



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

April 29, 2010

EA 2009-193  
EA 2010-059

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

**SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2,  
NRC INTEGRATED INSPECTION REPORT 05000282/2010002;  
05000306/2010002 AND 07200010/2010002**

Dear Mr. Schimmel:

On March 31, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed a baseline inspection at your Prairie Island Nuclear Generating Plant, Units 1 and 2. The enclosed report documents the inspection findings, which were discussed on April 1, 2010, with Mr. Brad Sawatzke and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and 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 NRC-identified and two self-revealed findings of very low safety significance were identified. Each finding involved a violation of NRC requirements. However, because of their very low safety significance, and because the 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 Enforcement Policy. Additionally, licensee-identified violations are described in Section 4OA7 of this report.

If you contest the subject or severity of an NCV, 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, DC 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, DC 20555-0001; and the Resident Inspector Office at the Prairie Island Nuclear Generating Plant. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at the Prairie Island Nuclear Generating Plant. The information that you provide will be considered in accordance with Inspection Manual Chapters 0305 and 0310.

M. Schimmel

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

Sincerely,

*/RA/*

John B. Giessner, Chief  
Branch 4  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000282/2010002; 05000306/2010002; 07200010/2010002  
w/Attachment: Supplemental Information

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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: 05000282/2010002; 05000306/2010002;  
07200010/2010002

Licensee: Northern States Power Company, Minnesota

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

Location: Welch, MN

Dates: January 1 through March 31, 2010

Inspectors: K. Stoedter, Senior Resident Inspector  
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Approved by: J. Giessner, Chief  
Branch 4  
Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

IR 05000282/2010002; 05000306/2010002; 07200010/2010002; 1/1/2010 – 3/31/2010; Prairie Island Nuclear Generating Plant, Units 1 and 2; Internal Flooding, Operability Evaluations, Surveillance Testing, and Event Followup.

This report covers a 3-month period of inspection by resident inspectors, announced baseline inspections by regional inspectors, and an inspection of the Independent Spent Fuel Storage Installation. Four Green findings were identified by the inspectors. Each of the findings was considered a Non-Cited Violation of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 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. NRC-Identified and Self-Revealed Findings

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

- Green. A self-revealed finding of very low safety significance and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V were identified on February 9, 2010, due to operations personnel failing to accomplish Surveillance Procedure (SP) 1003, "Analog Protection Functional Test," in accordance with the instructions provided in the procedure. Specifically, operations personnel failed to position the rod bank selector to manual as directed by Step 9.5.1.D of SP 1003. As a result, the control rods automatically responded inward to a simulated change in first stage turbine pressure which resulted in an approximate seven percent reduction in reactor power. Corrective actions for this issue included removing all licensed operators associated with this event from duty pending remediation, reviewing this event and reinforcing the requirements for pre-job briefings and procedure use and adherence with all operations personnel, and reinforcing the expectation to use human performance tools.

The inspectors determined that this finding was more than minor because it was associated with the human performance attribute of the Initiating Events cornerstone. In addition, this finding impacted the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding was of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating systems equipment or functions would not be available. The inspectors concluded that this finding was cross-cutting in the Human Performance, Work Practices area because operations personnel failed to properly use human error prevention techniques, such as pre-job briefings, self and peer checking, and proper documentation of activities such that work activities are performed safely (H.4(a)). (Section 4OA3.4)

#### **Cornerstone: Mitigating Systems**

- Green. The inspectors identified finding of very low safety significance and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," due to the licensee's failure to implement design control measures to ensure that the functions of the diesel-driven cooling water pumps (DDCLPs) and the fuel oil system were

maintained following an internal flood in the plant screenhouse. Specifically, the licensee failed to address the need for additional fuel oil volume following the loss of the DDCLP fuel oil transfer pump motor starters due to the flood waters. Immediate corrective actions included increasing the fuel oil volume in the fuel oil storage tanks. The licensee was also exploring the need to relocate the motor starters to an alternate location that would not be impacted by the flood waters.

The inspectors determined this finding was more than minor because the Mitigating Systems cornerstone design control attribute and objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences were affected. The inspectors determined that this finding was of very low safety significance because it did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This issue was not assigned a cross cutting aspect since the cause dates back greater than 3 years and was not reflective of current performance. (Section 1R06.1)

- Green. The inspectors identified a finding of very low safety significance and a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V for the failure to adequately implement Procedure FP-OP-OL-01, "Operability/Functionality Determination." The failure to adequately implement this procedure resulted in the completion of determinations which failed to fully assess the safety function of the equipment, failed to fully evaluate information contained in the Updated Safety Analysis Report, or included information which questioned the component's ability to meet Technical Specification requirements. Corrective actions for this issue included initiating an adverse trend corrective action document, revising the impacted operability determinations, performing an apparent cause evaluation on the programmatic weaknesses, and implementing additional corrective actions as necessary.

The inspectors determined that this issue was more than minor because the implementation weaknesses resulted in completing operability determinations which cast reasonable doubt on the continued operability of the equipment or demonstrated significant programmatic concerns that could lead to worse errors if not corrected. The inspectors determined that this issue was of very low safety significance because each of the conditions described in the determinations did not result in a loss of safety function of a single train for greater than the allowed outage time. The inspectors determined that this finding was cross-cutting in the Human Performance, Decision Making area because although the licensee had formally defined and communicated the authority and roles for decisions affecting nuclear safety, the implementation of these roles and authorities were not as designed. In addition, the interdisciplinary reviews of these safety-significant decisions were not always effective (H.1(a)). (Section 1R15.1)

- Green. A self-revealed finding of very low safety significance and a Non-Cited Violation of Technical Specification 5.4.1 were identified on January 27, 2010, when the licensee failed to establish an appropriate procedure for testing component cooling water pump return check valve CC-5-2. As a result, additional system inoperability and unavailability time were accumulated until the procedural inadequacies could be addressed and the procedure was performed successfully. Corrective actions included revising the test procedures to incorporate an improved test method and re-testing valve CC-5-2.

The inspectors determined that this finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems

cornerstone and impacted the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to establish an appropriate test procedure resulted in an additional 34 hours of system inoperability/unavailability. This finding was determined to be of very low safety significance because it was not a design deficiency, did not result in a loss of system safety function, was not an actual loss of safety function of one train of equipment for greater than the Technical Specification allowed outage time, and did not screen as a potentially significant seismic, flooding, or severe weather issue. The inspectors determined that this finding was cross-cutting in the Problem Identification and Resolution, Corrective Action area, because the licensee did not thoroughly evaluate a November 2009 problem with valve CC-5-2 such that the resolution addressed the cause and extent of the condition (P.1(c)). (Section 1R22.1)

**B. Licensee-Identified Violations**

Violations of very low-safety-significance were identified by the licensee and reviewed by inspectors. Corrective actions taken by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 operated at full power levels with the following exceptions:

- Operations personnel lowered reactor power to 99.5 percent on January 12, 2010, due to an unexpected failure of a 1A reheater drain tank level transmitter.
- Reactor power was lowered to 97 percent on January 20, 2010, to repair the 1A reheater drain tank level transmitter.
- On February 9, 2010, reactor power unexpectedly lowered to 94.3 percent due to a human performance error during the conduct of Surveillance Procedure (SP) 1003, "Analog Protection Functional Testing." See Section 4OA3 of this report for additional details.

Unit 2 operated at or near full power levels with the following exceptions:

- Operations personnel lowered reactor power to 95 percent on January 23, 2010, to perform planned maintenance on the heater drain tank pumps.
- Reactor power was lowered to 98 percent on January 27, 2010, to conduct routine maintenance on two control valves.

### **1. REACTOR SAFETY**

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

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

##### .1 External Flooding

##### a. Inspection Scope

On March 15, 2010, operations personnel entered Abnormal Operating Procedure AB-4, "Flood," due to the three day forecasted river level being greater than 678 feet. The inspectors reviewed the abnormal operating procedure and the compensatory measures needed to mitigate the predicted flooding conditions to ensure they could be implemented as written. The inspectors evaluated the design and material condition of equipment used to mitigate flooding conditions and toured low lying areas to identify potential in-leakage. The inspectors also performed a walkdown of the protected area to identify any modification to the site which would inhibit site drainage during the predicted flood conditions or allow water ingress past a barrier. Operations personnel exited Procedure AB-4 on March 29, 2010. No significant flooding was experienced at the station. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one external flooding sample as defined in IP 71111.01-05.



b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- 12 Diesel-Driven Cooling Water Pump (DDCLP) and the 121 Motor-Driven Cooling Water Pump while the 22 DDCLP was out of service for maintenance;
- B Train of the Unit 2 Component Cooling Water System while the redundant train was out of service for maintenance;
- A Train of the Unit 1 Safety Injection System while the 12 Safety Injection Pump was out of service for maintenance;
- D6 Emergency Diesel Generator while D5 was out of service for emergent maintenance.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Safety Analysis Report (USAR), Technical Specification (TS) requirements, outstanding work orders (WOs), corrective action program documents (CAPs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

These activities constituted four partial system walkdown samples as defined in Inspection Procedure (IP) 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Control Room (Fire Area 13/Zone 57);
- A and B Train Hot Shutdown Panel and Air Compressor/Auxiliary Feedwater Room (Fire Areas 31 and 32/Zone 2);
- Train A Event Monitoring Room (Fire Area 10/Zone 26);
- Unit 1 Auxiliary Building Mezzanine (Fire Area 59/Zones 19 and 108); and
- Unit 2 Auxiliary Building Mezzanine (Fire Area 74/Zone 46).

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the licensee's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Documents reviewed are listed in the Attachment to this report.

These activities constituted five quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On January 20, 2010, the inspectors observed the fire brigade respond to an actual fire condition on the D3 diesel generator. The inspectors observed the licensee's response to the fire at the fire scene. The inspectors ensured that fire brigade members were: (1) properly wearing turnout gear and self-contained breathing apparatus (when required); (2) properly used and laid out fire hoses; (3) employed appropriate fire fighting

techniques; (4) brought sufficient firefighting equipment to the scene; (5) searched for victims and propagation of the fire into other plant areas; (6) utilized pre-planned strategies; and (7) effectively coordinated activities with the control room and the Red Wing Fire Department. The inspectors also monitored the coordination of fire related activities from the control room and ensured that the control room operators had properly evaluated the fire condition as a potential emergency action level entry condition. Lastly, the inspectors attended the licensee's critique and verified that the licensee staff identified areas for improvement; openly discussed performance in a self-critical manner; and took appropriate corrective actions. Documents reviewed are listed in the Attachment to this report.

These activities constituted one annual fire protection inspection sample as defined in IP 71111.05-05.

b. Findings

No findings of significance were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors performed a walkdown of the following plant area to assess whether safety-related equipment was adequately protected from the impact of an internal flooding event:

- 121 and 122 DDCLP Fuel Oil Transfer Pumps (FOTPs) and the associated motor starters.

Documents reviewed as part of this inspection are listed in the Attachment. This inspection constituted one internal flooding sample as defined in IP 71111.06-05.

b. Findings

Introduction: An NRC-identified finding of very low safety significance and a Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," were identified due to the licensee's failure to implement design control measures to ensure that the function of the DDCLPs and the fuel oil system were maintained following an internal flood in the plant screenhouse. Specifically, the licensee failed to address the need for additional fuel oil volume following the loss of the DDCLP FOTP motor starters due to the flood waters.

Description: On February 5, 2010, the inspectors observed the location of motor starters for both FOTPs as being susceptible to internal flooding. The motor starters were located approximately 20 feet below grade and adjacent to the non-safety related circulating water pumps and piping. Under normal circumstances, the motor starters were used to start the FOTPs such that fuel oil from the DDCLP underground storage tanks could be transferred to the DDCLP day tanks. Due to the location of the motor starters, the inspectors were concerned that the FOTPs would be unable to

automatically refill the day tanks during an internal flooding event. The inspectors were also concerned that the loss of the motor starters could result in the licensee failing to meet the fuel oil inventory specified in the TS due to the loss of the two DDCLP fuel oil storage tanks. The licensee initiated CAP 1217275 to document the inspectors concerns. The licensee also entered two 48-hour TS limiting conditions for operation until adequate fuel oil volume could be restored.

As part of this inspection, the licensee provided the inspectors with an August 3, 1972, letter from the Atomic Energy Commission (former name of the NRC) to Northern States Power which requested that the licensee review flooding effects from non-high energy piping failures. The licensee also provided an October 7, 1998, letter to the NRC which stated that the DDCLP FOTP motor starters would be impacted due to an internal flood caused by a circulating water line leak/break. The inspectors determined that although the licensee's 1998 letter stated that the fuel oil supply to the DDCLPs would be maintained following an internal flooding event (through the use of manual operator actions), the licensee had not identified that the fuel oil volume remaining after the internal flood would likely not meet the requirements of TSs 3.7.8 or 3.7.9. As a result, the continued operation of the DDCLPs would not have been supported.

The licensee conducted an apparent cause evaluation and as a result compensatory measures were established through numerous temporary procedure changes. These procedure changes ensured that the combined fuel oil volume remained above the TS required values.

Analysis: The inspectors determined that the licensee's failure to implement design control measures to ensure that the functions of the DDCLPs and the fuel oil system were maintained following an internal flood in the plant screenhouse was a performance deficiency that required evaluation using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process [SDP]." The inspectors determined this finding was more than minor because the Mitigating Systems cornerstone design control attribute and objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences were affected. The inspectors evaluated the significance of this finding using IMC 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors concluded that this finding was of very low safety significance because it did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Additionally, the inspectors evaluated the finding to determine if it met all four criteria of old design in IMC 0305. The inspectors determined that the criteria were not met because the finding was NRC-identified. A cross-cutting aspect was not assigned since the cause if this issue dates back greater than 3 years and was not reflective of current performance.

Enforcement: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established to assure that the design basis for safety related functions of structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. The USAR Section 6.1.2.8, "Engineered Safety Features Protection from Internal Flooding," states that the operating staff has enough time to isolate the cause of the internal flooding before safety related equipment functions would be lost. In addition, the USAR Section 6.1.2.4 states that all engineered safety features provide sufficient performance capability to accommodate

any single failure of an active component and still function in a manner to avoid undue risk to the health and safety of the public.

Contrary to the above, as of February 8, 2010, the licensee had failed to implement design control measures to ensure that the DDCLPs and the fuel oil system were provided with sufficient performance capability to accommodate any single failure of an active component and that internal flooding in the plant screenhouse would be isolated prior to losing the safety related equipment functions for the DDCLPs or the fuel oil system. Because this finding was of very low safety significance, and because it was entered into the corrective action program as CAP 1217275, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy **(NCV 05000282/2010002-01; 05000306/2010002-01; Failure to Ensure Cooling Water and Fuel Oil Systems Were Protected from Flooding Impacts)**. Corrective actions for this issue included increasing the fuel oil volume in the storage tanks that were not impacted by the flood and initiating paperwork associated with changing the location of the motor starters.

1R07 Annual Heat Sink Performance (71111.07)

.1 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the licensee's testing of the jacket water heat exchanger for the 22 DDCLP and the opening, inspection, and cleaning of the 22 DDCLP's right angle drive gear oil cooler. The purpose of this inspection was to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance and to ensure that the licensee was adequately addressing problems that could impact mitigating systems equipment performance or result in initiating events. The inspectors reviewed the licensee's test and inspection results and compared the results against acceptance criteria. The inspectors also viewed the condition of the right angle drive gear oil cooler prior to cleaning to assess the level of zebra mussels present within the cooler. Documents reviewed for this inspection are listed in the Attachment to this document.

This annual heat sink performance inspection constituted two samples as defined in IP 71111.07-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On February 2, 2010, the inspectors observed a crew of licensed operators in the simulator during licensed operator regualification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew

performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program sample as defined in IP 71111.11.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk-significant systems:

- Auxiliary Feedwater System, and
- Shield Building Ventilation System.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and

- verifying appropriate performance criteria for structures, systems, and components/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings of significance were identified.

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

.1 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of risk for the maintenance and emergent work activities listed below to verify that the appropriate risk assessments were performed prior to removing equipment from service:

- Work Week 1002 which included planned maintenance on the 122 Intake Screenhouse Bypass Gate, the 121 Instrument Air Dryer, the 121 Motor-Driven Cooling Water Pump, and the 11 Turbine-Driven Auxiliary Feedwater Pump;
- Emergent work on the 122 FOTP and planned maintenance on the 22 Charging Pump;
- Emergent work on the D5 Diesel Generator and the 122 FOTP;
- Work Week 1010 which included planned maintenance on the cooling water system and the 123 Instrument Air Dryer; and
- Emergent work on the 122 Control Room Chiller.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

These maintenance risk assessments and emergent work control activities constituted five samples as defined in IP 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- Operability Recommendation (OPR) 1122451, Potential Blockage of the Emergency Intake Line Following a Lock and Dam Failure, Revision 3;
- OPR 1203173, Auxiliary Feedwater Room Heatup Following a High Energy Line Break, Revision 1;
- OPR 1217274, D5 Lockout During Surveillance Testing, Revision 0;
- OPR 1217275, Internal Flooding in Greenhouse Results in Need to Manually Fill DDCLP Fuel Oil Day Tanks, Revision 0;
- OPR 1217917, Ability of Auxiliary Feedwater Pump Discharge Low Pressure Switch to Provide Adequate Protection, Revision 0;
- OPR 1221675, High Crankcase Pressure Condition on D5 Emergency Diesel Generator, Revision 0;
- OPR 1219281, Error on Revision 2 to Calculation 91-02-11, Revision 0; and
- OPR 1175363, 12 DDCLP Quality Control Issues, Revision 3.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and USAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted eight samples as defined in IP 71111.15-05.

b. Findings

Inadequate Implementation of Operability Determination Program

Introduction: The inspectors identified a Green finding and an NCV of 10 CFR Part 50, Appendix B, Criterion V, for the failure to adequately implement Procedure FP-OP-OL-01, "Operability/Functionality Determination." The failure to adequately implement this procedure resulted in the completion of operability determinations which



failed to fully assess the safety function of the equipment, failed to fully evaluate information contained in the USAR or included information which questioned the components ability to meet TS requirements.

Description: In February 2010, the D5 emergency diesel generator (EDG) experienced a lockout condition during surveillance testing. The licensee declared the EDG inoperable and conducted a troubleshooting effort. This troubleshooting effort consisted of performing calibration and functional testing of two relays suspected of causing the lockout condition and sending the relays to the vendor for additional testing. Both the licensee and the vendor were unable to find any deficiencies with either relay. Prior to returning the EDG to service, the licensee completed appropriate post-maintenance testing. The licensee also documented their basis for continued D5 operability in OPR 1217274-01.

On February 9, 2010, the inspectors reviewed OPR 1217274-01 and identified that the licensee had failed to document and assess the effect of the potentially degraded relays on the ability of D5 to perform its safety function as required by Step 5.3.1.2 of Procedure FP-OP-OL-01. The licensee initiated CAP 1218971 to document the inspectors' concern. The licensee also revised the OPR such that it adequately documented and assessed the effect of the potentially degraded relays on the ability of D5 to perform its safety function. The inspectors reviewed the revised OPR and had no additional concerns.

On February 8, 2010, the inspectors identified that internal flooding in the plant screenhouse could result in making the DDCLP fuel oil transfer pumps inoperable. The licensee initiated OPR 1217275-01 to assess the continued operability of the DDCLPs. The inspectors reviewed the licensee's immediate operability call and identified that the shift manager had only stated that adequate fuel oil volume remained available and procedures existed for manually filling the fuel oil day tanks. The inspectors reviewed the completed OPR and identified that the licensee had not classified the manual actions needed to refill the DDCLP fuel oil day tanks as a compensatory measure. The licensee believed that these actions were not a compensatory measure because the manual realignment of the storage tanks was discussed in Chapter 10 of the USAR. However, the licensee had not addressed the fact that Section 10.3.13.5.1 of the USAR stated that the fuel oil day tanks were provided with level switches for automatic makeup.

On March 10, 2010, the inspectors reviewed OPR 1221675-03. The inspectors identified statements in the OPR regarding the continued ability of the D5 EDG to meet the 24 hour load test specified in TS Surveillance Requirement (SR) 3.8.1.9. The inspectors discussed these statements with the shift manager. The shift manager and the inspectors had additional discussions with engineering personnel and learned that the statements regarding the ability to satisfy TS SR 3.8.1.9 were believed to have been removed from the OPR prior to approval. The licensee initiated CAP 1222182 to document the error in the OPR. The OPR was revised to remove the inaccurate statements. The inspectors reviewed the revised OPR and had no additional concerns.

Analysis: The inspectors determined that the failure to adequately implement Procedure FP-OP-OL-01 was a performance deficiency that required evaluation using the SDP. This finding impacted the Mitigating Systems cornerstone. The inspectors determined that this issue was more than minor because the examples described above either resulted in reasonable doubt on the operability of safety-related equipment or

demonstrated significant programmatic concerns that could lead to worse errors if not corrected. The inspectors determined that this issue was of very low safety significance because each of the issues discussed above did not result in a loss of safety function of a single train for greater than the allowed outage time. The inspectors determined that this finding was cross-cutting in the Human Performance, Decision Making area because although the licensee had formally defined and communicated the authority and roles for decisions affecting nuclear safety, the implementation of these roles and authorities were not as designed. In addition, the interdisciplinary reviews of these safety-significant decisions were not always effective (H.1(a)).

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed and accomplished by procedures appropriate to the circumstance. The licensee implemented the operability determination process (an activity affecting quality) using Procedure FP-OP-OL-01, "Operability/Functionality Determination." FP-OP-OL-01 required, in part, that the licensee ensure the continued operability of safety-related equipment, assess the effect of the degraded or potentially degraded condition on the ability of the equipment to perform its safety function, and to evaluate the continued compliance with the licensing and design bases for the impacted equipment. Contrary to the above, between February 8 and March 10, 2010, the licensee failed to appropriately assess the continued operability of the D5 EDG and the fuel oil system in accordance with Procedure FP-OP-OL-01. Because this finding was of very low safety significance, and because it was entered into the corrective action program as CAP 1222084, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy (**NCV 05000282/2010002-02; 05000306/2010002-02; Failure to Adequately Implement Operability Procedure**). Corrective actions for this issue included revising the impacted OPRs, performing an apparent cause evaluation, and implementing additional corrective actions to improve implementation of the operability determination program.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the following temporary modification:

- Engineering Change 15510 – Temporary Flood Control Barrier for D5/D6.

The inspectors compared the temporary configuration change and associated 10 CFR 50.59 screening and evaluation information against the design basis, the USAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors also compared the licensee's information to operating experience information to ensure that lessons learned from other utilities had been incorporated into the licensee's decision to implement the temporary modification. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed and that the modification operated as expected. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

This inspection constituted one temporary modification sample as defined in IP 71111.18-05.

b. Findings

No findings of significance were identified.

.2 Permanent Plant Modifications

a. Inspection Scope

The following engineering design package was reviewed and selected aspects were discussed with engineering personnel:

- Engineering Change 15150, DDCLP Cooling Supply Modification

This document and related documentation were reviewed for adequacy of the associated 10 CFR 50.59 safety evaluation screening, consideration of design parameters, implementation of the modification, post-modification testing, and relevant procedures, design, and licensing documents were properly updated. The inspectors observed ongoing and completed work activities to verify that installation was consistent with the design control documents. The modification supplied filtered cooling water to various DDCLP coolers to reduce known cooler plugging vulnerabilities. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

This inspection constituted one permanent plant modification sample as defined in IP 71111.18-05.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- Various tests for 22 DDCLP;
- Various tests for the 122 FOTP;
- SP 2093, D5 Diesel Generator Monthly Slow Start following emergent maintenance on the D5 Diesel Generator;
- TP 2087B, Train B Safety Injection Pump Monthly Lubrication following emergent maintenance on the 21 Safety Injection Pump;
- PM-3002-2-12, 12 DDCLP following maintenance; and
- PM-3109-1-11, 11 Cooling Water Strainer following maintenance.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TS, the USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted six post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- SP 1218, Monthly 4 Kilovolt Bus 15 Undervoltage Relay Test (routine);
- SP 1093, D1 Diesel Generator Monthly Slow Start and SP 1334, D1 Diesel Generator 18-Month 24-Hour Load Test (routine);
- SP 1106A, 12 Diesel-Driven Cooling Water Pump Monthly Test (routine); and
- SP 1155B, Component Cooling Water System Quarterly Test Train B (inservice testing).

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;

- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency were in accordance with TSs, the USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies 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 and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the corrective action program.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted three routine surveillance testing sample(s) and one inservice testing sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

Introduction: A self-revealed finding of very low safety significance and an NCV of TS 5.4.1 were identified on January 27, 2010, when the licensee failed to establish appropriate procedures for testing component cooling water (CC) pump return check valve CC-5-2. As a result, the licensee was required to accumulate additional TS inoperability and system unavailability time to revise the procedure and appropriately test the check valve.

Description: On November 3, 2009, the licensee unsuccessfully performed quarterly testing used to ensure that valve CC-5-5 properly closed. This testing was required by the licensee's Inservice Testing Program and TS 5.5.7. At the time, the procedure utilized a test methodology where select valves were closed to create a differential pressure across the check valve. The acceptance criterion, specified in terms of differential pressure, was used to determine if the check valve had closed. The license

initiated CAP 1205504 to document the test failure. The licensee subsequently revised the test methodology via a temporary procedure change and satisfactorily re-performed the test.

The inspectors reviewed the licensee's apparent cause evaluation for CAP 1205504. The evaluation concluded that potential voiding in the CC system contributed to the test difficulties experienced in November 2009. The licensee planned to permanently incorporate the revised test methodology into the associated procedures prior to the next quarterly tests.

On January 27, 2010 (the next quarterly test), CC-5-2 failed its surveillance test. The licensee identified this condition via CAP 1215434. The licensee established a troubleshooting team to determine the cause of the test failure. During troubleshooting, the CC system was configured in different line-ups and one line-up revealed potential in-leakage past a boundary valve. The inspectors discussed the boundary valve leakage with engineering personnel and concluded that the apparent cause investigation from 3 months earlier had not fully evaluated the impact of boundary valve leakage. As a result, the test procedure revisions failed to contain an adequate test methodology. The licensee made an additional revision to the test methodology and successfully re-performed the test. However, the failure to adequately evaluate the impact of boundary valve leakage as part of the initial apparent cause investigation resulted in the licensee accumulating an additional 34 hours of inoperability/unavailability time.

Analysis: The inspectors determined that the failure to establish appropriate procedures for testing valve CC-5-2 was a performance deficiency that impacted the Mitigating Systems cornerstone and required evaluation using the SDP. The inspectors determined that this finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and impacted the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low safety significance because it was not a design deficiency, did not result in a loss of system safety function, was not an actual loss of safety function of one train of equipment for greater than the TS allowed outage time, and did not screen as a potentially significant seismic, flooding, or severe weather issue. The inspectors determined that this finding was cross-cutting in the Problem Identification and Resolution, Corrective Action area, because the licensee did not thoroughly evaluate the November 2009 problem such that the resolution addressed the cause and extent of the condition (P.1(c)).

Enforcement: Technical Specification 5.4.1 requires that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, February 1978, Section 8, requires that procedures be established, implemented and maintained for each surveillance test required by the TS. Contrary to the above, on January 27, 2010, the surveillance procedure used to test valve CC-5-2 (SP 1155B) was not appropriately established. The procedure failed to contain an appropriate test methodology to ensure the valve was adequately tested. Because this violation was of very low safety significance and it was entered into the CAP as CAP 1215434, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy

**(NCV 05000282/2010002-03; Failure to Have Adequate Procedure for Testing Valve**

**CC-5-2).** Corrective actions for this issue included revisions to four surveillance procedures to incorporate the revised test methodology and re-performing the surveillance test.

**Cornerstone: Emergency Preparedness**

1EP6 Drill Evaluation (71114.06)

.1 Training Observation

a. Inspection Scope

The inspector observed a simulator training evolution for licensed operators on January 26, 2010, which required emergency plan implementation by a licensed operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the Attachment to this report.

This inspection of the licensee's training evolution with emergency preparedness drill aspects constituted one sample as defined in IP 71114.06-05.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

This inspection constitutes a partial sample as defined in IP 71124.01.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed licensee performance indicators for the Occupational Exposure Cornerstone for follow-up. The inspectors reviewed the results of radiation protection program audits (e.g., licensee's quality assurance audits or other independent audits). The inspectors reviewed reports of operational occurrences related to occupational radiation safety since the last inspection. The inspectors reviewed the results of the audits and operational reports to gain insights into overall licensee performance.

b. Findings

No findings of significance were identified.

.2 Risk-Significant High Radiation Area and Very High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors discussed the controls and procedures for high-risk high radiation areas (HRAs) and very high radiation areas (VHRAs) with the Radiation Protection Manager. The inspectors assessed whether any changes to licensee procedures substantially reduced the effectiveness and level of worker protection.

The inspectors reviewed special areas that have the potential to become VHRAs during certain plant operations (e.g., pressurized-water reactor thimble withdrawal into the reactor cavity sump; spent fuel pool, cavity, pit diving, etc.) The inspectors discussed these areas with health physics staff and managers to assess if the communication beforehand with the health physics group would allow for corresponding timely actions to properly post, control, and monitor the radiation hazards including re-access authorization. The inspectors evaluated licensee controls for VHRAs, and areas with the potential to become a VHRA, to ensure that an individual was not able to gain unauthorized access to the VHRA.

b. Findings

No findings of significance were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

This inspection constitutes a partial sample as defined in IP 71124.05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors obtained copies of the procedures that govern instrument source checks and calibrations with a focus on instruments used for monitoring transient high radiological conditions, including instruments used for underwater surveys. The inspector reviewed the calibration and source check procedures for adequacy and as an aid to smart sampling in preparation for the onsite inspection.

b. Findings

No findings of significance were identified.

.2 Calibration and Check Sources (02.03)

a. Inspection Scope

The inspectors reviewed the licensee's control of radioactive sources and plant source term to determine if the calibration sources used are representative of the types and



energies of radiation encountered in the plant. The inspectors determine that the licensee is properly scaling for hard-to-detect radionuclides.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution (02.04)

a. Inspection Scope

The inspectors verified that the problems associated with radiation source control and radiation monitoring instrumentation are being identified by the licensee at an appropriate threshold and are properly addressed for resolution in the licensee corrective action program. In addition to the above, the inspectors verified the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring instrumentation.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours performance indicator (PI) for Units 1 and 2 for the period from the first quarter of 2009 through the fourth quarter of 2009. To determine the accuracy of the PI data reported during those periods, guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's operator narrative logs, corrective action program reports, event reports and applicable NRC Inspection Reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's corrective action database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. No problems with the performance indicator accuracy or completeness were found. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two unplanned scrams per 7000 critical hours samples as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications performance indicator for Units 1 and 2 for the period from the first quarter of 2009 through the fourth quarter of 2009. To determine the accuracy of the PI data reported during those periods, guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's operator narrative logs, corrective action program reports, event reports, and applicable NRC Inspection Reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's corrective action database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. No problems with the performance indicator accuracy or completeness were found. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two unplanned scrams with complications samples as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.3 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours performance indicator for Units 1 and 2 for the period from the first quarter of 2009 through the fourth quarter of 2009. To determine the accuracy of the PI data reported during those periods, guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's operator narrative logs, corrective action program reports, event reports and applicable NRC Inspection Reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's corrective action database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. No problems with the performance indicator accuracy or completeness were found. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two unplanned transients per 7000 critical hours samples as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the attached List of Documents Reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily CAP packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

#### 4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

##### .1 Control of Keys to Radiologically Significant Areas

###### a. Inspection Scope

The inspectors reviewed the licensee's immediate response following the discovery of improperly controlled high radiation area keys within a room in the New Administration Building. This issue was reviewed by a NRC regional specialist. The results of this review are documented in Section 4OA7 of this inspection report.

This event followup review constituted one sample as defined in IP 71153-05.

###### b. Findings

A licensee-identified finding is included in Section 4OA7 of the report.

##### .2 Control of Radioactive Sources

###### a. Inspection Scope

The inspectors reviewed the licensee's immediate actions following the discovery of a potentially missing radioactive source from the licensee's source inventory. The inspectors discussed these actions with licensee and NRC personnel and observed portions of the licensee's search efforts. In addition to the resident inspectors' immediate review, this issue was also inspected by an NRC regional specialist. The results of this inspection are documented in Sections 4OA3.8 and 4OA7 of this report.

This event follow-up review constituted one sample as defined in IP 71153-05.

###### b. Findings

A licensee-identified finding is included in Section 4OA7 of the report.

##### .3 Contaminated Materials Identified Outside of a Radiologically Controlled Area

###### a. Inspection Scope

The inspectors reviewed the licensee's actions following the discovery of a contaminated tool outside of the radiologically controlled area. The inspectors specifically discussed when the tool was used inside the radiologically controlled area, the process used to release the tool from the radiologically controlled area, that the tool was found outside of the radiologically controlled area but within the protected area fence, the ability of the radiation monitors located at the plant exit to detect the contamination present on the tool, and the licensee's plans to search other areas to aid in identifying whether this issue was an isolated case. In addition to the actions discussed above, this issue was also reviewed by an NRC regional specialist.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

No violations of significance were identified.

.4 Failure to Follow Procedure Results in Reactivity Event

a. Inspection Scope

The inspectors had discussions with operations and maintenance personnel and reviewed procedures, operator logs, and investigation reports to determine the sequence of events that led to an unexpected Unit 1 power reduction on February 9, 2010.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

Introduction: A self-revealed finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V were identified on February 9, 2010, due to operations personnel failing to accomplish SP 1003, "Analog Protection Functional Test," in accordance with the instructions provided in the procedure. Specifically, operations personnel failed to position the rod bank selector to manual as directed by Step 9.5.1.D of SP 1003. As a result, the control rods automatically responded to a simulated change in first stage turbine pressure which resulted in an approximate seven percent reduction in reactor power.

Description: On February 9, 2010, maintenance personnel were performing SP 1003, "Analog Protection Functional Test," in the control room. Although the completion of this SP was predominantly a maintenance task, several steps in the procedure were required to be completed by operations personnel. Upon completing Section 9.4 of the SP, the maintenance individuals requested that the operators complete Step 9.5.1 of the SP. Step 9.5.1 contained sub-steps to re-configure the plant to allow testing of first stage turbine pressure instrument P-485. A short time later, the operators informed the maintenance individuals that Step 9.5.1 of SP 1003 was complete. As the maintenance individuals proceeded with the SP, the bank D control rods began moving into the reactor core at maximum speed. The operators checked multiple control room indications and determined that the indications were as expected. The operators then placed the rod bank selector switch to manual to stop the control rod movement. The unexpected control rod movement resulted in an approximate 7 percent reduction in reactor power and a drop in reactor coolant system temperature of approximately 6 degrees.

The licensee conducted an immediate human performance review of this event and determined that the operators failed to properly perform the sub-steps contained in Step 9.5.1 of SP 1003. The following issues were also identified:

- Procedure use and adherence requirements were not met. Specifically, SP 1003 was designated as a continuous use procedure. Procedure FP-G-DOC-03, "Procedure Use and Adherence," required that each step of a continuous use procedure be read prior to performing the step, that human performance placekeeping aids such as circle/slash be used, and that each step be marked as complete prior to continuing to the next step. While performing Step 9.5.1 of

SP 1003, one of the operators read the procedure sub-steps while another operator performed the sub-steps. The operator performing the sub-steps did not look at the procedure to ensure that the sub-steps were read correctly. Appropriate placekeeping aids were not used and were not challenged by other control room operators or control room supervision. Lastly, the operator reading the procedure sub-steps failed to mark each sub-step as complete prior to continuing to the next sub-step. As a result, the operator reading the procedure sub-steps marked off all four of the procedure sub-steps as complete when only three of the sub-steps had been performed.

- Operations department job planning and preparation were inadequate. The performance of SP 1003 was designated as a medium risk activity in accordance with Procedure FP-WM-IRM-01, "Integrated Risk Management." Section 5.3 of FP-WM-IRM-01 required that the responsible group supervisor manage the work activity using Attachment 1 of FP-WM-IRM-01. Attachment 1 required that a pre-job brief be held with personnel performing the task and any support personnel that were directly supporting the task. Although a tailgate brief was conducted, the operations personnel involved in supporting the completion of SP 1003 did not attend the pre-job brief held for the maintenance personnel. In addition, operations supervision did not require that a separate pre-job briefing of the operations personnel be completed prior to performing SP 1003.

Analysis: The inspectors determined that the failure to accomplish SP 1003 in accordance with the documented instructions was a performance deficiency that required an evaluation using the SDP. The inspectors determined that this finding was more than minor because it was associated with the human performance attribute of the Initiating Events cornerstone. In addition, this finding impacted the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations in that it resulted in an unexpected power change. This finding was of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating systems equipment or functions would not be available. The inspectors concluded that this finding was cross-cutting in the Human Performance, Work Practices area, because operations personnel failed to properly use human error prevention techniques, such as pre-job briefings, self and peer checking, and proper documentation of activities such that work activities were performed safely (H.4(a)).

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, and drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, and drawings. Contrary to the above, on February 9, 2010, operations personnel failed to accomplish SP 1003, "Analog Protection Functional Test," an activity affecting quality, in accordance with the documented instructions. Specifically, Step 9.5.1.D required control room personnel to place the rod bank selector in the manual position. However, this step was not performed. Due to this error, a reactivity event occurred which resulted in a seven percent power reduction. Because this violation was of very low safety significance and was entered into your corrective action program as CAP 1217545, it was treated as an NCV consistent with Section VI.A.1 of the Enforcement Policy **(NCV 05000282/2010002-04; Failure to Accomplish Analog Protection Functional Test Per Procedural Instructions)**. Corrective actions for this issue included removing

all licensed operators associated with this event from duty pending remediation, reviewing this event and reinforcing the requirements for procedure use and adherence with all operations personnel, reinforcing the expectation to use human performance tools with operations personnel, and reviewing the expectation that pre-job briefings be performed for all required activities.

.5 (Closed) Licensee Event Report 05000282/2009-008-00: Unanalyzed Condition Due to an Inadequate Fire Barrier

On December 11, 2009, the licensee conducted walkdown activities of Fire Area 32 to support their transition to National Fire Protection Association (NFPA) 805. During this walkdown, the licensee discovered that fire induced damage to cable 1C-333 could cause a spurious lockout of the 1RY transformer. The licensee had credited the 1RY transformer and Bus 16 with providing electrical power to equipment needed to achieve and maintain hot shutdown following a fire. Because the 1RY transformer was not free from damage if a fire occurred in Fire Area 32, the licensee decided to credit the D2 EDG as the power supply to Bus 16.

Three days later, the licensee identified that a 4-foot portion of the cable associated with D2 was not adequately protected from fire damage if a fire were to occur in Fire Area 32. Due to the fact that cable associated with Bus 15 also resided in Fire Area 32, the licensee reviewed the fire barrier and separation requirements found in 10 CFR Part 50, Appendix R. The licensee noted that an automatic wet pipe sprinkler system was installed in the area with fire detection capability. However, the twenty feet of intervening combustibles between equipment associated with Bus 15 and Bus 16 were not available as required by 10 CFR Part 50, Appendix R, Section III.G.2.

The licensee documented this issue in their corrective action program as CAP 1210614. Immediate corrective actions included the continued implementation of an hourly fire watch which had been previously established for an unrelated issue. The licensee planned to revise their Appendix R documentation and ensure that cables for the credited power source have the required fire protection to meet the safe shutdown objectives of NFPA 805. The inspectors concluded that the licensee's corrective actions, both taken and planned, were appropriate and reasonable. The licensee is in transition to NFPA 805 and therefore the licensee-identified violation was evaluated in accordance with the criteria established by Section A of the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR Part 50.48) for a licensee in NFPA 805 transition. The inspectors determined that for this violation: (1) the licensee identified the violation during the scheduled transition to 10 CFR Part 50, Section 48(c); (2) the licensee had established adequate compensatory measures within a reasonable time frame following identification and would correct the violation as a result of completing the NFPA 805 transition; (3) the violation was not likely to have been previously identified by routine licensee efforts; and (4) the violation was not willful. In addition, in order for the NRC to consider granting enforcement discretion the violation must not be associated with a finding of high safety significance (i.e., Red). Therefore, the licensee performed a risk evaluation and determined that this issue was not associated with a finding of high safety significance. A Senior Reactor Analyst reviewed the licensee's risk evaluation and determined that it was sufficient to demonstrate that the issue was not associated with a finding of high safety significance. Therefore, no finding will be documented (EA 2010-059). Documents reviewed as part

of this inspection are listed in the Attachment. This Licensee Event Report (LER) is closed.

This event followup review constituted one sample as defined in IP 71153-05.

.6 (Closed) Licensee Event Report 05000282/2009-007-00: Unanalyzed Condition Due to Breached Fire Barrier

On September 13, 2009, the licensee documented a potential breach between the 11 and 12 battery rooms. Prior investigation had determined that during performance of an electrical maintenance WO, the temporary penetration seal was not constructed in accordance with Procedure D52 "Installation Guidelines for Permanent and Temporary Sealing of Electrical/Mechanical Openings between Established Fire Areas". Additionally, Operations was not notified of the temporary seal to ensure the required fire watch was implemented. The licensee documented this issue in their corrective action program as CAP 1197554. Immediate corrective actions included the continued implementation of an hourly fire watch which had been previously established for an unrelated issue. The inspectors concluded the licensee's immediate corrective actions were appropriate and reasonable. Enforcement aspects of this LER are discussed in Section 4OA7 of this report. Documents reviewed as part of this inspection are listed in the Attachment. This LER is closed.

This event followup review constituted one sample as defined in IP 71153-05.

.7 (Closed) Licensee Event Report Supplement 05000282/2009-007-01: Unanalyzed Condition Due to Breached Fire Barrier

On March 19, 2010, the licensee submitted a supplement to the LER discussed in Section 4OA3.6 of this report. The licensee's apparent cause evaluation determined that the cause of the breached barrier was related to a series of errors in the planning, review, and execution of the WO. Interim actions consisted of ensuring responsibilities with respect to breaching fire penetrations be discussed with work planners, operations, and maintenance personnel. Long term corrective actions included creation of a fire barrier impairment permit to be used when preparing work packages and the conduct of fire protection training for the three work groups. Documents reviewed as part of this inspection are listed in the Attachment. This LER Supplement is closed.

This event followup review constituted one sample as defined in IP 71153-05.

.8 (Closed) Licensee Event Report 05000282/2009-009-00; 05000306/2009-009-00: Radioactive Source Inventory Discrepancy

On January 16, 2009, the licensee notified the NRC that station personnel determined that two radioactive sources were missing that were greater than ten times the quantity specified in 10 CFR 20 Appendix C. These two sources included a 0.07 microcurie ( $\mu\text{Ci}$ ) U234 source installed in a radiation monitor detector and a 2  $\mu\text{Ci}$  mixed gamma standard containing 0.09  $\mu\text{Ci}$  of Am-241. The licensee continued to search for the missing sources and the 2  $\mu\text{Ci}$  mixed gamma standard containing 0.09  $\mu\text{Ci}$  of Am-241 was found on site. The finding affects the public radiation safety cornerstone and was considered to have very low safety significance (Green) using Appendix D of the SDP because it involved a radioactive material control problem that was contrary to NRC requirements



and the licensee's procedures; and the dose impact to a member of the public was less than 5 millirem. The enforcement aspects of the violation are discussed in Section 4OA7. This LER is closed.

#### 4OA5 Other Activities

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

###### a. Inspection Scope

The inspector observed and evaluated portions of the loading and transfer activities associated with cask number 26 to verify compliance with the Certificate of Compliance, TSs, the USAR, and applicable 10 CFR Part 72 requirements. Specifically, the observed activities included placement 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 cask drying and helium leak testing, and transportation of the cask to the Independent Spent Fuel Storage Installation (ISFSI) pad. Additionally, the inspector reviewed the loading and movement procedures evaluating the licensee's adherence to those procedures as part of in-process observations during the inspection. During conduct of these activities, the inspector verified the familiarity of licensee personnel with procedures and procedural steps, the presence of adequate supervisory oversight, and the use of adequate communication and coordination between the work groups. The inspector also attended 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 inspector reviewed the licensee's fuel selection process to verify that the process incorporated the physical, thermal, and radiological fuel acceptance parameters specified in the current Certificate of Compliance and the TSs. The inspector reviewed the fuel selection procedure and qualification records for the 40 assemblies loaded into cask number 26.

The inspector reviewed procedures associated with radiation dose and contamination control to ensure the licensee incorporated the applicable TS and administrative limits into the procedures. The inspector evaluated the methodology and tools used in monitoring cask dose rates as well as 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 specified in the Radiation Work Permit and the As-Low-As-Is-Reasonably-Achievable (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 inspector 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 cask 26, and its associated basket, had been adequately addressed and resolved.

The inspector reviewed conditions reports associated with the licensee's dry fuel storage and corrective actions taken to address issues. The inspector determined that dry fuel

storage issues are identified, documented, addressed, and adequately resolved. A number of the condition reports were associated with alarms for low helium pressure in the cask lid sealing region. The licensee utilizes a TN-40 system where each loaded cask is equipped with a pressure monitoring system. The purpose of this system is to detect loss of pressure in the cask lid double seal region. The inspector reviewed issues associated with low helium alarms and determined that there were no suspected leaks. The alarms were from changing ambient air temperatures and pressures during cold weather which resulted in the compression of helium in the seal region. Inspectors verified that pressures outside alert target ranges were adequately resolved through re-pressurization. Inspectors also reviewed historical information to verify that seal pressures on loaded casks remained within required values.

The inspector reviewed documentation of the annual electrical and mechanical inspections 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 inspector reviewed the licensee's surveillance and maintenance program associated with the storage of fuel. Additionally, reviews of select logs was conducted to verify that plant personnel made the required rounds to perform the cask seal pressure checks and calibrated the pressure monitoring system on a routine basis. Further, the inspector verified that the licensee conducts a visual surveillance of all casks to ensure they were free of significant damage, deterioration, and debris accumulation that could potentially interfere with the proper operation of the casks. Key documents reviewed and used by the inspector are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 (Closed) NRC Temporary Instruction 2515/180: Inspection of Procedures and Processes for Managing Fatigue

a. Inspection Scope

The objective of this Temporary Instruction was to determine if the licensee's implementation procedures and processes required by 10 CFR 26, Subpart I, "Managing Fatigue," were in place to reasonably ensure the requirements specified in Subpart I were being addressed. The Temporary Instruction applied to all operating nuclear power reactor licensees but was intended to be performed at one site per utility. The inspector interfaced with the appropriate station staff to obtain and review station policies, procedures and processes necessary to complete all portions of this Temporary Instruction.

b. Findings

No findings of significance were identified.

.3 (Closed) Violation 05000282/2009012-01; 05000306/2009012-01 (Severity Level III): Failure to Provide Complete Information to the NRC Which Impacted a Licensing Decision

a. Inspection Scope

The inspectors conducted a review of the licensee's response to a Severity Level III Violation (EA2009-193) concerning licensed operator medical records in accordance with IP 92702, "Followup on Corrective Actions for Violations and Deviations."

The inspectors reviewed licensee management assignment of responsibility for implementing corrective actions and licensee procedure changes to ensure full compliance with requirements. The inspectors verified that corrective actions have been fully implemented. The inspectors reviewed several action request items, corrective action program entries, and root cause evaluations. The inspectors reviewed the licensee's immediate and long-term corrective actions outlined in facility letter L-PI-09-104, dated September 30, 2009. The NRC has concluded that information regarding the reason for the violation is accurate, that the corrective actions to correct the violation and prevent recurrence have been implemented, and that full compliance for this violation has been achieved. Based on the above discussion this violation is considered closed.

b. Findings

No findings of significance were identified.

.4 (Closed) NRC Temporary Instruction 2515/173: Review of the Industry Ground Water Protection Voluntary Initiative

a. Inspection Scope

An NRC assessment was performed of the licensee's implementation at Prairie Island Nuclear Generating Plant of the Nuclear Energy Institute – Ground Water Protection Initiative (dated August 2007 (ML072610036)). The inspectors assessed whether the licensee evaluated work practices that could lead to leaks and spills and performed an evaluation of systems, structures, and components that contain licensed radioactive material to determine potential leak or spill mechanisms.

The inspectors verified that the licensee completed a site characterization of geology and hydrology to determine the predominant ground water gradients and potential pathways for ground water migration from onsite locations to off-site locations. The inspectors also verified that an onsite ground water monitoring program had been implemented to monitor for potential licensed radioactive leakage into groundwater and that the licensee had provisions for the reporting of its ground water monitoring results. (See <http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html>.)

The inspectors reviewed the licensee's procedures for the decision making process for potential remediation of leaks and spills, including consideration of the long term decommissioning impacts. The inspectors also verified that records of leaks and spills were being recorded in the licensee's decommissioning files in accordance with 10 CFR 50.75(g).

The inspectors reviewed the licensee's notification protocols to determine whether they were consistent with the Groundwater Protection Initiative. The inspectors assessed whether the licensee identified the appropriate local and state officials and conducted briefings on the licensee's ground water protection initiative. The inspectors also verified that protocols were established for notification of the applicable local and state officials regarding detection of leaks and spills.

b. Findings

No findings of significance were identified.

40A6 Management Meetings

.1 Exit Meeting Summary

On April 1, 2010, the inspectors presented the inspection results to B. Sawatzke and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meeting

An interim exit was conducted for:

- Temporary Instruction 2515/180 Inspection of Procedures and Processes for Managing Fatigue with the licensee's Access Control and Fitness-for-Duty Supervisor, R. Cleveland, on February 22, 2010.
- ISFSI Inspection with Director Site Operations, Brad Sawatzke, on February 1, 2010.
- The results of a closure inspection (IP 92702) regarding a Severity Level III violation for a failure to provide complete and accurate medical information for licensed operators with the Site Training Manger, J. Sternisha, on March 16, 2010.
- The results of the occupational radiation safety inspection and Temporary Instruction 2515/173 with the Plant Manager, Mr. Kevin Ryan, on March 26, 2010.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

40A7 Licensee-Identified Violations

The following violations of very low significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- Licensee Procedure D52, "Installation Guidelines for the Permanent and Temporary Sealing of Electrical/Mechanical Openings Between Established Fire Areas," establishes requirements for the implementation of fire watches for temporary fire penetrations. Contrary to the above, on September 13, 2009, the

licensee failed to ensure a fire watch was established for a temporary penetration between the 11 and 12 battery rooms. The licensee reported this event to the NRC on December 21, 2009, pursuant to 10 CFR Part 50.72(b)(3)(ii)(B). The licensee initially documented this issue in LER 05000282/2009-007-00 and 05000282/2009-007-01.

The inspectors performed a Phase 1 evaluation in accordance with IMC 0609, Appendix F with the finding screening to a delta core damage frequency greater than or equal to the corresponding value in Table A1.1. A regional fire protection specialist and a senior reactor analyst performed a Phase 2 evaluation of the safety significance associated with this issue. The inspector and the analyst conservatively did not credit the penetration as a fire barrier. The inspectors noted that the breached five-inch penetration was located close to the ceiling and that the equipment important to safety (i.e., the batteries) was generally located at the floor level. As such, the inspectors determined that hot gases from the room involved in a potential fire entering the exposed room through the penetration would be well above the equipment important to safety and would not impact it. The inspectors determined that a fire involving the cable which passed through the penetration would have to travel a minimum of five feet along the cable before coming into contact with any equipment important to safety. Based on review of IMC 609, Appendix F, Attachment 3, "Guidance for Identifying Fire Growth and Damage Scenarios," the inspectors determined that potential damage to equipment important to safety would not occur for at least 30 minutes (due to a fire spread rate of 10 feet per hour). Based on review of IMC 609, Appendix F, Table 1.4.1, "Duration Factors," the inspectors determined that the duration factor associated with this issue was 0.1. Using IMC 609, Appendix F, "Fire Ignition Source Mapping Information: Fire Frequency, Counting Instructions, Applicable Fire Severity Characteristics, and Applicable Manual Fire Suppression Curves," the inspectors determined that potential ignition sources included hot work and transient fuels with ignition frequencies,  $F$ , of  $2.3 \times 10^{-5}$  (Hot Work –Low)  $1.7 \times 10^{-4}$  (Transient Fuels – Medium), respectively. Based on review of Table 2.7.1, "Non-suppression Probability Values for Manual Fire Fighting Based on Fire Duration (Time to Damage after Detection) and Fire Type Category," the inspectors determined that the values for Probability of Non-Suppression were 0.11 and 0.017 for hot work and transient fuels, respectively. The inspectors conservatively assumed that the conditional core damage probability associated with the scenario was 1.0. Based on review of Step 2.9, "Quantification and Preliminary Significance Determination," of IMC 609, Appendix F, the inspector determined the change in core damage frequency was  $2.53 \times 10^{-7}$  per year for the contribution from hot work and  $2.89 \times 10^{-7}$  per year for transient fuels with ignition frequencies with a combined contribution of  $5.42 \times 10^{-7}$ . This is representative of an issue having very low safety significance.

- Title 10 CFR 20.1602, "Control of Access to Very High Radiation Areas," requires, in part, that "the licensee shall institute additional measures to ensure that an individual is not able to gain unauthorized or inadvertent access" to very high radiation areas. Contrary to the above, on January 20, 2010, the licensee identified that a key to a very high radiation area (e.g., the Unit 2 sump) was located in the facilities key room. Senior radiation safety personnel onsite that were responsible for access control to very high radiation areas were unaware of

the key's existence. The key was not properly controlled or inventoried in accordance with station procedures and thus available for use by unauthorized individuals. This issue was assessed by the licensee and confirmed by the inspectors to be contrary to the requirements of 10 CFR 20.1602. The issue was documented in the station's corrective action program as CAP 1214773. Corrective actions included taking immediate control of the key and initiation of a detailed review of other key controlled sensitive areas at the station. The finding was determined to be of very low-safety-significance because it was not an ALARA planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised.

This issue was assessed by the licensee to be an occupational radiation safety performance indicator occurrence. The inspectors reviewed the licensee's evaluation of the circumstances surrounding their control of very high radiation area keys to determine if indicator related data was adequately assessed and reported. The inspectors reviewed the details of the data reported and determined accuracy for compliance to NEI Document 99 02, "Regulatory Assessment Performance Indicator Guideline," Revision 6.

- Title 10 CFR Part 1801, "Security of Stored Material," requires that the licensee shall secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas. Title 10 CFR 20.2201, "Reports of Theft or Loss of Licensed Material," Section (a)(ii) requires, in part, that within 30 days after the occurrence of any lost, stolen, or missing licensed material becomes known to the licensee, all licensed material in a quantity greater than ten times the quantity specified in Appendix C to 10 CFR Part 20 that is still missing at this time. Contrary to the above, when the radioactive source inventory was performed in November 2009, it was identified that a source of reportable quantities was missing. Specifically, a 0.07  $\mu$ Ci U-234 source installed in a radiation monitor detector could not be located. Although this condition was known to the licensee staff, no corrective action program document was immediately initiated, and the issue was not reported to the NRC until January 16, 2009, which was beyond the 30-day reporting window. This was tracked by the NRC as Nuclear Material Events Database (NMED) #100030. The issue was documented in the licensee's corrective action program as CAP 01214773. Corrective actions included performance management of the individuals involved in accordance with station protocol and station procedures for inventory and control of radioactive sources were revised to provide more explicit direction on source control and reportability. Additionally, an investigation was initiated by the licensee that concluded that the most probable disposition of the source was as low level waste at a licensed radioactive waste facility.

The loss of control of radioactive material (radioactive sources) is a performance deficiency as defined in NRC IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." The inspectors determined that the finding was more than minor because it impacted the program and process attribute of the public radiation safety cornerstone and adversely affected the cornerstone objective of ensuring adequate protection of public health and safety from exposure to radiation, in that, radioactive material in quantities of greater than ten times 10 CFR Part 20, Appendix C were potentially released into the public domain. The finding was determined to be of very low safety-significance

because: (1) it involved a radioactive material control issue that was contrary to NRC requirements (10 CFR Part 1801) and the licensee's procedures; and (2) the dose impact to a member of the public was less than 5 millirem.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

M. Schimmel, Site Vice President  
B. Sawatzke, Director Site Operations  
K. Ryan, Plant Manager  
J. Anderson, Regulatory Affairs Manager  
R. Cleveland, Access Control and Fitness-for-Duty Supervisor  
C. England, Radiation Protection General Supervisor  
D. Kettering, Site Engineering Director  
J. Lash, Operations Manager  
R. Madjerich, Production Planning Manager  
G. Malinowski, Radiation Protection Senior Technical Advisor  
M. Milly, Maintenance Manager  
J. Muth, Nuclear Oversight Manager  
S. Nelson, Radiation Protection and Chemistry Manager  
S. Northard, Performance Improvement Manager  
D. Peterson, Fatigue Administrator  
K. Peterson, Business Support Manager  
J. Sternisha, Training Manager  
P. Wildenborg, Health Physicist

#### Nuclear Regulatory Commission

J. Giessner, Reactor Projects Branch 4 Chief  
T. Wengert, Office of Nuclear Reactor Regulation Project Manager

### LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

#### Opened

05000282/2010002-01; 05000306/2010002-01	NCV	Failure to Ensure Cooling Water and Fuel Oil Systems Were Protected from Flooding Impacts
05000282/2010002-02; 05000306/2010002-02	NCV	Failure to Adequately Implement Operability Procedure
05000282/2010002-03	NCV	Failure to Have Adequate Procedure for Testing Valve CC-5-2
05000282/2010002-04	NCV	Failure to Accomplish Analog Protection Functional Test Per Procedure Instructions

#### Closed

05000282/2009-007-00	LER	Unanalyzed Condition Due to Breached Fire Barrier
05000282/2009-007-01	LER	Unanalyzed Condition Due to Breached Fire Barrier
05000282/2009-008-00	LER	Unanalyzed Condition Due to an Inadequate Fire Barrier



05000282/2009-009-00; 05000306/2009-009-00	LER	Radioactive Source Inventory Discrepancy
05000282/2009012-01; 05000306/2009012-01	VIO	Failure to Provide Complete Information to the NRC Which Impacted a Licensing Decision
05000282/2010002-01; 05000306/2010002-01	NCV	Failure to Ensure Cooling Water and Fuel Oil Systems Were Protected from Flooding Impacts
05000282/2010002-02; 05000306/2010002-02	NCV	Failure to Adequately Implement Operability Procedure
05000282/2010002-03	NCV	Failure to Have Adequate Procedure for Testing Valve CC-5-2
05000282/2010002-04	NCV	Failure to Accomplish Analog Protection Functional Test Per Procedure Instructions
2515/173	TI	Review of Industry Ground Water Protection Voluntary Initiative
2515/180	TI	Inspection of Procedures and Processes for Managing Fatigue

Discussed

None		
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## LIST OF DOCUMENTS REVIEWED

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

### 1R04 Equipment Alignment

- C1.1.14-2; Unit 2 Component Cooling System; Revision 30
- Operational Logs; February 2, 2010
- NF 38298-10; Auxiliary Building Concrete Foundation Outline; Revision AH
- NF 38298-8; Auxiliary Building Concrete Foundation Outline; Revision T
- Calculation ENG-ME-448; Auxiliary Building Flooding Analysis; Revision 1
- CAP 1216598; Housekeeping concerns Identified By Resident Inspector; February 2, 2010
- Checklist C1.1.20.7-13; D6 Diesel Generator Valve Status; Revision 14
- Checklist C1.1.18-1; Safety Injection, Containment Spray, Caustic Addition Checklist Unit 1; Revision 49
- Procedure C35; Cooling Water; Revision 67
- Checklist C1.1.20.7-13; D6 Diesel Generator Valve Status; Revision 14
- Checklist C1.1.20.7-14; D6 Diesel Generator Auxiliaries and Local Panels and Switches; Revision 12
- Checklist C1.1.20.7-15; D6 Diesel Generator Main Control Room Switch and Indicating Light Status; Revision 6
- Checklist C1.1.20.7-16; D6 Diesel Generator Circuit Breakers and Panels Switches; Revision 8

### 1R05 Fire Protection

- Procedure F5; Fire Fighting; Revision 32
- Safe Shutdown Analysis
- Fire Hazards Analysis
- Procedure F5; Appendix A; Fire Zone Plans and Maps; Various Revisions

### 1R06 Internal Flooding

- CAP 1217275; Flooding Effects on Diesel-Driven Cooling Pump Fuel Oil Storage Tank Transfer Pumps; February 8, 2010
- CAP 1217629; 1998 Submittal to NRC Contained Change from Automatic Action; February 10, 2010
- SP 1001B; Unit 1 Control Room Log – Modes 1 and 2; Revision 14
- NSP Letter to USNRC; Supplemental Response to Generic Issue 77 Information Relating to Plant Drainage System; October 7, 1998

### 1R07 Heat Sink Performance

- PINGP 1066; Results of Internal Inspection for 22 DDCLP Gear Oil Cooler; January 19, 2010
- Anatec Final Eddy Current Inspection Report Xcel6-PI2-01; Diesel-Driven Cooling Water Pump Jacket Cooler HX-22; January 2010
- XH-48-63; Heat Exchanger Specification Sheet; December 23, 1985

- Proto-Power Corporation Report SN#PHX-1008; Calculation Report for Diesel Pump Jacket Cooler; April 29, 2004
- Calculation ENG-ME-573; Tube Plugging Limits for 12 and 22 DDCLP Jacket Water Heat Exchangers; Revision 0
- Calculation ENG-ME-604; Tube Plugging Limits for 12 and 22 DDCLP Right Angle Drive Gear Oil Coolers; Revision 1
- Procedure H21; Generic Letter 89-13 Implementing Program; Revision 13

#### 1R12 Maintenance Effectiveness

- Health and Status Report; Auxiliary Feedwater; January 15, 2010
- Health and Status Report; Shield Bldg Vent; January 15, 2010
- Maintenance Rule A(1) Action Plan; Auxiliary Feedwater System; August 21, 2008
- Maintenance Rule A(1) Action Plan; Shield Building Ventilation; September 20, 2009
- ENG-ME-621; CV-31998 and CV-31999 Air Receiver Capacity; Revision 2
- Maintenance Rule Expert Panel Meeting Minutes; December 1, 2009, and December 15, 2009
- Monthly Maintenance Rule Performance Report; November 2009 and December 2009
- CAP 1032809; 11 Turbine-Driven Auxiliary Feedwater Pump (TDAFW) Steam Admission Valve Accumulator Check Valve Test; May 30, 2006
- CAP 1034270; 11 TDAFW Turbine has a High Bearing Temperature; June 6, 2006
- CAP 1130864; SP 1301 Failed CV-31988 Accumulator Air Leakage Test; March 12, 2008
- CAP 1132098; 11 AFW Pump Stopped Due to Turbine Outboard Bearing High Temperature; March 23, 2008
- CAP 1146005; 11 TDAFW Pump Trip After Plant Trip; July 31, 2008
- CAP 1180585; 21 Shield Building Ventilation Exhaust Fan Discharge Motor Damper Failed Post-Maintenance Testing; May 2, 2009
- CAP 1206894; Tripped 11 TDAFW Pump Due to 11 TDAFW Pump Outboard Bearing Temp High; November 14, 2009

#### 1R13 Maintenance Risk Assessment and Emergent Work

- Email message from James Lash to Steve Seilhymmer; February 5, 2010
- Procedure H24.1; Assessment and Management of Risk Associated with Maintenance Activities; Revision 14
- CAP 1216775; Inadvertent Entry Into Yellow Probabilistic Risk Assessment Condition Due to Clerical Error; February 4, 2010
- Work Week Safety Profile; various dates
- Work Week Schedule; various dates
- Control Room Logs; various dates

#### 1R15 Operability Evaluations

- CAP 1217920; Ops Log Entry Was Incomplete; February 11, 2010
- CAP 1217371; D6 Room Fan Alarm; February 9, 2010
- Operations Logs; February 9, 2010
- CAP 1222182; Revision Required for D5 OPR 1221675; March 11, 2010
- CAP 1222084; Adverse Trend in Errors in OPRs – Repeat; March 10, 2010
- CAP 1204085; OPR 1203173-01 Did Not Address Drain Paths; October 25, 2009
- CAP 1204735; Operability Process Non-Compliance and Concerns; October 29, 2009
- CAP 1217629; 1998 Submittal to NRC Contained Change from Automatic Action; February 10, 2010

- FP-OP-OL-01; Operability/Functionality Determination; Revision 6
- NRC Inspection Manual Part 9900; Operability Determinations and Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety; April 16, 2008
- Safety Evaluation 470; Auxiliary Feedwater Pump Runout Protection; Revision 2
- CAP 1175363; 12 DD CLG Water Pump Missing NDE Reports; March 27, 2009
- CAP 1205737; 122 DDCL FOTP Current Readings in the Alert Range; November 4, 2009
- CAP 1210658; Cooling Water Return Line; December 14, 2009
- CAP 1183270; 2CL-57-1 is Leaking 1 drop/6 seconds; dated May 26, 2009

#### 1R18 Plant Modifications

- Engineering Change 15150; DDCLP Cooling Supply Modification; Revision 0
- 10 CFR 50.59 Screening 3407 for Engineering Change 15150, Revision 0; no date provided
- FP-E-MOD-03; Temporary Modifications; Revision 7
- QF-0541; Temporary Flood Control Barrier for D5/D6 (EC 15510); January 25, 2010
- Engineering Evaluation 15696; EC 15150 – Hot Tap Strategy Engineering Evaluation; March 3, 2010

#### 1R19 Post-Maintenance Testing

- SP 1106B; 22 Diesel-Driven Cooling Water Pump Monthly Test; January 24, 2010
- WO 389919-02; Return to Service Test for Valve CW-75-2 – 22 Cooling Water Pump Jacket Water Heat Exchanger; January 28, 2010
- WO 386618-04; Return to Service Test for Valve 2CL-25-1 – 22 Diesel-Driven Cooling Water Pump Jacket Heat Exchanger Relief Valve; January 28, 2010
- WO 357681-03; Return to Service Test Following PM 3002-5-22; January 29, 2010
- WO 349689-03; Return to Service Test for SV-33466 – 22 Diesel-Driven Cooling Water Pump Starting Air Solenoid Valve A; January 28, 2010
- WO 349688-03; Return to Service Test for SV-33467– 22 Diesel-Driven Cooling Water Pump Starting Air Solenoid Valve B; January 28, 2010
- WO 332623-03; Return to Service Test for SV-33777 – 22 Diesel-Driven Cooling Water Pump Diesel Jacket Cooler Outlet Valve; January 28, 2010
- WO 383570-03; Return to Service Test Following Engine Coolant Change; January 29, 2010
- WO 381307-03; Return to Service Test Following PM 3002-10-22 – 22 Diesel-Driven Cooling Water Pump Major Maintenance; January 29, 2010
- WO 380909-02; Return to Service Test Following 22 Diesel-Driven Cooling Water Pump Gear Oil Cooler Leak Check; January 29, 2010
- WO 375578-02; Return to Service Test Following 22 Diesel-Driven Cooling Water Pump Oil and Filter Change; January 29, 2010
- WO 370579-03; Return to Service Test Following Replacement of 22 Diesel-Driven Cooling Water Pump Time Delay Relay; January 29, 2010
- WO 399538-02; 122 Diesel Cooling Water Pump Oil Storage Tank Pump Will Not Start; February 4, 2010;
- EC 15563; Update Vendor Technical Manual XH-432-8 With Alternate Connection for Soldering Wire to Capacitor; February 3, 2010
- XH-432-8; Diesel Fuel Oil Transfer Pumps; Revision 3
- SP 1190; D1/D2 Emergency Diesel Generator and 121/122 Diesel-Driven Cooling Pump Fuel Oil Storage Tanks Monthly Sampling; Revision 41
- Asea Brown Boveri Descriptive Bulletin 41-236S; Circuit Shield Types 47, 47D, 47H Undervoltage and Phase Sequence Relays; September 1995

- TP 2087B; Train B Safety Injection Pump Monthly Lubrication; Revision 13
- WO 391764-02; Post Maintenance Test / Return to Service Test 21 Safety Injection Pump Bus 25-8 Time Delay Relay; February 10, 2010
- PM 3002-2-12; 12 Diesel-Driven Cooling Water Pump Minor Periodic Maintenance; Revision 35
- WO 388991-01; PM 3002-2-12 - 12 Diesel-Driven Cooling Water Pump Minor Periodic Maintenance; March 18, 2010
- PM 3109-1-11; 11 Cooling Water Strainer Inspection; Revision 12
- WO 388558-01; 11 Cooling Water Strainer Inspection; March 12, 2010

#### 1R22 Surveillance Testing

- SP 1106A; 12 Diesel Cooling Water Pump Monthly Test; Revision 77
- CAP 1219115; Decreased Flow Through 12 Cooling Water Pump Gear Oil Cooler; February 19, 2010

#### 1EP6 Emergency Preparedness Drills

- Simulator Exercise Guide P9110SE-0201; Revision 0

#### 2RS1 Radiological Hazard Assessment and Exposure Controls

- CAP 1204753; 11 RHR Pit HRA Swing Gate Blocked Open; dated October 2009
- CAP 1214771; Duplicate Key to U2 Sump Discovered in Site key Locker; dated February 2010
- PING Form QF-00445; NRC/INPO/WANO data Collection and Submittal Forms; Radiation Protection; January 2010
- RPIP 1001; Radiation Protection Program; Revision 12
- RPIP 1008; Radiation Key Control; Revision 13
- RPIP 1009; Keywatcher System Operation; Revision 02
- 5AWI; Key and Seal Control; Revisions 10 and 11

#### 2RS5 Radiation Protection Instrumentation

- Annual Inventory Source List; January 2010
- CAP 1214190; RP Sources Missing Without Site management Notification; January 2010
- CAP 1214249; Radioactive Sources Unaccounted for During Inventory; January 2010
- CAP 1214773; Loss of Control of Radioactive Sources and Sensitive Keys; Final Draft; March 2010
- FP-RP-CRS-01; Control, Inventory and Leak Testing of Radioactive Sources; Revision 4
- LER 05000306/2009009. Radioactive Source Inventory Discrepancy
- PING Form QF-1218; Radioactive Source Transaction and Leak Test; March 2010
- RPIP 1732; Radioactive Source Inventory, Leakage Testing, and Handling; Revisions 6 and 7

#### 4OA1 Performance Indicator Verification

- Electronic Operator Narrative Logs; January 1, 2007, through December 31, 2007

#### 4OA3 Followup of Events and Notices of Enforcement Discretion

- C60002-0302; Remote Alarm Response Procedure (Voltage Restrained Overcurrent); Revision 8
- C6002-0506; Remote Alarm Response Procedure (Diesel Room Vent System Trouble); Revision 8
- TP 2296B; D6 Radiator Fans Weekly Run Test and 2ZG System Weekly Damper Cycling; Revision 5
- WO 400191; Investigate Trip of D5; February 8, 2010
- SP2305; D6 Diesel Generator Monthly Slow Start Test; Revision 31
- QF-1720; Monticello/Prairie Island Fitness for Duty Handbook; Revision 8
- Operations Logs; February 8-11, 2010
- FP-WM-IRM-01; Integrated Risk Management; Revision 3
- SP 1003; Analog Protection Functional Test; Revision 63
- FP-G-DOC-03; Procedure Use and Adherence; Revision 8
- QF 2010; Work Order Risk Screening Worksheet; Revision 5
- CAP 1158394; Change in Reactor Power During SP 2318.5; November 6, 2008
- Event Notification Report 45567; Unanalyzed Condition Related to Certain Fire Conditions; December 14, 2009
- Apparent Cause Evaluation 1210614-01; January 26, 2010
- Phase 2 Risk Evaluation for CAP 1165361; March 6, 2009
- Apparent Cause Evaluation 1197554-02; Unanalyzed Condition Due to a Breached Fire Barrier; January 20, 2010
- Phase 2 Risk Evaluation for CAP 1197554-02; March 4, 2010

#### 4OA5 Other Activities

- Prairie Island Independent Spent Fuel Storage Installation Safety Analysis Report; Revision 12
- WO 374425-01; SP 1075 TN-40 Fuel Selection and Identification (TOD); January 6, 2009
- SP 1075; TN-40 Fuel Selection and Identification; Revision 12
- WO 374424-01; SP 1075 TN-40 Fuel Selection and Identification (TOD); January 6, 2009
- 72.48 Screening; Screening No. SES-3096; Basket Fabrication Welds Were Made by Welders Not Qualified in the Position the Welds Were Made; Revision 0 (Basket 9)
- 72.48 Screening; Screening No. SES-3097; Basket Dimension Out of Tolerance Upon Completion of Fabrication; Revision 0 (Basket 9 and 11)
- 72.48 Screening; Screening No. SES-3098; Basket Fabrication Dimensional Checks Found Basket Flat-to-Flat Dimensions Out of Tolerance; Revision 0 (Basket 8, 10, 12)
- 72.48 Screening; Screening No. SES-3099; Basket Fabrication - Resolution of Various Weld Strikes, Surface Discontinuities, and Gouges; Revision 0 (Basket 8, 9, 10, 12)
- 72.48 Screening; Screening No. SES-3100; Basket Fabrication - Resolution of Basket Bottom 3-Inch Cut-out Dimension Out of Tolerance; Revision 0 (Basket 10)
- Cask 26 Verification Video; WO 372961-03; January 12, 2010
- Fuel Transfer Logs - Cask 26; January 12, 2010
- WO 369904-01; PMRQ 4311-24; PM 3560-25; Crane Hooks Nondestructive Exam; April 1, 2009
- PM 3560-25; Crane Hooks Annual Nondestructive Examination; Revision 9
- Magnaflux Spotcheck Developer SKD-52 Certification; Batch OOJ12K; October 6, 2000
- Magnaflux Spotcheck Penetrant SKL-SP1 Certification; Batch 04G071C; July 26, 2004
- BOP-PT-09-007; Liquid Penetrant Examination Report WO 369904-01; (Auxiliary Building Main, SFP New, SFP West Hooks); June 23, 2009

- BOP-PT-09-008; Liquid Penetrant Examination Report for WO 369904-01 (SFP East Hook); June 23, 2009
- NDE Examiner Identification CRBD03; Magnetic Particle Level II Certification; May 27, 2009
- NDE Examiner Identification CRBD03; Liquid Penetrant Level II Certification; May 27, 2009
- SP 1078; Cask Transport Vehicle Checkout for TN-Cask Handling; Revision 5
- WO 380281-01; SP 1078 Cask Transport Vehicle Checkout for TN-40 (TOD); June 1, 2009
- WO 373992-01; Load Cask 26 Into Spent Fuel Pool Per Procedure D95.1; June 29, 2009
- D95.1; TN-40 Cask Loading Procedure; Revision 15
- WO 373992-02; Load Cask 26 Into Spent Fuel Pool Per Procedure D95.1; December 29, 2009
- 373992-02 Work Plan; ISFSI Storage Cask 26; Revision 00 Cask 26 Revised
- Cask 26 Thermography Pictures; January 19, 2010
- Inspection Report WM-C026; Report for Weight Measurement; November 12, 2008
- Inspection Report WM-C280; Report for Weight Measurement; February 10, 2009
- Transnuclear Project 10426 Final Document Package Supplier Summary Sheet
- WO 372964-01; SP 1077 special Lift Fixture for TN-40 Cask (TOD); February 13, 2009
- SP1077; Special Lift Fixture for TN-40 Cask; Revision 10
- WO 372964-05; SP 1077 Special Lift Fixture for TN-40 Cask (Remove Paint/Repaint After NDE); January 27, 2009
- D71.2; General Painting of Plant Systems, Components, and Piping; Revision 7
- WO 372964-06; SP 1077 Special Lift Fixture for TN-40 Cask (QC Perform NDE as Required on Lift Fixture); February 12, 2009
- WO 333291-01; SP 1077 Special Lift Fixture for TN-40 Cask; July 20, 2007
- SP 1077; Special Lift Fixture for TN-40 Cask; Revision 10
- SWI-NDE-MT-1; Dry Powder Magnetic Particle Examination; Revision 1
- SWI-NDE-PT-1; Solvent Removable, Visible Dye Penetrant Examination; Revision 1
- 72.48 Screening; Screening No. SES-3105; Cask Fabrication – Shield Shell Thickness Out-of-Tolerance; Revision 0
- 72.48 Screening; Screening No. SES-3158; Basket Fabrication – Resolution of Mislocated Holes in Boral for the Baskets for Casks 25, 27, 28, and 29; Revision 0
- 72.48 Screening; Screening No. 3245; Cask 25, 26, and 27 Basket Rail Machining to Achieve Proper Gap; Revision 0
- 72.48 Screening; Screening No. 3387; Temporary change to D95.3 for Cask 26 to Replace Cask Interior Helium Gas
- CAP 260490; Assess INPO OE 14402; August 9, 2002
- CAP 265102; Compressed Gas Storage; August 29, 2002
- CAP 420685; Poor Labeling and Organization of Compressed Gases; March 20, 2003
- Plant Event 39098; Dry Fuel Storage Casks Filled with Wrong Gas; July 29, 2002
- D95.4; TN-40 Cask Receipt Procedure; Revision 20
- 72.48 Screening; Screening No. 1049; TN-40 Storage Cask Neutron Shield Structural Evaluation; Revision 1
- 72.48 Screening; Screening No. 2952; TN-40 Storage Cask Neutron Shield Outer Shell Structural Evaluation; Revision 0
- WO 309761-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; July 6, 2007
- SP 1076; ISFSI Quarterly Safety Status Surveillance; Revision 4
- WO 323601-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; October 12, 2007
- WO 329000-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; January 11, 2008
- WO 346394-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; July 11, 2008
- WO 351853-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; October 20, 2008
- WO 357236-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; January 6, 2009
- WO 363568-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; April 7, 2009
- WO 368993-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; July 7, 2009

- WO 375496-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; October 20, 2009
- WO 364775-01; PM 3160-3 Annual Auxiliary Building Crane Mechanical/Electrical Inspection; December 17, 2008
- PM 3160-3; 121 Auxiliary Building Crane Mechanical/Electrical Inspection; Revision 18
- WO 329487-01; SP 1076 ISFSI Quarterly Safety Status Surveillance; December 31, 2007
- PM 3160-3; 121 Auxiliary Building Crane Mechanical/Electrical Inspection; Revision 17
- D95.3; TN-40 Cask Removal and Storage Procedure; Revision 15
- WO 376631-01; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; September 9, 2009
- SP 1079; ISFSI Dry Cask Pressure Monitoring System Calibration; Revision 7
- WO 360694-01; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; November 11, 2008
- SP 1079; ISFSI Dry Cask Pressure Monitoring System Calibration; Revision 6
- WO 327843-01; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; November 8, 2007
- SP1079; ISFSI Dry Cask Pressure Monitoring System Calibration; Revision 5
- WO 313339-01; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; June 25, 2007
- WO 313338-01; SP 1079 ISFSI Dry Cask Pressure Monitoring System Calibration; September 24, 2007
- CAP 1213126; Completed SP 1079 for Cask 25 Could Not Be Found; January 11, 2010
- WO 407824; Cask 18 Helium (PO #603287); January 19, 2005
- PO 603287; Catalog ID 100-1668, Purity Grade 5; January 12, 2005
- I6712 Miss W/S; Certificate of Analysis – Cask 19 Grade 5 Helium, Lot 410683; October 17, 2000
- PO 605461; Catalog ID 100-1668, Ultra High Purity Grade 5; September 13, 2005
- 54-124047415-1; Certificate of Analysis – Cask 20 Grade 5 Helium; September 30, 2005
- 40360549; Product Lot Number Certificate of Analysis – Cask 21 Grade 6 Helium; June 1, 2006
- H403621931; Product Lot Number Certificate of Analysis – Cask 22 Grade 6 Helium; August 7, 2006
- H403707234; Product Lot Number Certificate of Analysis – Cask 23 and 24 Grade 6 Helium; March 15, 2007
- H403714533; Product Lot Number Certificate of Analysis – Cask 25 Grade 6 Helium; May 30, 2007
- Personnel Qualification Records; Various Cask 26 Individuals
- CAP 1213587; Cask 26 Activities Delayed; January 13, 2010
- CAP 1120607; ISFSI Panel 74001 Had a Low Pressure Alarm on Cask 16 at 59.9 Pounds; December 9, 2007
- CAP 1121242; ISFSI Cask 16 Low Seal Pressure; December 14, 2007
- CAP 1122278; ISFSI Cask 16 Low Pressure; December 27, 2007
- CAP 1122535; Cask 24 Has Low Pressure Alarm at 59.9 Pounds at -3 Degrees Fahrenheit; January 2, 2008
- CAP 1124236; Multiple Cask alarms; January 18, 2008
- CAP 1124328; ISFSI Panel 74001 Upper Panel Cask 7 in Alarm; January 20, 2008
- CAP 1127056; Cask 16 Pressure Low at 35.9 PSI; February 13, 2008
- CAP 1127956; ISFSI Casks 1, 2, 24 All Have Low Pressure Alarm In; February 19, 2008
- CAP 1128115; ISFSI Casks 1, 23, 24 All Have Low Pressure Alarm In; February 20, 2008
- CAP 1162310; ISFSI Cask Pressure Monitoring Malfunction; December 12, 2008
- CAP 1163337; ISFSI Low Pressure Alarm on Four Casks (1, 22, 23, 24); December 21, 2008
- CAP 1168007; Cask 18 Low Pressure Alarm; February 3, 2009



- CAP 1168119; Spent Fuel Casks Below 60 PSI; February 4, 2009
- CAP 1172685; Low Pressure Alarm on Casks 16, 18, and 26; March 12, 2009
- CAP 1210152; ISFSI Cask Interseal Low Pressure Alarm; December 10, 2009
- CAP 1212444; ISFSI Cask Pressure Alarms; January 4, 2010
- CAP 1206322; ISFSI Pressures Out of 2 PSI Band; November 10, 2009
- CAP 1100714; ISFSI Alarm Monitoring House Inlet Damper Screen Plugged; July 8, 2007
- CAP 1109475; MN Department of Health Reports Low Voltage Alarm on ISFSI Monitor; August 30, 2007
- CAP 1112066; Poor Radiological Work Practice During Cask 23 Loading; September 19, 2007
- CAP 1112552; Safety Observation on Cask 23 Loading; September 21, 2007
- CAP 1113183; Changes Made to ISFSI Without Adequate Basis; September 26, 2007
- CAP 1115192; SAR analysis of TN-40 Outer Shell Not Consistent; October 18, 2007
- CAP 1116560; Omission from ISFSI SAR Submittal to NRC; October 30, 2007
- CAP 1192698; ISFSI Plank Bridge Near Camera Tower May Not Be Safe; August 7, 2009
- CAP 1197318; Walking Plank at the ISFSI for Camera 26 is Unsafe; September 11, 2009
- CAP 1102267; Exterior of Cask 23 Stained with a Splatter of Rust; July 18, 2007
- CAP 1103833; Standard Used for ISFSI Cask Placement Not Proceduralized; July 27, 2007
- CAP 1103833; SP 1078 Cask Transport Vehicle Checkout for TN-40 – Add Step; July 27, 2007
- CAP 1103835; Revise D95.3 TN-40 Cask Removal and Storage Procedure; July 27, 2007
- CAP 1107478; Information Sharing on Cask; August 17, 2007
- CAP 1109429; Cask FME Zone Not Properly Controlled; August 30, 2007
- CAP 1112010; Alternate Fuel Assembly Loaded in Cask 23; September 18, 2007
- CAP 1112066; Poor Radiological Work Practice During Cask 23 Loading; September 28, 2007
- CAP 1112163; Cask 23 Vent Seal Surface Imperfection; November 19, 2007
- CAP 1112164; Employees Very Near Suspended Cask 23 Lid; October 24, 2007
- CAP 1112297; Evaluate Use of Neutron Shielding for Cask Decon Area; December 14, 2007
- CAP 1112546; Cask Drying Times Taking Longer Than in the Past; April 1, 2006
- CAP 1115310; Create Temporary Procedure to Test Cask Vacuum Drying System Prior to Use; October 19, 2007
- CAP 1115419; Determine Basis for Six Lid Bolts Installed in Cask; October 20, 2007
- CAP 1155183; Temporary High Radiation Area at Cask Decon Sump Doesn't Meet Standard; October 23, 2008
- CAP 1157805; TN-40 Cask 4 Found to Have Rust on Lower Trunnion; November 2, 2008
- CAP 1165098; SP 1076 Walkdown Observations for Casks 4 and 7; January 12, 2009
- CAP 1175961; Cask More Vehicle Access; March 31, 2009
- CAP 1176432; Create Setpoint Changes for Cask 25, 25, and 27; April 2, 2009
- CAP 1179975; Error Found in Completed SP 1075 for Cask 18; April 28, 2009
- CAP 1182197; Cask 25 Load Procedure Problems; May 15, 2009
- CAP 1182991; Cask Loading Delay Due to Equipment Issues; May 22, 2009
- CAP 1184635; Cask Vent Port Seal from Warehouse Had Blemish; June 5, 2009
- CAP 1186459; Moving Cask Transporter into Auxiliary Building from ISFSI; June 22, 2009
- CAP 1186813; Moving Cask 25 into the Spent Fuel Pool; June 24, 2009
- CAP 1193198; 72.48 Screening Not Completed for Cask Supplier NCR; August 11, 2009
- CAP 1206057; SP 1079 ISFSI Dry Cask Pressure Monitoring; November 6, 2009
- PI-0333; Commercial Grade Dedication Evaluation for Helium for Dry Cask; Revision 1
- CAP 1214028; Designated Helium for Cask 26 Was Not Used; January 15, 2010
- CAP 1213354; QC Hold Tag Not Removed from Cask 26; January 12, 2010
- CAP 1213394; Potential FME Found on Cask Lift Beam; January 12, 2010
- CAP 1214028; Designated Helium for Cask 26 Was Not Used; January 15, 2010
- CAP 1214870; Improper Control of RP Sensitive and NRC Office Keys; January 22, 2010

- CAP 1216598; Housekeeping Concerns Identified by NRC Resident Inspector; February 3, 2010
- CAP 1217045; Cooling Water Strainer Covers and Maintenance Activities; February 5, 2010
- CAP 1184252; Medical Status Misinterpreted for License Operator; June 24, 2009
- CAP 1150642; Root Cause Evaluation Report (Monticello Nuclear Generating Plant); September 15, 2009
- CAP 1104269; Licensed Operator Physical Paperwork Incomplete; June 27, 2009
- CAP 1104269; Root Cause Evaluation Report, Failure to Report Medical Status Change to NRC; July 30, 2007
- Letter; L-PI-09-104; Response to an Apparent Violation in Inspection Report No. 0500028212009012(DRS); 05000306/2009012(DRS) EA-09-193; September 30, 2009
- FP-T-SAT-74; NRC Operator License Application and Renewal Requirements; May 9, 2009
- RPIP 1050; ISFSI Cask Decontamination and Surveys; Revision 5
- RPIP 1051; ISFSI Cask Radiation and Contamination Monitoring; Revision 5

Inspection of Procedures and Processes for Managing Fatigue  
(Temporary Instruction 2515/180)

- QF-1720; Monticello/Prairie Island Fitness-for-Duty Handbook; Revision 8
- QF-1724; Authorization to Exceed Xcel Energy Overtime Restrictions for Non-Covered Workers; Revision 0
- QF-1726; 10 CFR 26 Manual Schedule Change; Revision 0
- QF-1727; 10 CFR 26 Work Hours Limit Waiver; Revision 0
- QF-1728; 10 CFR 26 Fatigue Rule Revision
- FP-S-FFD-01; Monticello/Prairie Island Fitness-for-Duty Program; Revision 0
- FP-S-RVR-01; 10 CFR 26 Reviews and Reporting; Revision 0
- FP-S-WHL-01; 10 CFR 26 Scope of Work Hour Limits; Revision 0
- FP-S-FAP-01; 10 CFR 26 Fatigue Assessment Procedure; Revision 0
- FP-S-FMP-01; 10 CFR 26 Fatigue Management Fleet Procedure; Revision 0
- FP-S-CWH-01; 10 CFR 26 Calculating Work Hours; Revision 0
- FL-LDP-INI-051L; Fatigue Management Work Hour Controls for All Supervision: Revision 0
- CAP 1201432; Travel Time and the New Fatigue Rule; October 7, 2009
- CAP 1201889; Operations ILT Class Are Covered Worker; October 9, 2009
- CAP 1205569; Covered Worker Exceeded Work Hour Restrictions; November 3, 2009
- CAP 1206925; Engineer Worked 7 Days Without a Day-Off; November 15, 2010
- CAP 1208841; ILT Student Violated 10-Hour Between Shifts Fatigue Rule; December 1, 2010

Review of Industry Groundwater Protection Initiative (Temporary Instruction 2515/173)

- CAP 1028891; Industry Groundwater Contamination Concerns; May 2005
- CAP 1044693; Fleet Tritium Task Force Record of Actions; August 2006
- CAP 1083370; Leak on Turbine Sump to Landlock; March 2007
- CAP 1124700; Snapshot Self-Assessment; Groundwater Protection Initiative; July 2008
- CAP 1137111; Potential Inadequate Instruction for 50.75g Record Keeping; May 2008
- CAP 1143838; ANI Inspection of Groundwater Protection Initiative; July 2008
- CAP 1145875; Groundwater Snapshot Evaluation Fleet Actions; July 2008
- CAP 1222943; Elevated Mississippi River Sample Results; March 2010
- FP-PA-SA-01; Focused Self-Assessment Planning, Conduct and Reporting; Revision 10
- FP-R-LIC-02; Regulatory Correspondence; Revision 5
- FP-R-LIC-21; Recordkeeping for Decommissioning Planning per 10 CFR 50.75(g) and 10 CFR 72.30(d); Revision 3

- H58; Buried Pipe and Tank Integrity Program; Revision 00
- NEI 02-02 Groundwater Protection Plan; Final August 2007
- Prairie Island Nuclear Generating Plant 2006 Hydrology Summarization; March 2007
- Prairie Island Nuclear Generating Plant Groundwater Investigation: An Improved Flow Net to Evaluate Pathways for a Potential Groundwater Release; December 2009
- RPIP 4732; REMP Water Sampling; Revision 12
- RPIP 4741; Onsite Groundwater Tritium Sampling; Revision 8
- State of Wisconsin 2008 Prairie Island Environmental Radioactivity Survey
- USGS Water Resources Investigations Report 99-4069; 1999
- NRC IR 50-282/91002 (DRSS); 50-306/91002 (DRSS); February 1991
- 2008 Annual REMP Radiological Environmental Monitoring Report; May 2009
- 5AWI; Notifications Regarding Plant Media Sensitive Events or Conditions; Revision 15

#### 40A7 Licensee-Identified Violations

- Phase 2 Risk Evaluation for CAP 1165361; March 6, 2009

## LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
CAP	Corrective Action Program Document
CC	Component Cooling Water
CFR	Code of Federal Regulations
DDCLP	Diesel-Driven Cooling Water Pump
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
FOTP	Fuel Oil Transfer Pump
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
LER	Licensee Event Report
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
OPR	Operability Recommendation
PARS	Publicly Available Records
PI	Performance Indicator
SDP	Significance Determination Process
SP	Surveillance Procedure
TS	Technical Specification
USAR	Updated Safety Analysis Report
VHRA	Very High Radiation Area
WO	Work Order
μCi	Microcurie

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Sincerely,

*/RA/*

John B. Giessner, Chief  
Branch 4  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000282/2010002; 05000306/2010002; 07200010/2010002  
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Letter to M. Schimmel from J. Giessner dated April 29, 2010

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2,  
NRC INTEGRATED INSPECTION REPORT 05000282/2010002;  
05000306/2010002 AND 07200010/2010002

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