



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

August 4, 2009

Mr. Timothy J. O'Connor
Site Vice President
Monticello Nuclear Generating Plant
Northern States Power Company, Minnesota
2807 West County Road 75
Monticello, MN 55362-9637

**SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT
NRC INTEGRATED AND POWER UPRATE REVIEW INSPECTION REPORT
05000263/2009003**

Dear Mr. O'Connor:

On June 30, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Monticello Nuclear Generating Plant. The enclosed report documents the inspection findings, which were discussed on July 7, 2009, with you 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, one self-revealed finding of very low safety significance was identified. The finding involved a violation of NRC requirements. However, because the finding was of very low safety significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as a non-cited violation (NCV) in accordance with Section VI.A.1 of the NRC Enforcement Policy. Additionally, two licensee-identified violations are listed in Section 4OA7 of this report.

If you contest the subject or severity of a 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 Monticello 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 III, and the NRC Resident Inspector at Monticello. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

Docket No. 50-263
License No. DPR-22

Enclosure: Inspection Report 05000263/2009003
w/Attachment: Supplemental Information

cc w/encl: D. Koehl, Chief Nuclear Officer
Manager, Nuclear Safety Assessment
P. Glass, Assistant General Counsel
Nuclear Asset Manager, Xcel Energy, Inc.
J. Stine, State Liaison Officer, Minnesota Department of Health
Commissioner, Minnesota Pollution Control Agency
R. Hiiivala, Auditor/Treasurer,
Wright County Government Center
Commissioner, Minnesota Department of Commerce
Manager - Environmental Protection Division
Minnesota Attorney General's Office

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SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT
NRC INTEGRATED INSPECTION REPORT05000263/2009003

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-263
License No: DPR-22

Report No: 05000263/2009003

Licensee: Northern States Power Company, Minnesota

Facility: Monticello Nuclear Generating Plant

Location: Monticello, MN

Dates: April 1 through June 30, 2009

Inspectors: S. Thomas, Senior Resident Inspector
L. Haeg, Resident Inspector
C. Scott, Reactor Engineer
T. Go, Health Physicist, DRS
S. Bakhsh, Reactor Inspector, Materials Control, ISFSI
and Decommissioning Branch, DNMS
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Approved by: Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000263/2009003; 04/01/2009 – 06/30/2009; Monticello Nuclear Generating Plant; Radiation Safety.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding was considered a non-cited violation (NCV) of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects were determined using IMC 0305, "Operating Reactor Assessment Program. Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Occupational Radiation Safety

- Green. A self-revealed finding of very low safety significance and an associated non-cited violation (NCV) of Technical Specification 5.7.1.b was identified for the failure to comply with the requirements of the radiation work permit during ultrasonic testing preparations in the condenser hot side, an area posted as a locked high radiation area, on January 2, 2009. Specifically, a mechanical maintenance worker was directed by the outage control center staff to leave his assigned work area and to investigate a leak near the 'D' moisture separator. The worker was briefed on the high radiation area conditions at the ultrasonic testing preparation area; however, the individual was not briefed on the radiological conditions along his path to the 'D' moisture separator. As a result, the worker encountered radiation levels greater than those anticipated and received a dose rate alarm on his electronic dosimeter. The licensee's corrective actions included counseling of the involved workers and conducting a stand-down with the operations department to reinforce radiological requirements and communication expectations. A radiation protection liaison was also assigned to the outage control center for the remainder of the down-power to ensure that work assignments were coordinated with the appropriate supervisor, rather than interfacing directly with the worker. The licensee had completed an apparent cause evaluation to formulate additional actions to prevent recurrence.

The finding was more than minor because it impacted the program and process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation; in that, access into high radiation areas whose radiological conditions were unknown placed the worker at risk for unnecessary radiation exposure. The finding was determined to be of very low safety significance because it was not an as-low-as-is-reasonably-achievable (ALARA) planning issue; there was no overexposure or substantial potential for an overexposure; and the licensee's ability to assess worker dose was not compromised. The finding involved a cross-cutting aspect in the area of human performance related to work practices; in that, radiation work permit compliance for access into 'D' moisture separator areas was not effectively communicated to the

worker, and the worker failed to follow the radiation work permit. [H.4.b]
(Section 2OS1.6)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

During all of April and the first part of May, the plant remained shutdown as the licensee completed Refueling Outage 24 (RFO 24). On May 6, the licensee commenced reactor startup, and achieved criticality early on the morning of May 7. Refueling Outage 24 officially ended at 18:25 on May 8, when the main generator was placed on the electric grid. On two occasions during the initial turbine testing, the main generator was taken offline due to high bearing vibrations caused by turbine rubs. On May 10, after evaluating the impact of the turbine rubs and successfully completing required turbine testing, the licensee commenced power ascension to the plant to 100 percent power.

Monticello operated at full power for the remainder of the assessment period, except for brief downpower maneuvers to accomplish rod pattern adjustments and to conduct planned surveillance testing activities.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite and Alternate Alternating Current Power Systems

a. Inspection Scope

The inspectors verified that plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system.

The inspectors also verified that plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified that the procedures addressed the following:

- The actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- The compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;

- A reassessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- The communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment to this report. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into the CAP in accordance with station corrective action procedures.

This inspection constituted one readiness of offsite and alternate AC power systems (grid stability) adverse weather sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings of significance were identified.

.2 Summer Seasonal Readiness Preparations

a. Inspection Scope

The inspectors performed a review of the licensee's preparations for summer weather for selected systems.

During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Safety Analysis Report (USAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Specific documents reviewed during this inspection are listed in the Attachment to this report. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into the CAP in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- reactor building and radwaste chilled water systems; and
- emergency diesel generators (EDGs).

This inspection constituted one seasonal adverse weather 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:

- 11 EDG during Division II equipment maintenance and 12 EDG out-of-service;
- reactor core isolation cooling (RCIC) during a planned high pressure coolant injection (HPCI) maintenance window;
- 'A' standby gas treatment (SBGT) system during 'B' SBGT emergent work; and
- 'A' standby liquid control (SBLC) system during a planned 'B' SBLC 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; USAR; Technical Specification (TS) requirements; outstanding work orders (WOs); condition reports; 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 CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted four partial system walkdown samples as defined in 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:

- Fire Zone 2-F; main steam chase;
- Fire Zone 12-E; steam jet air ejector room;
- Fire Zones 13 A, B, C; lube oil storage tank room, reactor feedpump and lube oil reservoir, and turbine building 911' elevation east motor control center (MCC) area;
- Fire Zone 37; transformers; and
- Fire Zone 8; cable spreading room.

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 had 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 plant's ability to respond to a security event. Using the documents listed in the Attachment to this report, 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 that 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 CAP.

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 May 24, 2009, the inspectors observed a fire brigade activation for an unannounced drill involving a simulated temporary heating boiler fire. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief; and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate firefighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives. 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.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On May 26, 2009, and June 1, 2009, the inspectors observed crews of licensed operators in the plant's simulator during licensed operator requalification 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 two quarterly licensed operator requalification program samples 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:

- main steam isolation valves (MSIV); and
- heating and ventilation system.

The inspectors reviewed events, such as ineffective equipment maintenance, which 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 (SSCs)/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 that maintenance effectiveness issues were entered into the CAP 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 plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Division II residual heat removal service water (RHRSW) degraded motor cooling;
- equivalency evaluation following identification that air regulators supplying RHRSW flow control valves for Division I and Division II residual heat removal (RHR) heat exchangers were nonsafety-related;
- retrieval of foreign material which was deposited on top of the reactor vessel steam separator following the failure of a steam dryer measuring platform;

- installation of temporary power to 'A' reactor protection system (RPS) motor generator (MG) set;
- planned installation of temporary power to MCC-141 from radwaste shipping building panel L-13; and
- planned reduced loading operation of MCC-111 with half capacity cable feed from normal source LC-101 breaker 52-102.

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. Documents reviewed are listed in the Attachment to this report.

These maintenance risk assessments and emergent work control activities constituted six 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:

- Division I RHRSW pipe wall thickness below code allowable value;
- operable but non-conforming air regulators supplying RHRSW flow control valves for Division I and Division II RHR heat exchangers; and
- 'B' SBGT system low flow during surveillance testing.

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 also 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 three samples as defined in IP 71111.15-05.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modification

a. Inspection Scope

The inspectors reviewed the following temporary modification:

- EC 14045; alternate cooling water supply to RHRSW motor; Revision 0.

The inspectors compared the temporary configuration changes and associated 10 CFR 50.59 screening and evaluation information against the design basis; USAR; and TS to verify that the modification did not affect the 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 performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system availability and reliability; and that operation of the modifications did not impact the operability of any interfacing systems (RHR in shutdown cooling). Lastly, the inspectors discussed the temporary modification with operations and engineering personnel to ensure that the individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance. 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 Modification

a. Inspection Scope

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

- EC 14065; RHRSW motor cooler strainers; Revision 0.

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 installed new piping; duplex strainers; and pressure gauges to provide more reliable motor cooling for all four RHRSW pumps (both Divisions). 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 (PM) activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- 12 core spray system leak and valve testing;
- Pre-operational testing of new Division II emergency filtration train (EFT)-emergency service water (ESW) piping located in the condenser room;
- AO-2-86D - outboard MSIV leak testing;
- MO-2076 - RCIC outboard steam supply isolation valve leak and stroke testing;
- control rod drive testing following scram solenoid pilot valve maintenance/replacement;
- safety relief valve operability check; and
- reactor coolant pressure boundary leakage test.

These activities were selected based upon the SSCs 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; 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 CAP and that problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted seven PM testing samples as defined in IP 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan (OSP) and contingency plans for the Monticello RFO 24, which began during the prior assessment period and concluded on May 8, 2009, to confirm that the licensee had appropriately considered risk; industry experience; and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During this assessment period, the inspectors observed licensee controls over the outage activities listed below.

Documents reviewed during the inspection are listed in the Attachment to this report.

- Licensee configuration management, including maintenance of defense-in-depth commensurate with the OSP for key safety functions and compliance with the applicable TS when taking equipment out-of-service.
- Implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure; level; and temperature instruments to provide accurate indication, accounting for instrument error.
- Controls over the status and configuration of electrical systems to ensure that TS and OSP requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes; systems; and components.
- Controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls including flow paths; configurations; and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity.
- Maintenance of secondary containment as required by TS.
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage.
- Startup and ascension to full power operation; tracking of startup prerequisites; walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system (ECCS) suction strainers; and reactor physics testing.
- Licensee identification and resolution of problems related to RFO activities.

This inspection constituted one RFO sample as defined in IP 71111.20-05.

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:

- OSP-EDG-0540-12; 12 EDG 24 month test; Revision 3 (routine);
- 0419-01; alternate shutdown system (ASDS) cycle functional test for 12 diesel generator/diesel oil transfer pump switches; Revision 16 (routine);
- OSP-ECC-0566; low pressure ECCS automatic initiation and loss of auxiliary power test; Revision 3 (routine);
- 0032; ECCS pump start permissive sensor; Revision 14 (routine); and
- 0255-03-IA-1-1; core spray loop 'A' quarterly pump and valve tests; Revision 49 (inservice test).

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 TS, 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 (ASME) 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 CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted four routine surveillance testing samples, and one inservice testing sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on May 20, 2009, to identify any weaknesses and deficiencies in classification; notification; and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator; technical support center; and emergency offsite facility to determine whether the event classification; notifications; and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weaknesses with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

This emergency preparedness drill inspection constituted one sample as defined in IP 71114.06-05.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed the licensee's Occupational Exposure Control Cornerstone Performance Indicator (PI) to determine whether the conditions resulting in any PI occurrences had been evaluated and whether identified problems had been entered into the licensee's CAP for resolution.

This inspection constitutes one sample as defined in IP 71121.01-05.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors reviewed licensee controls and surveys for the following radiologically significant work within radiation areas, high radiation areas (HRAs), and airborne radioactivity areas in the plant to determine if radiological controls, including surveys; postings; and barricades were acceptable.

- outboard MSIV associated work;
- control rod drive replacement; and
- inservice inspection.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors reviewed the radiation work permits (RWPs) and work packages used to access these areas and other HRAs. The inspectors assessed the work control instructions and control barriers specified by the licensee. Electronic dosimeter (ED) alarm setpoints for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. The inspectors interviewed workers to verify that they were aware of the actions required if their EDs noticeably malfunctioned or alarmed.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors walked down and surveyed (using an NRC survey meter) these areas to verify that the prescribed RWP, procedure, and engineering controls were in place; that licensee surveys and postings were complete and accurate; and that air samplers were properly located.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors reviewed RWPs for airborne radioactivity areas to verify barrier integrity and engineering controls performance (e.g., high-efficiency particulate air ventilation system operation). There were no airborne radioactivity work areas during the inspection period.

Work areas having a history of or the potential for airborne transuranics were evaluated to verify that the licensee had considered the potential for transuranic isotopes and had provided appropriate worker protection.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors assessed the adequacy of the licensee's internal dose assessment process for internal exposures in excess of 50 millirem committed effective dose equivalent. There were no internal exposures greater than 50 millirem committed effective dose equivalent.

This inspection constitutes one sample as defined in IP 71121.01-05.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed a sample of the licensee's self-assessments; audits; licensee event reports (LERs); and Special Reports related to the access control program to verify that identified problems were entered into the CAP for resolution.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors reviewed corrective action reports related to access controls and any HRA radiological incidents (issues that did not count as PI occurrences identified by the licensee in HRAs less than 1R/hr). Staff members were interviewed and corrective action documents were reviewed to verify that followup activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

- initial problem identification, characterization, and tracking;
- disposition of operability/reportability issues;
- evaluation of safety significance/risk and priority for resolution;
- identification of repetitive problems;
- identification of contributing causes;
- identification and implementation of effective corrective actions;
- resolution of non-cited violations (NCVs) tracked in the corrective action system; and
- implementation/consideration of risk significant operational experience feedback.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors evaluated the licensee's process for problem identification; characterization; and prioritization and verified that problems were entered into the CAP and resolved. For repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection to determine if any of these PI events involved dose rates in excess of 25 R/hr at 30 centimeters, or in excess of 500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures exceeding 100 millirem total effective dose equivalent (or 5 rem shallow dose equivalent or 1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory overexposures, or if there was a substantial potential for an overexposure.

This inspection constitutes one sample as defined in IP 71121.01-05.

b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews

a. Inspection Scope

The inspectors observed the following three jobs that were being performed in radiation areas, airborne radioactivity areas, or HRAs for observation of work activities that presented the greatest radiological risk to workers:

- outboard MSIV work;
- control rod drive replacement; and
- drywell under-vessel work.

The inspectors reviewed radiological job requirements for these activities; including RWP requirements and work procedure requirements, and attended the licensee's as-low-as-is-reasonably-achievable (ALARA) job briefings.

This inspection constitutes one sample as defined in IP 71121.01-05.

Job performance was observed with respect to the radiological control requirements to assess whether radiological conditions in the work area were adequately communicated to workers through pre-job briefings and postings. The inspectors evaluated the adequacy of radiological controls, including required radiation, contamination, and airborne surveys for system breaches; radiation protection job coverage, including any applicable audio and visual surveillance for remote job coverage; and contamination controls.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors reviewed radiological work in HRAs having significant dose rate gradients to evaluate whether the licensee adequately monitored exposure to personnel and to assess the adequacy of licensee controls. These work areas involved areas where the dose rate gradients were severe; thereby increasing the necessity of providing multiple dosimeters or enhanced job controls.

This inspection constitutes one sample as defined in IP 71121.01-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors held discussions with the radiation protection manager concerning high dose rate, HRA and very high radiation area controls and procedures; including procedural changes that had occurred since the last inspection, in order to assess whether any procedure modifications substantially reduced the effectiveness and level of worker protection.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors discussed with radiation protection supervisors the controls that were in place for special areas of the plant that had the potential to become very high radiation areas during certain plant operations. The inspectors assessed if plant operations required communication beforehand with the radiation protection group; so as to allow corresponding timely actions to properly post and control the radiation hazards.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors conducted plant walkdowns to assess the posting and locking of entrances to high dose rate HRAs and very high radiation areas.

This inspection constitutes one sample as defined in IP 71121.01-05.

b. Findings

No findings of significance were identified

.6 Radiation Worker Performance

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated radiation safety work requirements. The inspectors evaluated whether workers were aware of any significant radiological conditions in their

workplace; of the RWP controls and limits in place; and of the level of radiological hazards present. The inspectors also observed worker performance to determine if workers accounted for these radiological hazards.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors reviewed radiological problem reports for which the cause of the event was due to radiation worker errors to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. Problems or issues with planned or completed corrective actions were discussed with the radiation protection manager.

This inspection constitutes one sample as defined in IP 71121.01-05.

b. Findings

One finding of very low safety significance was identified.

Introduction

A self-revealed finding of very low safety significance (Green) and an associated NCV of TS 5.7.1.b were identified for the failure to comply with the exposure control requirements of the RWP that governed work activities in a posted locked HRA.

Description

The inspectors reviewed an incident revealed to the licensee through an alarming ED that occurred on January 2, 2009, during the completion of ultrasonic testing (UT) preparation in an area near the 'D' moisture separator, an area controlled as a locked high radiation area (LHRA). The inspectors reviewed the licensee's CAP document; associated radiation survey data and RWP; and follow-up human performance evaluation and discussed the incident with members of the radiation protection (RP) staff.

On January 2, 2009, a mechanical maintenance worker unexpectedly received a dose rate alarm on his ED while traveling to an area near the 'D' moisture separator to identify a suspected leak on a section of piping, as requested by outage control center (OCC) staff. The individual was exposed to higher dose rates than expected. The ED dose rate alarm setpoint was 250 millirem/hr, and the worker was exposed to 295 millirem/hr. Upon hearing the alarm, the worker exited the area and discussed the situation with the attending RP technician. The worker's dose for the activity was minimal and did not exceed the ED setpoint.

On December 31, 2008, during a condenser hot side inspection, the licensee identified a leak. A work order (WO376192) was developed to make the necessary repairs to the piping, which included preparation of the piping for UT examination. The RP staff performed a briefing using the standard HRA/LHRA briefing checklist for the travel path to the work area. The RP surveys and HRA briefing did not address entry into the travel path near the 'D' moisture separator, because entry into that area was beyond the

original work scope. On January 2, 2009, the OCC staff discovered additional leaks near the 'D' moisture separator MS-94 valve in the condenser area. Since the maintenance workers were inside the LHRA, the OCC staff requested that the maintenance workers investigate the source of the leak near the 'D' moisture separator. The RP staff was not involved in the discussion of the leakage inspection between the OCC staff and the maintenance (UT) workers. The radiation levels near the travel path of the 'D' moisture separator were between 250 and 295 mrem/hour. The workers had logged onto the proper RWP, which had ED alarm set points established consistent with the radiological conditions expected to be encountered during the UT preparation. Following the UT preparation, one of the workers left the area to investigate the leak. Although posted as a LHRA, no accessible areas of the condenser and 'D' moisture separator areas exhibited dose rates at or greater than 1000 mrem/hour.

As corrective actions, the licensee had completed the following: (1) the HRA/LHRA entry briefing checklist was revised to require verification that work be performed within 30 minutes of the HRA/LHRA briefing and that a map identifying those areas for which the worker had been briefed and the bounding radiological conditions were identified in the RWP; (2) the RP manager removed radiological controlled area (RCA) access to the OCC members, workers and other individuals involved; (3) workers were coached on ensuring radiation levels in the specific work area were validated and on reinforcing the importance of having a questioning attitude; (4) an RP liaison was stationed in the OCC during the downpower and through the duration of the upcoming RFO; and (5) in the OCC, work assignments were to be coordinated with the appropriate supervisors rather than interfacing directly with the workers in the field. The licensee completed an apparent cause evaluation and formulated additional actions to prevent recurrence.

Analysis

The inspectors determined that the issue was a performance deficiency because area radiological conditions were not fully determined consistent with the work scope and because the worker failed to comply with the exposure control requirements of the RWP. The inspectors determined that the cause of the performance deficiency was reasonably within the licensee's ability to foresee and correct, and should have been prevented.

The finding was not subject to traditional enforcement since the issue did not have an actual or potential significant safety consequence; did not impact the NRC's ability to perform its regulatory function; and was not willful.

In accordance with NRC Inspection Manual Chapter (IMC) 0612, the inspectors determined that the finding was more than minor because it impacted the program and process attribute of the Occupational Radiation Safety Cornerstone, and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. Specifically; a worker entered areas near the 'D' moisture separator, a posted LHRA, without knowledge of the radiological conditions, which placed the worker at risk for unnecessary radiation exposure.

The finding was assessed using the Occupational Radiation Safety Significance Determination Process (SDP) and was determined to be of very low safety significance (Green) because it was not an ALARA planning issue; there was no overexposure or

substantial potential for an overexposure; and the licensee's ability to assess worker dose was not compromised. The finding was determined to involve a cross-cutting aspect in the work practices component of the human performance area; in that, RWP compliance for access into the 'D' moisture separator areas was not effectively communicated to the worker as part of the pre-job briefing and the worker failed to follow the RWP. [H.4.b]

Enforcement

Technical Specification 5.7.1.b specifies that access to; and activities in, HRAs shall be controlled by means of a RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate RP equipment and measures. Radiation Work Permit No. 00000883-00, "locked high radiation area 100 to 750 mrem/hr," governed work order (WO376192) to make necessary repairs to the piping, and required that all individuals contact RP staff prior to access into other areas with dose rates greater than was briefed by RP staff. Contrary to the RWP, on January 2, 2009, a worker travelled to an area near the 'D' moisture separator to identify a leak location and was exposed to unexpected radiation levels. The worker failed to contact the RP staff prior to entering that location. Since the failure to comply with TSs was of very low safety significance, corrective actions were taken as described above, and the issue was entered into the licensee's corrective action program as CAP 01164223, the violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000263/2009003-01).

.7 Radiation Protection Technician Proficiency

a. Inspection Scope

During job performance observations, the inspectors evaluated RP technician performance with respect to radiation safety work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace; the RWP controls and limits in place; and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

This inspection constitutes one sample as defined in IP 71121.01-05.

The inspectors reviewed radiological problem reports for which the cause of the event was RP technician error to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

This inspection constitutes one sample as defined in IP 71121.01-05.

b. Findings

No findings of significance were identified.

2OS2 As Low As Reasonably Achievable Planning And Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the outage work scheduled during the inspection period and associated work activity exposure estimates for the following five work activities, which were likely to result in the highest personnel collective exposures:

- outboard MSIV associated work;
- control rod drive replacement;
- inservice inspection;
- thermocouple replacement; and
- drywell under-vessel work.

This inspection constituted one required sample as defined in IP 71121.02-05.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspectors evaluated the licensee's list of work activities ranked by estimated exposure that were in progress and reviewed the following four work activities of highest exposure significance:

- control rod drive replacement;
- inservice inspection;
- thermocouple replacement; and
- drywell under-vessel work.

For these four activities, the inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements in order to verify that the licensee had established procedures and engineering and work controls that were based on sound RP principles in order to achieve occupational exposures that were ALARA. The inspectors also determined if the licensee had reasonably grouped the radiological work into work activities, based on historical precedence; industry norms; and/or special circumstances.

This inspection supplements the samples reported in Inspection Report (IR) 05000263/2008005.

b. Findings

No findings of significance were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the assumptions and bases for the current annual collective exposure estimate; including the applicable procedures, in order to evaluate the licensee's method for estimating work activity-specific exposures and the intended dose outcome. Dose rate and man-hour estimates were evaluated for reasonable accuracy.

This inspection constituted one required sample as defined in IP 71121.02-05.

b. Findings

No findings of significance were identified.

.4 Problem Identification and Resolutions

a. Inspection Scope

The inspectors reviewed the licensee's CAP to determine if repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution had been addressed.

This inspection constituted one required sample as defined in IP 71121.02-05.

b. Findings

No findings of significance were identified.

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

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most current Annual Environmental Monitoring Report and licensee assessment results to verify that the Radiological Environmental Monitoring Program (REMP) was implemented as required by TS and the offsite dose calculation manual (ODCM). The inspectors reviewed the report for changes to the ODCM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, interlaboratory comparison program, and analysis of data. The inspectors reviewed the ODCM to identify environmental monitoring stations and reviewed licensee self assessments, audits, LERs, and inter-laboratory comparison program results. The inspectors reviewed the Final Safety Analysis Report (FSAR) for information regarding the environmental monitoring program and meteorological monitoring instrumentation. The inspectors reviewed the scope of the licensee's audit program to verify that it met the requirements of 10 CFR 20.1101(c).

This REMP inspection planning constituted one sample as defined in IP 71122.03-05.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked down 100 percent of the air sampling stations and approximately 40 percent of the thermoluminescence dosimeter (TLD) monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition.

This REMP and radioactive material control program onsite equipment location and equipment material condition inspection constituted one sample as defined in IP 71122.03-05.

The inspectors observed the collection and preparation of a variety of environmental samples (e.g., ground and surface water; milk; vegetation; sediment; and soil) and verified that environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were in accordance with procedures.

This environmental sample collection and preparation inspection constituted one sample as defined in IP 71122.03-05.

The inspectors verified that the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the FSAR, NRC Safety Guide 23, and licensee procedures. The inspectors verified that the meteorological data readout and recording instruments in the control room and at the tower were operable. The inspectors compared readout data (i.e., wind speed; wind direction; and delta temperature) in the control room and at the meteorological tower to identify if there were any line loss differences.

This meteorological instruments inspection constituted one sample as defined in IP 71122.03-05.

The inspectors reviewed each event documented in the Annual Environmental Monitoring Report which involved a missed sample; inoperable sampler; lost TLD; or anomalous measurement for the cause and corrective actions and conducted a review of the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection (LLD)). The inspectors reviewed the associated radioactive effluent release data that was the likely source of the released material.

This annual environmental monitoring report events inspection constituted one sample as defined in IP 71122.03-05.

The inspectors reviewed significant changes made by the licensee to the ODCM as the result of changes to the land census or sampler station modifications since the last

inspection. The inspectors reviewed technical justifications for changed sampling locations. The inspectors verified that the licensee performed the reviews required to ensure that the changes did not affect its' ability to monitor the impacts of radioactive effluent releases on the environment.

This ODCM significant changes review constituted one sample as defined in IP 71122.03-05.

The inspectors reviewed the calibration and maintenance records for five air samplers and composite water samplers. The inspectors reviewed calibration records for the environmental sample radiation measurement instrumentation. The inspectors verified that the appropriate detection sensitivities with respect to TS/ODCM were utilized for counting samples (i.e., the samples meet the TS/ODCM required LLD). The inspectors reviewed quality control charts for maintaining radiation measurement instrument status and actions taken for degrading detector performance.

The inspectors reviewed the results of the REMP sample vendor's quality control program, including the inter-laboratory comparison program to verify the adequacy of the vendor's program and the corrective actions for any identified deficiencies. The inspectors reviewed audits and technical evaluations the licensee performed on the vendor's program. The inspectors reviewed the results of the licensee's vendor inter-laboratory comparison program to verify the adequacy of environmental sample analyses performed by the licensee. The inspectors reviewed the licensee's determination of any bias to the data and the overall effect on the REMP. The inspectors reviewed quality assurance (QA) audit results of the program to determine whether the licensee met the TS/ODCM requirements.

This REMP sampler maintenance records and quality control inspection constituted one sample as defined in IP 71122.03-05.

b. Findings

No findings of significance were identified.

.3 Unrestricted Release of Material from the Radiologically Controlled Area

a. Inspection Scope

The inspectors observed several locations where the licensee monitors potentially contaminated material leaving the RCA and inspected the methods used for control; survey; and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use to verify that the work was performed in accordance with plant procedures.

This inspection constituted one sample as defined in IP 71122.03-05.

The inspectors verified that the radiation monitoring instrumentation was appropriate for the radiation types present and was calibrated with appropriate radiation sources. The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material and verified that there was guidance on how to respond to an

alarm which indicates the presence of licensed radioactive material. The inspectors reviewed the licensee's equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance contained in IE Circular 81-07 and IE Information Notice 85-92 for surface contamination and HPPOS-221 for volumetrically contaminated material. The inspectors verified that the licensee performed radiation surveys to detect radionuclides that decay via electron capture. The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters (i.e., counting times and background radiation levels). The inspectors verified that the licensee had not established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

This unrestricted release of material from the RCA inspection constituted one sample as defined in IP 71122.03-05.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self assessments, audits, LERs, and Special Reports related to the REMP since the last inspection to determine if identified problems were entered into the CAP for resolution. The inspectors also verified that the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also reviewed corrective action reports from the REMP since the previous inspection, interviewed staff and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

- initial problem identification, characterization, and tracking;
- disposition of operability/reportability issues;
- evaluation of safety significance/risk and priority for resolution;
- identification of repetitive problems;
- identification of contributing causes;
- identification and implementation of effective corrective actions;
- resolution of NCVs tracked in the corrective action system; and
- implementation/consideration of risk significant operational experience feedback.

This REMP and radioactive material control program problem identification and resolution inspection constituted one sample as defined in IP 71122.03-05.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures PI for the period from the 2nd Quarter 2008 through the 1st Quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance were used. The inspectors reviewed the licensee's operator narrative logs; operability assessments; maintenance rule records; maintenance WOs; issue reports; event reports and NRC Integrated IRs for the period of April 2008 through March 2009, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one safety system functional failures sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.2 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System (RCS) Leakage PI for the period from the 2nd Quarter 2008 through the 1st Quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator logs; RCS leakage tracking data; issue reports; event reports and NRC Integrated IRs for the period of April 2008 through March 2009, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RCS leakage sample 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. 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 occurrence 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 Attachment to this report.

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. 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 condition report 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.

.3 Semi-Annual Trend Review

a. Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six month period of October 2008 through May 2009, although some examples expanded beyond those dates where the scope of the trend warranted.

This review also included issues documented outside the normal CAP in major equipment problem lists; repetitive and/or rework maintenance lists; departmental problem/challenges lists; system health reports; quality assurance audit/surveillance reports; self assessment reports; and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This review constituted a single semi-annual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

.4 Annual Sample: Review of Operator Workarounds

a. Scope

The inspectors evaluated the licensee's implementation of their process used to identify; document; track; and resolve operational challenges. Inspection activities included; but were not limited to, a review of the cumulative effects of the operator workarounds (OWAs) on system availability and the potential for improper operation of the system; for potential impacts on multiple systems; and on the ability of operators to respond to plant transients or accidents.

The inspectors performed a review of the cumulative effects of OWAs. The documents listed in the Attachment to this report were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold; had entered them into their CAP; and proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event; if the challenge was contrary to training; required a change from long-standing operational practices; or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of Mitigating Systems;

impaired access to equipment; or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs; degraded instrument logs; and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified OWAs.

This review constituted one OWA annual inspection sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

.5 Selected Issue Follow-Up Inspection: Microbiologically Influenced Corrosion Program and RHRSW Pipe Wall Thinning

a. Scope

Based on implementation of the licensee's microbiologically influenced corrosion (MIC) inspection program during RFO 24, several RHRSW piping locations were identified with pipe wall thickness near or below minimum wall thickness. The inspectors performed a review of non-destructive examination results to assess whether programmatic requirements were followed and whether appropriate corrective actions were taken. The inspectors reviewed MIC program documents; CAP documents; and WOs associated with both Divisions of RHRSW. Based on issues identified by the licensee, the inspectors enlisted technical assistance from specialists in the regional office to evaluate appropriate ASME Code use and disposition for the thinned piping.

On March 31, 2009, with the plant in Mode 5 and Division I systems out-of-service for a planned maintenance window, the licensee identified several locations along a pipe section of Division I RHRSW where the piping wall thickness was of concern. Several locations along this section of piping were identified during the initial exam and during a subsequent scope expansion. Several indications were below Code minimum allowable wall thickness (T_{min}), and the others were equal to or just slightly above T_{min} . The licensee generated CAP documents and work requests; as appropriate, and determined that replacement of the applicable RHRSW piping section was to be completed prior to plant startup. The licensee also performed an operability evaluation for affected TSs (see Section 1R15), and determined that Division I RHRSW was operable in Modes 4 and 5, but that Code repairs and piping replacement was required prior to plant startup (entry into Mode 3). On April 6, 2009, the licensee completed the Division I maintenance window and placed Division I RHR/RHRSW in-service for shutdown cooling.

On April 7, 2009, with the plant in Mode 5 and Division II systems out-of-service for a planned maintenance window, the licensee identified one location along a pipe section of Division II RHRSW with wall thickness below T_{min} . The licensee generated a CAP document and work request to perform an ASME Code repair prior to returning the system to service. On April 15, 2009, a weld overlay repair was completed, and on April 16, 2009, Division II RHR/RHRSW was placed in-service for shutdown cooling to allow for replacement of Division I RHRSW piping.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Assessment and Observations

The inspectors reviewed the licensee's scoping of RHRSW system piping for wall thinning examination; the inspection criteria; and the scope expansion once wall thinning near or below T_{min} was identified. The inspectors verified that the licensee adhered to the requirements of their MIC inspection program, and that appropriate corrective actions were planned or taken prior to restarting the plant. Regional specialists also reviewed the technical adequacy of engineering evaluations and application of generic guidance for performing Code repair/replacement of piping. The inspectors determined that the licensee's overall effort and follow-up actions were conservative and demonstrated a proactive approach to restore piping integrity.

No findings of significance were identified during this inspection.

.6 Selected Issue Follow-Up Inspection: Implementation Status of the Licensee's Plan to Improve Human Performance at the Site

a. Scope

During the 2008 End-of-Cycle Assessment meeting in Region III, the inspectors discussed with NRC management degraded licensee performance related to two Human Performance cross-cutting aspects: H.2(c), "complete, accurate and up-to-date design documentation, procedures, and work packages, and correct labeling of components;" and H.4(c), "the licensee ensures supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported." Since the licensee had four or more safety-significant findings associated with each cross-cutting aspect (H.2(c) and H.4(c)), and the corrective actions the licensee had put in place to correct the degraded performance associated with these findings had not yet proven effective in mitigating these cross-cutting themes, the Agency issued the licensee a substantive cross-cutting issue in the area of Human Performance, with two cross-cutting themes.

During the first quarter of 2009, the licensee completed the development of a Human Performance Improvement Plan, and began to formally implement corrective actions targeted at improving personnel performance in five areas: Risk Management; Effective Solutions; Management Engagement and Oversight; Behaviors; and Human Performance Fundamentals. Each of the five areas had multiple associated corrective actions and a Manager level sponsor.

The inspectors' primary focus during this inspection activity was to do an in-process evaluation of the timeliness, quality, and effectiveness of the Plan's corrective actions. Key aspects of this inspection included:

- A review of the completion status of all corrective actions associated with the Human Performance Improvement Plan's parent corrective action documents;
- frequent Plan status discussions with senior plant management;

- observations of planned licensee scheduling, alignment, turnover, corrective action, oversight, challenge, and planning meetings;
- daily review of the corrective actions generated during the previous 24 hours; and
- an assessment of the licensee's ability to identify and properly disposition minor human performance related issues.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Assessment and Observations

The time period for this inspection activity included both the 1st and 2nd calendar quarters of 2009. The inspectors determined that the licensee was slow to effectively implement their Human Performance Improvement Plan during the first part of the 1st Quarter 2009, and subsequently continued to see an increased number of human performance-related issues. During the latter part of the 1st Quarter 2009 and throughout the 2nd Quarter 2009, the inspectors noted some changes in behaviors that the licensee's Plan had specifically targeted for improvement. The inspectors noted some improvement in the licensee's ability to identify risk in job planning; recognize risk at the jobsite; and take appropriate actions to mitigate, reduce or eliminate risk. Key to this was an improvement in the licensee's ability to identify potential issues during job planning; pre-job briefs; procedure reviews; and pre-work site walkdowns, rather than during actual performance of the related task.

The licensee is not currently scheduled to complete all of the corrective actions associated with their Human Performance Improvement Plan until the 3rd Quarter of 2009. Although the inspectors have recently seen some positive changes in the behaviors that contributed to past human performance issues, which resulted in a Human Performance related substantive cross-cutting issue, the inspectors concluded that the Plan's corrective actions have not been in place long enough to adequately evaluate if the licensee's corrective actions will ensure continued improvement and sustained performance in the area of human performance.

No findings of significance were identified during this inspection.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report (LER) 05000263/2009-002-00: Pipe Whip for High Energy Line Break

On April 2 and 14, 2009, with the plant shutdown in Mode 5, as part of an on going high energy line break (HELB) improvement plan, the licensee identified two potential HELB pipe whip issues. The first issue involved a potential RCIC HELB in the steam chase room, which would result in the failure of a Division II 3" essential service water pipe. The second issue involved a potential main steam line break in the condenser room, which would result in the failure of a Division II 3" essential service water pipe. Subsequent to the identification of these two HELB issues, the licensee made physical modifications to the facility which eliminated the potential HELB concern.

The inspectors determined that the licensee's failure to adequately control the configuration of the facility was a finding of more than minor significance because, if left uncorrected, it could become a more significant safety concern. The inspectors determined that the finding was subject to a significance evaluation per IMC 0609, Attachment 4, "Significance Determination Process Phase 1 – Initial Screening and Characterization of Findings," because it potentially impacted equipment used for short and long term decay heat removal. After answering "no" to all five questions located in the Mitigating Systems Cornerstone column of Table 4a, "Characterization Worksheet for IE, MS, and BI Cornerstones," the inspectors determined that the finding was of very low safety significance (Green). This licensee-identified finding involved a violation of 10 CFR 50, Appendix B, Criterion III, "Design Control." The enforcement aspects of this violation are discussed in Section 4OA7 of this report. This LER is closed.

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

.2 Main Steam Line 'B' Flow Isolation Instrumentation Inoperable Due to Leaking Equalizing Valve

On May 12, 2009, while raising reactor power from 30 to 50 percent, the operators identified 'B' main steam line flow isolation indication was indicating approximately 25 percent lower than the other three flow instruments. Subsequent to the identification of the issue, the licensee entered the applicable TS action and implemented corrective actions to address the cause of the event, which was determined to be a leaking instrument manifold equalizing valve.

The licensee determined this event to be reportable under 10 CFR 50.72(b)(3)(v)(C and D). The inspectors identified no findings of significance related to the licensee's initial response and corrective actions associated with this event. The inspectors will further evaluate this issue once the licensee issues the associated LER.

4OA5 Other Activities

.1 Unit 1 Power Uprate-Related Inspection Activities (71004)

The inspectors observed Power Range Neutron Monitoring (PRNM) system startup testing. The PRNM system was installed, in part, to allow for future operation at higher power levels following NRC approval of the power uprate license amendment. The testing consisted of PRNM system performance monitoring during reactor startup and power ascension to the current licensed thermal power level (1775 MW). The testing also gathered data to support future setpoint changes for the oscillating power range monitor feature that is to be implemented following a 90-day monitoring period.

This inspection documents the completion of one power uprate inspection sample. No concerns were identified.

.2 Operational Testing of an Independent Spent Fuel Storage Installation (ISFSI) (60855.1)

The inspectors performed an in-office review of documentation and interviewed staff in follow-up to Unresolved Item (URI) 05000263/2008-005-01, "Non-Destructive

Examination of Weld on the Outer Lid of Casks Performed Outside the Temperature Range Specified by the Applicable Welding Procedure.” The specific documents reviewed by the inspectors are listed in the Attachment to this report. From the technical information reviewed thus far, the inspectors did not identify any new concerns. However, this review is still ongoing and the issue will remain open pending resolution.

.3 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.4 (Closed) NRC Temporary Instruction (TI) 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 Monticello Nuclear Generating Plant of the NEI – Ground Water Protection Initiative (GPI) (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 SSCs 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 offsite 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 GPI. The inspectors assessed whether the licensee identified the appropriate local and state officials and conducted briefings on the licensee's GPI. 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; however, as specified in TI 2515/173-05, the inspectors identified the following deviations from NEI-GPI protocols or areas within the NEI-GPI that were not fully addressed within the licensee's program:

GPI Objective 2.1 - Stakeholder Briefing.

b. Licensees should consider including additional information or updates on ground water protection in periodic discussions with State/Local officials.

The licensee had not included additional information or updates on ground water protection in periodic discussions with State/Local officials.

c. For licensees that are in States where multiple nuclear power plants are located and multiple owner companies, it is highly recommended that the licensees coordinate their efforts and communicate with each other. The initial briefing for the State/local officials and the contents of a voluntary communication should be consistent.

The licensee had not coordinated efforts for stakeholder briefings with the nearby nuclear power plant (Prairie Island), which is owned by the same company.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 7, 2009, the inspectors presented the inspection results to Mr. T. O'Connor, 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 Meetings

Interim exits were conducted for:

- Access Control to Radiologically Significant Areas and ALARA Planning and Control with Mr. B. Sawatzke, Plant Manager, on April 3, 2009;
- REMP and Radioactive Material Control Program, and the NRC TI of Industry Groundwater Protection Voluntary Initiative with Mr. W. Paulhardt, Assistant Plant Manager, on May 22, 2009.

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

4OA7 Licensee-Identified Violations

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

- Technical Specification 5.7.1.a requires that each entryway to a HRA be barricaded and conspicuously posted, except as necessary to permit entry or exit. On February 21, 2009, a RP technician erected a HRA rope barricade with postings located in the condensate demineralizer area at elevation 951' of the turbine building. The technician failed to follow detailed rope barrier installation and inadequately established the area. On the following morning, the rope barricade and the attached postings were found on the floor and; therefore, did not constitute an adequate barricade or posting for the area. This was identified in the licensee's CAP as AR 01170392. The finding was determined to be of very low safety significance because it was not an ALARA planning issue; there was no overexposure; and the licensee's ability to access dose was not compromised.
- 10 CFR 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and design basis for those SSCs to which this appendix applies are correctly translated into specific drawings, procedures, and instructions. Contrary to this requirement, the licensee failed to control the design of the facility to prevent two separate operational vulnerabilities to the Division II essential service water system from HELB related events. The finding was determined to be of very low safety significance primarily because the issue was determined to not result in the loss of the safety function for essential service water.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

T. O'Connor, Site Vice President
J. Grubb, Plant Manager
W. Paulhardt, Assistant Plant Manager
R. Wray, Human Performance and Safety Manager
N. Haskell, Acting Site Engineering Director
K. Jepson, Business Support Manager
S. Sharp, Operations Manager
S. Radebaugh, Maintenance Manager
M. Holmes, Radiation Protection/Chemistry Manager
G. Salamon, Acting Regulatory Affairs Manager
L. Samson, Manager, Spent Nuclear Fuel Storage
K. Shriver, ISFSI Project Support
T. Rogers, Chemistry, REMP Coordinator
G. Mathiasen, CHP, Health Physicist

Nuclear Regulatory Commission

K. Riemer, Chief, Reactor Projects Branch 2

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000263/2009003-01	NCV	Failure to Comply with Technical Specification and RWP Requirements during Work in a Locked High Radiation Area. (Section 2OS1.6)
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Closed

05000263/2009003-01	NCV	Failure to Comply with Technical Specification and RWP Requirements during Work in a Locked High Radiation Area. (Section 2OS1.6)
05000263/2009-002-00	LER	Pipe Whip for High Energy Line Break (Section 4OA3.1)

Discussed

05000263/2008-005-01	URI	Non-Destructive Examination on the Outer Lid of Casks Performed Outside the Temperature Range Specified by the Applicable Welding Procedure. (Section 40A5)
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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.

Section 1R01

1150; Summer Checklist; Revision 46
A.6; Acts of Nature; Revision 29
CAP 01182202; Late Identification of Parts for Summer Readiness WO
C.4-B.09.02.B; Loss of Normal Offsite Power; Revision 11
B.09.08-05; Emergency Diesel Generators; Revision 29
B.09.02-05; Generation; Revision 17
B.09.03-05; 345KV Substation; Revision 25
B.09.05-05; 115KV Substation; Revision 11
B.09.06-05; 4.16KV Station Auxiliary; Revision 27
SWI-14.01; Risk Management for Outage and On-Line Activities; Revision 5
ESO-OP-6.150; Power Plant Operator Communication and Response Policy; Revision 3.1
ESO-OP-6.140P; System Operating Code Response; Revision 4

Section 1R04

2154-14; Fuel Oil System Prestart Valve Checklist; Revision 15
2154-28; Diesel Generator Air Start System Prestart Valve Checklist; Revision 9
2154-22; EDG Emergency Service Water System Prestart Valve Checklist; Revision 22
2124; Plant Prestart Checklist Diesel Generators and Fuel Oil System; Revision 7
CAP 01177668; Inadequate Guidance for EDG Duplex Fuel Filter Configuration [NRC-Identified]
4120-PM; RCIC System Inspection; Revision 28
2121; Plant Prestart Checklist, RCIC System; Revision 14
M-125; MNGP P&ID, RCIC (Steam Side); Revision 78
M-126; MNGP P&ID, RCIC (Water Side); Revision 77
2112; Plant Prestart Checklist Standby Gas Treatment System; Revision 11
2158-02; System Prestart Checklist – Secondary Containment Integrity; Revision 7
M-145; MNGP P&ID; Standby Gas Treatment Flow Diagram; Revision U
CAP 01187266; Greater Actions Taken to Meet Prerequisite for SBGT Testing
CAP 01187271; 'B' Standby Gas Train Failed to Operate as Expected
2154-07; Standby Liquid Control System Prestart Valve Checklist; Revision 11

Section 1R05

Strategy A.3-02-F; Main Steam Chase; Revision 3
CAP 01180005; Transient Combustibles in Steam Chase without Permit [NRC-Identified]
Strategy A.3-13-C; Turbine Building 911' Elevation East MCC Area; Revision 6
Strategy A.3-13-B; RX Feedpump and Lube Oil Reservoir Room; Revision 9
Strategy A.3-13-A; Lube Oil Storage Tank Room; Revision 5
Strategy A.3-37; Transformers; Revision 6
CAP 01182583; Hole in Flashing Around Cable Spreading Room Fire Damper [NRC-Identified]

Fire Brigade Drill Guide 35; Temporary Heating Boiler Fire
2176; Fire Drill Procedure; Revision 19
Strategy A.3-08; Cable Spreading Room; Revision 12
4 AWI-08.01.00; Fire Protection Program Plan; Revision 10
4 AWI-04.02.01; Housekeeping; Revision 17

Section 1R11

Simulator Exercise Guide (SEG) RQ-SS-30E

Section 1R12

CAP 1175443; Outboard MSIV's may not Fulfill Design Function during Next Cycle
Monticello Maintenance Rule Heating and Ventilation System Basis Document; Revision 5
Maintenance Rule (a)(1) Action/Performance Improvement Plan; HTV/V-MZ-1; Revision 1

Section 1R13

CAP 01176316; 'B' RHRSW Motor Cooling Flow may be Degrading
CAP 01176335; PI-7331 Reads 0 PSIG with 14 RHRSW Pump in Service
CAP 01178789; Non-Safety Related Air Regulators Installed on EP-1728/1729
EC 14158; Replacement Air Regulators for E/P-1728 & E/P-1729; Revision 0
FP-PE-EQV-01; Equivalency Evaluations and Changes; Revision 2
WO 383872; E/P-1728, Replace Air Regulator per EC-14158
WO 383873; E/P-1729, Replace Air Regulator per EC-14158
8384; FME Retrieval from Reactor Cavity; Revision 0
EC 14196; Temporary Power to 'A' RPS MG Set
EC 14195; Reduced Loading Operation of MCC-111 with Half Capacity Cable Feed from
Normal Source LC-101 Breaker 52-102
EC 14166; Temporary Feed of MCC-141 from Radwaste Shipping BLDG Panel L-13
ODMI; Address the Insulation Resistance and Polarization Index on MCC 141 Feeder Cables

Section 1R15

CAP 01176068; Thin Pipe Identified during MIC Exam on 18" 'A' RHRSW
Code Case N-697-2; Requirements for Analytical Evaluation of Pipe Wall Thinning Section XI,
Division I; November 18, 2003
Code Case N-480; Examination Requirements for Pipe Wall Thinning due to Single Phase
Erosion and Corrosion Section XI, Division I; May 10, 1990
Code Case N-513-2; Evaluation Criteria for Temporary Acceptance of Flaws in Moderate
Energy Class 2 or 3 Piping Section XI, Division I; February 20, 2004
EC 14044; Flaw Evaluation of RHRSW Line SW9-18"-GF
EC 14064; Generic Flaw Evaluation Guidance for 18" RHRSW Pipe
EC 14073; Flaw Evaluation of RHRSW Line SW9-18"-GF
FP-OP-OL-01; Operability Determination; Revision 3
CAP 01183062; Excessive Heater Cycling during Starting Test 0253-02

Section 1R19

WO 378548; EC 13086 Replace 1 CSP Div II EQ Transmitter
WO 314103; OPS-MO-1742, PMT/RTS
WO 344126; OPS-MO-1754, PMT/RTS
EC 14036; Reroute of SW30B-3"-HF; Revision 0
WO 381681, Task 6; Install Piping, Supports, and Perform Pre-Operational Test for SW30B-3"-HF in Condenser Room
WO 358330; PM 4900-01 For MO-2076
WO 345547-10; EPRO-MO-2076, 0137-07A As-Left LLRT
MEI-09.04; MOV Post-Maintenance Testing; Revision 7
4900-01-PM; PM for Limitorque Motor Operated Valves; Revision 27
4901-01-PM; Limit Switch Setting Procedure for Limitorque Valve Operators; Revision 17
0137-07A; Reactor Steam Supply Valves Leak Rate Testing; Revision 23
CAP 01179361; MO-2076 Leakage was Above Administrative Limit
0081; Control Rod Drive Scram Insertion Time Test; Revision 54
CAP 01180553; C-05 Blue Scram Light didn't Come in for Numerous HCU's
CAP 01180556; Numerous Positions not Displaying for CRD 46-19 RPIS
CAP 01180563; 0081 Testing Interrupted due to Equipment Issue
CAP 01179822; Valve Packing Leakage Identified during CL1 Pressure Test
CAP 01179682; 1R24 Hydro – AO-2-86A Pencil Stream Packing Leak
CAP 01179683; 1R24 Hydro – MO1754 One Drop per Second Packing Leak
CAP 01179684; 1R24 Hydro – MO-2-53B Steady Stream Packing Leak
CAP 01179685; 1R24 Hydro – MO-2-43B Steady Stream Packing Leak
CAP 01179686; 1R24 Hydro – XR-31-1 Pipe Cap 20 Drops per Minute Cap Leak
CAP 01179689; 1R24 Hydro – AO-10-46A Two Drops per Minute Packing Leak
CAP 01179696; 1R24 Hydro – AO-2-80C Fifteen Drops per Minute Packing Leak
0255-20-IIC-2; Reactor Coolant Pressure Boundary Leakage Test; Revision 25
0112; Safety Relief Valve Operability Check; Revision 29

Section 1R20

1371; Drywell Prestart Inspection; Revision 7
CAP 01180731; Items Identified during NRC Drywell Inspection [NRC-Identified]
Operations Manual C.1; Startup Procedure; Revision 61
CAP 01181184; Plant Risk not Updated in a Timely Manner [NRC-Identified]
CAP 01173169; Technical Specification for 'B' Core Spray Flow Possibly Non-Conservative
CAP 01177862; New Surveillance Results Affect Technical Specification Figure 3.4.9-1
CAP 01181486; High Turbine Vibrations during Cycle 25 Startup
ODMI; Restart the Unit with Degraded Feeder Cables on MCC 141
CAP 01180544; HPCI Discharge Air Line Void
4 AWI-08.15.03; Risk Management for Outages; Revision 3
Licensee Safe Shutdown Assessment for RFO 24
Operations Manual C.1; Startup Procedure; Revision 61
SWI-14.01; Risk Management for Outage and On-Line Activities; Revision 5
4 AWI-08.15.03; Risk Management for Outages; Revision 4

Section 1R22

CAP 01180243; 13 AC did not Restart on Restoration of MCC-142
CAP 01180245; Viper tV-EF-40B OOS, Steps of OSP-ECC-0566 Could not be Done
CAP 01180221; Step in Procedure OSP-ECC-0566 not Performed Correctly
CAP 01186832; Core Spray Pump Quarterly Test Terminated Due To No Flow

Section 1EP6

Monticello Nuclear Generating Plant Emergency Plan Drill Controller Guide; May 20, 2009

Section 2OS1

CAP-01170392; HRA Rope Barricade with the Attached Posting was Found on the Floor;
February 21, 2009
ACE-01170392-03; Failed HRA Barrier; February 21, 2009
RCE-1169027-02; High Radiation Area Controls Violation; February 11, 2009
ACE-01164223-03; Workers Traveled to an Area Near 'D' Moisture Separator were Exposed to
Unexpected Radiation Levels; January 2, 2009
CAP-01164429; Lack of Guidance to Screen Instances of Incorrect Dosimetry;
November 6, 2008
RWP-00000886-01; SRV Change-Out; LHRA; March 19, 2009
RWP-00000701-05; Perform Nozzle ISI, Mirror Inspection and Replacement, Thermocouple
Replacement; LHRA; March 19, 2009
RWA/RWP-00320292; Radiological Work Assessment for Drywell Under-Vessel Platform and
933' Elevation; March 17, 2009
RWP-00000882-01; Radiation Work Permit; Change-Out Control Rod Drives; March 17, 2009
RWP-00000693-00; Outboard MSIV Associated Work; March 19, 2009
FP-RP-JPP-01; RP Job Planning; Revision 4
FP-RP-RWP-01; Radiation Work Permit; Revision 7
P-RP-SD-01; Special Dosimetry; Revision 4
R-01-04; Control of Personnel in High Radiation and Airborne Areas; Revision 20
HRA/LHRA Briefing Checklist; Revision 4
FP-RP-JPP-01; Radiological Work Assessment Form TEDE ALARA Evaluation; Revision 1
5528-Form; Radiation Protection Survey Record; Revision 24
R-13-05; Pre-Job Briefings; Revision 13
R-12-02; Radiation Protection Key Control; Revision 27

Section 2OS2

Radiation Protection Department Outage Readiness Plan; Revision 2
FP-RP-JPP-01; Radiation Protection Job Planning; Revision 4
RFO-24; Dose versus Goal for the Project: Total Dose
FP-RP-JPP-01; Radiological Work Assessment Form Exposure Control; Main Steam Chase,
Investigate, and Repair Outboard 'D' MSIV; RWP 693; Revision 6
Pre-Job Briefing Items for WO/Work Task WO 380817; Instructions when Performing Work
Inside the Main Steam Isolation Valve Bodies; March 19, 2009
FP-RP-JPP-01; Radiological Work Assessment Form Exposure Control; Pulling and Removing
CRD Where Workers at Close Proximity to the Spud End of CRDs; March 13, 2009

Section 2PS3

Final Report of Radiological Environmental Monitoring Program; Complete Analysis Data Tables from January – December, 2008
Annual Report to NRC from January 1 to December 31, 2008
10 CFR 50.75(g) Files from Year 1979 through 2007; February 29, 2008
Appendix B; Self Assessment Checklist Objective 3.1; May 11, 2009
4AWI-08.04.12; Ground Water Protection Program; Revision 0
ODCM-08-01; Reporting Requirements; Revision 5
Groundwater Monitoring Report Prepared by Sargent and Lundy, LLC; January 30, 2007
Groundwater Monitoring Report Prepared by Sargent and Lundy, LLC; December 31, 2008
Doc-1015118; Priority Index Worksheet; System Source and Components; May 11, 2009
FP-PE-PM-01; Preventive Maintenance Program; Revision 2
0504; Annual Radiological Environmental Operating Report Preparation and Review; Revision 11
ODCM-07-1; Radiological Environmental Monitoring Program; Revision 13
00357889; Work Order Package; 10 M Secondary Speed Direction Sensor Intermittent; March 31, 2008
00347100-01; Work Order Package; Met Tower Procedure; April 14, 2008
AR 01144041; Trip Report and Benchmarking Report to Capture Good Practice and Industry Concerns; July 14, 2008
AR 01143846; Missed REMP Air Sample at Monticello Public Works Location due to Loose Sample Head; July 11, 2008
AR 01133293; Current REMP Milk Samples May not Satisfy NUREG-1302; April 4, 2008
AR 01133276; Adverse Trend Identified in MET Tower Material Condition during Performance of a REMP Assessment; April 8, 2008
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LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
ASDS	Alternate Shutdown System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
ECCS	Emergency Core Cooling System
ED	Electronic Dosimeter
EDG	Emergency Diesel Generator
EFT	Emergency Filtration Train
ESW	Emergency Service Water
FSAR	Final Safety Analysis Report
GPI	Ground Water Protection Initiative
HELB	High Energy Line Break
HPCI	High Pressure Coolant Injection
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ISFSI	Independent Spent Fuel Storage Installation
kV	Kilovolt
LER	Licensee Event Report
LHRA	Locked High Radiation Area
LLD	Lower Limits of Detection
MCC	Motor Control Center
MG	Motor-Generator
MIC	Microbiologically Influenced Corrosion
mrem	Millirem
MSIV	Main Steam Isolation Valve
MW	Megawatt
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OCC	Outage Control Center
OSP	Outage Safety Plan
ODCM	Offsite Dose Calculation Manual
OWA	Operator Workaround
PARS	Publicly Available Records
PI	Performance Indicator
PM	Post-Maintenance
PRNM	Power Range Neutron Monitor
QA	Quality Assurance
RCA	Radiological Controlled Area
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Report

RFO	Refueling Outage
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RP	Radiation Protection
RPS	Reactor Protection System
RWP	Radiation Work Permit
SBGT	Standby Gas Treatment
SBLC	Standby Liquid Control
SDP	Significance Determination Process
SSC	Systems, Structures, and Components
TLD	Thermoluminescence Dosimeter
TS	Technical Specification
TSO	Transmission System Operator
USAR	Updated Safety Analysis Report
URI	Unresolved Item
UT	Ultrasonic Testing
WO	Work Order