



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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January 30, 2018

Mr. Christopher R. Church
Site Vice President
Monticello Nuclear Generating Plant
Northern States Power Company, Minnesota
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**SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT—NRC INTEGRATED
INSPECTION REPORT 05000263/2017004 AND EMERGENCY PREPAREDNESS
ANNUAL INSPECTION REPORT 05000263/2017501**

Dear Mr. Church:

On December 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Monticello Nuclear Generating Plant. On January 16, 2018, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report. The NRC also completed its annual inspection of the Emergency Preparedness Program. This inspection began on January 1, 2017, and the issuance of this letter closed Inspection Report 05000263/2017501.

Based on the results of this inspection, one self-revealed Finding was evaluated under the risk significance determination process as having very low safety significance (Green). The finding did not involve a violation of NRC requirements and is documented in this report. Further, inspectors documented a licensee-identified violation which was determined to be of very low safety significance. The NRC is treating this violation as an NCV consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the 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 copies to the Regional Administrator, Region III; the Director, Office of Enforcement, and the NRC Resident Inspector at the Monticello Nuclear Generating Plant.

If you disagree with the cross-cutting aspect assignment or a finding not associated with a regulatory requirement 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at the Monticello Nuclear Generating Plant.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

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

Enclosure:
IR 05000263/2017004; 05000263/2017501

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Letter to Christopher R. Church from Kenneth Riemer dated January 30, 2018

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT—NRC INTEGRATED
INSPECTION REPORT 05000263/2017004 AND EMERGENCY PREPAREDNESS
ANNUAL INSPECTION REPORT 05000263/2017501

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000263/2017004; 05000263/2017501

Licensee: Northern States Power Company, Minnesota

Facility: Monticello Nuclear Generating Plant

Location: Monticello, MN

Dates: October 1 through December 31, 2017

Inspectors: P. Zurawski, Senior Resident Inspector
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Branch 2
Division of Reactor Projects

Enclosure

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SUMMARY

Inspection Report 05000263/2017004; 10/01/2017–12/31/2017; Monticello Nuclear Generating Plant; Occupational As-Low-As-Reasonably-Achievable (ALARA) Planning and Controls.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One self-revealed Green finding was identified. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

NRC-Identified and Self-Revealed Findings

Cornerstone: Occupational Radiation Safety

- **Green:** A finding of very low safety significance (Green) was self-revealed due to the licensee having unplanned and unintended occupational collective radiation dose because of deficiencies in the licensee's radiological work planning and work control program. Specifically, the licensee failed to properly incorporate ALARA strategies, insights while planning, and executing work activities during the 1R28 refueling outage. The Reactor Water Cleanup (RWCU) Inlet Outboard Isolation Valve MO-2398 was scheduled for replacement during the outage. The initial dose estimate for this activity was 4.5 person-rem. However, 13.776 actual person-rem of dose was received. This issue was caused by poor radiological planning and work execution of this task. The licensee entered this issue into their Corrective Action Program (CAP) item 1558234.

The finding was more than minor because it was associated with the program and process attribute of the Occupation Radiation Safety Cornerstone. Additionally, this issue affected the cornerstone objective of ensuring the adequate protection of the workers' health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Additionally, the finding is very similar to IMC 0612, Appendix E, "Examples of Minor Issues," dated August 11, 2009, Example 6.i. This example provides guidance that an issue is not minor if the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. The inspectors determined that this finding was of very low safety significance (Green) because Monticello Nuclear Generating Plant's current 3-year rolling average collective is 64.637 person-rem (2014–2016). This is less than the 240 person-rem/unit referenced within IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008. This finding had a cross-cutting aspect in the area of Human Performance, related to the cross-cutting aspect of Work Management, in that the outage plan did not adequately plan, control and execute work activities to ensure the RWCU Inlet Outboard Isolation Valve MO-2398 replacement remained ALARA. [H.5] (Section 2RS2)

Licensee-Identified

- Violations of very low safety or security significance or Severity Level IV that were identified by the licensee have been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's CAP. These violations and CAP tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Monticello began the inspection period operating at approximately 100 percent power and operated at or near full power for the remainder of the inspection period, with the following exceptions:

- December 16, 2017 to December 17, 2017—Power was reduced to approximately 75 percent for control rod scram time testing and quarterly turbine testing with subsequent return to 100 percent.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity, and Emergency Preparedness

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- 12 emergency diesel generator (EDG) during 11 EDG Maintenance Work Window;
- High Pressure Coolant Injection (HPCI) during RCIC Maintenance Work Window; and
- “B” Residual Heat Removal (RHR) Room during “A” Core Spray 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, Final Safety Analysis Report, 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 three partial system walkdown samples as defined in Inspection Procedure (IP) 71111.04–05.

b. Findings

No findings 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 21–A; Radwaste Control Room;
- Fire Zone 21–B; Radwaste Trash Compactor Area;
- Fire Zone 21–C; Radwaste Shipping Building;
- Fire Zone 21–D; Radwaste Building;
- Fire Zone 19–C; FW Pipe Chase; and
- Fire Zone 3–02E; TIP Room.

The inspectors reviewed these areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan.

The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the 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 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. Documents reviewed are listed in the Attachment to this report.

These activities constituted six quarterly fire protection inspection samples as defined in IP 71111.05–05.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification (71111.11Q)

a. Inspection Scope

On October 23, 2017, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification training. The inspectors verified that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and that training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

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

This inspection constituted one quarterly licensed operator regualification program simulator sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation During Periods of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On December 16, 2017, the inspectors observed licensed control room operators during reactor downpower activities for control rod scram time testing and quarterly turbine testing. This was an activity that required heightened awareness or was related to increased risk. 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 procedures;
- control board manipulations; and
- oversight and direction from supervisors.

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

This activity constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11–05.

b. Findings

No findings were identified.

.3 Annual Operating Test Results (71111.11A)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Annual Operating Test, administered by the licensee from October 2, 2017 through November 9, 2017, required by Title 10 of the *Code of Federal Regulations* (CFR) 55.59(a). The results were compared to the thresholds established in Inspection Manual Chapter 0609, Appendix I, “Licensed Operator Requalification Significance Determination Process,” to assess the overall adequacy of the Licensee’s Operator Requalification Training (LORT) program to meet the requirements of 10 CFR 55.59. (02.02)

This inspection constituted one annual licensed operator requalification examination results sample as defined in Inspection Procedure (IP) 71111.11–05.

b. Findings

No findings were identified.

.4 Biennial Review (71111.11B)

a. Inspection Scope

The following inspection activities were conducted during the weeks of October 9, 2017 and October 16, 2017, to assess: (1) the effectiveness and adequacy of the facility licensee’s implementation and maintenance of its systems approach to training (SAT) based Licensed LORT program, put into effect to satisfy the requirements of 10 CFR 55.59; (2) conformance with the requirements of 10 CFR 55.46 for use of a plant referenced simulator to conduct operator licensing examinations and for satisfying experience requirements; and (3) conformance with the operator license conditions specified in 10 CFR 55.53. The documents reviewed are listed in the Attachment to this report.

- Licensee Requalification Examinations (10 CFR 55.59(c); SAT Element 4 as Defined in 10 CFR 55.4): The inspectors reviewed the licensee’s program for development and administration of the LORT biennial written examination and annual operating tests to assess the licensee’s ability to develop and administer examinations that are acceptable for meeting the requirements of 10 CFR 55.59(a).

- The inspectors conducted a detailed review of one version of the 2017 biennial requalification written examination administered to Crew 3, the week of October 30, 2017, to assess content, level of difficulty, and quality of the written examination materials. (02.03)
- The inspectors conducted a detailed review of ten job performance measures (JPMs) and four simulator scenarios to assess content, level of difficulty, and quality of the operating test materials. (02.04)
- The inspectors observed the administration of the annual operating test to assess the licensee's effectiveness in conducting the examinations, including the conduct of pre-examination briefings, evaluations of individual operator and crew performance, and post-examination analysis. The inspectors evaluated the performance of one shift crew split into two simulator operating crews in parallel with the facility evaluators during four dynamic simulator scenarios, and evaluated various licensed crew members concurrently with facility evaluators during the administration of several JPMs. (02.05)
- The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the last requalification examinations and the training planned for the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans. (02.07)
- Conformance with Examination Security Requirements (10 CFR 55.49):
The inspectors conducted an assessment of the licensee's processes related to examination physical security and integrity (e.g., predictability and bias) to verify compliance with 10 CFR 55.49, "Integrity of Examinations and Tests." The inspectors reviewed the facility licensee's examination security procedure, and observed the implementation of physical security controls (e.g., access restrictions and simulator input/output controls) and integrity measures (e.g., security agreements, sampling criteria, bank use, and test item repetition) throughout the inspection period. (02.06)
- Conformance with Operator License Conditions (10 CFR 55.53): The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53(e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators, and which control room positions were granted watch-standing credit for maintaining active operator licenses. Additionally, medical records for ten licensed operators were reviewed for compliance with 10 CFR 55.53(l). (02.08)
- Conformance with Simulator Requirements Specified in 10 CFR 55.46:
The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements. The inspectors reviewed a sample of simulator performance test records (e.g., transient tests, malfunction tests, scenario based tests, post-event tests, steady state tests, and core performance tests), simulator discrepancies, and the process for ensuring continued assurance of simulator

fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy corrective action process to ensure that simulator fidelity was being maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics. (02.09)

- Problem Identification and Resolution (10 CFR 55.59(c); SAT Element 5 as Defined in 10 CFR 55.4): The inspectors assessed the licensee's ability to identify, evaluate, and resolve problems associated with licensed operator performance (a measure of the effectiveness of its LORT program and their ability to implement appropriate corrective actions to maintain its LORT Program up-to-date). The inspectors reviewed documents related to licensed operator performance issues (e.g., recent examination and inspection reports including cited and non-cited violations; NRC End-of-Cycle and Mid-Cycle reports; NRC plant issue matrix; licensee event reports; licensee condition/problem identification reports including documentation of plant events and review of industry operating experience). The inspectors also sampled the licensee's quality assurance oversight activities, including licensee training department self-assessment reports. (02.10)

This inspection constituted one biennial licensed operator requalification program inspection sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

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

- 12 EDG Maintenance; and
- MO-2034 HPCI Inboard Steam Isolation Valve Backseating.

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

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

- verifying appropriate performance criteria for structures, systems, and components (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 maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted two quarterly maintenance effectiveness samples as defined in IP 71111.12–05.

b. Findings

No findings were identified.

.2 Quality Control

a. Inspection Scope

On October 23, 2017, the inspectors reviewed the licensee's quality control activities through a review of the licensee's control of quality parts during maintenance associated with V-EF–18A Standby Gas Treatment Off Gas Stack Motor Replacement. The following work package was reviewed for proper quality controls:

- WO 700005779; V-EF–18A Standby Gas Treatment Off Gas Stack Motor Replacement.

This activity constituted completion of one quality control maintenance effectiveness sample, as defined in Inspection Procedure 71111.12.

b. Findings

No findings 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:

- WO 700026387 RCIC Steam Line Outboard Isolation Valve MO–2076.

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

This activity constituted one maintenance risk assessment and emergent work sample as defined in IP 71111.13–05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- CAP 501000003873 – Unexpected Annunciator 125 VDC Bus Ground;
- CAP 501000003335 – Non-conservative Acceptance Criteria for RHR Heat Exchanger Test; and
- CAP 501000006215 – Air Leak on #11 Air Start Solenoid.

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 updated safety analysis report (USAR) to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

These operability inspections constituted three samples as defined in IP 71111.15–05.

b. Findings

No findings 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:

- Work Order (WO) 700012684–0020; V–EF–12 Charcoal Filter Heater for 480 volts Supply;
- WO 700012879–0040; Emergency Filtration Train (EFT) Division II;
- WO 700027898–0200; 11 EDG #1 Air Dryer Outlet Check GSA–32–1 Stuck Open;
- WO 700007710–0020; 12 EDG PMT 0187–02; and
- WO 700028072–0010; MO–2034 HPCI Inboard Steam Isolation Valve Backseating.

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

These activities constituted five post-maintenance testing samples as defined in IP 71111.19–05.

b. Findings

No findings 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:

- 0089, Boron Concentration Standby Liquid Control System [ROUTINE];
- OSP–EFT–0596 Control Room Envelop In-Leakage Test [ROUTINE]; and
- 0058 HPCI Steam Line High Area Temperature Test and Calibration Procedure [ROUTINE].

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

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for in-service testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

These inspections constituted three routine surveillance testing sample(s) as defined in IP 71111.22, Sections–02 and–05.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the Emergency Plan, Emergency Action Levels (EALs), and EAL Bases document to determine if these changes decreased the effectiveness of the Emergency Plan. The inspectors also performed a review of the licensee's 10 CFR Part 50.54(q) change process, and Emergency Plan change documentation to ensure proper implementation for maintaining Emergency Plan integrity.

The U.S. Nuclear Regulatory Commission review was not documented in a safety evaluation report, and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment to this report.

This EAL and Emergency Plan Change inspection constituted one sample as defined in Inspection Procedure 71114.04.

b. Findings

No findings were identified.

2. RADIATION SAFETY

2RS2 Occupational As-Low-As-Reasonably-Achievable Planning and Controls (71124.02)

.1 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors selected three to five work activities of the highest exposure significance or involve work in high dose rate areas.

The inspectors reviewed the radiological work planning as-low-as-reasonably-achievable (ALARA) evaluations, initial and revised exposure estimates, and exposure mitigation requirements. The inspectors determined if the licensee had reasonably grouped the radiological work into work activities.

The inspectors assessed whether the licensee's planning identified appropriate dose reduction techniques; appropriately considered alternate reduction features; and defined reasonable dose goals. The inspectors evaluated whether the licensee's ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices and/or heat stress mitigation equipment. The inspectors determined if the licensee's work planning considered the use of remote technologies and dose reduction insights from industry and plant-specific operating experience. The inspectors assessed whether these ALARA requirements were integrated into work procedure and/or radiation work permit documents.

The inspectors compared the results achieved with the intended dose established in the ALARA planning. The inspectors compared the person-hour estimates provided by work groups to the radiation protection group with the actual work activity time results, and evaluated the accuracy of these time estimates. The inspectors evaluated the reasons for any inconsistencies between intended and actual work activity doses.

The inspectors evaluated whether post-job reviews were conducted to identify lessons learned and entered into the licensee's corrective action program.

These inspection activities supplemented those documented in Inspection Report 05000263/2017002 and constituted one complete sample as defined in IP 71124.02–05.

b. Findings

Introduction: A finding of very low safety significance (Green) was self-revealed due to the licensee having unplanned and unintended occupational collective radiation dose because of deficiencies in the licensee's radiological work planning and work control program. Specifically, the licensee failed to properly incorporate ALARA strategies, insights while planning, and executing work activities during the 1R28 refueling outage.

The Reactor Water Cleanup (RWCU) Inlet Outboard Isolation Valve MO–2398 was scheduled for replacement during the outage. The initial dose estimate for this activity was 4.5 person-rem. However, 13.776 actual person-rem of dose was received. This issue was caused by poor radiological planning and work execution of this task.

Description: During the 1R28 refueling outage, numerous work tasks were performed. One of these was the replacement of RWCU Inlet Outboard Isolation Valve MO–2398. The original estimate for this task was 4.5 person-rem. The licensee performed a number of Work In Progress reviews for this valve replacement activity between 04/13/2017 and 05/02/2017. During this time period, it became apparent to the licensee that the percentage of work completed was not tracking with original dose estimates. The Station ALARA committee revised the dose estimate for this task as follows:

- 04/22/2017 9.410 person-rem
- 04/25/2017 11.3 person-rem
- 05/02/2017 14.2 person-rem

The task received 13.776 person-rem. On July 21, 2017, the licensee completed an Apparent Cause Evaluation (ACE) to determine the inaccurate dose estimate for the valve replacement project. The ACE listed a number of causes for this task exceeding the dose goal. These included incorrect welds, which required re-work, changes in the scaffold design to allow work completion, incomplete equipment to perform tests, incomplete work order instructions and installed shielding which was less than the approved design.

Analysis: Procedure FP–RP–SEN–02 established requirements to incorporate ALARA or insights while planning work. Contrary to this, the licensee failure to appropriately plan and coordinate outage activities, together with the failure to properly incorporate ALARA strategies or insights while planning and executing the replacement of the of RWCU Inlet Outboard Isolation Valve MO–2398 during the 1R28 refueling outage, was a

performance deficiency that was within the licensee's ability to control and should have been prevented. The finding was more than minor because it was associated with the program and process attribute of the Occupational Radiation Safety Cornerstone. Additionally, this issue affected the cornerstone objective of ensuring the adequate protection of the worker's health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Additionally, the finding is very similar to IMC 0612, Appendix E, "Examples of Minor Issues," dated August 11, 2009. Example 6.i provides guidance that an issue is not minor if the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. The inspectors determined that this finding was of very low safety significance (Green) in accordance with IMC 0609 Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008. This was a finding in the ALARA Planning and Work controls but not greater than the 240 person-rem/unit for a boiling-water reactor. The licensee's current collective 3-year rolling average was 64.637 person-rem (2014–2016). This finding had a cross-cutting aspect in the area of Human Performance, Work Management in that the outage plan did not adequately plan, control and execute work activities to ensure the MO–2398 replacement remained ALARA. [H.5]

Enforcement: No violation of regulatory requirements occurred. This is considered a finding of very low safety significance (Green) (FIN 05000263/2017004–01, Failure to Maintain Radiation Exposure ALARA). The licensee has entered this issue into their Corrective Action Program as CAP 1558234.

.2 Verification of Dose Estimates and Exposure Tracking Systems (02.03)

a. Inspection Scope

The inspectors reviewed selected occasions with inconsistent or incongruent results from the licensee's intended radiological outcomes to determine whether the cause was attributed to a failure to adequately plan work activities, or failure to provide sufficient management oversight of in-plant work activities, or failure to conduct the work activity without significant rework, or failure to implement radiological controls as planned.

These inspection activities supplemented those documented in Inspection Report 05000263/2017002 and constituted one complete sample as defined in IP 71124.02–05.

b. Findings

No findings were identified.

.3 Implementation of As-Low-As-Reasonably-Achievable and Radiological Work Controls (02.04)

a. Inspection Scope

The inspectors compared the radiological results achieved with the intended radiological outcomes and verified that the licensee captured lessons learned for use in the next outage.

These inspection activities supplemented those documented in Inspection Report 05000263/2017002 and constituted one complete sample as defined in IP 71124.02–05.

b. Findings

No findings were identified.

.4 Problem Identification and Resolution (02.06)

a. Inspection Scope

The inspectors reviewed self-assessments and/or audits performed of the ALARA program and determined if these reviews identified problems or areas for improvement.

The inspectors assessed whether problems associated with ALARA planning and controls were being identified by the licensee at an appropriate threshold and properly addressed for resolution.

These inspection activities supplemented those documented in Inspection Report 05000263/2017002 and constituted one complete sample as defined in IP 71124.02–05.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07)

.1 Site Inspection (02.02)

a. Inspection Scope

The inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the Final Safety Analysis Report, U.S. Nuclear Regulatory Commission Regulatory Guide 1.23, “Meteorological Monitoring Programs for Nuclear Power Plants,” and licensee procedures. The inspectors assessed whether the meteorological data readout and recording instruments were operable.

These inspection activities supplemented those documented in Inspection Report 05000263/2017003 and constituted one complete sample as defined in IP 71124.07–05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index–Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) – Residual Heat Removal System performance indicator for the period from the fourth quarter 2016 through third quarter 2017. To determine the accuracy of the Performance Indicator (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 7, dated August 31, 2013, were used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of October 1, 2016 through September 30, 2017, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 activity constituted one MSPI residual heat removal system sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index—Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI – Cooling Water Systems performance indicator for the period from the fourth quarter 2016 through third quarter 2017. 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 7, dated August 31, 2013 were used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of October 1, 2016 through September 30, 2017 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 activity constituted one MSPI cooling water system sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Specific Activity

a. Inspection Scope

During third quarter 2017 inspection activities, the inspectors sampled licensee submittals for the reactor coolant system specific activity PI for Monticello Nuclear Generating Plant for the period from the third quarter 2016 through the second quarter 2017. The inspectors used PI definitions and guidance contained in the NEI Document 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 8, 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee’s reactor coolant system chemistry samples, TS requirements, issue reports, event reports and U.S. Nuclear Regulatory Commission Integrated Inspection Reports 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. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one reactor coolant system specific activity sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

During third quarter 2017 inspection activities, the inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness PI for the period from the third quarter 2016 through the second quarter 2017. The inspectors used PI definitions and guidance contained in the NEI Document 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee’s assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee’s PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for

any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very-high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational exposure control effectiveness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

a. Inspection Scope

During third quarter 2017 inspection activities, the inspectors sampled licensee submittals for the radiological effluent Technical Specification(TS)/off-site dose calculation manual (ODCM) radiological effluent occurrences PI for the period from the third quarter 2016 through the second quarter 2017. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent TS/ODCM radiological effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's corrective action program at an appropriate threshold, adequate attention was being given to timely corrective actions, and adverse trends were identified and addressed. Some minor issues were entered into the licensee's

corrective action program as a result of the inspectors' observations; however, they are not discussed in 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.

b. Findings

No findings were identified.

.2 Annual Follow-Up of Selected Issues: [Circulating Water intake Basin Icing]

a. Inspection Scope

The inspectors selected the following condition reports for in-depth review:

- CAP 501000006364; Icing in the Intake.

The inspectors selected this issue for review to determine whether the licensee had previous opportunities to enhance procedures from a pre-emptive environmental condition perspective.

As appropriate, the inspectors verified the following attributes during their review of the licensee's corrective actions for the above condition reports and other related condition reports:

- complete and accurate identification of the problem in a timely manner commensurate with its safety significance and ease of discovery;
- consideration of the extent of condition, generic implications and previous occurrences;
- classification and prioritization of the resolution of the problem commensurate with safety significance;
- identification of corrective actions, which were appropriately focused to correct the problem; and
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue.

The inspectors discussed the corrective actions and associated evaluations with licensee personnel.

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

b. Observations and Assessments

On December 12, 2017 at approximately 0530 the circulating water basin began to accumulate ice causing various intake and basin level alarms. Operators had observed a large amount of ice moving down the Mississippi River via a camera monitoring system. A cooling tower was not in service at the time of the event. At 0525 and 0528, Operators adjusted the deicing line valve to allow more warm water to be directed to the circulating water basin entrance. At 0533 the control room received an unexpected

annunciator alarm for high differential pressure on the intake bar rack. In response to the intake ice buildup, and per Operations Manual B.06.04–05, Operators placed the screenwash system in full service along with the 11 Cooling Tower Pump aligned to the circulating water system to return warm water to the intake due to the icing problems. The operator actions resulted in warmer intake water alleviating the ice buildup and restoring circulating water basin level and pressure conditions. No other significant plant impacts were experienced as a result of the sudden influx of river ice to the intake. Plant Technical Specifications require both the Essential Service Water system and ultimate heat sink to be operable in Mode 1. The licensee determined operability requirements were met since two ESW subsystems were operable with one that will operate and the ultimate heat sink was maintained by having a minimum water level in the pump well of the intake structure of 899'. The lowest Circulating Water Pump Basin level observed during this intake icing transient was 903.25'. The licensee documented this issue in the corrective action program via CAP 501000006364. Inspectors reviewed CAP 501000006364 and determined the licensee established the following corrective actions:

- initiated CAP 501000006364;
- immediate corrective actions consisted of operators fully opening the deicing line and placed a cooling tower placed in service per B.06.04–05 E.13. Winter Operation;
- increased intake monitoring was implemented by Operations; and
- a revision was initiated to Operation Manual B.06.04–05 E.13 Winter Operations: Circulating Water to enhance exiting guidance regarding environmental conditions leading toward intake icing and preemptive operator actions in response to those conditions.

Inspector review of the licensee's condition evaluation determined the licensee's actions associated with CAP 501000006364 were satisfactory. Additionally, Inspector review of the corrective action process for an approximate previous five years did not identify any areas of concern regarding previous opportunities for the licensee to enhance its procedures from a pre-emptive environmental condition perspective.

c. Findings

No findings were identified.

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

.1 Loss of Control Room Annunciator Sound During Downpower

On December 15, 2017 the licensee performed a downpower evolution for planned control rod drive and turbine valve testing. During this evolution the control room experienced a loss of annunciator sound which brought added challenge to the operating crew. Inspectors observed activities associated with both the downpower and operator actions relative to the annunciator sound card issue.

The sound card that failed was located in control room panel C–04B and resulted in the alarm clear sound sounding continuously. Immediate actions of operations personnel resulted in implementing a decision making process which led to actions to remove the

sound card. Inspector review confirmed removal of the sound card did not impact the ability for the annunciator to illuminate when an alarm condition occurs, confirming the control room maintained capability to receive annunciation of adverse conditions. Inspectors also confirmed the licensee adequately assessed the loss of annunciation sound. Specifically, procedure A.2–101 was used by operators and requires that when approximately 75 percent of the safety system annunciator function is lost a declaration of an Notice of Unusual Event declaration would occur. Licensed operators determined that criteria had not been met given the loss of annunciator sound condition. Additionally, licensed operators determined the condition did not impact the ability for the annunciator to alarm and therefore it was not considered a loss of safety system annunciation, or a loss of assessment capability for EAL SU4.1. The licensee documented this issue via corrective action program item CAP 501000006495. Inspectors review of the licensee immediate actions, CAP, and EAL assessment did not identify any concerns.

a. Inspection Scope

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

b. Findings

No findings were identified.

.2 Intake Basin Icing

a. Inspection Scope

On December 12, 2017 Monticello was operating in Mode 1 at full power with external temperatures near 0 degrees Fahrenheit and experienced icing issues in the circulating water basin (intake).

On December 12, 2017 at approximately 0530 the circulating water basin began to accumulate ice causing various intake and basin level alarms. Operators had observed a large amount of ice moving down the Mississippi River via a camera monitoring system. A cooling tower was not in service at the time of the event. At 525 and 0528, Operators adjusted the deicing line valve to allow more warm water to be directed to the circulating water basin entrance. At 0533 the control room received an unexpected annunciator alarm for high differential pressure on the intake bar rack. In response to the intake ice buildup, and per Operations Manual B.06.04–05, Operators placed the screenwash system in full service along with the 11 Cooling Tower Pump aligned to the circulating water system to return warm water to the intake due to the icing problems. The operator actions resulted in warmer intake water alleviating the ice buildup and restoring circulating water basin level and pressure conditions. No other significant plant impacts were experienced as a result of the sudden influx of river ice to the intake. Plant Technical Specifications require both the Essential Service Water system and ultimate heat sink to be operable in Mode 1. The licensee determined operability requirements were met since two ESW subsystems were operable with one that will operate and the ultimate heat sink was maintained by having a minimum water level in the pump well of the intake structure of 899'. The lowest Circulating Water Pump Basin level observed during this intake icing transient was 903.25'. The licensee documented this issue in the corrective action program via CAP 501000006364 which established actions to enhance procedures regarding pre-emptive conditions and operator actions.

Inspector review of immediate licensee actions, operability determination, and follow-up action to enhance procedures did not identify any concerns.

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

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report 05000263/2017–002–00, “Main Steam Isolation Valve Closure Time Outside of Technical Specification Requirements”

a. Inspection Scope

The inspectors reviewed the event and circumstances detailed in this Licensee Event Report (LER) associated with the failure of the “D” outboard Main Steam Isolation Valve (MSIV) (AO–2–86D) to meet closure time requirements during testing per the requirements of USAR 05.02, “Primary Containment (PCT) System” and TS 3.6.1.3.6. In their review, the inspectors determined that the issues documented in the LER were adequately addressed in the licensee’s CAP and noted repairs and subsequent closure time testing for the MSIV were completed satisfactorily in a timely and effective manner. The inspectors noted that “D” inboard MSIV AO–2–80D (installed in series with the “D” outboard MSIV) had been tested for both leak rate and closing time over the past operating cycle and each test was completed satisfactorily. As a result, the primary containment isolation capability of the main steam lines remained operable which ensured the required isolation safety function was maintained. Lastly, the inspectors verified based on a review of work orders, the CAP, and surveillance performance history that the failure of the “D” outboard MSIV to pass closure timing requirements was not within the licensee’s ability to foresee and correct and therefore no performance deficiency was identified. Documents reviewed as part of this inspection are listed in the Attachment to this report. This LER is closed.

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

b. Findings

No findings were identified.

.4 (Closed) Licensee Event Report 05000263/2016–002–00; 05000263/2016–002–01; Inadequate Appendix R Fire Barrier Impacts Safe Shutdown Capability

a. Inspection Scope

On August 4, 2016, while performing a Fire Protection/Appendix R self-assessment, the licensee discovered that the floor between the Cable Spreading Room (CSR) and the Plant Administrative Building (PAB) basement is not a credited Appendix R fire barrier. Specifically, the licensee discovered that the CSR floor was not an adequate fire barrier, because the structural steel supporting the CSR floor did not have a 3–hour fire rating as required by 10 CFR 50, Appendix R, Section III.G.2.a. Since the CSR and PAB are located in the same fire area without a compliant fire barrier, a fire in the PAB could spread to the CSR and challenge the safe shutdown of the plant. By plant procedure, a fire in the CSR requires evacuation of the control room. Upon evacuation of

the control room, plant procedures direct the operators to perform shutdown of the reactor using Division II equipment on the Alternate Shutdown System (ASDS) panel that is located in the Emergency Filtration Train (EFT) Building. However, the credited path used by the operators to access ASDS panel traverses the PAB fire area where a fire event is occurring.

b. Findings

The licensee documented the non-compliant Appendix R condition in their CAP 1530637 and implemented fire watches as a compensatory measure and performed an exposed steel fire simulation and evaluation. Enforcement aspects of this Licensee Event Report are discussed in Section 4OA7. Documents reviewed as part of this inspection are listed in the Attachment. Licensee Event Reports 05000263/2016-002-00 and 05000263/2016-002-01 are closed.

This event follow-up review constituted two samples as defined in IP 71153-05.

4OA6 Management Meetings

.1 Exit Meeting Summary

On October 20, the inspectors presented the Licensed Operator Requalification Program Biennial Program inspection results to Mr. C. Dieckmann, Plant Manager, and other members of the licensee staff.

On January 16, 2018, the inspectors presented the 2017 fourth Quarter Integrated inspection results to Mr. C. Dieckmann, Plant Manager, and other members of the licensee staff.

The licensee acknowledged the issues presented during each exit. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The Radiation Safety Program inspection results with Mr. C. Church, Site Vice President, on October 5, 2017;
- The 2017 Annual Operating Test results with Mr. R. Becker, Fleet Training and Examination Developer, on November 9, 2017; and
- The 2017 Emergency Preparedness Program inspection results with Mr. B. Carberry, Emergency Preparedness Manager, conducted over the telephone on November 22, 2017.

Each inspector confirmed that none of the potential report input discussed was considered proprietary.

4OA7 Licensee-Identified Violations

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

- The licensee identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix R, Section III.G.2.a, "Fire Protection of Safe Shutdown Capability". Specifically, the licensee identified that the structural steel located in the plant administrative building (PAB) basement supporting the cable spreading room (CSR) floor did not have a 3-hour fire rating as required by 10 CFR 50, Appendix R, Section III.G.2.a. Title 10 CFR 50, Appendix R, Section III.G.2.a, requires, in part, that where separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating is provided, structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier. Contrary to the above, since 1982, the licensee failed to protect the structural steel supporting the fire barrier between the cable spreading room and fire area IV. This failure was identified by the licensee on August 4, 2016 during an Appendix R self-assessment and addressed in CAP 1530637. The licensee issued LER 2016-002-01 in response to this Appendix R non-compliance and implemented the immediate corrective action (compensatory measure) of an hourly fire watch in the affected fire area. The licensee conducted an exposed steel fire simulation and evaluation to understand the performance of the unprotected steel in the event of a fire in the PAB. The inspectors reviewed the licensee's simulation and evaluation.

This finding was determined to be more-than minor because the performance deficiency was associated with the protection against external factors (fire) attribute of the Mitigating Systems Cornerstone and adversely affected its objective to ensure the availability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the structural steel supports the fire barrier between the CSR and the PAB basement and a failure to protect the structural steel from fire damage would degrade the fire barrier separating the CSR and PAB. This could result in a fire in the PAB spreading to the CSR due to the degraded fire barrier resulting in an evacuation of the control room. The only means for operators to shutdown the reactor using the ASDS panel would require travel through the PAB fire area where a fire event is occurring. Therefore, this finding impacted the safe shutdown capability of the plant. After review of the licensee's exposed steel fire simulation and evaluation, the finding was determined to be of very low safety significance (Green) because the licensee demonstrated that the unprotected structural steel would provide at least one hour of fire endurance rating under a fire event in the PAB.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

C. Church, Site Vice President (Incoming)
P. Gardner, Site Vice President (Outgoing)
K. Scott, Site Operations Director
C. Dieckmann, Plant Manager
M. Antony, Operations Manager
M. Lingenfelter, Director of Engineering
R. Olson, Maintenance Manager
S. Quiggle, Chemistry Manager
C. England, Radiation Protection Manager
T. Hedges, RP General Supervisor
A. Ward, Regulatory Affairs Manager
P. Young, Nuclear Program Engineering Manager
R. Garding, Program Engineering Supervisor
T. Jones, Engineering Analyst Principal
R. Deopere, Engineering Analyst Principal
R. Loeffler, Regulatory Affairs
G. Huff, Chemist
R. Becker, Fleet Training and Examination Developer
D. Bosnic, Business Support Director
G. Hernandez, Regulatory Affairs Manager
B. Carberry, Emergency Preparedness Manager
P. Beyers, Director of Emergency Preparedness (Corporate)
S. Sollom, Regulatory Affairs Senior Engineer
P. Albares, General Supervisor Operations Training
D. Cox, Operations Training Supervisor
D. Murphy, Training Instructor
J. Yarbrough, Simulator Engineer

U.S. Nuclear Regulatory Commission

K. Riemer, Chief, Reactor Projects Branch 2
B. Dickson, Chief, Reactor Projects Branch 5
P. Zurawski, Senior Resident Inspector
T. Ospino, Resident Inspector (Rotation)
K. Pusateri, Reactor Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000263/2017004-01	FIN	Failure to Maintain Radiation Exposure ALARA
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Closed

05000263/2017004-01	FIN	Failure to Maintain Radiation Exposure ALARA
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05000263/2016-002-00	LER	Inadequate Appendix R Fire Barrier Impacts Safe Shutdown Capability
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05000263/2016-002-01	LER	Inadequate Appendix R Fire Barrier Impacts Safe Shutdown Capability
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05000263/2017-002-00	LER	Main Steam Isolation Valve Closure Time Outside of Technical Specification Requirements
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LIST OF DOCUMENTS REVIEWED

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

1R04 Equipment Alignment

- 2120; Plant Prestart Checklist RHR System; Revision 12
- 2124; Plant Prestart Checklist Diesel Generator and Fuel Oil System; Revision 10
- NH-36249; P&ID (Steam Side) High Pressure Coolant Injection System; Revision 83
- NH-36249-1; HPCI Hydraulic Control & Lubrication System; Revision 78
- NH-36250; P&ID (Water Side) High Pressure Coolant Injection System; Revision 85
- OPS Man B.09.08-06; Operations Manual Section: Emergency Diesel Generators; Revision 6
- Procedure 2118; Plant Prestart Checklist HPCI System; Revision 17
- Procedure 2154-10; High Pressure Coolant Injection System Prestart Valve Checklist; Revision 38
- Procedure 2154-35; HPCI Hydraulic Control and Lubrication System Prestart Valve Checklist; Revision 10
- QF1121; Redundant Equipment Health Assessment; Revision 1

1R05 Fire Protection

- 0256-01; MXL Fire Detection Instrumentation Test; Revision 25
- 0256-01; MXL Fire Detection Instrumentation Test; Revision 26
- A.3-02-E Strategy; Fire Zone 2-E-Tip Room; Revision 5
- A.3-19-C Strategy; F.W. Pipe Chase Area; Revision 7
- A.3-21-A Strategy; Radwaste Control Room Area; Revision 14
- A.3-21-B Strategy; Radwaste Trash Compactor Area; Revision 9
- A.3-21-C Strategy; Radwaste Shipping Building Area; Revision 12
- A.3-21-D Strategy; Radwaste Building Area; Revision 8
- CAP 501000003843; Fire Strategy Enhancements Identified
- CAP 501000003893; Fire Strategy A.3-21-C
- DWG. NO. FHA-3; Fire Hazards Analysis Plan View – Reactor Building Elev. 935'-0"; Revision 2

1R11 Licensed Operator Regualification

- 1224; Fire Brigade Equipment Inventory; Revision 40
- 2015-2017 Licensed Operator Regualification Training Biennial Training Plan; Revision 0
- 2017 Operations Licensed Operator Organization Chart; 10/12/2017
- 2142; Monticello Active NRC SRO/RO Qualification Checklist; 02/02/17
- 2142; Monticello Active NRC SRO/RO Qualification Checklist; 03/28/17
- 2142; Monticello Active NRC SRO/RO Qualification Checklist; 03/30/17
- 2142-01; Monticello Active NRC Fuel Handling SRO Qualification Checklist; 04/17/17
- 2144; Monticello Control Room Supervisor Qualification Checklist; 08/09/17
- 4 AWI 08.15.03-001; Shutdown Risk Assessment; Revision 5; SRO Only
- Attachment to Procedure 2300; Reactivity Maneuvering Steps; Revision 0
- A.2-101-029; Classify Event According to An Offsite Rad Condition Event; Revision 0

- B 03.02-010; Operate the HPCI [High Pressure Coolant Injection] Nuclear Grade Air Trap; Revision 0; RO Only
- B 03.04-011; Place Shutdown Cooling in Service; Revision 0
- B 05.09-001; Control Valve Oscillations Requiring Use of Load Limit; Revision 1
- B 06.05-002; Startup of a Condensate Pump with Both Pumps Off; Revision 0
- B 09.02-001; Shift Power Supply for Main Transformer Coolers; Revision 3
- B 09.08-005; Shutdown of EDG [Emergency Diesel Generator]; Revision 7
- B 09.13-008; Startup of Y91 Inverter Power Supply with Subsequent Shorting Issue; Revision 0
- C.3-002; Remove Main Turbine Generator from Service; Revision 0; RO Only
- C.4-B.06.03.A-001; Decreasing Condenser Vacuum; Revision 4
- C.5-4404-001; Operate Battery Charger d-10 from Flex Portable Diesel Generator; Revision 1
- Calculation C29; Gardel Predictive Calculation for Control Rod Withdrawal Map; Revision 0
- CAP 1492659; 13 DG Shutdown Early during Performance of 1374
- CAP 1492686; B.5.B Focused Self-Assessment: AFI for Manually Venting Containment
- CAP 1493798; Fire Brigade Performance Requires Remedial Training
- CAP 1496998; NRC Question on V-SF-9/10 Recirculation Damper Position
- CAP 1501030; Steps Performed Out of Order in Procedure 7140
- CAP 1501897; Status Control Performance in Operations
- CAP 1503215; Missed HPCI LCOs during Alternate Pressure Control
- CAP 1505480; Gap in Logging Expectations between Training Center and Plant
- CAP 1505936; Operations Forced Shutdown Performance Review
- CAP 1508178; Log Keeping Late Entry Required for Technical Specification Entry and Exit
- CAP 1515585; EAL Classification Concern
- CAP 1515944; 13 Diesel Generator Locked-Out during 1374 Monthly Test
- CAP 1519415; LCO 3.7.7 Bases Change Needed
- CAP 1532580; DEP Failure during E-Plan Drill (Potential Adverse Trend)
- CAP 1533966; MNGP Pre-IP 71111.11B Focused Self-Assessment
- CAP 1544475; LMS Inaccuracy Leads to Unqualified Worker
- CAP 1548829; Adverse Trend in Venting of Systems after Maintenance
- CAP 1550570; Medical Services Not Informed of Change in Medical Status
- CAP 1554105; Technical Specification Action Statement Exited in Error
- CAP 1555785; Rx Water Level Transient during S/D of 11 RFP for RFO28
- CAP 1557186; 12 EDG Frequency Out of Specification during 0419-01
- CAP 1558125; SR not Performed within Required Periodicity
- CAP 1558490; 12 EDG Voltage Out of Specification during OSP-ECC-0566
- CAP 50100000929; B.5.B/FLEX Equipment Inventory Deficiency
- CAP 501000001272; Technical Specification Applicability for Swing Bus
- CAP 501000002321; Requirements of FPT-SAT-71 not Followed
- CAP 501000003106; Exam Material Found in Simulator Trash
- CAP 501000003225; Operator Address Change Not Communicated to NRC
- CAP 501000003455; Exam Related Material Left in Simulator
- CAP 501000003505; Potential Trend in Exam Security Events
- CP-01; Core Stability and Power Distribution; 04/15/2015
- CP-01; Simulator Real Time Measurement; 05/22/2015
- CP-02A; Poison Effects After a Scram; 04/15/2015
- CP-02C; Poison Effects Following a Reactor Power Change; 04/13/2015
- CP-02B; Poison Effects Following Reactor Startup; 04/20/2015
- CP-07; Shutdown Margin Demonstration; 07/29/2015
- CP-07; Simulator Repeatability; 07/22/2015

- Form 0; 2017 Biennial Requalification Examination RO-3A; Revision 0
- Form 0; 2017 Biennial Requalification Examination SRO-3A; Revision 0
- FP-SAT-40; Implementation Phase; Revision 14
- FP-T-SAT-71; NRC Exam Security Requirements; Revision 10
- FP-T-SAT-73; Licensed Operator Requalification Program Examinations; Revision 12
- FP-T-SAT-74; NRC Operator License Application and Renewal Requirements; Revision 10
- FP-T-SAT-80; Nuclear Department Fleet Procedure; Simulator Configuration Management; Revision 9
- FP-T-SAT-81; Nuclear Department Fleet Procedure; Simulator Testing and Documentation; Revision 9
- Licensed Operator Requalification Exam Performance Tracking Spreadsheet; 10/03/2017
- MNGP Operations Department Organization/Qualification Chart; 10/09/2017
- MTF-7600-002; Monticello Fire Brigade Training Summary; Revision 8
- N-01; Unit Startup From Cold Shutdown; 04/20/2015
- N-02; Unit Shutdown From Rated Power to Hot Standby and Cooldown to Cold Shutdown Conditions; 04/20/2015
- OSP-TRB-0570; Exercise Main Turbine Bypass Valves; Revision 17
- OWI-01.05; Conduct of Training; Revision 35
- OWI-01.06; Duty Operations Personnel Requirements and Responsibilities; Revision 58
- OWI-01.08; NRC License Maintenance Responsibilities; Revision 23
- OWI-03.07; Time Critical Operator Actions; Revision 13
- Procedure 0009; Turbine Stop Valve Closure SCRAM Test Procedure; Revision 29
- Procedure 0081; Control Rod Drive SCRAM Insertion Time Test; Revision 72
- Procedure 2300; Reactivity Adjustment; Revision 20
- QF104004; Remediation Training Form, Operator; 08/25/2017
- QF104004; Remediation Training Form, Operator; 09/25/2017
- QF104004; Remediation Training Form, Week 3/Crew 1 Operator; 10/19/2017
- QF1060-04; Qualification Revocation Form; 08/25/2017
- QF1060-04; Qualification Revocation Form; Dated 09/25/2017
- QF1073-01; Walkthrough exam Summary Forms, Week 3/Crew 1 Operators; 10/18/2017
- QF107302; Crew Simulator Examination Summary, Week 3/Crew 1; 10/18/2017
- QF107303; Individual Operator Simulator Examination Summary Forms, Week 3/Crew 1 Operators; 10/18/2017
- QF1074-07; Licensed Operator Report of a Change in Medical Condition; Revision 1
- QF1081-01, Simulator Test Procedure Cycle 28
- SEG RQ-SS-150; Recirculation Pump Trip with Power Oscillations and Subsequent Earthquake Resulting in High Torus Level Blowdown; Revision 1
- SEG RQ-SS-151; Small LOCA [Loss-of-Coolant Accident] with High Power ATWS [Anticipated Transient without Scram] and Group 1 Isolation Requiring SBLC [Standby Liquid Control] Injection; Revision 0
- SEG RQ-SS-156; LONOP [Loss of Normal Offsite Power] Requiring RCIC [Reactor Core Isolation Cooling] Initiation for Reactor Level Control; Revision 0
- SEG RQ-SS-157; Unsalable RWCU [Reactor Water Clean Up] Leak with Failure of SDV [Scram Discharge Volume] to Isolate Requiring Blowdown; Revision 0
- SEG RQ-SS-158; Stuck Open SRV [Safety Relief Valve] with MSL [Main Steam Line] Rupture Requiring Manual Isolation; Revision 0
- SEG RQ-SS-160; RBCCW [Reactor Building Closed-Loop Cooling Water] Leak in Drywell with LOCA Requiring Blowdown; Revision 0
- SEG RQ-SS-13E; Recirculation Pump Trip with Power Oscillations and Subsequent Earthquake Resulting in High Torus Level Blowdown; Revision 0
- SSP-01; Steady State Performance; 07/29/2015

- SWO–Closed; 10/15/2015, to 10/05/2017
- SWO–Open; Priority 1 – 4
- T–01; Manual Scram; 06/24/2015
- T–02; Simultaneous Trip of All Feed Water Pumps; 06/24/2015
- T–03; Simultaneous Trip of All MSIVs; 06/24/2015
- T–04; Dual Recirculation Pump Trip; 06/24/2015
- T–05; Single Recirculation Pump Trip; 06/24/2015
- T–06; Turbine Trip–No Auto Scram; 06/24/2015
- T–07; Maximum Power Ramp Rate; 06/24/2015
- T–08; DBA LOCA—Loss of Offsite Power; 06/24/2015
- T–09; Maximum Steam Rupture in Containment; 06/24/2015
- T–10; SRV Open, MSIV's Isolated, ECCS Inhibited; 06/24/2015

1R12 Maintenance Effectiveness

- 0253–01A; SGBT A Train Monthly Test; Revision 51
- 3244; MCC Test Data Sheet – Overload Relay; Revision 4
- 3704; De-Termination/Re-Termination Documentation Sheet; Revision 1
- 4171–01–PM; Standby Gas Treatment System Air Heater – A Train; Revision 14
- 4460–13–PM; V–EF–18A Lubrication and Inspection; Revision 10
- 4601; Megger Test Data Sheet; Revision 2
- 4844–PM; GE Thermal Overload Relay Test Procedure; Revision 22
- 4900070242; Material Request for WO 700005779; 09/15/2017
- 4900073577; Material Request for WO 700005779; 10/27/2017
- 4900074319; Material Request for WO 700005779; 11/03/2017
- 8136–04; Secondary Containment Penetration Work Control Checklist; Revision 20
- CAP 501000004772; Degraded Connection Found in B4342
- CAP 501000004776; MO-2034 WO Note Resulted in Delays; Revision 80
- EC 26362; Equivalency Evaluation Equivalent/Alternate Change; Revision 0
- EC 60800000054; Revise Passport EC 15893 REV 3 – MO 2034 Back Seating Guidelines
- FP–OP–FER–01; Nuclear Department Fleet Procedure; Revision 8
- FP–WM–WOE–01; Nuclear Department Fleet Procedure; Revision 18
- FP–WR–IRM–01; Integrated Risk Management; Revision 15
- Issue Ticket 07349000; ELEC–V–EF–18A/MTR; 06/19/2017
- MO 2034 Challenge Board Meeting Minutes; 10/25/2017
- MWI–8–M–4.06; Conductor Termination; Revision 14
- NE–36375–21; Schematic Diagrams V–AH–1 & V–AH–2 and SGTS V–EF–17A; Revision 78
- NH–36881; Standby Gas Treatment Flow Diagram; Revision 80
- NL–74990; Off-Gas Stack Dilution Fans Connection Diagram V–EF–18A & B; Revision 0
- NX–9288–7–1; Electrical Schematic Standby Gas Treatment System C–24A & C–87A;
- WO 700013450–0010; PM 4460–13 V–EF–18A; 11/06/2017
- WO 700016708; 4171–01 SGBT System A Electric Heater E–34A–1; 11/06/2017
- WO 700028072–0010; MO–2034 BACK SEAT VALVE, HPCI Steam Line Isolation Inboard; 10/31/2017
- Work Plan 700005779 Attachment 1; V–EF–18A Secondary Containment Control; Revision 0
- Work Plan 700005779; A Off Gas Stack Dilution Fan Motor V–EF–18A Fan Balance; Revision 2
- Work Plan 700005779; V–EF–18A/MTR A Stack Fan Motor Replacement; Revision 4

1R13 Maintenance Risk Assessment and Emergent Work

- OPS Man B.09.08–06; Operations Manual Section: Emergency Diesel Generators; Revision 6
- WO 700026387–0010; MECH–MO-2076, RCIC Steam Line Isolation Outboard; 09/26/2017

1R15 Operability Evaluations

- 3108; Pump/Valve/Instrument Record of Corrective Action; Revision 17
- Big Notes; Emergency Diesel Generators(1)
- CAP 501000002150; Leak on #11 EDG Air Start Solenoid
- CAP 501000003335; Nonconservative Acceptance Criteria for RHR Heat Exchanger Test
- CAP 501000003491; GSA–32–1 Stuck In Open Position
- CAP 501000003873; Unexpected Annunciator 125VDC Bus Ground
- WO 700027898–0020; 11EDG #1 Air Dryer Outlet Check

1R19 Post-Maintenance Testing

- CAP 501000004772; Degraded Connection Found in B4342
- CAP 501000004776; MO–2034 WO Note Resulted in Delays
- EC 60800000054; Revise Passport EC 15893 Revision 3 – MO 2034 Back Seating Guidelines
- FP–OP–FER–01; Nuclear Department Fleet Procedure; Revision 8
- FP–WM–WOE–01; Nuclear Department Fleet Procedure; Revision 18
- FP–WR–IRM–01; Integrated Risk Management; Revision 15
- MO 2034 Challenge Board Meeting Minutes; 10/25/2017
- MWI–8–M–4.06; Conductor Termination, page 9; Revision 14
- WO 700012684–0020; OPS–B4422, PMT; V–fe-12, Charcoal Filter Heater 480V Supply; 10/17/2017
- WO 700028072–0010; MO–2034 BACK SEAT VALVE, HPCI Steam Line Isolation Inboard; 10/31/2017

1R22 Surveillance Test

- 0058; HPCI Steam Line High Area Temperature and Calibration Procedure; Revision 32
- 0089; Boron Concentration – Standby Liquid Control System; Revision 26
- I.01.87; Sodium Pentaborate; Revision 4
- I.05.05; Liquid Poison System Sampling; Revision 8
- NH–36250; P&ID (Water Side) High Pressure Coolant Injection System; Revision 85
- NH–36249; P&ID (Steam Side) High Pressure Coolant Injection System; Revision 83
- NH–36249–1; HPCI Hydraulic Control & Lubrication System; Revision 78
- OSP–EFT–0596; Control Room Envelope In-Leakage test; Revision 5

1EP4 Emergency Action Level and Emergency Plan Changes

- 10CFR 50.54(q) Review Form MT–2016–454; 08/04/2016
- 10CFR 50.54(q) Review Form MT–2016–469; 10/05/2016
- 10CFR 50.54(q) Review Form MT–2016–479; 11/22/2016
- 10CFR 50.54(q) Review Form MT–2016–497; 12/30/2016
- 10CFR 50.54(q) Review Form MT–2016–537; 05/01/2017
- 10CFR 50.54(q) Review Form MT–2017–525; 03/29/2017
- A.2–001; Emergency Organization; Revisions 54 and 55
- A.2–103; Alert; Revisions 23 and 24
- A.2–104; Site Area Emergency; Revisions 23 and 24

- A.2-105; General Emergency; Revisions 25 and 26
- A.2-107; Activation and Operation of the OSC; Revisions 37 and 38
- A.2-110; Response to a Security Threat or Hostile Action; Revisions; 14 and 15
- A.2-205; Personnel Accountability; Revisions 17 and 18
- A.2-301; Emergency Evacuation; Revisions 19 and 20
- A.2-405; Release Rate Determinations; Revisions 14 and 15
- A.2-424; EOF Count Room Procedures; Revisions 12 and 13
- Monticello Nuclear Generating Plant Emergency Plan; Revisions 47 and 48
- MT-BEP; Monticello Emergency Plan Training Program Description; Revisions 20 and 21

2RS2 Occupational As-Low-As-Reasonably-Achievable Planning and Controls

- 1R28 Outage ALARA Report; Undated
- 4AWI-08.04.08; ALARA Plan; Revision 17
- CAP 1466351; ALARA WIP Identifies Dose Estimate Issues
- CAP 1476631; Unnecessary Dose Due to the Gap between Shifts
- CAP 1549914; Expected Dose Exceeded on WO #534023 for CV-1728
- CAP 1556905; ISI Drywell Dose is Trending Higher than Estimates
- CAP 1558234; Refuel Floor Dose Nearly Exceeds 130% of Estimates
- CAP 1558750; MO-2398 Valve Replacement Required Mock-Up
- CAP 50100000893; Inadequate Causal Evaluation for MO 2398
- FP-RP-SAC-01; Station ALARA Committees; Revision 7
- FP-RP-SEN-02; Radiological Work Planning and Controls; Revision 6
- Post Job Reviews; Various Documents
- RPGP-01.23; ALARA Planning Group; Revision 4
- Self-Assessment; Assess the ALARA Program Utilizing the NRC Inspection Manual; 06/01/2017 through 06/23/2017
- Work In Progress Reviews; MO-2398 Replacement; Various Documents
- Work In Progress Reviews; MO-2398 Replacement; Various Documents
- Work In Progress Reviews; Refuel Floor Activities; Various Documents

2RS7 Radiological Environmental Monitoring Program

- Response to Inspector Question Regarding Meteorological Tower Calibration; 09/01/2017
- Response to Inspector Question Regarding Meteorological Tower Calibration; 10/04/2017

4OA1 Performance Indicator Verification

- FP-PA-PI-01; Performance Indicator Control; Revision 12
- FP-PA-PI-02; NRC/INPO/WANO Performance Indicator Reporting; Revision 12
- FP-R-PI-01; Preparation of NRC Performance Indicators; Revision 6
- Monticello Station Log Entries; 10/2016 through 09/2017
- MSPI Deviation Report; Cooling Water Systems; 10/2016 through 09/2017
- MSPI Deviation Report; MSPI Residual Heat Removal System; 10/2016 through 09/2017
- NE 99-02; Regulatory Assessment PI Guideline; Revision 7
- PRA-CALC-05-003; MSPI Basis Document; Revision 6

4OA2 Identification and Resolution of Problems

- 8293; Condenser Cleaning Using Amertap Balls; Revision 47
- CAP 500000690735; Converted XOE #: 3003875 TITLE: OE 15921
- CAP 500000695150; Converted issue #: 3012610 TITLE: RIVER ICING CONDITIONS
- CAP 500001161619; P-104 Screenwash Fire Pump Tripped after Given Start Signal
- CAP 500001263164; Replaced Shear Pin on 13 Traveling Screen
- CAP 500001320935; Amertap Threshold Evaluation Should Consider Changing Conditions
- CAP AR 01005295; Unexpected Alarm Received ANN-6-C-27, "Bar Rack Diff High"
- CE 1005295-01; Unexpected Alarm Received ANN-6-C-27, "Bar Rack Diff High"; 12/12/2005
- Ops Man B.06.04-5; Circulating Water System; Revision 81

4OA3 Follow-up of Events and Notices of Enforcement Discretion

- 0137-07A; Reactor Steam Supply Valves Leak Rate Testing; Revision 35
- 0255-07-IA-2; Main Steam Isolation Valve Functions Checks Test; Revision 34
- CAP 1555798; D Outboard MSIV Closing Time Out of Band
- CAP 1559434; MSIV Outboard AO-2-86D was Inop from 1R27 to 1R28
- CAP 501000006364; Intake Icing
- ECE 1555798; D Outboard MSIV Closing Time Out of Band; Revision 0
- LER 2016-002-00; Inadequate Appendix R Fire Barrier Impacts Safe Shutdown Capability: Revision 00
- LER 2016-002-01; Inadequate Appendix R Fire Barrier Impacts Safe Shutdown Capability: Revision 01
- LER 2017-002; Main Steam Isolation Valve Closure Time Outside of Technical Specification; Revision 00
- WO 523346-01; 0255-07-IA-1 Main Steam Valve Exercise Test; 04/15/2017
- WO 533769-02; 0137-07-A Reactor Steam Supply Valve LLRT with Reactor Pressure by Air; 04/19/2017

4OA7 Licensee Identified Findings

- CAP 1530637; 2016 FP FSA: CSR Same Fire Area as Administrative Building
- LER 2016-002; Inadequate Appendix R Fire Barrier Impacts Safe Shutdown Capability: Revision 01
- LER 2016-002-00; Inadequate Appendix R Fire Barrier Impacts Safe Shutdown Capability: Revision 00
- LER 2017-002; Main Steam Isolation Valve Closure Time Outside of Technical Specification; Revision 00

LIST OF ACRONYMS USED

ACE	Apparent Cause Evaluation
ALARA	As-Low-As-Is-Reasonably-Achievable
ASDS	Alternate Shutdown System
CAP	Corrective Action Program
CFR	<i>Code of Federal Regulations</i>
CSR	Cable Spreading Room
EAL	Emergency Action Levels
EDG	Emergency Diesel Generator
EFT	Emergency Filtration Train
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
IP	Inspection Procedure
JPM	Job Performance Measure
LER	Licensee Event Report
LORT	Licensee's Operator Requalification Training
MSIV	Main Steam Isolation Valve
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Off-site Dose Calculation Manual
PAB	Plant Administration Building
PCT	Primary Containment System
PI	Performance Indicator
RHR	Residual Heat Removal
RWCU	Reactor Water Cleanup
SAT	Systems Approach to Training
TS	Technical Specification
USAR	Updated Safety Analysis Report
WO	Work Order