as an airborne radioactivity area. A review of WOs, security logs, RWPs, and radiological surveys during this time frame identified that some workers were permitted to continue working in the Unit 2 containment without signing on RWPs that authorized work in an airborne radioactivity area.

Allowing workers to continue working in Unit 2 containment without being on RWPs that authorized work in an airborne radioactivity areas was contrary to the requirements of Nuclear Management Company (NMC) Fleet Procedure FP-RP-RWP-01, "Radiation Work Permit," Revision 5. Step 4.4 of that procedure required RWPs to define the controls used for work activities involving personnel exposure to ionizing radiation. The procedure stated that the RWP must be capable of informing the worker of the radiological conditions within an identified work area (or for a work task) and of providing radiological protection measures and controls to be used while performing work under the selected RWP/As-Low-As-Reasonably-Achievable (ALARA) Task. Additionally, Step 11 of procedure FP-RP-RWP-01 stated that if the RWP allowed entry into a posted airborne radioactivity area, the following were specified in the RWP:

- the RWP title reflected that the RWP allows entry in an airborne radioactivity area;
- the radiological hazards section identified a potential, actual, or limiting concentration; and
- the radiation protection (RP) requirements section identified respiratory protection requirements, as applicable, and timekeeping requirements.

Therefore, the inspectors concluded that some workers were performing work under RWPs which did not authorize work in an airborne radioactivity area, in violation of NMC Fleet Procedure FP-RP-RWP-01, "Radiation Work Permit."

On November 21, 2006, during the Unit 2 refueling outage U2R24, the reactor head was lifted and placed on the reactor head stand. Prior to covering the cavity and flooding up, the particulate airborne radioactivity levels reached 0.43 derived air concentration (DAC); this condition necessitated stopping work in containment and evacuating workers. However, not all workers were evacuated from the Unit 2 containment. An RP log entry at 8:46 a.m. noted that RP management was not restricting access to Unit 2 containment. Instead, a backup air sample was obtained on the 735-foot elevation to confirm the initial airborne results.

The inspectors found that some aspects of the site's response to containment airborne event were not in compliance with Procedure RPIP 1204, "Evaluation of Airborne Radioactivity." This procedure stated, in part, that if the breathing air DAC ratio equaled or exceeds 0.3 (excluding noble gases) then immediately place work in a safe condition and secure all work in the affected areas and that work shall not commence without prior management approval. The licensee evacuated personnel not associated with steam generator eddy current work at 9:37 a.m., from the Unit 2 containment, due to the increase in airborne radioactivity. According to the outage control center, access to Unit 2 containment had been restricted to operations supporting reactor cavity flood up and steam generator eddy current work activities. While a confirmatory measurement was being obtained, the steam generator crew was informed to continue working because the work was critical path. The crew continued to work until they received direction to exit Unit 2 containment at 10:00 a.m. on November 21, 2006.

Analysis: The inspectors determined that the licensee's control and response to airborne radiological conditions in containment during the last Unit 2 outage (U2R24) was inadequate, which represented a performance deficiency warranting a significance evaluation in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued November 2, 2006. The issue was more than minor because it was associated with the Program/Process attribute of the Occupational Radiation Safety cornerstone and potentially affected the cornerstone objective to ensure worker health and safety from exposure to radiation. The finding did not involve the application of traditional enforcement, because it did not result in actual safety consequences or the potential to impact the NRC's regulatory function, and was not the result of willful actions. The finding was evaluated using the Significance Determination Process (SDP), in accordance with IMC 0609, Appendix C, for the Occupational Radiation Safety cornerstone. The finding was determined to be of very low safety significance because the finding did not involve As-Low-As-Reasonably-Achievable planning, collective dose as a factor, an overexposure, a substantial potential for a worker overexposure, and any level of compromise of the licensee's ability to assess worker dose.

The inspectors determined that there was a cross-cutting aspect, work practice, associated with this finding in the area of human performance. Specifically, the licensee did not effectively follow procedures and communicate expectations regarding procedural compliance and follow procedure (H.4(b)). Licensee corrective actions included changes to outage planning and scheduling activities to minimize the likelihood of creating airborne conditions in containment.

Enforcement: Technical Specification 5.4.1.a. requires the licensee to establish, implement, and maintain procedures recommended by Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Procedures specified in Regulatory Guide 1.33 include RP procedures for access control to radiological areas and airborne radioactivity monitoring, which are provided in part by NMC Fleet Procedure FP-RP-RWP-01, "Radiation Work Permit," as well as station procedures RPIP 1204 "Evaluation of Airborne Radioactivity" and QF-1206, "Radiological Work Assessment Form." These procedures provide instruction and direction to station staff for accessing, controlling, evaluating, and responding to plant radiological conditions.

Contrary to the above, on November 18, 2006, station personnel entered and worked in posted and controlled airborne radiation areas under RWPs that did not allow access to airborne radiation areas. Specifically, the station failed to comply with fleet procedure FP-RP-RWP-01, "Radiation Work Permit," Step 5.11 that requires, in part, that when an RWP allows entry into a posted airborne radioactivity area then the RWP title will inform the worker and state that the RWP allows entry into an airborne radioactivity area and that the radiological hazards section include the potential, actual or limiting airborne radioactivity concentration. Since the finding is of very low safety significance and has been entered into the corrective action system (CAP 01083807), the associated violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000282/2007003-02; 05000306/2007003-02).

Technical Specification 5.4.1.a. requires the licensee to establish, implement, and maintain procedures recommended by Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Procedures specified in Regulatory Guide 1.33 include RP procedures for access control to radiological areas and airborne radioactivity monitoring. Section 1.4 of RPIP 1204, "Evaluation of Airborne Radioactivity," states that if the breathing air DAC ratio equals or exceeds 0.3, excluding noble gasses, then immediately place work in a safe condition, secure all work in the affected areas, and work shall not commence without prior management approval.

Contrary to the above, on November 21, 2006, the particulate airborne radioactivity levels in Unit 2 containment reached 0.43 DAC and not all workers were evacuated from Unit 2 containment as required. Since the finding is of very low safety significance and has been entered into the corrective action system (CAP 01083809), the associated violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000282/2007003-03; 05000306/2007003-03).

.2 High Risk Significant, High Dose Rate High Radiation Area, and Very High Radiation Area Controls

a. Inspection Scope

The inspectors reviewed aspects of the licensee's activities for high risk, high dose rate, HRAs, and for very high radiation areas (VHRAs) to determine if workers were adequately protected from radiological overexposure. Selected procedures, surveys, condition reports and related licensee documentation were reviewed, including administrative and procedural changes. The inspectors completed these reviews to verify that the licensee's program and its implementation met the requirements of 10 CFR 20.1601 and 20.1602 and were consistent with NRC guidance.

The inspectors also reviewed CAP items, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

The activities described above were not credited as biennial samples because the samples were previously credited in Inspection Report 05000282/2007002; 05000306/2007002.

b. Findings

No findings of significance were identified. However, the inspectors evaluated an issue concerning the licensee's failure to maintain sufficient control over keys to posted VHRAs (i.e., the C-sump) during both the last Unit 1 (U1R24) and Unit 2 (U2R24) refueling outages; the licensee is potentially in violation of 10 CFR 20.1602 requirements. The requirements contained in 10 CFR 20.1602 for control of access to VHRAs requires, in part, that in addition to the requirements for 10 CFR 20.1601 (control of access to high radiation areas), the licensee shall institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access to VHRAs.

The licensee's specific procedures instituted the additional controls necessary to ensure compliance with the requirements of 10 CFR 20.1602. These procedures included the requirements that the C-sump always be treated as a VHRA and that the VHRA keys be controlled by the shift supervisor and not be issued to anyone without the permission of the plant manager or his designee.

The inspector's preliminary review of this issue determined that during the 2006 refueling outages (U1R24 and U2R24), the C-sump VHRA keys may have been signed out by RP supervision over multiple shifts. Subsequently, RP supervision transferred possession of the keys to containment radiation protection technician (RPT) Leads, who then transferred possession of the VHRA keys from RPT Lead to RPT Lead over a period of multiple shifts. The inspectors also noted that non-conservative control of VHRA keys had been previously identified in the licensee's corrective action program, after the spring 2006 (U1R24) refueling outage and prior to beginning the fall 2006 (U2R24) refueling outage (CAP 01029886, dated May 2006).

The licensee was in the process of reviewing its practices for issuance of VHRA keys and was evaluating the specific circumstances surrounding the control of C-sump keys during the two refueling outages in 2006. As a result, the licensee planned to provide the NRC with additional information to demonstrate compliance with 10 CFR 20.1602. The NRC will review the licensee's assessment when it is completed. Therefore, this issue remains under review by the NRC and is categorized as URI 05000282/2007003-04; 05000306/2007003-04).

## Cornerstone: Public Radiation Safety

### 2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs (71122.03)

#### .1 Reviews of Radiological Environmental Monitoring Reports, Data, and Quality Control

##### a. Inspection Scope

The inspectors reviewed the Annual Radiological Environmental Monitoring Program (REMP) Reports, including the results of the routine land use census for calendar years 2005 and 2006. The inspectors reviewed changes made to the Offsite Dose Calculation Manual (ODCM) in 2005 and 2006 relative to the REMP. The inspectors also examined the results of the vendor laboratory quality assurance programs, including intra-laboratory and inter-laboratory comparisons. The inspectors assessed REMP implementation, as documented in the respective REMP reports, against requirements of the TSs and the ODCM, and evaluated changes to the program to determine whether there was any potential effect on the capability to monitor the impacts of radioactive effluents on the environment. Additionally, the inspectors evaluated the current locations of the environmental monitoring stations and the types of samples collected from each location to determine if they were consistent with the ODCM and with NRC guidance in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light Water Cooled Nuclear Power Plants," Regulatory Guide 4.8, "Environmental TSs for Nuclear Power Plants," and an associated NRC Branch Technical Position.

These reviews represented three inspection samples. The inspectors also reviewed the CAP items, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

##### b. Findings

No findings of significance were identified.

#### .2 Examination of the Radiological Environmental Monitoring Stations and Meteorological Towers

##### a. Inspection Scope

The inspectors walked down selected onsite environmental air sample monitoring stations and examined each station's location as described in the ODCM to assess equipment material condition and operability. The inspectors also verified that monitoring station orientation relative to plant effluent release points, equipment configuration, and vegetation growth control and that the orientation allowed for the collection of representative samples. The inspectors examined the locations of selected

onsite and near site thermoluminescent dosimeters (TLDs), which read radiation levels directly, to verify they were installed as described in the ODCM. In addition, the inspectors examined drinking water sampling stations to evaluate the suitability of each in complying with the ODCM. The inspectors also examined equipment located at the primary and back-up meteorological towers, to verify that the towers were sited adequately and that instrumentation was installed consistent with applicable industry guidance. The inspectors examined meteorological data readouts and atmospheric stability information provided by the plant process computer to determine the equipment was operable. In addition, data recording capabilities were discussed with the licensee's environmental staff to verify that meteorological data was sampled and compiled consistent with the Regulatory Guide.

These reviews represented one inspection sample. The inspectors also reviewed the CAP items, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.3 Reviews of Radiological Environmental Monitoring Equipment Maintenance and Testing

a. Inspection Scope

The inspectors reviewed selected calibration and maintenance records for 2005 and 2006 which documented work on environmental air sampling pumps and meteorological tower equipment. This review encompassed calibration records for associated measurement and test equipment used for air sampling pump calibration to verify that the testing and maintenance programs for this equipment were implemented consistent with procedural requirements and industry standards. The inspectors discussed air sample pump maintenance practices with the licensee's environmental staff and reviewed overall data recovery success rates and the actions taken to address the minor equipment failures which were experienced.

These reviews represented one inspection sample. The inspectors also reviewed the CAP items, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.4 Reviews of REMP Sample Collection and Laboratory Analyses

a. Inspection Scope

The inspectors accompanied a REMP technician and observed sample collection and handling associated with the changing-out of air particulate filters and charcoal cartridges, milk collection, sample collection preparation and analysis of surface water, and observed the sampling practices at the municipal drinking water treatment facilities. The inspectors verified that the samples were collected in accordance with the applicable sampling procedure and determined whether appropriate practices were used to ensure sample integrity and chain-of-custody. The inspectors also observed the REMP technician perform pump sampling train leak checks to verify that they were accomplished consistent with the procedure and were adequate to ensure that no in-leakage paths existed which could impact sample representativeness.

The inspectors reviewed the results of the vendor's inter-laboratory comparison and internal cross-check programs, including cross-checks on radio-analyses of environmental media and readout of environmental TLDs. The inspectors also reviewed lower limit of detection values achieved by the vendor for various sample media. These reviews were performed to assess the analytical detection capabilities for radio-analyses of environmental samples and to determine whether the vendor had demonstrated capability to perform precise and accurate radiological measurements with the necessary sensitivity.

These reviews represented two inspection samples. The inspectors also reviewed the CAP items, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The documents reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings of significance were identified

.5 Identification and Resolution of Problems for the Radiological Environmental Monitoring and Radioactive Material Control Programs

a. Inspection Scope

The inspectors reviewed licensee corrective action documents generated between July 2005 and March 2007 that related to the REMP or to radioactive material control issues. The results of Performance Assurance department audits and REMP self-assessments were also reviewed, as were the results of a joint nuclear utility audit of the vendor laboratory. These reviews were conducted to determine if the licensee adequately assessed the effectiveness of its programs and whether the licensee, through its corrective action program, identified individual problems and trends, evaluated contributing causes and extent of condition, and developed corrective actions to achieve lasting results.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator (PI) Verification (71151)

**Cornerstones: Mitigating Systems and Barrier Integrity**

.1 Safety System Functional Failures and Reactor Coolant System Leakage PI Verification

a. Inspection Scope

The inspectors reviewed the licensee's submittals for performance indicators for Prairie Island Units 1 and 2, which completed four PI verification inspection samples. The inspectors used PI guidance and definitions contained in National Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 4, to verify the accuracy of the PI data. The inspectors' review included conditions and data from logs, condition reports, and calculations for each PI specified. The inspectors also reviewed the CAPs listed in the Attachment to this report to verify that the licensee was identifying issues at an appropriate threshold and entering them into their corrective action program in accordance with corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

The licensee's reporting of the following performance indicators were verified:

Unit 1

- Unit 1 Safety System Functional Failures for Second Quarter 2006 Through First Quarter 2007; and
- Unit 1 Reactor Coolant System Leakage for the Third Quarter 2006 Through First Quarter 2007.

Unit 2

- Unit 2 Safety System Functional Failures for Second Quarter 2006 Through First Quarter 2007; and
- Unit 2 Reactor Coolant System Leakage for the Third Quarter 2006 Through First Quarter 2007.

Reactor Coolant System Specific Activity

The inspectors reviewed Chemistry Department records including isotopic analyses for selected dates in 2006 through May 2007 to determine if the greatest dose equivalent

iodine values determined for Units 1 and 2 during steady state operations corresponded to the values reported to the NRC. The inspectors also reviewed selected dose equivalent iodine calculations including the application of dose conversion factors as specified in plant TSs. Additionally, the inspectors accompanied a chemistry technician and observed the collection and preparation of reactor coolant system samples to evaluate compliance with the licensee's sampling procedures. Further, sample analyses and calculation methods were discussed with chemistry staff to determine their adequacy relative to TSs, licensee procedures and industry guidelines.

### **Cornerstone: Occupational Radiation Safety**

#### **.1 Radiation Safety Strategic Area**

##### **a. Inspection Scope**

The Inspectors sampled the licensee's PI submittals for the periods listed below. The inspectors used PI definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 4, to verify the accuracy of the PI data. The following PI was reviewed:

- Occupational Exposure Control Effectiveness:

The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported during the previous four quarters. The inspectors compared the licensee's PI data with the condition report database, reviewed radiological restricted area exit electronic dosimetry transaction records and discussed data collection and analysis methods for PIs with licensee representatives.

This review represented one inspection sample. The inspectors also reviewed the CAP items, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

##### **b. Findings**

No findings of significance were identified.

During the review of the Occupational Exposure Control Effectiveness PI, the inspectors identified one unreported PI occurrence as defined in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 4, associated with the December 4, 2006 movement and transport of High Integrity Container No. 129 in the radioactive waste barrel yard. The occurrence was not reported by the licensee in its PI submission. The specific circumstances associated with this activity have been previously reviewed and documented in inspection report 05000282/2007002; 05000306/2007002.

Additionally, the issue concerning the licensee's potential failure to maintain sufficient control over keys to posted VHRAs in both the last Unit-1 (U1R24) and Unit-2 (U2R24) refueling outages remained under review by the licensee. The NRC will review the licensee's assessment and any additional information provided by the licensee to determine if these issues represented unreported PI occurrences. Consequently, the NRC will categorize the accuracy of the Occupational Exposure Control Effectiveness PI as an URI pending the inspectors' review of additional information from the licensee, (URI 05000282/2007003-05; 05000306/2007003-05).

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

.2 Emergency Preparedness Strategic Areas

a. Inspection Scope

The inspectors reviewed the licensee's records associated with the three EP performance indicators listed below, which completed three inspection samples. The inspectors verified that the licensee accurately reported these indicators in accordance with relevant procedures and Nuclear Energy Institute guidance endorsed by NRC. Specifically, the inspectors reviewed licensee records associated with PI data reported to the NRC for the period April 2006 through December 2006. Reviewed records included: procedural guidance on assessing opportunities for the three PIs; assessments of PI opportunities during predesignated control room simulator training sessions, the 2006 biennial exercise, and other drills; revisions of the roster of personnel assigned to key ERO positions; and results of periodic ANS operability tests. The following performance indicators were reviewed:

- ANS;
- ERO Drill Participation; and
- Drill and Exercise Performance.

The inspectors also reviewed CAP items, listed in the Attachment, to verify that the licensee was identifying at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

## 4OA2 Identification and Resolution of Problems (71152)

### .1 Routine Review of Identification and Resolution of Problems

#### a. Inspection Scope

As required by IP 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed screening of all items entered into the licensee's corrective action program. This was accomplished by reviewing the description of each new IR and attending selected daily management review committee meetings. Documents reviewed are listed in the Attachment to this report.

#### b. Findings

No findings of significance were identified.

### .2 Selected Issue Follow-Up

#### a. Inspection Scope

The inspectors selected the Unit 2 train A safeguards actuation and reactor trip event which occurred on April 5, 2007, for a more in-depth review in accordance with IP 71152. This effort completed one in-depth review of the Problem Identification and Resolution inspection sample to review the corrective action aspects associated with this event. The inspectors reviewed the root cause evaluation and corrective actions. The key documents reviewed by the inspectors associated with this inspection are listed in the Attachment to this report.

#### b. Findings and Observations

Introduction: A Green finding associated with the initiating events cornerstone was self-revealed when a Unit 2 train A safeguards actuation and reactor trip occurred during the performance of the safeguards logic test. The actuation occurred because deficient contacts on the reset relay presented energization of the reset relay. No violations of regulatory requirements were identified.

Description: On April 5, 2007, Unit 2 was operating at 100 percent power. During a surveillance test of the train A safeguards logic, a spurious train A safety injection actuation occurred, which resulted in actuation of the reactor protection system and a reactor trip. Operators responded in accordance with the emergency operating procedures and safety injection was terminated. All systems operated as expected and operator response and recovery actions were as expected.

Investigation of the cause of the safety injection and reactor trip determined that the contacts on the safety injection reset relays were deficient. High electrical resistance across the relay contacts prevented energization of the reset coil of the relay; as a result, the relay did not reset. The high electrical resistance was due to build up of an oxide layer over time.

Immediate corrective action, by the licensee, were to replace the Unit 2 train A safeguards relays with new ones and to revise the logic test procedures to keep the relays in the test mode until the reset was verified. Additional planned actions to prevent recurrence include replacement of all similar relays during the next refueling outage and implementation of a preventive maintenance optimization project.

The manufacturer's technical manual recommended periodically cleaning of all contacts. The root cause evaluation determined that the preventive maintenance discontinued on these relays in 1982. The maintenance rule program included this system at the condition monitoring level that was performed during monthly testing and inspection of the actuation function.

Similar failures of the relay's reset function occurred at the station, in April 2005 and twice in November 2006, and other industry sites. These previous failures were entered into the corrective action program and were classified as conditions adverse to quality. Corrective actions included cleaning the contacts or replacement of the relays.

Generic industry guidance from the Electric Power Research Institute was to replace the relays on a ten-year frequency. Twenty-nine of the thirty-two relays at the station have never been replaced and have been in service for approximately 32 years. However, the failure to incorporate operating experience was determined not to be a violation of 10 CFR 50.65(a)(3), because the reset function of the relay was not within the scope of the maintenance rule.

Analysis: The inspectors determined that the licensee's failure to perform preventive maintenance on the relay's reset contacts in the accordance with the manufacturer's technical manual and failure to perform periodic replacement of the relays in accordance with Electric Power Research Institute guidance was a performance deficiency warranting a significance evaluation in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on November 2, 2006. This finding was greater than minor significance because it was associated with the Initiating Events cornerstone attribute of "Equipment Performance," and affected the cornerstone objective to limit those events which upset plant stability and challenge critical safety functions during shutdown as well as power operations.

The inspectors evaluated the finding in accordance with IMC 0609, "Significance Determination Process," Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," issued on March 23, 2007. The finding was evaluated under the Initiating Events Column. Since the finding did not contribute to the likelihood that mitigation equipment or functions would be unavailable, the finding was determined to be of very low safety significance.

The finding also affected the cross-cutting aspect of operating experience in the area of problem identification and resolution because the licensee did not effectively use internally generated lessons learned and vendor recommendations to institutionalize changes to the station preventive maintenance process (P.2(b)).

Enforcement: The actuation function of the reset relays were tested and maintained in accordance with 10 CFR 50.65; therefore, no violation of regulatory requirements

occurred. The failures of the reset function were entered into the corrective action program. This issue was considered a finding (FIN) of very low safety significance (FIN 05000306/2007003-06). The licensee entered the event into the corrective action program as CAP 01086219.

Observation: Following recovery from the reactor trip, troubleshooting activities were performed on the relays. The troubleshooting included cycling the relays, measuring electrical resistance, and burnishing the relay contacts. These activities were conducted contrary to the requirements of the NMC Augmented Incident Evaluation Procedure, FP-PA-ARP-02, which directed that equipment which failed prior to or during the event be placed under a quarantine to preserve potential evidence. Although this is not a violation of NRC requirements, the failure to quarantine such failed equipment has been a recurring problem at the station.

.3 Semiannual Problem Identification and Resolution Trend Review

a. Inspection Scope

The inspectors performed a semiannual review of the licensee corrective action program to identify trends that could indicate the existence of a more significant safety issue as required by NRC IP 71152, "Identification and Resolution of Problems." This inspection effort completed the required semiannual trending inspection and one inspection sample. The effectiveness of the licensee corrective action program was assessed by comparing trends identified by the licensee with those issues identified by the NRC during the conduct of routine plant status and baseline inspections. Inspectors reviewed CAPs that were initiated from January 1, 2007, through June 1, 2007. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

The inspectors performed the inspection by in-office review of the licensee's corrective action program and other reports, including the following:

- trend reports;
- performance indicators;
- equipment problem lists;
- rework reports;
- system health reports;
- program health reports; and
- maintenance rule reports.

b. Findings and Observations

No findings of significance were identified. The inspectors observed potential adverse trends in a decline in the effectiveness of the corrective action program and an increase in human performance problems. These potential trends were also identified by the licensee in the corrective action program. The licensee analyzed these potential trends and developed improvement plans. The inspectors reviewed the analyses, improvement plans, and effectiveness of the corrective actions completed to date. The inspectors concluded that the analyses and improvement plans were appropriate.

#### 4OA3 Event Followup (71153)

##### .1 Reactor Trip Caused by Inadvertent Initiation of Safety Injection

###### a. Inspection Scope

On April 5, 2007, the inspectors responded to the control room following a public address system announcement of a reactor trip with safety injection. The inspectors observed operators implement Operations Manual Procedure 2E-0, "Reactor Trip or Safety Injection," Revision 24. Additionally, the inspectors evaluated the performance of plant mitigating and reactivity control systems, reviewed the licensee's emergency action level procedures, discussed event reportability with the licensee, collected plant process information including a listing of the sequence of events, and provided information associated with the event to Region III risk analysts and managers for evaluation per NRC Management Directive 8.3, "NRC Incident Program." Key documents and procedures used to evaluate the licensee's response to this event are listed in the Attachment to this report.

###### b. Findings

No findings of significance were identified.

##### .2 (Closed) Licensee Event Report (LER) 05000306/2007-001-00: Unit 2 Reactor Trip

On April 5, 2007, at approximately 9:08 a.m., Unit 2 tripped during surveillance testing of the Unit 2 train A safeguards logic. A spurious train A safety injection actuation occurred resulting in actuation of the reactor protection system and the reactor trip. The train was in "Test" at the time and should not have caused a reactor trip. Investigation revealed high contact resistance associated with a safety injection relay. The high resistance condition caused the relay not to reset when exiting the safeguards logic test. The licensee entered the event into the corrective action program as CAP 01086219, replaced two Westinghouse MG-6 reset relays, and conducted a root cause evaluation of the event.

The inspectors conducted a detailed review of the event in Sections 4OA2.2 and 4OA3.1.

This LER is considered closed.

#### 4OA5 Other Activities

##### .1 Operation of an Independent Spent Fuel Storage Installation (ISFSI) (60855.1)

###### a. Inspection Scope

The inspectors observed and evaluated portions of the loading and transfer activities associated with cask Number 24 to verify compliance with the Certificate of Compliance, the TS, the USAR, and the applicable 10 CFR Part 72 requirements. Specifically, the observed activities included insertion of the cask into the spent fuel pool, loading and

verification of fuel assemblies, installation of the lid, lifting the loaded cask out of the spent fuel pool, decontamination and surveying of the cask, performance of the cask dryness test and the helium leak test, installation of the neutron shield and the protective cover, and transport of the cask to the ISFSI pad. In addition, the inspectors reviewed the loading and unloading procedures and evaluated the licensee's adherence to procedures. During performance of the activities, the inspectors verified the staff's familiarity with procedures and the procedural steps, the presence of adequate supervisory oversight, and the use of adequate communication and coordination between the groups. The inspectors also attended various pre-job briefs to assess the licensee's ability to identify critical steps of the evolution, potential failure scenarios, and tools to prevent errors.

The inspectors reviewed procedures associated with radiation dose and contamination control to ensure the licensee incorporated the applicable TS limits as well as its own administrative limits into the procedures. The inspectors evaluated the methodology and tools used in monitoring cask dose rates as well as the dose to personnel performing the work. During observations, the inspectors verified that the contamination and radiation levels from the loaded cask were well below the regulatory limits and the licensee's administrative limits. Personnel dose rates were also below the limits specified in the RWP and the ALARA plan. The inspectors evaluated the radiation protection staff's active involvement throughout the entire cask loading evolution and the use of adequate ALARA practices.

The inspectors reviewed a number of condition reports associated with dry fuel storage and the corrective actions taken to address issues. The licensee utilized the TN-40 system where each cask was equipped with a pressure monitoring system. The purpose of the system was to detect loss of pressure in the cask lid double seal region first before the helium pressure inside the cask cavity was affected. During the inspection, the inspectors inquired about issues associated with the occurrence of low pressure seal alarms and determined that there were no suspected seal leaks. The alarms came on as a result of changing ambient air temperatures and pressures during cold weather which resulted in the compression of helium gas in the seal region. This compressed gas condition eventually caused the monitoring system low pressure alarms. The inspectors verified that re-pressurization of the seal region and a thorough inspection of the pressure monitoring system fittings and tubing were sufficient to correct the problem and prevent it from recurring. The inspectors also reviewed trending charts and interviewed cognizant staff to verify that the seal pressure values on the casks, stored on the ISFSI pad, remained within the targeted range of values over the years.

The inspectors reviewed a number of 10 CFR 72.48 screenings and evaluations as well as reference documents to verify that changes made to the dry fuel storage process, the cask components, or fabrication processes did not adversely impact the design of the storage cask and its function. The inspectors determined that issues and changes made associated with fabrication of the basket for cask Number 23 had been adequately addressed and resolved.

The inspectors reviewed the licensee's fuel selection process to verify that the process incorporated all of the physical, thermal, and radiological fuel acceptance parameters

specified in the current Certificate of Compliance and the TS. The inspectors reviewed the fuel selection procedure and the qualification records for 40 assemblies to be loaded into cask Number 24.

The inspectors reviewed documentation of the annual electrical and mechanical inspection performed on the auxiliary building crane which was used to lift each loaded cask. The inspectors also reviewed non-destructive examination, visual inspection, and preventive maintenance records associated with the special lift fixture and the auxiliary building crane hook to verify compliance with applicable codes and industry standards.

The inspectors reviewed the licensee's surveillance and maintenance program associated with the storage of fuel. The inspectors reviewed select logs to verify that plant personnel made daily rounds to perform the cask seal pressure checks and calibrated the pressure monitoring system on a routine basis. In addition, the inspectors verified that the licensee performed a visual surveillance of all casks to ensure all casks were free of significant damage, deterioration, and debris accumulation that could potentially interfere with the proper operation of the casks. The inspectors also reviewed radiation protection surveys, pertaining to dose and contamination control at the ISFSI, which were performed on a quarterly basis. The inspectors determined that the radiation and contamination levels were below the limits specified in the TS. Key documents used by the inspectors in conducting this inspection are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

4OA6 Meeting(s)

.1 Exit Meeting

The inspectors presented the inspection results to Mr. M. Wadley and other members of licensee management at the conclusion of the inspection on July 12, 2007. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Emergency Preparedness inspection with Mr. L. Clewett on April 15, 2007;
- Access Control to Radiologically Significant Areas inspection with Mr. P. Huffman, by telephone, on May 1, 2007;
- Public Radiation Safety Radiological Environmental Monitoring Program and Verification of the Performance Indicators with Mr. P. Huffman and other licensee staff on June 22, 2007;
- Radiation Protection inspection with Mr. M. Wadley on June 29, 2007; and
- Dry Fuel Storage inspection with Mr. J. Sorensen on June 29, 2007.

#### 4OA7 Licensee-Identified Violations

The following violation of very low significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

##### **Cornerstone: Initiating Events**

Technical Specification 5.4.1.a requires that written procedures be implemented covering the activities recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, February 1978, recommends administrative procedures for equipment control including tagging. Fleet Procedure FP-OP-TAG-01, "Fleet Tagging," Revision 4, described the proper preparation and independent reviews required for clearance order tags. Contrary to the above, on April 12, 2007, the clearance order associated with MV-32189, emergency boration to charging pump suction valve, was not properly prepared and independently reviewed in accordance with the tagging procedure. The restoration clearance order incorrectly directed that manual valve 2VC-11-56, reactor make-up water to charging pump suction, be placed in the open position. This error resulted in a power increase due to inadvertent dilution of the reactor coolant system from opening the valve.

Immediate actions were taken to prevent reactor power from exceeding 100 percent by inserting control rods. The licensee entered the condition into the corrective action program with CAP 01087450. Corrective actions were implemented to ensure the independent review of restoration clearance orders prior to implementing the clearance order.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

M. Wadley, Site Vice President  
J. Sorensen, Site Director  
P. Huffman, Plant Manager  
M. Agen, Emergency Preparedness Coordinator  
K. Albrecht, Director, Projects  
T. Allen, Nuclear Safety Assurance Manager  
J. Anderson, Radiation Protection and Chemistry Manager  
W. Andrews, Cask Master, Dry Fuel Storage  
R. Brown, Nuclear Oversight Manager  
J. Callahan, Emergency Preparedness Manager  
M. Carlson, Engineering Director  
L. Clewett, Business Support Manager  
M. Davis, Regulatory Affairs Analyst  
F. Forrest, Operations Manager  
B. Hamilton, HLW Project Manager  
A. Hass, Emergency Preparedness  
M. Johnson, Emergency Preparedness Coordinator  
M. Kent, Radiation Protection Supervisor  
J. Kivi, Senior Regulatory Compliance Engineer  
J. LeClair, Radiation Protection General Supervisor  
R. Madjerich, Outage Manager  
M. McKeown, Manager, Project Services  
J. Mestad, Monticello Employee Concerns Program Manager  
C. Morgan, Corporate Emergency Preparedness - Hudson  
H. Nelson, Dry Fuel Storage Project Engineer  
J. Nemcek, Emergency Preparedness Coordinator  
D. Raebel, Refueling Project Supervisor  
M. Runion, System Engineering Manager  
S. Samson, Dry Fuel Storage Project Manager  
S. Skoyen, Engineering Programs Manager  
R. Zyduck, Design Engineering Manager

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000282/2007003-01	URI	Failure of the 12 Safety Injection Pump Breaker (Section 1R22)
05000282/2007003-02; 05000306/2007003-02	NCV	Continue to Permit Unit 2 Containment Access on Radiation Work Permits That Do Not Authorize Access to Airborne Radioactivity Levels (Section 2OS1)
05000282/2007003-03; 05000306/2007003-03	NCV	Failure to Evacuate Unit 2 Containment Upon Detection of Elevated Airborne Radioactivity Levels (Section 2OS1)
05000282/2007003-04; 05000306/2007003-04	URI	Control of Very High Radiation Area Keys (Section 2OS1)
05000282/2007003-05; 05000306/2007003-05	URI	Performance Indicator Accuracy for Occupational Radiation Safety (Section 4OA1)
05000306/2007003-06	FIN	Failure to Maintain Safety Injection Relays (Section 4OA2.2)
05000306/2007-001-00	LER	Unit 2 Reactor Trip (Section 4OA3)

### Closed

05000282/2007003-02; 05000306/2007003-02	NCV	Continue to Permit Unit 2 Containment Access on Radiation Work Permits That Do Not Authorize Access to Airborne Radioactivity Levels
05000282/2007003-03; 05000306/2007003-03	NCV	Failure to Evacuate Unit 2 Containment Upon Detection of Elevated Airborne Radioactivity Levels
05000306/2007003-06	FIN	Failure to Maintain Safety Injection Relays
05000306/2007-001-00	LER	Unit 2 Reactor Trip

### Discussed

None.

## 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 of 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.

### 1R01 Adverse Weather

#### High Winds/Tornado

SP 1039; Tornado Site Hazard Inspection; Revision 12

USAR Section 2.3; Meteorology

Design Basis Document Topical 05; Hazards; Revision 2

IPEEE; NSPLMI-96001; Revision 1

Abnormal Procedure AB-2; Tornado/Severe Thunderstorm/High Winds; Revision 29

Abnormal Operating Procedure C20.3 AOP 12; Grid Voltage or Frequency Disturbances; Revision 4

Excel Energy Supply Operations Procedure ESO-OP-6.140P; System Operating Code Response; Revision 2

Excel Energy Supply Operations Procedure ESO-OP-6.150; Power Plant Operator Communication and Response Policy; Revision 2

CAP 01080060; Power System Stabilizer Operation with Respect to FERC Rules

CAP 01082476; Actions to Consider with Regard to FERC Compliance

CAP 01085163; Discrepancies in Calculation GEN-PI-005, Tornado and Seismic Evaluation of D1/D2 Components

CAP 01085294; Multiple Tornado Hazards Found Outside CT Pump House

CAP 01087971; Site Electrical Analyses Have Not Been Maintained Up to Date

CAP 01089428; Plant and Operations Management Unaware of Changes to Xcel Energy Policies

CAP 01089449; Knowledge Level of Communication Protocol with Xcel TSO

#### Hot Weather Preparations

Periodic Test Procedure TP 1636; Summer Plant Operation; Revision 20

Integrated Checklist 1C37.10-1; D1/D2 Diesel Generator Room Cooling; Revision 5

Integrated Checklist 2C37.10-1; D5/D6 Diesel Generator Building HVAC; Revision 4

Operating Procedure C37.8; Screenhouse Safeguard Equipment Cooling; Revision 9

System Prestart Checklist C37.8-1; Screenhouse Safeguard Ventilation System; Revision 5

CAP 01086684; D5 Diesel Room Recirculation Air Damper Failed to Open

### 1R04 Equipment Alignment

#### D5 Diesel Generator

Integrated Checklist C1.1.20.7-9; D5 Diesel Generator Valve Status; Revision 11

Integrated Checklist C1.1.20.7-10; D5 Diesel Generator Auxiliaries and Local Panels and Switches; Revision 11

Integrated Checklist C1.1.20.7-11; D5 Diesel Generator Main Control Room Switch and Indicating Light Status; Revision 5

Integrated Checklist C1.1.20.7-12; D5 Diesel Generator Circuit Breakers and Panel Switches; Revision 9

MV-32189

Clearance Request 00015800; Emergency Boration to Charging Pump Suction MV CAP 01087450; Incorrect Restoration Position on Clearance Order  
Human Performance Event Investigation; Inadvertent RCS Dilution  
System Prestart Checklist C12-5; Chemical and Volume Control System, Charging, Letdown, and Seal Water - Unit 2; Revision 28

12 Diesel-Driven Cooling Water Pump

Integrated Checklist C1.1.35-3; Cooling Water System; Revision 27  
Operating Logs for June 11, 2007  
Query of Work Request for System Code CL-PI as of June 12, 2007  
CAP 01067174; Potential Mispositioning of 2TD-15-6

1R05 Fire Protection

Plant Safety Procedure F5, Appendix A, Revision 16; Fire Strategies for Fire Areas 18, 20, 81, 101, 102, 103, 104, 117, and 118  
Plant Safety Procedure F5, Appendix F, Revision 20; Fire Hazard Analysis for Fire Areas 18, 20, 81, 101, 102, 103, 104, 117, and 118  
Fire Drill Evaluation Report; May 4, 2007  
CAP 01091431; Fire Brigade Needs Larger Room  
CAP 01093721; Second Quarter 2007 Crew 2 Fire Drill - Pass

1R06 Flood Protection Measures (Internal)

Procedure H36; Plant Flooding; Revision 1  
Administrative Work Instruction 5AWI 8.9.0; Internal Flooding Drainage Control; Revision 4  
CAP 01088593; AFW Pump Room Sump Drain Obstructed  
CAP 01088594; 121 CL Pump Room Floor Drains Obstructed  
CAP 01089451; Absorbent Diaper Found on Floor of AFW Room Identified by NRC  
CAP 01091143; Clogged Floor Drain Found in 121 CL Pump Room

1R11 Licensed Operator Requalification Program

Simulator Evaluation Guide P9160S-001; ATT SQ-56; Revision 0  
Administrative Work Instruction 5AWI 3.15.0; Plant Operation; Revision 20  
CAP 01087612; Licensed Operator Requalification Program Training Program Effectiveness Report is Red for First Quarter 2007  
CAP 01087119; Cannibalizing Parts from the Simulator to Repair the Plant

1R12 Maintenance Rule Implementation

Pressurizer Power Operated Relief Valve Failures

Maintenance Rule System Basis Document for the Reactor Coolant System; Revision 11  
Maintenance Rule Evaluation 01027161-01; Air Leak On Union Between CV-31231 and Solenoid Valve  
Maintenance Rule Evaluation 01026977; CV-31232 Pressurizer Power-Operated Relief Valve Had Dual Indication During SP 1182A  
Maintenance Rule Expert Panel Meeting Minutes; dated January 10, 2005

CAP 01027161; Air Leak On Union Between CV-31231 and Solenoid Valve  
CAP 01026977; CV-31232 Pressurizer Power Operated Relief Valve Had Dual Indication During SP 1182A  
CAP 01092930; January 2005 Maintenance Rule Expert Panel Meeting Minutes Should Have Provided More Detail

#### 22 RHR Repetitive Seal Leakage

WO 292951-01; Replace Bearings in 22 RHR Pump Motor  
WO 292951-02; Install Alignment Lugs  
WO 111864-01; 22 RHR Pump 18 Month Inspection  
WO 307074-01; Remove and Replace 22 RHR Pump Mechanical Seal  
WO 307074-03; Remove and Replace 22 RHR Pump Mechanical Seal  
Maintenance Procedure D103; RHR Mechanical Seal 2<sup>nd</sup> Replacement; Revision 6  
Maintenance Rule System Basis Document for the RHR System; Revision 11  
Operating Logs for January through December 2006  
CAP 01069873; 22 RHR Appears to Have Exceeded Its Maintenance Rule Unavailability

#### 12 SI Pump Breaker Failure to Charge Closing Spring

Electric Power Research Institute Routine Preventive Maintenance Guidance for ABB HK Circuit Breakers; TR-109642  
ABB Installation/Maintenance Instruction for Medium-Voltage Power Circuit Breakers; IB6.2.1.7C  
Electrical Maintenance Procedure PE 0007CT; 5KV Westinghouse Type 50VCP-WR250 Switchgear Breakers Testing, Maintenance, and Repair  
Maintenance Rule System Basis Document for the Safety Injection System; Revision 11  
Maintenance Rule System Basis Document for the 4.16 KV AC Electrical System; Revision 11  
Maintenance Rule A(1) Action Plan for the 4.16 KV AC Electrical System  
General Condition Report 20017791; Perform a Self-Assessment of Breaker Maintenance  
General Condition Report 20014646; QA-3 Part Used in QA-1 Device  
General Condition Report 20012640; Closing Spring for Breaker 23-4, 21 Cooling Water Pump Did Not Charge  
Maintenance Rule Evaluation 01085806-02; Unit 1 Breaker 16-7, 12 Safety Injection Pump Breaker Inoperable  
Apparent Cause Evaluation (ACE) 008124; QA-3 Part Used in QA-1 Device  
ACE 007128; Closing Spring for Breaker 23-4, 21 Cooling Water Pump Did Not Charge  
ACE 01085806-05; Unit 1 Breaker 16-7, 12 Safety Injection Pump Breaker Inoperable  
CAP 000161; Perform a Self-Assessment of Breaker Maintenance  
CAP 008124; QA-3 Part Used in QA-1 Device  
CAP 020467; Closing Spring for Breaker 23-4, 21 Cooling Water Pump Did Not Charge  
CAP 01085806; Unit 1 Breaker 16-7, 12 Safety Injection Pump Breaker Inoperable

#### 1R13 Maintenance Risk Assessments and Emergent Work Control

Procedure H24.1, Appendix A; Phase 1 Risk Assessment Preparation; Revision 2  
Unit 2 Configuration Risk Assessment for April 6, 2007  
Operator Logs for April 6, 2007  
Unit 1 and Unit 2 Risk Assessment for May 17, 2007, following the emergent failure of water treatment  
Operator Logs May 17, 2007  
CAP 01093153; Water Treatment Needs Software Available for Troubleshooting

Unit 1 Configuration Risk Assessment for May 23, 2007  
Operator Logs for May 23, 2007  
Unit 1 and 2 Configuration Risk Assessment for May 29, 2007  
Operator Logs for May 29, 2007  
Unit 1 and 2 Configuration Risk Assessment for June 12, 2007  
Operator Logs for June 12, 2007  
CAP 01096498; Cascade TS Component Availability  
Unit 1 Configuration Risk Assessment for June 19, 2007  
Operator Logs for June 19, 2007

#### 1R15 Operability Evaluations

##### CAP 01086608

CAP 01086608; Unit 2 Turbine Failed to Stay Tripped During Turbine Startup  
TS 3.3.1; Reactor Trip System  
TS 3.3.1 Bases; Reactor Trip System Bases  
Operating Procedure 2C1.2; Unit 2 Startup Procedure; Revision 37

##### CAP 01089285

CAP 01089285; 11 AFW Pump High Bearing Temperature  
WO 00301691; 11 Turbine-Driven AFW Pump Monthly Test; Revision 01  
SP 1102; 11 Turbine-Driven AFW Pump Monthly Test; Revision 88  
Temporary Change Request for SP 1102; Revision 88

##### OPR 01087705

CAP 01087465; 122 Safeguards Traveling Screen DP Indicator  
OPR 01087705; 122 Safeguards Traveling Screen DPS Reading Less Than Zero  
CAP 01091763; Screenhouse Flood Panel Mounts May Not Be Seismically Qualified

##### CAP 01092817

CAP 01092817; Unit 1 Operation Loss of Coolant Accident Blowdown Loads at Reduced Power  
USAR; Section 4.6.2.3; Elimination of Large Primary Loop Pipe Rupture as the Structural  
Design Basis  
Westinghouse IG-06-3; Reduced Power Loss of Coolant Accident Blowdown Loads Analyses  
CAP 01044587; IG-06-3; Reduced Power Loss of Coolant Accident Blowdown Loads

##### CAP 01092845

CAP 01092845; Scaffolds Near Dual Trains  
Maintenance Procedure D80; Scaffolding, Ladders and Cable Tray Platforms; Revision 20  
Administrative Work Instruction 5AWI 3.15.5; Operability Determinations; Revision 13

#### 1R19 Post-Maintenance Testing

##### 12 Safety Injection Breaker Replacement

WO 323973-03; Remove Installed Breaker and Replace with Spare 4KV  
Test Procedure 1087B; Train B Safety Injection Pump Monthly Lubrication; Revision 9  
SP 1322 Safeguards Busses Weekly Inspection - Operating; Revision 20  
Procedure B20.5; 4.16 KV Station Auxiliary System; Revision 7  
Operations Logs for April 3 and 4, 2007 and March 7 through 28, 2007

### MG-6 Replacement

WO 324083-02; Investigate Safeguard Logic Train A MG-6 Relay (SIA-A1 and SIA-A2); Revision 0  
WO 324083-06; Perform PMT/RTS Testing for 2SIA-A1 and 2SIA-A2; Revision 1  
WO 324083-09; Replace Relay; Revision 0  
CAP 01086550; Unexpected Alarm R-38 High Radiation While Testing SI Train A

### Diesel Generator D6

SP 2307; D6 Diesel Generator Six-Month Fast Start Test; Revision 27  
SP 2335; D6 Diesel Generator 18-Month 24-Hour Load Test; Revision 12  
CAP 01087513; D6 Cylinder Release Valves Left Open After Work Complete  
CAP 01087217; D6 Replacement Fuel Injector Pump Differences  
CAP 01086946; D6 Engine 1 Coupling Found 180 Degrees Out

### Diesel Generator D5

WO 333024-02; PMT/RTS U2, D5 Engine 1 Fuel Rack Indicator; Revision 0  
WO 333024-01; Investigate and Repair Intermittent Connection Problem; Revision 0  
CAP 01066259; MV-32150 Stalled During Opening  
CAP 01073995; D1 Opposite Control Side Jacket Coolant Leak

### 121 Instrument Air Compressor Circuit Breaker

WO 00334401; 121 Air Compressor Tripped  
Electrical Maintenance Procedure PE MCC-G7; Electrical Preventive Maintenance for GE 7700 Line MCCs; Revision 22  
CAP 01097384; 121 Air Compressor Tripped Off

### 1R20 Refueling and Other Outage Activities

#### Unit 2 Forced Outage Due to Reactor Trip During Surveillance Testing

Operating Procedure 2C1.2; Unit 2 Startup Procedure; Revision 38  
Operating Procedure 2C1.3; Unit 2 Shutdown; Revision 59  
Operations Manual Procedure 2E-0; Reactor Trip or Safety Injection; Revision 24  
Operations Manual Procedure 2ES-0.1; Reactor Trip Recovery; Revision 20  
Operations Manual Procedure 2ES-0.2; Safety Injection Termination; Revision 21  
Unit 2 Operator Logs for April 5 through April 10, 2007  
Unit 2 Risk Assessments for April 5 through April 10, 2007  
CAP 01086219; During Performance of SP 2032A, Unit 2 Experienced a Train A Safeguards Actuation and Reactor Trip  
CAP 01091948; Testing Results of MG-6 Relays

#### Unit 1 Planned Maintenance Outage

Operating Procedure 1C1.2; Unit 1 Startup Procedure; Revision 40  
Operating Procedure 1C1.3; Unit 1 Shutdown; Revision 60  
Unit 1, 12 Feedwater Pump Planned Outage Schedule; dated May 9, 2007  
CAP 01092110; CV-31094 Found Unresponsive During Unit 1 Downpower  
CAP 01092957; Turbine Oil Line Leak Repair Attempt Found Guarded Pipe  
CAP 01092945; Turbine Oil Temperature Allowed to Go Too Low  
CAP 01092959; Broken Tubing Found in Piping for Turbine Oil System

## 1R22 Surveillance Testing

### SP 1322

SP 1322; Safeguards Busses Weekly Inspection - Operating; Revision 20 as performed on March 21, 2007

SP 1322; Safeguards Busses Weekly Inspection - Operating; Revision 20 as performed on March 28, 2007

SP 1322; Safeguards Busses Weekly Inspection - Operating; Revision 20 as performed on April 3, 2007

Unit 2 Operating Logs from March 7 through April 4, 2007

PINGP Form 791, Revision 14; Operating Information No. 07-29 Revision 1; Interim

Compensatory Measures for the 12 Safety Injection Closing Spring Issue

Plant Safety Procedure F5, Appendix B; Control Room Evacuation; Revision 38

Preliminary - 12 Safety Injection Pump Breaker Risk Significance Determination Evaluation

CAP 01085806; Unit 1 Breaker 16-7, 12 Safety Injection Pump Breaker Inoperable

CAP 01098025; Differences in 4KV Closing Spring Breaker Checks

### SP 2088A

SP 2088A; Train A Safety Injection Quarterly Test; Revision 9

WO 301155-01; SP 2088A Train A Safety Injection Quarterly Test

Procedure H10.1; ASME Inservice Testing Program; Revision 20

CAP 01087517; 12 Safety Injection Pump Oil Cooler Outlet Pressure Low

### SP 1032B

SP 1032B; Safeguards Logic Test At Power - Train B; Revision 19

### 12, 22, and 121 Cooling Water Pump Comprehensive Test

WO 311323-01; 12 Diesel Cooling Water Pump Comprehensive Test

WO 311323-02; 22 Diesel Cooling Water Pump Comprehensive Test

WO 311323-03; 121 Diesel Cooling Water Pump Comprehensive Test

CAP 01091115; Auto-Start of 121 Motor-Driven Cooling Water Pump

CAP 01091141; Potential Cooling Water Flow Margin Issue

### SP 2102

SP 2102; 22 Turbine-Driven AFW Pump Monthly Test; Revision 81

CAP 01091720; Delay in Return to Service for 22 TDAFW Pump Due to Coordination

### SP 2001AA

SP 2001AA; Reactor Coolant System Test; Revision 45

## 1R23 Temporary Modifications

EC 8315; Temporary Modification to Replace Damaged 1N36 Wires Existing Spare Wires  
Modification Classification for EC 8315; dated June 6, 2006

Design Input Checklist for EC 8315

Modification Package Index for EC 8315

Design Verification Assignment for EC 8315

Drawing NF-40170-1; Protection Cabinets 1132 and 1133 Wiring Diagrams; Revision AG

Drawing NF 40289-5; External Wiring Diagram Nuclear Instrumentation System Detector Connections Channel I - IV; Revision E  
Drawing NF 402289-6; External Wiring Diagram Nuclear Instrumentation System Remote Equipment Connection; Revision F  
Drawing NF 402289-2; External Wiring Diagram Nuclear Instrumentation System Rack 1NR2 Channel II Unit 1; Revision N  
Drawing XH-1001-829-6; Nuclear Instrumentation System Interconnections  
CAP 01033809; N-36 Failed Low

#### 1EP2 Alert and Notification System (ANS) Evaluation

SP 1397; Emergency Plan Fixed Siren Test; Revision 11  
PINGP Annual Public Alert and Notification System (PANS) Review Report 2006; dated January 12, 2007  
PINGP Annual PANS Review Report 2005; dated January 16, 2006  
PINGP 1120; Monthly Trend Reports; dated June 2005 through February 2007  
PINGP 1479; Siren Maintenance Checklist; dated October 2005 and October 2006  
Section Work Instruction EP-600; PANS Program; Revision 4  
Section Work Instruction EP-620; Monthly Fixed Siren Alert and Cancel Tests; Revision 2  
Section Work Instruction EP-630; Annual Fixed Siren Maintenance; Revision 1  
Letter from Homeland Security, Chicago Field Office; Approval of Request to Add Additional Sirens to Prairie Island's Public Alert and Notification System; dated May 12, 2006  
Letter from Federal Emergency Management Agency, Region V; Approval of Request to Add Additional Sirens to Prairie Island's PANS; dated August 22, 2005  
Sirens Monthly Failure Matrix Forms; dated June 2005 through February 2006  
Monthly Siren History Spread Sheet; dated June 2005 through February 2006  
Monthly Causes of Siren Failures; dated June 2005 through February 2006  
CAP 01078749; Test Procedures for Monthly and Weekly Siren Tests Do Not Contain Acceptance Criteria; February 22, 2007  
CAP 01000849; During ERO Drive in Augmentation Test Two ERO Duty Personnel Did Not Respond in the Required Time; October 12, 2005

#### 1EP3 Emergency Response Organization (ERO) Augmentation Testing

PINGP Emergency Plan; Table 1; Guidance for Augmentation of Plant Emergency Organization; Revision 36  
PINGP 579; Emergency Notification Call List for a Notification of Unusual Event; Revision 120  
PINGP 580; Emergency Notification Call List for an Alert, Site Area Emergency, or General Emergency; Revision 129  
SP 1744; Semi-Annual Emergency Organization Augmentation Response Test Records; dated March 15, 2005 through January 17, 2007  
Training Program Description; P7400, Emergency Plan Training; Revision 16  
PINGP Site ERO Roster; dated April 6, 2007  
ACE 01000866; October 11, 2005, Augmentation Drive in Drill Resulted in Four of Six Radiation Protection Technicians Not Arriving Within the Required 30 Minutes; dated November 18, 2005  
ACE 0080932; The March 15, 2005, ERO Augmentation Test Was Not Completed Satisfactorily by Radiation Protection Specialists; dated April 18, 2005  
CAP 01086864; 9/11 Parking Lot Move Temporarily Decreased Emergency Plan; dated April 9, 2007  
CAP 01078602; ERO Roster Issues; dated February 21, 2007

CAP 01008374; Two Failures and One Potential Failure Were Identified During Augmentation Tests in 2005; dated December 21, 2005  
CAP 01000866; Did Not Demonstrate Meeting Emergency Plan Table B-1 Staffing Requirement; dated October 12, 2005  
CAP 044187; Four DEP Failures Have Been Identified Since July 11, 2005; dated August 30, 2005  
CAP 041409; ERO Augmentation Response Test Conducted on March 15, 2005, Was Not Completed Satisfactorily; dated March 17, 2005

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

SAR 1078685; Emergency Preparedness Readiness Assessment; dated February 26, 2007  
PINGP Emergency Plan Drill Critique Reports; dated from September 10, 2005, through February 23, 2007  
PINGP July 18, 2006, Exercise Critique Report, Revision 1; dated April 6, 2007  
Nuclear Oversight Observation Report 2007-001-6-007; Fleet Emergency Planning Assessment; dated March 23, 2007  
Nuclear Oversight Observation Report 2006-001-6-015; Fleet Emergency Planning Assessment; dated March 31, 2006  
CAP 00870293; Evaluate NRC Bulletin 2005-02 for Actions; dated July 26, 2005  
CAP 01076458; Negative Trend in ERO Command and Control; dated February 9, 2007  
CAP 01076362; Failure to Follow Requirements - Completion of EP Staff Training; dated February 8, 2007

1EP6 Drill Evaluation

Simulator Evaluation Guide P9160S-001; ATT 06-29; Revision 0

2OS1 Access Control to Radiologically Significant Areas

AR 01027653; Airborne Area in U1 Containment Due to Iodine Levels in RCS; dated May 2006  
AR 01028448; Non-Conservative Control of LHRA Keys; dated May 2006  
AR 01029812; SAR 01021899 Finding Control of HRA/LHRA Keys Not Robust During NMC Audit; dated May 2006  
CAP 01029886; SAR 01024825 - Control of HRAs, LHRAs and VHRAs at Prairie Island; dated May 2006  
CAP 01063096; Work Stopped in Containment Due to Breathing DAC >0.3 DAC; dated November 2006  
CAP 01066963; Not Following Procedures for Airborne Conditions; dated December 2006  
CAP 01083807; U2R24 RWPs Not Authorizing Work in Airborne Areas; dated March 2007  
CAP 01083809; U2R24 Airborne Radioactivity Area Control Deficiencies; dated March 2007  
CAP 01083810; Administrative Control Deficiencies Associated with VHRA Keys; dated March 2007  
FP-RP-RWP-01; Radiation Work Permit; Revision 5  
RPIP 1001; Radiation Protection Program; Revision 8  
RPIP 1008; Radiation Protection Key Control; Revisions 7 and 8  
RPIP 1106; Access Control Procedures; Revision 15  
RPIP 1120; Posting of Restricted Areas; Revision 26  
RPIP 1135; RWP Coverage; Revision 18  
QF 1204; Radiological Work Assessment Form  
5AWI 10.1.0; Radiation Protection Program; Revision 7  
RWP 00000143; Radiation Area 10-50 mRem/Class 2

RWP 00000179; Group 1 High Radiation Area 250-500 mRem/Class 2  
RWP 00000571; S/G Prep and Closure, Includes Tent Set-Up and Removal, Decon  
RWP 00000640; HRA, HCA Labor/Decon Work

### 2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

CAP 00880560; ODCM Quarterly Composite Sample Lost; dated August 26, 2005  
CAP 00883454; 60B Wind Direction Monitor on Met Tower is Stuck; dated September 04, 2005  
CAP 01010089; Possible Adverse Trend for Redundant Met Tower Instruments; dated January 11, 2006  
CAP 01058701; Critical Receptor as Defined in ODCM Has Changed; dated October 31, 2006  
CAP 01087857; MIDAS Met and Radiation Monitor Data Collection Found Off; dated April 15, 2007  
2005 Annual Radiological Environmental Monitoring Report; dated May, 2006  
2006 Annual Radiological Environmental Monitoring Report; dated May, 2007  
NUPIC [Nuclear Utilities Procurement Issues Committee] Audit Number 19238; NUPIC Joint Audit of Environmental, Inc. Northbrook, IL; dated March 1, 2006  
Offsite Dose Calculation Manual; Revision 20  
PINGP 1117; REMP Calibration/Maintenance Form, Air Samplers; Selected Records; Various Dates (2005/2006)  
RPIP 4501; Spectrum Analysis Efficiency Calibration; Revision 8  
RPIP 4700; Radiological Environmental Monitoring Program; Revision 12  
RPIP 4715; REMP Calibration of Rotameter; Revision 05  
RPIP 4730; REMP Sampling Procedure; Revision 05  
RPIP 4731; REMP Air Sampling; Revision 11  
RPIP 4732; REMP Water Sampling; Revision 11  
RPIP 4733; REMP Milk Sampling; Revision 08  
RPIP 4735; REMP Miscellaneous Sampling; Revision 04  
RPIP 4736; REMP Measurement of Direct radiation by TLDs; Revision 05  
RPIP 4741; Onsite Groundwater Tritium Sampling; Revision 05  
RPIP 4742; Prairie Island Indian Community Water Tritium Sampling; Revision 04  
Nuclear Oversight Observation Report No. 2006-003-6-002; Radiological Environmental Monitoring Program; dated August 11, 2006

### 4OA1 Performance Indicator Verification

#### Safety System Functional Failures

PINGP Form 1318C; Performance Indicators - Safety System Functional Failures for Second Quarter 2006 through the First Quarter 2007  
Procedure H 33; Performance Indicator Reporting; Revision 6  
Procedure H33.3; Safety System Functional Failures Performance Indicator Reporting Instructions; Revision 1  
LERs 1-06-01, 2-06-01, 1-06-01 Supplement 1, 1-06-02, 1-06-03, and 2-06-02

#### Reactor Coolant System Leakage

PINGP Form 1318E; Performance Indicators - RCS Identified Leak Rate for Third Quarter 2006 through the First Quarter 2007  
Unit 1 and 2 Operating Logs for July 1, 2006, through March 31, 2007  
RPIP 3025; Chemistry Performance Indicator Reporting Instructions; Revision 02  
RPIP 3332; Dose Equivalent Iodine - 131; Revision 09

#### Radiation Safety Strategic Area

CAP 01071917; Monthly NRC Radiation Safety Performance Indicator AR Search Not Fully Performed; dated January 15, 2007

H33; Performance Indicator Reporting; Revision 6

RPIP 1013; Occupational Radiation Safety Performance Indicators; Revision 03

#### Alert and Notification System Reliability

H33.4; Emergency Preparedness Performance Indicators Reporting Instructions; dated March 30, 2007

Records of Monthly ANS Test Results; dated April 2006 through December 2006

#### Emergency Response Organization Participation

PINGP NRC Emergency Plan Participation Performance Indicator Data for Monthly Report; dated April 2004 through March 2005

CAP 01027800; The NRC EP Performance Indicator for ERO Participation Fell Below 90 Percent at the End of April 2006; dated May 3, 2006

#### Drill and Exercise Performance (DEP)

DEP Data for Monthly Report; dated April 2006 through December 2006

CAP 01008375; Several Failures Have Occurred in the Past Six Months for DEP Opportunities During Licensed Operator Requalification Training; December 21, 2005

#### 4OA2 Identification and Resolution of Problems

CAP 01086219; During Performance of SP 2032A Unit 2 Experienced a Train A Safeguards Actuation and Unit Trip

Root Cause Evaluation Report 1086219-01; Unit 2 Train A Safeguards Actuation and Unit Trip During Performance of SP 2032A, Safeguards Logic Test at Power; Revision 2

NMC Fleet Procedure FP-PA-ARP-02; NMC Augmented Incident Evaluation Procedure; Revision 1

#### 4OA3 Event Followup

Operations Manual Procedure 2E-0; Reactor Trip or Safety Injection; Revision 24

Operations Manual Procedure 2ES-0.1; Reactor Trip Recovery; Revision 20

Operations Manual Procedure 2ES-0.2; Safety Injection Termination; Revision 21

Event Report Number 43280; dated April 5, 2007

Sequence of Events Output from 9:07 a.m. to 9:13 a.m. on April 5, 2007

WO 299890-01; SP 2032A Safeguards Logic Test at Power Train A; dated April 4, 2007

Operating Logs dated April 5, 2007

CAP 01086219; During Performance of SP 2032A, Unit 2 Experienced a Train A Safeguards Actuation and Reactor Trip

CAP 01091948; Testing Results of MG-6 Relays

#### 4OA5 Operation of an Independent Spent Fuel Storage Installation (ISFSI)

Action Request Report No. 01005413; dated November 28, 2005

Action Request Report No. 01005689; dated November 29, 2005

Action Request Report No. 01007891; dated December 19, 2005

Action Request Report No. 01039278; dated July 11, 2006

Action Request Report No. 01039500; dated July 12, 2006

Action Request Report No. 01041168; dated July 25, 2006

Action Request Report No. 01043493; dated August 8, 2006  
Action Request Report No. 01044101; dated August 11, 2006  
Action Request Report No. 01046444; dated August 25, 2006  
Action Request Report No. 01047221; dated August 29, 2006  
Action Request Report No. 01047917; dated September 1, 2006  
Action Request Report No. 01048842; dated September 7, 2006  
Action Request Report No. 01074658; dated January 30, 2007  
Action Request Report No. 01074780; dated January 31, 2007  
Action Request Report No. 01075449; dated February 3, 2007  
Action Request Report No. 01075516; dated February 5, 2007  
Action Request Report No. 01075531; dated February 5, 2007  
Action Request Report No. 01076298; dated February 8, 2007  
Action Request Report No. 01077312; dated February 14, 2007  
Action Request Report No. 01087701; dated April 13, 2007  
Action Request Report No. 01088113; dated April 17, 2007  
Action Request Report No. 01099174; dated June 26, 2007  
Action Request Report No. 01098423; dated June 22, 2007  
CAP 040640; Dry Cask 18 Paint Blisters May Be Trapping Water; dated January 20, 2005  
CAP 040693; ISFSI Door Won't Unlock and Won't Open; dated January 23, 2005  
CAP 040933; Fuel Assembly M-12 Found to Have Grid Damage; dated February 7, 2005  
CAP 040934; Fuel Assembly L-68 Found to Have Grid Damage; dated February 9, 2005  
CAP 040946; Dropped Wrench on Cask 18 Vent Cover Seal Area; dated January 19, 2005  
CAP 041114; Hose Inadvertently Overpressurized During the Backfill of TN-40 Cask 19; dated February 24, 2005  
CAP 041121; Cask Work stopped by Site Observation Team Members; dated February 24, 2005  
CAP 041161; Load Suspended in Spent Fuel Pool for Several Days; dated February 28, 2005  
CAP 041162; Pre-Job Brief for transfer of Dry Cask Number 19 was Poorly Attended; dated February 28, 2005  
CAP 041508; In 2003, Didn't Inform NRC That There Were No ISFSI SAR Changes; dated March 24, 2005  
10 CFR 72.48 Evaluation No. 1049; TN-40 Storage Cask Neutron Shield Structural Evaluation (72.48); dated October 24, 2005  
10 CFR 72.48 Screening No. 2290; TN NCR 2004-074, Rev 1, TN CAR 2004-1025 & TN Calc. 1042-62; dated December 21, 2004  
10 CFR 72.48 Screening No. 2488; TN DCR 10424-01 Rev. 0; dated November 23, 2005  
10 CFR 72.48 Screening No. 2489; TN DCR 10424-002 Rev. 0; dated October 20, 2005  
10 CFR 72.48 Screening No. 2490; TN DCR 10424-04 Rev. 0; dated October 20, 2005  
10 CFR 72.48 Screening No. 2491; TN DCR 10424-005 Rev. 2; dated October 26, 2005  
10 CFR 72.48 Screening No. 2492; TN DCR 10424-006 Rev. 0; dated October 20, 2005  
10 CFR 72.48 Screening No. 2493; TN DCR 10424-007 Rev 0; dated October 22, 2005  
10 CFR 72.48 Screening No. 2494; TN DCR 10424-008 Rev. 1; dated October 22, 2005  
10 CFR 72.48 Screening No. 2495; TN DCR 10424-010 Rev. 0; dated October 21, 2005  
10 CFR 72.48 Screening No. 2496; TN DCR 10424-011 Rev 0; November 23, 2005  
10 CFR 72.48 Screening No. 2497; TN Drawing 1042-30-5 Rev. 11, DCR 10424-012 Rev. 0; dated October 20, 2005  
10 CFR 72.48 Screening No. 2498; TN Dwg. 1042-30-7 Rev. 12; TN DCR No. 10424-013 TN Dwg. 1042-30-7 Rev. 13; TN DCR No. 10424-015 Change 3; dated October 19, 2005

10 CFR 72.48 Screening No. 2499; TN Dwg 1042-30-2, Rev. 16; TN DCR No. 10424-14; dated October 10, 2005

10 CFR 72.48 Screening No. 2500; TN DCR 10424-015 Rev. 1; dated October 23, 2005

10 CFR 72.48 Screening No. 2501; TN DCR 10425-03 Rev. 0; dated November 23, 2005

10 CFR 72.48 Screening No. 2502; TN NCR 2005-32 Rev. 0 TN Calculation 1042-60 Rev. 0; dated October 23, 2005

10 CFR 72.48 Screening No. 2503; TN SNR 04-tgi-55 Rev. 0; dated October 23, 2005

10 CFR 72.48 Screening No. 2504; TN SNR 05-tgi-64 Rev. 0; dated October 19, 2005

10 CFR 72.48 Screening No. 2505; TN UST&D NCR 0345-13/DVR 0345-8 Rev. 0; dated October 22, 2005

10 CFR 72.48 Screening No. 2506; TN SNR No. DVR 0345-2 Rev. 0; dated October 21, 2005

10 CFR 72.48 Screening No. 2510; Plant Modification 05ST01, CT Cable Replacement; dated October 10, 2005

10 CFR 72.48 Screening No. 2552; TN SNR UST&D NCR 0464-7 Rev.1; dated January 4, 2006

10 CFR 72.48 Screening No. 2563; SNR KSL 06-tgi-3 Rev. 1 for TN-40-21; dated January 30, 2006

10 CFR 72.48 Screening No. 2564; SNR KSL 05-tgi-13 Rev. 1 for TN-40-20; dated January 30, 2006

10 CFR 72.48 Screening No. 2566; 29 Pieces of Basket Item Number19 Have Been Machined on One Side at the Edges (0.150" deep by 1-5/8" wide); dated September 15, 2006

10 CFR 72.48 Screening No. 2567; TN SNR UST&D NCR 0464-20 Rev. 1/TN DVR 0464-7 Rev. 3; dated January 30, 2006

10 CFR 72.48 Screening No. 2643; 3/4" Vent Port Penetration through Lid Shield Plate - Weld Repair of Oversize Dimension to Return Item to Original 3/4" Dimension; dated May 30, 2006

10 CFR 72.48 Screening No. 2644; TN-40-22 NCR Reporting Oversize Gaps between Basket Rails Reference SES-2290 & SES-2502; dated May 30, 2006

10 CFR 72.48 Screening No. 2645; Supplier Nonconformance Evaluation of undersized TN40 basket Stainless Steel Fuel Compartment Wall Thickness Locations Due to Excessive Post Weld Repair Grinding; dated May 30, 2006

10 CFR 72.48 Screening No. 2656; Replacement of Five Basket Panels Due to Non-conforming Spot Welds. TN-SNR Disposition of Re-work Is to Return the Basket to Conformance with Contract Requirements; dated May 30, 2006

10 CFR 72.48 Screening No. SES-2699; TCN Number D95.3 TN-40 Cask Removal and Storage Procedure; dated September 1, 2006

10 CFR 72.48 Screening No. 2700; HMD Basket TN40-800-5 (Number 2) Stainless Steel Weld Pucks Not in Place During Welding; dated December 20, 2006

10 CFR 72.48 Screening No. 2701; During Production Spot Welding of Basket Number 2, Stainless Steel Fuel Cell Compartment Number 24, East Side, at Two Spot Weld Locations, Burn Through Occurred Due to Missing Spacer Plugs at Each Location. These Two Cell Compartment Locations Were Repaired; dated September 20, 2006

10 CFR 72.48 Screening No. 2702; Numerous HMD Basket TN40-800-5 (Number 2) External Spot Welds Were Completed "Off Center" of the Stainless Steel Weld Pucks; dated December 20, 2006

10 CFR 72.48 Screening No. 2703; Repair Activities Associated with Three External Spot Welds That Failed to Meet Visual Inspection Criteria and Accept-As-Is Use of Replacement Panel with Notches on One End; dated September 20, 2006

10 CFR 72.48 Screening No. 2705; Supplier Nonconformance Evaluation of Accept "As-Is" Strategy for Basket Fuel Compartment Lifting Notch Profile Non-conformances During Basket Number 2 Fabrication; dated November 2, 2006

10 CFR 72.48 Screening No. 2706; Rework of HMD Basket TN40-800-5 (Number 2) Due to Fin Edge Profile Violations and Subsequent Overall Dimension Variations; dated December 20, 2006

10 CFR 72.48 Screening No. 2718; KSL Cask TN-40-24 Mist Coat Paint Exceeded Manufacturers Recommended Shelf Life; dated December 18, 2006

10 CFR 72.48 Screening No. 2745; PINGP ISFSI MN Dept. of Health Area Radiation Monitors Upgrade; dated February 8, 2007

10 CFR 72.48 Screening No. 2767; PINGP ISFSI MN Dept. of Health South Area Radiation Monitor Upgrade; dated March 9, 2007

Operator Daily Logs; PINGP 196; dated September 2006, March 2006, January 2007, May 2007

Procedure D95.1; TN-40 Cask Loading Procedure; Revision 13

Procedure D95.2; Cask Unloading Procedure; Revision 9

Procedure D95.3; TN-40 Cask Removal And Storage Procedure; Revision 14

Procedure D95.4; TN-40 Cask Receipt Procedure; Revision 18

Radiation Protection Implementing Procedure; ISFSI Cask Decontamination and Surveys; Revision 3

Radiation Protection Implementing Procedure; ISFSI Cask Radiation and Contamination Monitoring; Revision 2

Radiation Protection Survey Record; dated August 24, 2005; April 11, 2006, June 5, 2006; September 7, 2006; December 19, 2006; March 8, 2007; April 13, 2007

Radiological Planning Checklist; Remove, Prep, and Transfer Cask Number 24 to ISFSI per D95.3; dated April 12, 2007

Radiological Pre-Job Briefing Form; WO Number 3313509, Remove, Prep, and Transfer Cask Number 24 to ISFSI per D95.3, RWP 19

Radiological Work Assessment Form Contamination Control; Remove Prep, and Transfer Cask Number 24 to ISFSI per D95.3; dated April 6, 2007

Radiological Work Assessment Form Exposure Control; Remove, Prep, and Transfer Cask Number 24 to ISFSI per D95.3; dated April 6, 2007

WO 0409085; ISFSI Quarterly Safety Status Surveillance; dated March 9, 2005

WO 0500323; ISFSI Quarterly Safety Status Surveillance; dated May 31, 2005

WO 0501858; ISFSI Quarterly Safety Status Surveillance; dated August 23, 2005

WO 0506159; ISFSI Quarterly Safety Status Surveillance; dated November 14, 2005

WO 108336; ISFSI Quarterly Safety Status Surveillance; dated February 13, 2006

WO 153982; ISFSI Quarterly Safety Status Surveillance; dated April 26, 2006

WO 284030; ISFSI Quarterly Safety Status Surveillance; dated July 10, 2006

WO 287351; ISFSI Quarterly Safety Status Surveillance; dated October 9, 2006

WO 291396; ISFSI Quarterly Safety Status Surveillance; dated January 15, 2007

WO 300602; ISFSI Quarterly Safety Status Surveillance; dated April 9, 2007

WO 0407362; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; dated February 2, 2005

WO 0407366; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; dated March 1, 2005

WO 0500324; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; dated July 12, 2005

WO 0154428; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; dated August 10, 2006  
WO 0154429; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; dated September 7, 2006  
WO Package 00313276; SP 1075 TN-40 Fuel Selection and Identification; dated April 20, 2007  
WO Package 00099587; PM 3160-3 Auxiliary Building Crane Mechanical/Electrical Inspection; dated January 16, 2006  
WO Package 00292546; PM 3160-3 Auxiliary Building Crane Mechanical/Electrical Inspection; dated January 11, 2007  
WO 158531; SP 1077 Special Lift Fixture For TN-40 Cask; dated January 3, 2005  
WO 300993; Crane Hooks Annual Nondestructive Examination; dated May 17, 2007  
WO 407359; SP 1077 Special Lift Fixture for TN-40 Cask; dated July 14, 2006

## LIST OF ACRONYMS USED

ACE	Apparent Cause Evaluation
ADAMS	Agencywide Documents Access and Management System
ALARA	As-Low-As-Reasonably-Achievable
ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program Action Request
CFR	Code of Federal Regulations
DAC	Derived Air Concentration
DEP	Drill and Exercise Performance
EC	Engineering Change
EP	Emergency Preparedness
ERO	Emergency Response Organization
FIN	Finding
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
KV	Kilovolt
LCO	Limiting Condition for Operation
LER	Licensee Event Report
NCV	Non-Cited Violation
NMC	Nuclear Management Company, LLC
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PANS	Public Alert and Notification System
PARS	Publicly Available Records
PI	Performance Indicator
PINGP	Prairie Island Nuclear Generating Plant
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RHR	Residual Heat Removal
RP	Radiation Protection
RPIP	Radiation Protection Implementing Procedures
RPT	Radiation Protection Technician
RWP	Radiation Work Permit
SDP	Significance Determination Process
SI	Safety Injection
SP	Surveillance Procedure
TLD	Thermoluminescent Dosimeters
TS	Technical Specifications
URI	Unresolved Item
USAR	Updated Safety Analysis Report
VHRA	Very High Radiation Area
WO	Work Order

