UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

May 8, 2015

Mr. Peter A. Gardner
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 INSPECTION REPORT 05000263/2015001

Dear Mr. Gardner:

On March 31, 2015, 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 April 7, 2015, with you and other members of your staff.

Based on the results of this inspection, two NRC-identified and two self-revealed findings of very low safety significance were identified. Each finding involved a violation of NRC requirements. However, because of their very low safety significance, and since the issues were entered into your corrective action program (CAP), the NRC is treating the issues as non-cited violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy. Additionally, five licensee-identified findings are listed in Section 4OA7 of this report.

If you contest these NCV(s), you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555–0001, with copies to the Regional Administrator–Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555–0001; and the NRC Resident Inspector at the Monticello Nuclear Generating Plant. In addition, if you disagree with a cross-cutting aspect assigned to 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 the Monticello Nuclear Generating Plant.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, “Public Inspections, Exemptions, Requests for Withholding,” of the NRC's "Rules of Practice," a copy of this letter and 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 System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA Nick Shah Acting for/

Kenneth Riemer, Branch Chief
Branch 2
Division of Reactor Projects

Docket No. 50–263
License No. DPR–22

Enclosure:
Inspection Report 05000263/2015001;
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50–263; 72–058
License No:	DPR–22; 72–1004
Report No:	05000263/2015001
Licensee:	Northern States Power Company, Minnesota
Facility:	Monticello Nuclear Generating Plant
Location:	Monticello, MN
Dates:	January 1 through March 31, 2015
Inspectors:	P. Zurawski, Senior Resident Inspector P. Voss, Resident Inspector J. Beavers, Emergency Preparedness Inspector T. Bilik, Senior Reactor Inspector M. Learn, Reactor Engineer M. Davis, Project Manager M. Ziolkowski, Reactor Inspector I. Hafeez, Reactor Inspector J. Havertape, Reactor Engineer (NSPDP) J. Neurauter, Senior Reactor Inspector S. Bell, Health Physicist M. Mitchell, Health Physicist
Approved by:	K. Riemer, Branch Chief Branch 2 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000263/2015001; 01/01/2015–03/31/2015; Monticello Nuclear Generating Plant; Equipment Alignment, Fire Protection, Emergency Action Level and Emergency Planning Changes, and Follow-up of Events.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Four Green findings were identified by the inspectors. Each finding was considered a non-cited violation (NCV) of NRC regulations. 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 June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," effective date December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG–1649, "Reactor Oversight Process" Revision 5, dated February 2014.

Cornerstone: Mitigating Systems

Green. The inspectors identified a finding of very low safety significance and an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify conditions adverse to quality, such as deficiencies, deviations, and nonconformances. Specifically, on February 11, 2015, the inspectors identified a safety related seismic support for high pressure coolant injection (HPCI) turbine trip instrumentation that was not rigidly attached, supported, and restrained in accordance with plant construction code and installation specifications, a nonconformance which the licensee had failed to identify since initial plant construction. Corrective actions for this issue included repairs to the seismic support to rigidly connect the instrument line restraint and installation of a standalone support for the instrument tray. This issue was entered into the licensee's corrective action program (CAP 1465906).

The inspectors determined that the failure to promptly identify an HPCI instrument line support nonconformance was a performance deficiency requiring evaluation. The inspectors determined that the issue was more than minor because it adversely impacted the Mitigating Systems Cornerstone attribute of Protection Against External Factors, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors assessed the significance of this finding in accordance with IMC 0609 and determined that it was of very low safety significance. The inspectors determined that the contributing cause that provided the most insight into the performance deficiency was associated with the cross-cutting area of Problem Identification and Resolution, and the aspect of Identification because the licensee failed to implement a CAP with a low threshold for identifying issues [P.1]. (Section 1R04)

Green. A self-revealing finding of very low safety significance and an NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was identified on December 28, 2014, due to the failure to properly implement Procedure 0187-02B, "12 Emergency Diesel Generator /12 ESW [Emergency Service Water] Monthly Pump and Valve Tests." Specifically, operations personnel failed to comply with

Step 42 which directed the 12 EDG local governor control switch to be lowered to idle setting. The failure to implement the actions directed by Step 42 resulted in the 11 EDG being inoperable. Corrective actions for this issue included procedure revisions to require: protection/flagging of redundant equipment when technical specification equipment is declared inoperable for any reason, including planned maintenance and surveillance; peer checking or concurrent verification for manipulation of operable technical specification related equipment; and all equipment manipulations require a hard match (between procedure and equipment labeling). This issue was entered into the licensee's corrective action program (CAP 1460675).

The issue was more than minor because if left uncorrected, the failure to properly implement procedures associated with safety-related equipment would have the potential to lead to a more significant safety concern. Specifically, the failure to follow procedure resulted in the 11 EDG being made inoperable coincident with the 12 EDG being inoperable. The inspectors utilized IMC 0609 and determined that the issue was of very low safety significance. The inspectors determined that the contributing cause that provided the most insight into the performance deficiency was associated with the cross-cutting area of Human Performance, Avoid Complacency aspect because of a failure of individuals to implement error reduction tools [H.12]. (Section 4OA3)

Cornerstone: Initiating Events

Green. A finding of very low safety significance and an associated NCV of Technical Specification (TS) 5.4.1.d was self-revealed when the licensee failed to maintain procedures for Fire Protection Program Implementation to ensure that ignition sources (space heaters) were properly controlled to prevent plant fires. Specifically, on January 26, 2015, the licensee failed to maintain Fire Protection Program implementation procedures to include controls to ensure space heaters used in the plant stayed within allowable load ratings and were plugged directly into outlets without the use of extension cords. This resulted in a fire in the plant recombiner building which was extinguished within 13 minutes, nearing the 15 minute time limit at which a Notification of Unusual Event (NOUE) would have needed to be declared. It also resulted in a space heater causing an overloaded outlet at a location in the reactor building, near 'A' residual heat removal (RHR) equipment. Upon discovery of the recombiner area fire, the licensee dispatched the fire brigade to ensure the fire was extinguished, performed extent of condition walkdowns in the plant, and took action to improve controls on extension cord and portable heater use in the power block. This issue was entered into the licensee's corrective action program (CAP 1463506).

The inspectors determined that the failure to maintain fire program procedures to ensure ignition sources (space heaters) were appropriately controlled was a performance deficiency requiring evaluation. The inspectors determined the issue was more than minor because, if left uncorrected, the failure to adequately control portable heater related fire hazards in the plant could lead to more significant safety concerns. In addition, the finding was more than minor because it was associated with the Initiating Events Cornerstone attribute of Protection Against External Factors—including fire, and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors assessed the significance of this finding in accordance with IMC 0609 and determined that it was of very low safety significance. The inspectors determined that the contributing cause that provided the most insight into the performance deficiency was associated with the cross-cutting area of Problem Identification and Resolution, Evaluation aspect because of the failure to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2]. (Section 1R05)

Cornerstone: Emergency Preparedness

Green: The inspectors identified a finding of very low safety significance and an NCV of Title 10 CFR 50.54(q)(2) and 10 CFR 50.47(b)(4) for the licensee's failure to maintain the effectiveness of the emergency plan. Specifically, from May 28, 2014, until February 26, 2015, the HA1.6 Emergency Action Level (EAL) threshold was in conflict with the EAL basis for the alert classification. Additionally, both the revised EAL threshold and original NRC-approved safety evaluation report EAL threshold were later found to be greater than the actual river level that could lead to damage of safe shutdown equipment. The licensee's corrective actions documented that the current river level was 906' and if flooding were to occur the licensee would have relied on Procedure A.6, "Acts of Nature," and that an event response team would have been formed to monitor river level during the duration of a flood event. The licensee concluded that the shift manager, Event Response team, and plant management would have monitored for indication of degraded performance of equipment or structures necessary for safe shutdown for event classification escalation to the Alert level. The licensee entered this issue into the Corrective Action Program (CAP 1454593).

The inspectors determined that establishing a flooding EAL threshold that was in conflict with approved EAL basis as required by 10 CFR 50.47(b)(4), and subsequent failure to determine the actual level that could lead to damage of safe shutdown equipment for the alert classification High River Level EAL HA1.6 was a performance deficiency. The inspectors determined that the issue was more than minor because it is associated with the Procedure Quality attribute of the Emergency Preparedness (EP) cornerstone and adversely affected the cornerstone objective to ensure the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors assessed the significance of this finding in accordance with IMC 0609 and determined that it was of very low safety significance. The inspectors determined that the contributing cause that provided the most insight into the performance deficiency was associated with the cross-cutting area of Problem Identification and Resolution, Evaluation aspect because the licensee did not thoroughly evaluate the identified engineering error issue to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2]. (Section 1EP4)

Licensee-Identified Violations

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 operated at approximately 95 percent power for the inspection period with the exception of brief reductions in power to support planned surveillance activities, control rod adjustments, and turbine testing.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Condition—Extreme Cold Conditions

a. Inspection Scope

Since extreme cold conditions were forecast in the vicinity of the facility for February 19, 2015, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. On February 18 through February 19, 2015, the inspectors walked down the intake structure and heating boiler systems because their safety-related functions could be affected or required as a result of the extreme cold conditions forecast for the facility. The inspectors observed insulation, heat trace circuits, space heater operation, and weatherized enclosures to ensure operability of affected systems. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one readiness for impending adverse weather condition sample as defined in Inspection Procedure (IP) 71111.01–05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- 12 emergency diesel generator (EDG) with 11 EDG out of service;
- HPCI during reactor core isolation cooling (RCIC) work window;
- Residual heat removal (RHR) Division 1 with Division 2 work;

- RHR Division 2 with spent fuel pit (SFP) work; and
- RHR Service Water System Division 1 & 2 with SFP work.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specifications (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 five partial system walkdown samples as defined in IP 71111.04–05.

b. <u>Findings</u>

<u>Failure to Identify High Pressure Coolant Injection Seismic Support Nonconformance</u>

<u>Introduction</u>

The inspectors identified a finding of very low safety significance and an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to promptly identify conditions adverse to quality, such as deficiencies, deviations, and nonconformances. Specifically, on February 11, 2015, the inspectors identified a safety related seismic support for HPCI turbine trip instrumentation that was not rigidly attached, supported, and restrained in accordance with plant installation specifications, a nonconformance which the licensee had failed to identify since initial plant construction.

<u>Description</u>

On February 11, 2015, the inspectors performed a walkdown of the HPCI system to verify the system’s operational readiness while the RCIC system was out of service. During the walkdown, the inspectors identified that the tube tray for the HPCI suction pressure trip instrumentation was not rigidly attached to its intended supports. Specifically, the inspectors noted that several bolt holes which were intended to connect the instrument line tray to hanging supports were empty, and the instrument tray was only resting on several supports rather than being rigidly attached. In addition, the inspectors noted that one of the primary intended supports was hanging on the instrument line piping rather than receiving structural support from the ground or wall. The inspectors noted that the instrument line and tray ran approximately eight feet out from the HPCI room wall and connected with the HPCI booster pump suction. In addition, the instrument line ran along the wall approximately 15 feet. The inspectors noted that there were several bracket restraints with empty bolt holes that were not rigidly attached to the instrument tray, and only the last bracket along the wall was attached to the tray with bolts. This represented an approximate 23 foot run of instrument tubing that was not rigidly attached to its support.

The inspectors were concerned with the adequacy of the instrument line supports and restraints and engaged the Control Room to inform them of the concern. The inspectors noted that the instrument line was safety related and Seismic Category I, and served the purpose of tripping the HPCI turbine on indications of low suction pressure. The inspectors also concluded that if the instrument line was not adequately seismically supported, a break in the tubing would result in the trip of the HPCI system, and its subsequent inoperability and unavailability. In response to the inspector's questions, the licensee dispatched site structural engineering experts to walk down the system. The licensee and inspectors concluded that this condition represented a loss of design margin resulting in a reasonable doubt regarding operability during a seismic event. As a result, they requested a Prompt Operability Recommendation in order to evaluate the operability of the system. The licensee's operability recommendation concluded that the structural supports for the HPCI suction pressure instrumentation were "operable but nonconforming" to design and installation specifications.

The licensee concluded that the condition had existed since plant construction. The inspectors determined that the condition was nonconforming with the construction specifications that were in place at the time of plant construction, USAS B31.1.0–1967, original installation specification MPS–009, and current seismic support specification MPS–2097. Original construction code USAS B31.1.0-1967, "Power Piping" in Section 122.3 "Instrument, Control, and Sampling Piping" states, "Supports shall be furnished as specified in Par. 121 not only for safety but also to protect the piping against detrimental sagging, external mechanical injury, abuse and exposure to unusual service conditions." Section 121.2.1 states in part, "Anchors, guides, pivots, and restraints shall be designed to secure the desired points of piping in relatively fixed positions…and shall be structurally suitable to withstand the thrusts, moments, and other loads imposed."

Original plant piping installation specification, MPS–009, "Specification for Field Fabrication and Erection of Process and Service Piping and Instrumentation," dated July 17, 1969, states in part, "Exposed tubing shall be installed on racks with appropriate spans and the tubing shall be clipped to supports. Tubing installed in exposed locations subject to accidental crushing or damaging shall be protected by light-weight structural channels; as required, neatly and rigidly attached to the building structure by welding or bolting." As discussed in MPS–2097, "Standard Tubing Installation Specification," dated May 14, 1990, current site specifications state, "tubing shall be run along walls, columns, or ceiling whenever practical, avoiding open or exposed areas, to decrease the likelihood of persons supporting themselves on the lines. Supports, brackets, clips, or hangers shall not be fastened to tubing for the purpose of supporting cable trays or any other equipment. Seismic Category I tubing installations shall be attached to structures qualified as Seismic Category I."

The inspectors noted that the licensee had opportunities to identify this deficiency throughout the past several years. Specifically, system engineering walkdowns performed at a regular frequency should have identified the structural support nonconforming condition. The instrument tray and its associated supports were located along an easily accessible and frequently traversed path through the HPCI room (from one entrance to another). In addition, a 4-year preventative maintenance inspection, PM-4115, "HPCI System Inspection," directs the periodic inspection of pipe hangers and restraints, among many other system components. The inspectors concluded that this procedure, last completed in 2013 provided additional opportunities to identify the deficiencies over the last several years.

The inspectors determined that the licensee's failure to identify that the HPCI instrument line structural supports were nonconforming with past and present installation codes and specifications, and the failure to recognize the challenge to design margin in the seismic analysis represented a violation. The inspectors also determined that the violation was caused by the licensee's failure to implement a low threshold for entering issues into the CAP for appropriate disposition and evaluation. Specifically, licensee personnel failed to demonstrate a low threshold for identifying issues during system walkdowns when the nonconforming condition was not entered into the CAP, despite its existence for many years and its prominent and easily accessible location in the HPCI room.

<u>Analysis</u>

The inspectors determined that the licensee's failure to promptly identify an HPCI instrument line support nonconformance was the result of the failure to meet the requirements of 10 CFR 50, Appendix B, Criterion XVI; the cause was reasonably within the licensee's ability to foresee and correct; and should have been prevented. The inspectors determined that the issue was more than minor because it adversely impacted the Mitigating Systems Cornerstone attribute of Protection Against External Factors, and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the performance deficiency had a credible impact on safety due to the loss of design basis margin resulting in a reasonable doubt regarding reliability and capability during a seismic event.

The finding was evaluated under the Mitigating Systems Cornerstone. The inspectors applied IMC 0609, Attachment 4, "Phase 1–Initial Screening and Characterization of Findings," and IMC 0609, Appendix A, "The SDP [Significance Determination Process] for Findings At-Power," to this finding. The inspectors utilized Exhibit 2, Section A, for "Mitigating Systems" to screen the finding. The finding was determined to have very low safety significance because it represented a deficiency affecting the design or qualification of mitigating structures, systems and components (SSC) where the SSC maintained its operability. (Green) The inspectors determined that the contributing cause that provided the most insight into the performance deficiency was associated with the cross-cutting area of Problem Identification and Resolution, and the aspect of Identification because the licensee failed to implement a corrective action program with a low threshold for identifying issues and failed to ensure individuals identify issues completely, accurately, and in a timely manner in accordance with the program [P.1]. Specifically, licensee personnel failed to demonstrate a low threshold for identifying issues during system walkdowns when the nonconforming condition was not entered into the CAP, despite its existence for many years and its prominent and easily accessible location in the HPCI room.

Enforcement

Title 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” requires, in part, that conditions adverse to quality, such as deficiencies, deviations, and nonconformances are promptly identified. Contrary to this requirement, from initial plant construction and operation in 1970 through February 11, 2015, the licensee failed to identify a condition adverse to quality. Specifically, the inspectors identified a safety related seismic support for HPCI turbine trip instrumentation that was not rigidly attached, supported, and restrained in accordance with plant construction code and installation specifications, a nonconformance which the licensee had failed to identify since initial plant construction. The licensee failed to recognize that several bolt holes which were intended to connect the instrument line tray to hanging supports were empty, and that a primary hanging support relied on the HPCI instrument line to support its own weight, rather than receiving structural support from the ground. This represented a nonconformance with original construction code USAS B31.1.0–1967, original installation specification MPS–009, and current seismic support specification MPS–2097.

The inspectors concluded that the licensee had opportunities to identify the nonconformance. Specifically, the instrument tray and its associated supports were located along an easily accessible and frequently traversed path through the HPCI room (from one entrance to another). In addition, a periodic preventative maintenance inspection, PM–4115, “HPCI System Inspection,” directs the periodic inspection of pipe hangers and restraints, among many other system components. The inspectors concluded that this procedure, last completed in 2013, provided additional opportunities to identify the deficiencies over the last several years. Because this violation was of very low safety significance and it was entered into the CAP as CAP 1465906, this issue is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy **(NCV 05000263/2015001–01, Failure to Identify HPCI Seismic Support Nonconformance**). Corrective actions for this event included repairs to the seismic support to rigidly connect the instrument line restraint and installation of a standalone support for the instrument tray.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On January 14 through January 16, 2015, the inspectors performed a complete system alignment inspection of the Standby Gas Treatment System to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee’s probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

These activities constituted one complete system walkdown sample as defined in 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 8: Cable Spreading Room;
- Fire Zone 22: Recombiner Building;
- Fire Zone 3A: Recirc Motor Generator (MG) Sets;
- Fire Zone 7B: 250V Div 1 Battery; and
- Fire Zone 15B: 11 DG and Day Tanks.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the 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 five quarterly fire protection inspection samples as defined in IP 71111.05–05.

b. Findings

Failure to Maintain Fire Protection Program Procedures for Control of Portable Heater/Extension Cord Fire Hazards

Introduction

A finding of very low safety significance and an associated NCV of TS 5.4.1.d was self-revealed when the licensee failed to maintain procedures for Fire Protection Program Implementation to ensure that ignition sources (space heaters) were properly controlled to prevent plant fires. Specifically, on January 26, 2015, the licensee failed to maintain Fire Protection Program implementation procedures to include controls to ensure space heaters used in the plant stayed within allowable load ratings and were plugged directly into outlets without the use of extension cords. This resulted in a fire in the plant recombiner building which was extinguished within 13 minutes, narrowly beating the 15 minute time limit at which a NOUE would have needed to be declared. It also resulted in a space heater causing an overloaded outlet at a location in the reactor building, near "A" RHR equipment.

Description

On January 26, 2014, the Control Room was notified by security that there were flames and smoke coming from an electrical outlet in the plant recombiner building, at a security post. The recombiner building is located within the power block and is contiguous to the turbine building. Upon discovery of the fire the licensee dispatched the fire brigade to ensure the fire was extinguished. This resulted in a plant fire which was verified extinguished within 13 minutes, narrowly beating the 15 minute time limit at which an NOUE would have needed to be declared. Due to the lack of combustibles in the immediate vicinity of the electrical outlet, the fire did not spread past the wall outlet and remained small and localized. Licensee investigation revealed that the electrical outlet was overloaded and that a portable space heater was plugged into an extension cord which was ultimately connected to the outlet. This configuration represented a fire hazard and was determined to have caused the fire in the recombiner building. The inspectors concluded that a worst case fire propagating in this area would not impaction safety related equipment, but could result in a loss of condenser vacuum and down power transient.

Following the fire, the licensee performed a walkdown of other plant areas and identified one other location where a space heater was in a similar configuration to the recombiner building space heater. Specifically, in the Reactor Building near the elevator, a space heater was plugged into an extension cord, which was plugged into the wall. This configuration was already overloading the outlet, and the licensee noted that some melting of the plug had occurred. The inspectors reviewed the location of the space heater and extension cord configuration in the Reactor Building and determined that it was located within a few feet of safety related equipment. Specifically, it was located near the 'A' RHR air compressor, which is equipment used to support the Torus Cooling function of RHR, and safe shutdown equipment. In addition, this area contained 'A' train safety related cabling. However, this equipment is separated by space, Appendix R barriers, and Fire Zone, from the redundant 'B' RHR Train equipment and safety related cabling. Therefore, a postulated fire resulting from the heater/extension cord configuration would not have impacted more than one train of safety related equipment.

Inspectors reviewed licensee evaluations associated with the event, and determined that there were opportunities to identify and correct these fire hazards prior to the fire in the recombiner building. The inspectors noted that the licensee's procedure QF2413 "Security Winter/Summer Readiness Checklist" contained steps directing workers to

"Evaluate space heaters placed at posts—ensure post stays within allowable load rating, being plugged into outlets directly without extension cords." This checklist was not part of the Fire Protection Program, and lacked formal controls to ensure the steps were performed. In addition, the Minnesota State Fire Code states that portable heaters are required to be plugged directly into approved receptacles and are required to not be used in conjunction with extension cords. Licensee procedure 4 AWI–08.01.01, "Fire Prevention Practices" contained controls for use of space heaters regarding engagement with Operations and practicing good housekeeping near heater locations. However, licensee Fire Protection Program procedures did not contain requirement to ensure that the electrical configuration of space heaters and extension cords did not represent fire hazards. As a result, the recombiner building fire occurred.

In addition, CAPs that were generated in April 2014 and earlier noted repeated overloading of electrical outlets at security posts, and noted an event which occurred in the same recombiner area, where the outlet was overloaded and an extension cord was melted. The CAP associated with the recombiner area extension cord melting event was closed to trending. The CAP associated with security post electrical outlet overloading was closed without necessary actions to address the fire hazards being taken. The inspectors concluded that these CAPs should have alerted the licensee to inadequate heater and extension cord controls and the associated potential fire hazards. However, the CAPs were not adequately evaluated and addressed commensurate with potential safety impact, and were closed without necessary action.

<u>Analysis</u>

The inspectors determined that the failure to maintain fire program procedures to ensure ignition sources (space heaters) were appropriately controlled was a performance deficiency because it represented a failure to meet TS 5.4.1.d, the cause was reasonably within the licensee's ability to foresee/correct, and it should have been prevented. Inspectors evaluated the issue using the SDP and determined that it was more than minor because, if left uncorrected, the failure to adequately control portable heater related fire hazards in the plant could lead to more significant safety concerns. Specifically, the heater configuration created a fire that could have resulted in an emergency condition and there were other similar examples of this heater configuration that could have impacted safety related equipment. In addition, the finding was more than minor because it was associated with the Initiating Events Cornerstone attribute of Protection Against External Factors—including fire, and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations.

The inspectors assessed the significance of this finding using IMC 0609, Attachment 4, "Initial Characterization of Findings," and determined that the findings should be evaluated using 0609 Appendix F, "Fire Protection SDP," because the finding was associated with a failure to adequately implement fire prevention and administrative controls for transient ignition sources. Using Appendix F, the inspectors determined that the for the recombiner area space heater fire hazard, the impact would be limited to equipment which is not important to safety. For the space heater fire hazard located in the reactor building, the inspectors determined that the impact would be limited to no more than one train of equipment important to safety. As a result, the inspectors determined that the finding was of very low safety significance (Green). The inspectors concluded that this finding was cross cutting in the Problem Identification and Resolution area, Evaluation aspect, because of the failure to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, CAPs had been previously generated which should have alerted the licensee to inadequate heater and extension cord controls and the associated potential fire hazards, but instead the CAPs were not adequately evaluated and addressed commensurate with potential safety impact, and were closed without necessary action (P.2).

Enforcement

Technical Specification 5.4.1 states, in part, "Written procedures shall be established, implemented, and maintained covering the following activities: (d) Fire Protection Program Implementation."

Contrary to the above, on January 26, 2015, the licensee failed to maintain procedures for Fire Protection Program Implementation to ensure that ignition sources (space heaters) were properly controlled to prevent plant fires. Specifically, the licensee failed to maintain Fire Protection Program implementation procedures to include controls to ensure space heaters used in the plant stayed within allowable load ratings and were plugged directly into outlets without the use of extension cords. This resulted in a fire in the plant recombiner building which was extinguished within 13 minutes, nearing the 15 minute time limit at which an NOUE would have needed to be declared. It also resulted in a space heater causing an overloaded outlet at a location in the reactor building, near A RHR equipment. Because this violation was of very low safety significance and it was entered into the corrective action program as CAP 1463506, this issue is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy **(NCV 05000263/2015001–02: Failure to Maintain Fire Protection Program Procedures for Control of Portable Heater/Extension Cord Fire Hazards)**. Corrective actions for this event included extent of condition walkdowns in the plant, improvement of controls on extension cord and portable heater use in the power block, and correction of Fire Protection Procedures to include additional portable heater controls and limitations.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the corrective action program to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following plant area(s) to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- Reactor Core Isolation Cooling Room.

Documents reviewed during this inspection are listed in the Attachment to this report. This inspection constituted one internal flooding sample as defined in IP 71111.06–05.

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07)

.1 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the licensee's testing of the Division 1 Residual Heat Removal System heat exchanger to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee's observations as compared against acceptance criteria, the correlation of scheduled testing and the frequency of testing, and the impact of instrument inaccuracies on test results. Inspectors also verified that test acceptance criteria considered differences between test conditions, design conditions, and testing conditions. Documents reviewed for this inspection are listed in the Attachment to this document.

This annual heat sink performance inspection constituted one sample as defined in IP 71111.07–05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

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

a. Inspection Scope

On February 9, 2015, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;

- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

On January 12, 2015, the inspectors observed operators performing a down power and rod pattern adjustment in preparation for MELLLA+ extended power uprate (EPU) 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 inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11.

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 system:

- HPCI system.

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

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

This inspection constituted one quarterly maintenance effectiveness sample as defined in IP 71111.12–05.

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:

- B Control Room Ventilation (CRV)/Emergency Filtration Ventilation (EFT) unplanned Limiting Conditions for Operation (LCO) entry emergent work;

- Control of untested region of the MELLLA+ Power to Flow Map;
- Adjustment of turbine main shaft oil pump suction pressure;
- Turbine control valve and pressure fluctuations during EPU testing; and
- Downpower for rod shuffle and Control Rod Drive (CRD) testing.

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 and the troubleshooting plans, 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. These maintenance risk assessments and emergent work control activities constituted five samples 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:

- Alternate Nitrogen non-conservative technical specification;
- Temperature data not recorded during Local Leak-Rate Test (LLRT) pressure decay testing;
- HPCI sensing line nonconforming seismic support;
- HPCI oil system nonsafety related components; and
- Non-conservative Equipment Qualification (EQ) lifetime assumptions for Motor-Operated Valves (MOVs).

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

This operability inspection constituted five samples as defined in IP 71111.15–05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modification:

- MO-3502 RCIC Test Return Valve motor brake removal.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system(s). The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure that the individuals were aware of how the operation with the plant modification in place could impact overall plant performance. Documents reviewed 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 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:

- CRD–Hydraulic Control Unit (HCU) Accumulator Pressure (HCU–26–27);
- D-54 Battery Charger Post-Maintenance Test;
- Anticipated Transient Without Scram (ATWS) Inverter A, Division 1; and
- RHR 2–1 11 RHR Pump Discharge Check Valve.

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 UFSAR, 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 the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted four 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:

- 0141; Reactor Building to Torus Vacuum Breaker Operability Check (Routine);
- 0255-02–III–1A; Standby Liquid Control (SBLC) Comprehensive Pump and Valve Tests (In service Testing);
- 0185; Substation 125 Volts Direct Current (Vdc) Battery Operability Check Weekly Test (Routine);
- 0193–01, 0194, 0199; 11, 12, 13, 14, & 15 Battery Operability Check (Routine);
- 0007–A; Condenser Low Vacuum Scram Instruments Test and Calibration (Routine); and
- 0301; Safeguard Bus Voltage Protection Relay Test (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 UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted five routine surveillance testing sample(s) and one inservice 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 (IP 71114.04)

.0 Emergency Action Level and Emergency Plan Changes

Inspection Scope

The regional inspectors performed an in-office follow-up review of Unresolved Item (URI) 05000263/2014005–02. The URI was identified in December 2014 during a routine review of changes implemented to the EALs and Monticello Emergency Plan. The inspectors reviewed applicable licensee documents and had discussions with licensee personnel. The specific documents reviewed during this inspection are listed in the Attachment to this report.

This Emergency Action Level and Emergency Plan Change inspection represents zero inspection samples as defined in IP 71114.04–06.

Findings

Failure to Maintain a Standard Emergency Action Level Scheme for Flooding

Introduction

A Green finding and associated NCV of 10 CFR 50.54(q)(2) and 10 CFR 50.47(b)(4) was identified by the NRC for the failure of the licensee to maintain the effectiveness of the emergency plan. Specifically, from May 28, 2014, until February 26, 2015, the HA1.6 EAL threshold was in conflict with the EAL basis for the alert classification. Additionally, both the revised EAL threshold and original NRC-approved safety evaluation report EAL threshold were later found to be greater than the actual river level that could lead to damage of safe shutdown equipment.

Description

On November 14, 2013, Monticello engineering identified that the value used for the 1,000-year flood number was incorrect and should have been 920' rather than 921'. Given the High River Level EAL HA1.6 basis statement, "The high river water level threshold (921') is at the top of the retention basins and corresponds to the 1,000-year flood elevation," an assignment was made to the emergency preparedness group to evaluate and revise the EAL for declaring an Alert on High River Level from 921' to 920'. The subsequent EAL change evaluation was based on the 1,000-year flood elevation and did not evaluate the entire EAL basis statement or its validity with regards to Nuclear Energy Institute (NEI) 99–01. On May 28, 2014, the licensee made a change to EAL HA1.6, for High River Level for the Alert classification from 921' to 920'.

On November 4, 2014, the inspectors observed that the basis for EAL HA1.6 was also linked to the river level where flood waters would reach the top of the retention basin. The inspectors also noted that, although the licensee had changed the EAL threshold, the actual level of the basin was not altered. The NRC questioned the reason for the EAL threshold change, noting that the change may be in conflict with the EAL basis for HA1.6. These questions prompted licensee discovery that the EAL threshold basis was associated with flooding impacts on plant equipment, rather than historical river level data, as the licensee originally believed. The licensee then questioned if the known level of the retention basin was a legacy error and what the correct level was for this EAL threshold. To address these questions, the licensee requested input from engineering and documented these issues in CAP 1454593 on that same date. As an interim action, CAP 1454593 documented that the current river level was 906’, and if flooding were to occur, the licensee would have relied on Procedure A.6, "Acts of Nature," and that an event response team would have been formed in accordance with the procedure to monitor river level during the duration of a flood event. The licensee noted that, at a river level of 918’, a Notification of Unusual Event would have been declared. In addition, the licensee concluded that the shift manager, event response team, and plant management would have monitored for indication of degraded performance of equipment or structures necessary for safe shutdown for event classification escalation to the Alert level. The inspectors evaluated these interim compensatory measures and found them adequate as no additional reasonable risk existed as a result of this issue.

On December 3, 2014, NRC questions regarding the progress of the previous CAP led to the licensee’s statement that the 920’ threshold level also may not be correct. Because the licensee had not yet determined the appropriate High River Level EAL threshold for the alert classification EAL HA1.6, the inspectors could not readily determine whether the error was a legacy issue with the old threshold value, a current performance issue with the new threshold value and EAL change process, or both. December 3, 2014, discussions and an unresolved issue determination resulted in the generation of CAP 1458209 by the licensee on that same date.

On January 15, 2015, Apparent Cause Evaluation 1458209 was approved. Engineering calculation 25005 determined that the river level corresponding to potential damage to safe shutdown equipment due to external flooding was 919’. This threshold was below both the previous, 921’, and current, 920’, alert classification High River Level for EAL HA1.6. The interim compensatory measures, identified in CAP 1454593, remained in effect until the EAL threshold was changed to 919’ on February 26, 2015.

<u>Analysis</u>

The inspectors determined that the establishing of a flooding EAL threshold that was in conflict with approved EAL basis as required by 10 CFR 50.47(b)(4), and subsequent failure to determine the actual level that could lead to damage of safe shutdown equipment for the alert classification High River Level EAL HA1.6 was a performance deficiency. The finding is more than minor because it is associated with the Procedure Quality attribute of the EP cornerstone and adversely affected the cornerstone objective to ensure the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency.

In accordance with the IMC 0609, Appendix B, “Emergency Preparedness SDP,” issued September 23, 2014, and Figure 5.4-1, the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency was a condition where an EAL has been rendered ineffective such that an ALERT would be declared in a degraded manner for an external flooding event. This finding has a cross-cutting aspect in the area of problem identification and resolution, evaluation, because the licensee did not thoroughly evaluate the identified engineering error issue to ensure that resolutions address causes and extent of conditions commensurate with their safety significance (P.2).

Enforcement

Title 10 CFR 50.54(q)(2) required, in part, that a licensee shall follow and maintain the effectiveness of an emergency plan which meets the requirements in Appendix E to this part and the planning standards of 10 CFR 50.47(b). Section 50.47(b)(4) required a standard emergency classification and action level scheme, the basis of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures. Monticello's EAL HA1.6 basis stated, "The high river water level threshold (921') is at the top of the retention basins."

Contrary to the above, from May 28, 2014, until February 26, 2015, the licensee failed to maintain a standard EAL scheme by establishing a new flooding EAL threshold that was in conflict with its approved EAL basis. Because this finding is of very low safety significance (Green) and was entered into the licensee's CAP as Issue reports 1406374, 1454593, and 1458209, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC's Enforcement Policy. **(NCV 05000263/2015001–03, Failure to Maintain a Standard Emergency Action Level Scheme for Flooding)**.

The URI 05000263/2014005–02, "Incorrect Emergency Action Level Threshold," was closed.

1EP6 Drill Evaluation (71114.06)

.1 Training Observation

a. Inspection Scope

The inspectors observed a simulator training evaluation for licensed operators on March 16, 2015, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the Attachment to this report.

This inspection of the licensee's training evolution with emergency preparedness drill aspects constituted one sample as defined in IP 71114.06–06.

b. Findings

Unresolved Item: Inadequate Evaluation of Operating Crew During Simulator Assessment

Introduction

The inspectors identified an URI on March 16, 2015, due to the licensee's potential failure to properly assess and critique a senior reactor operator's performance during a simulator self-assessment in accordance with Procedure MTCP–03.49, "Conduct of Training Cycle Self-Assessments." In accordance with IMC 0612, "Power Reactor Inspection Reports, the inspectors determined that this issue represented an URI because more information is required to determine if a violation exists and if the performance deficiency is More-than-Minor.

Description

On March 16, 2015, the NRC inspectors observed a potential failure to properly assess and critique a senior reactor operator's performance during a simulator self-assessment in accordance with Procedure MTCP–03.49, "Conduct of Training Cycle Self-Assessments." Specifically, during an NRC observation of a Licensed Operator Training self-assessment and emergency preparedness objective demonstration, the inspector observed that the evaluators may not have adequately critiqued a knowledge deficiency in the Interpreting and Diagnosing Events competency area when evaluating a Shift Manager's (SM) performance. The Shift Manager's performance could have adversely impacted EAL classification during a graded self-assessment. This assessment included an evaluated Drill/Exercise Performance (DEP) opportunity for the EAL classification in question.

During the inspectors' observation, they noted that the critique session did not appear to adequately probe why the classification-related performance weaknesses occurred, and did not appear to determine a course of specific actions for the crew to take to improve individual performance relative to the SM's role in the EAL classification. Specifically, the inspectors noted that at the end of the critique, this item was not discussed as an item needing resolution, nor was it discussed that the SM had a challenge to his qualifications and needed potential remediation, which appeared to be contrary to the site's MTCP–0349 procedure. These discussions and follow-up actions did not take place until after the critique had concluded and the NRC inspectors raised questions about the SM's misinterpretation of Safety Parameters Display System (SPDS) and his overall performance.

This item represents an issue of concern about which more information is required to determine if a violation exists and if the performance deficiency is More-than-Minor. The NRC inspectors will work to obtain additional guidance and clarification/interpretation of the existing guidance in order to resolve this issue. Corrective actions for this issue included disqualifying the individual, developing a remediation plan, and initiating procedure changes to improve the critique process. This issue was entered into the corrective action program as CAP 1470975. **(URI 05000263/2015001–04, Inadequate Evaluation of Operating Crew During Simulator Assessment)**

2. RADIATION SAFETY

Cornerstones: Occupational and Public Safety

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

This inspection constituted one complete sample as defined in IP 71124.03–05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant's UFSAR to identify areas of the plant designed as potential airborne radiation areas, and any associated ventilation systems or airborne monitoring instrumentation. Instrumentation review included continuous air monitors (continuous air monitors and particulate-iodine-noble-gas-type instruments) used to identify changing airborne radiological conditions such that actions to prevent an overexposure may be taken. The review included an overview of the Respiratory Protection Program and a description of the types of devices used. The inspectors reviewed UFSAR, TSs, and emergency planning documents to identify location and quantity of respiratory protection devices stored for emergency use.

The inspectors reviewed the licensee's procedures for maintenance, inspection, and use of respiratory protection equipment including self-contained breathing apparatus, as well as procedures for air quality maintenance.

The inspectors reviewed any reported performance indicators related to unintended doses resulting from intakes of radioactive material.

b. Findings

No findings were identified.

.2 Engineering Controls (02.02)

a. Inspection Scope

The inspectors reviewed the licensee's use of permanent and temporary ventilation to determine whether the licensee uses ventilation systems as part of its engineering controls (in lieu of respiratory protection devices) to control airborne radioactivity. The inspectors reviewed the procedural guidance for the use of installed plant systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation, and assessed whether the systems are used, to the extent practicable, during high-risk activities (e.g., using containment purge during cavity floodup).

The inspectors selected installed ventilation systems used to mitigate the potential for airborne radioactivity and evaluated whether the ventilation airflow capacity, flow path (including the alignment of the suction and discharges), and filter/charcoal unit efficiencies, as appropriate, were consistent with maintaining concentrations of airborne radioactivity in work areas below the concentrations of an airborne area to the extent practicable.

The inspectors selected temporary ventilation system setups (high-efficiency particulate air/charcoal negative pressure units, down draft tables, tents, metal “Kelly Buildings,” and other enclosures) used to support work in contaminated areas. The inspectors assessed whether the use of these systems is consistent with licensee procedural guidance and as-low-as-reasonably-achievable (ALARA) concept.

The inspectors reviewed airborne monitoring protocols by selecting installed systems used to monitor and warn of changing airborne concentrations in the plant, and evaluated whether the alarms and setpoints were sufficient to prompt licensee/worker action to ensure that doses are maintained within the limits of 10 CFR Part 20 and the ALARA concept.

The inspectors assessed whether the licensee had established trigger points (e.g., the Electric Power Research Institute’s “Alpha Monitoring Guidelines for Operating Nuclear Power Stations”) for evaluating levels of airborne beta-emitting (e.g., plutonium–241) and alpha-emitting radionuclides.

b. Findings

No findings were identified.

.3 Use of Respiratory Protection Devices (02.03)

a. Inspection Scope

For those situations where it is impractical to employ engineering controls to minimize airborne radioactivity, the inspectors assessed whether the licensee provided respiratory protective devices such that occupational doses are ALARA. The inspectors selected work activities where respiratory protection devices were used to limit the intake of radioactive materials, and assessed whether the licensee performed an evaluation concluding that further engineering controls were not practical and that the use of respirators is ALARA. The inspectors also evaluated whether the licensee had established means (such as routine bioassay) to determine if the level of protection (protection factor) provided by the respiratory protection devices during use was at least as good as that assumed in the licensee’s work controls and dose assessment.

The inspectors assessed whether respiratory protection devices used to limit the intake of radioactive materials were certified by the National Institute for Occupational Safety and Health (NIOSH)/Mine Safety and Health Administration (MSHA) or have been approved by the NRC per 10 CFR 20.1703(b). The inspectors selected work activities where respiratory protection devices were used. The inspectors evaluated whether the devices were used consistent with their NIOSH/MSHA certification or any conditions of their NRC approval.

The inspectors reviewed records of air testing for supplied-air devices and self-contained breathing apparatus bottles to assess whether the air used in these devices meets or exceeds Grade D quality. The inspectors reviewed plant breathing air supply systems to determine whether they meet the minimum pressure and airflow requirements for the devices in use.

The inspectors selected several individuals qualified to use respiratory protection devices, and assessed whether they have been deemed fit to use the devices by a physician.

The inspectors selected several individuals assigned to wear a respiratory protection device and observed them donning, doffing, and functionally checking the device as appropriate. Through interviews with these individuals, the inspectors evaluated whether they knew how to safely use the device and how to properly respond to any device malfunction or unusual occurrence (loss of power, loss of air, etc.).

The inspectors chose multiple respiratory protection devices staged and ready for use in the plant or stocked for issuance for use. The inspectors assessed the physical condition of the device components (mask or hood, harnesses, air lines, regulators, air bottles, etc.) and reviewed records of routine inspection for each. The inspectors selected several of the devices and reviewed records of maintenance on the vital components (e.g., pressure regulators, inhalation/exhalation valves, hose couplings). The inspectors reviewed the Respirator Vital Components Maintenance Program to ensure that the repairs of vital components were performed by the respirators' manufacturer.

b. Findings

No findings were identified.

.4 Self-Contained Breathing Apparatus for Emergency Use (02.04)

a. Inspection Scope

Based on the UFSAR, TS, and emergency operating procedure requirements, the inspectors reviewed the status and surveillance records of self-contained breathing apparatuses staged in-plant for use during emergencies. The inspectors reviewed the licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions.

The inspectors selected several individuals on control room shift crews and from designated departments currently assigned emergency duties (e.g., onsite search and rescue duties) to assess whether control room operators and other emergency response and radiation protection personnel (assigned in-plant search and rescue duties or as required by emergency operating procedures or the emergency plan) were trained and qualified in the use of self-contained breathing apparatuses (including personal bottle change out). The inspectors evaluated whether personnel assigned to refill bottles were trained and qualified for that task.

The inspectors determined whether appropriate mask sizes and types are available for use (i.e., in-field mask size and type match what was used in fit-testing). The inspectors determined whether on-shift operators had no facial hair that would interfere with the sealing of the mask to the face and whether vision correction (e.g., glasses inserts or corrected lenses) was available as appropriate.

The inspectors reviewed the past 2 years of maintenance records for select self-contained breathing apparatus units used to support operator activities during accident conditions and designated as “ready for service” to assess whether any maintenance or repairs on any self-contained breathing apparatus unit’s vital components were performed by individual(s) certified by the manufacturer of the device to perform the work. The vital components typically are the pressure-demand air regulator and the low-pressure alarm. The inspectors reviewed the onsite maintenance procedures governing vital component work to determine any inconsistencies with the self-contained breathing apparatus manufacturer’s recommended practices. For those self-contained breathing apparatuses designated as “ready for service,” the inspectors determined whether the required periodic air cylinder hydrostatic testing was documented and up to date, and the retest air cylinder markings required by the U.S. Department of Transportation were in place.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

The inspectors evaluated whether problems associated with the control and mitigation of in-plant airborne radioactivity were being identified by the licensee at an appropriate threshold, and were properly addressed for resolution in the licensee’s CAP. The inspectors assessed whether the corrective actions were appropriate for a selected sample of problems involving airborne radioactivity, and were appropriately documented by the licensee.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

This inspection constituted one complete sample as defined in IP 71124.04–05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the results of the Radiation Protection Program audits related to internal and external dosimetry (e.g., licensee’s quality assurance audits, self-assessments, or other independent audits) to gain insights into overall licensee performance in the area of dose assessment and focus the inspection activities consistent with the principle of “smart sampling.”

The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report on the vendor’s most recent results to determine the status of the contractor’s accreditation.

A review was conducted of the licensee procedures associated with dosimetry operations, including issuance/use of external dosimetry (routine, multibadging, extremity, neutron, etc.), assessment of internal dose (operation of whole body counter, assignment of dose based on derived air concentration-hours, urinalysis, etc.), and evaluation of and dose assessment for radiological incidents (distributed contamination, hot particles, loss of dosimetry, etc.).

The inspectors evaluated whether the licensee had established procedural requirements for determining when external and internal dosimetry is required.

b. Findings

No findings were identified.

.2 External Dosimetry (02.02)

a. Inspection Scope

The inspectors evaluated whether the licensee's dosimetry vendor is NVLAP accredited, if the approved irradiation test categories for each type of personnel dosimeter used are consistent with the types and energies of the radiation present, and the way the dosimeter is being used (e.g., to measure deep dose equivalent, shallow dose equivalent, or lens dose equivalent).

The inspectors evaluated the onsite storage of dosimeters before their issuance, during use, and before processing/reading. The inspectors also reviewed the guidance provided to rad-workers with respect to care and storage of dosimeters.

The inspectors assessed whether non-NVLAP accredited passive dosimeters (e.g., direct ion storage sight read dosimeters) were used according to licensee procedures that provide for periodic calibration, application of calibration factors, usage, reading (dose assessment) and zeroing.

The inspectors assessed the use of active dosimeters (electronic personal dosimeters) to determine if the licensee uses a "correction factor" to address the response of the electronic personal dosimeter as compared to the passive dosimeter for situations when the electronic personal dosimeter must be used to assign dose. The inspectors also assessed whether the correction factor is based on sound technical principles.

The inspectors reviewed dosimetry occurrence reports or CAP documents for adverse trends related to electronic personal dosimeters, such as interference from electromagnetic frequency, dropping or bumping, failure to hear alarms, etc. The inspectors assessed whether the licensee had identified any trends and implemented appropriate corrective actions.

b. Findings

No findings were identified.

.3 Internal Dosimetry (02.03)

Routine Bioassay (In Vivo)

a. Inspection Scope

The inspectors reviewed procedures used to assess the dose from internally deposited nuclides using whole body counting equipment. The inspectors evaluated whether the procedures addressed methods for differentiating between internal and external contamination, the release of contaminated individuals, the route of intake, and the assignment of dose.

The inspectors reviewed the whole body count process to determine if the frequency of measurements was consistent with the biological half-life of the nuclides available for intake.

The inspectors reviewed the licensee's evaluation for use of its portal radiation monitors as a passive monitoring system to determine if instrument minimum detectable activities were adequate to determine the potential for internally deposited radionuclides sufficient to prompt additional investigation.

The inspectors selected several whole body counts and evaluated whether the counting system used had sufficient counting time/low background to ensure appropriate sensitivity for the potential radionuclides of interest. The inspectors reviewed the radionuclide library used for the count system to determine its appropriateness. The inspectors evaluated whether any anomalous count peaks/nuclides indicated in each output spectra received appropriate disposition. The inspector's reviewed the licensee's 10 CFR Part 61 data analyses to determine whether the nuclide libraries included appropriate gamma-emitting nuclides. The inspectors evaluated how the licensee accounts for hard-to-detect nuclides in the dose assessment.

b. Findings

No findings were identified.

Special Bioassay (In Vitro)

a. Inspection Scope

There were no internal dose assessments obtained using in vitro monitoring for the inspectors to review. The inspectors reviewed and assessed the adequacy of the licensee's program for in vitro monitoring (i.e., urinalysis and fecal analysis) of radionuclides (tritium, fission products, and activation products), including collection and storage of samples.

The inspectors reviewed the Vendor Laboratory Quality Assurance Program and assessed whether the laboratory participated in an industry recognized Cross-Check Program including whether out-of-tolerance results were resolved appropriately.

b. Findings

No findings were identified.

Internal Dose Assessment–Airborne Monitoring

a. Inspection Scope

The inspectors reviewed the licensee's program for airborne radioactivity assessment and dose assessment, as applicable, based on airborne monitoring and calculations of derived air concentration. The inspectors determined whether flow rates and collection times for air sampling equipment were adequate to allow lower limits of detection to be obtained. The inspectors also reviewed the adequacy of procedural guidance to assess internal dose if respiratory protection was used. The licensee had not performed dose assessments using airborne/derived air concentration monitoring since the last inspection.

b. Findings

No findings were identified.

Internal Dose Assessment–Whole Body Count Analyses

a. Inspection Scope

The inspectors reviewed several dose assessments performed by the licensee using the results of whole body count analyses. The inspectors determined whether affected personnel were properly monitored with calibrated equipment and that internal exposures were assessed consistent with the licensee's procedures.

b. Findings

No findings were identified.

.4 Special Dosimetric Situations (02.04)

Declared Pregnant Workers

a. Inspection Scope

The inspectors assessed whether the licensee informs workers, as appropriate, of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for (voluntarily) declaring a pregnancy.

The inspectors selected individuals who had declared pregnancy during the current assessment period and evaluated whether the licensee’s radiological monitoring program (internal and external) for declared pregnant workers is technically adequate to assess the dose to the embryo/fetus. The inspectors reviewed exposure results and monitoring controls employed by the licensee and with respect to the requirements of 10 CFR Part 20.

b. Findings

No findings were identified.

Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

a. Inspection Scope

The inspectors reviewed the licensee's methodology for monitoring external dose in non-uniform radiation fields or where large dose gradients exist. The inspectors evaluated the licensee's criteria for determining when alternate monitoring, such as use of multi-badging, was to be implemented.

The inspectors reviewed dose assessments performed using multi-badging to evaluate whether the assessment was performed consistently with licensee procedures and dosimetric standards.

b. Findings

No findings were identified.

Shallow Dose Equivalent

a. Inspection Scope

The inspectors reviewed shallow dose equivalent dose assessments for adequacy. The inspectors evaluated the licensee's method (e.g., VARSKIN or similar code) for calculating shallow dose equivalent from distributed skin contamination or discrete radioactive particles.

b. Findings

No findings were identified.

Neutron Dose Assessment

a. Inspection Scope

The inspectors evaluated the licensee's neutron dosimetry program, including dosimeter types and/or survey instrumentation.

The inspectors reviewed neutron exposure situations (e.g., independent spent fuel storage installation operations or at-power containment entries) and assessed whether: (a) dosimetry and/or instrumentation was appropriate for the expected neutron spectra, (b) there was sufficient sensitivity for low dose and/or dose rate measurement, and (c) neutron dosimetry was properly calibrated. The inspectors also assessed whether interference by gamma radiation had been accounted for in the calibration and whether time and motion evaluations were representative of actual neutron exposure events, as applicable.

b. Findings

No findings were identified.

Assigning Dose of Record

a. Inspection Scope

For the special dosimetric situations reviewed in this section, the inspectors assessed how the licensee assigns dose of record for total effective dose equivalent, shallow dose equivalent, and lens dose equivalent. This included an assessment of external and internal monitoring results, supplementary information on Individual exposures (e.g., radiation incident investigation reports and skin contamination reports), and radiation surveys and/or air monitoring results when dosimetry was based on these techniques.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

The inspectors assessed whether problems associated with occupational dose assessment are being identified by the licensee at an appropriate threshold and are properly addressed for resolution in the licensee's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving occupational dose assessment.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

The inspection activities supplement those documented in IR 05000263/2014004, and constitute one complete sample as defined in IP 71124.05-05.

.1 Calibration and Testing Program (02.03)

Process and Effluent Monitors

a. Inspection Scope

The inspectors selected effluent monitor instruments (such as gaseous and liquid) and evaluated whether channel calibration and functional tests were performed consistent with radiological effluent TS/Offsite Dose Calculation Manual (ODCM). The inspectors assessed whether: (a) the licensee calibrated its monitors with National Institute of Standards and Technology traceable sources; (b) the primary calibrations adequately represented the plant nuclide mix; (c) when secondary calibration sources were used, the sources were verified by the primary calibration; and (d) the licensee's channel calibrations encompassed the instrument's alarm set-points.

The inspectors assessed whether the effluent monitor alarm setpoints were established as provided in the ODCM and station procedures.

For changes to effluent monitor setpoints, the inspectors evaluated the basis for changes to ensure that an adequate justification existed.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

This inspection constituted a partial sample as defined in IP 71124.06–05.

.1 Inspection Planning and Program Reviews (02.01)

Event Report and Effluent Report Reviews

a. Inspection Scope

The inspectors reviewed the radiological effluent release reports issued since the last inspection to determine if the reports were submitted as required by the ODCM/TS. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by the licensee for further inspection to determine if they were evaluated, were entered in the CAP, and were adequately resolved.

The inspectors selected radioactive effluent monitor operability issues reported by the licensee as provided in effluent release reports, to review these issues during the onsite inspection, as warranted, given their relative significance and determine if the issues were entered into the CAP and adequately resolved.

b. Findings

No findings were identified.

Offsite Dose Calculation Manual and Final Safety Analysis Report Review

a. Inspection Scope

The inspectors reviewed UFSAR descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths so they could be evaluated during inspection walkdowns.

The inspectors reviewed changes to the ODCM made by the licensee since the last inspection against the guidance in NUREG–1302 and 0133, and Regulatory Guides (RGs) 1.109, 1.21 and 4.1. When differences were identified, the inspectors reviewed the technical basis or evaluations of the change during the onsite inspection to determine whether they were technically justified and maintain effluent releases ALARA.

The inspectors reviewed licensee documentation to determine if the licensee has identified any non-radioactive systems that have become contaminated as disclosed either through an event report or the ODCM since the last inspection. This review provided an intelligent sample list for the onsite inspection of any 10 CFR 50.59 evaluations and allowed a determination if any newly contaminated systems have an unmonitored effluent discharge path to the environment, whether any required ODCM revisions were made to incorporate these new pathways, and whether the associated effluents were reported in accordance with RG 1.21.

b. Findings

No findings were identified.

Groundwater Protection Initiative Program

a. Inspection Scope

The inspectors reviewed reported groundwater monitoring results and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater.

b. Findings

No findings were identified.

Procedures, Special Reports, and Other Documents

a. Inspection Scope

The inspectors reviewed Licensee Event Reports (LERs), event reports, and/or special reports related to the Effluent Program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports.

The inspectors reviewed effluent program implementing procedures, particularly those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations.

The inspectors reviewed copies of licensee and third party (independent) evaluation reports of the effluent monitoring program since the last inspection to gather insights into the licensee's program and aid in selecting areas for inspection review (smart sampling).

b. Findings

No findings were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down selected components of the gaseous and liquid discharge systems to evaluate whether equipment configuration and flow paths align with the documents reviewed in 02.01 above and to assess equipment material condition. Special attention was made to identify potential unmonitored release points (such as open roof vents in boiling water reactor turbine decks, temporary structures butted against turbine, auxiliary or containment buildings), building alterations which could impact airborne, or liquid effluent controls, and ventilation system leakage that communicates directly with the environment.

For equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records, as applicable.

The inspectors walked down filtered ventilation systems to assess for conditions such as degraded high-efficiency particulate air /charcoal banks, improper alignment, or system installation issues that would impact the performance or the effluent monitoring capability of the effluent system.

As available, the inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent (including sample collection and analysis) to evaluate whether appropriate treatment equipment was used and the processing activities align with discharge permits.

The inspectors determined if the licensee has made significant changes to their effluent release points (e.g., changes subject to a 10 CFR 50.59 review or require NRC approval of alternate discharge points).

As available, the inspectors observed selected portions of the routine processing and discharging of liquid waste (including sample collection and analysis) to determine if appropriate effluent treatment equipment is being used and that radioactive liquid waste is being processed and discharged in accordance with procedure requirements and aligns with discharge permits.

b. Findings

No findings were identified.

.3 Sampling and Analyses (02.03)

a. Inspection Scope

The inspectors selected effluent sampling activities, consistent with smart sampling, and assessed whether adequate controls have been implemented to ensure representative samples were obtained (e.g., provisions for sample line flushing, vessel recirculation, composite samplers, etc.).

The inspectors determined whether the facility was routinely relying on the use of compensatory sampling in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the Inter-Laboratory Comparison Program to evaluate the quality of the radioactive effluent sample analyses and assessed whether the Inter-Laboratory Comparison Program includes hard-to-detect isotopes as appropriate.

b. Findings

No findings were identified.

.4 Instrumentation and Equipment (02.04)

Effluent Flow Measuring Instruments

a. Inspection Scope

The inspectors reviewed the methodology the licensee uses to determine the effluent stack and vent flow rates to determine if the flow rates were consistent with radiological effluent TS/ODCM or UFSAR values, and that the differences between assumed and actual stack and vent flow rates did not affect the results of the projected public doses.

b. Findings

No findings were identified.

Air Cleaning Systems

a. Inspection Scope

The inspectors assessed whether surveillance test results since the previous inspection for TS required ventilation effluent discharge systems (high-efficiency particulate air and charcoal filtration), such as the Standby Gas Treatment System and the Containment/Auxiliary Building Ventilation System, met TS acceptance criteria.

b. Findings

No findings were identified.

.5 Dose Calculations (02.05)

a. Inspection Scope

The inspectors reviewed all significant changes in reported dose values compared to the previous Radiological Effluent Release Report (e.g., a factor of 5, or increases that approach Appendix I criteria) to evaluate the factors which may have resulted in the change.

The inspectors reviewed radioactive liquid and gaseous waste discharge permits to assess whether the projected doses to members of the public were accurate and based on representative samples of the discharge path.

Inspectors evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides are included within detectability standards. The review included the current Part 61 analyses to ensure hard-to-detect radionuclides are included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection to evaluate whether changes were consistent with the ODCM and Regulatory Guide 1.109. Inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to evaluate whether appropriate factors were being used for public dose calculations.

The inspectors reviewed the latest Land Use Census to assess whether changes (e.g., significant increases or decreases to population in the plant environs, changes in critical exposure pathways, the location of nearest member of the public or critical receptor, etc.) have been factored into the dose calculations.

For the releases reviewed above, the inspectors evaluated whether the calculated doses (monthly, quarterly, and annual dose) are within the 10 CFR Part 50, Appendix I, and TS dose criteria.

The inspectors reviewed, as available, records of any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc.) to ensure the abnormal discharge was monitored by the discharge point effluent monitor. Discharges made with inoperable effluent radiation monitors, or unmonitored leakages were reviewed to ensure that an evaluation was made of the discharge to satisfy 10 CFR 20.1501 so as to account for the source term and projected doses to the public.

b. Findings

No findings were identified.

.6 Groundwater Protection Initiative Implementation (02.06)

a. Inspection Scope

The inspectors reviewed monitoring results of the Groundwater Protection Initiative to determine if the licensee had implemented its program as intended and to identify any anomalous results. For anomalous results or missed samples, the inspectors assessed whether the licensee had identified and addressed deficiencies through its CAP.

The inspectors reviewed identified leakage or spill events and entries made into 10 CFR 50.75 (g) records. The inspectors reviewed evaluations of leaks or spills and reviewed any remediation actions taken for effectiveness. The inspectors reviewed onsite contamination events involving contamination of ground water and assessed whether the source of the leak or spill was identified and mitigated.

For unmonitored spills, leaks, or unexpected liquid or gaseous discharges, the inspectors assessed whether an evaluation was performed to determine the type and amount of radioactive material that was discharged by:

- Assessing whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term, and assessing whether a survey/evaluation had been performed to include consideration of hard-to-detect radionuclides; and

- Determining whether the licensee completed offsite notifications, as provided in its Groundwater Protection Initiative implementing procedures.

The inspectors reviewed the evaluation of discharges from onsite surface water bodies that contain or potentially contain radioactivity, and the potential for ground water leakage from these onsite surface water bodies. The inspectors assessed whether the licensee was properly accounting for discharges from these surface water bodies as part of their effluent release reports.

The inspectors assessed whether on-site ground water sample results and a description of any significant on-site leaks/spills into ground water for each calendar year were documented in the Annual Radiological Environmental Operating Report for the Radiological Environmental Monitoring Program or the Annual Radiological Effluent Release Report for the Radiological Effluent Technical Specifications.

For significance, new effluent discharge points (such as significant or continuing leakage to ground water that continues to impact the environment if not remediated), the inspectors evaluated whether the ODCM was updated to include the new release point.

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.07)

a. Inspection Scope

The inspectors assessed whether problems associated with the effluent monitoring and control program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. In addition, they evaluated the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving radiation monitoring and exposure controls.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours performance indicator (PI) for the period from the first quarter 2014 through the fourth quarter 2014. 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, event reports, and NRC IRs for the period January 2014 through December 2014 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 unplanned scrams per 7000 critical hours sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications performance indicator for the period from the first quarter 2014 through the fourth quarter 2014.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, event reports and NRC Integrated IRs for the period of January 2014 through December 2014 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 unplanned scrams with complications sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.3 Unplanned Power Changes per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Power Changes per 7000 Critical Hours performance indicator for the period from the first quarter 2014 through the fourth quarter 2014. 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, maintenance rule records, event reports and NRC Integrated IRs for the period of January 2014 through December 2014 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 unplanned power changes per 7000 critical hours 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 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 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: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the 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 were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

.3 Selected Issue Follow-Up Inspection: Dry Shielded Canister Liquid Penetrant Examination

a. Inspection Scope

The inspectors reviewed the licensee's corrective action related to the first of a kind non-destructive examination (NDE) using phased array ultrasonic testing (PAUT) on one of the Transnuclear Nutech Horizontal Modular Storage System (NUHOMS) 61BTH Dry Shielded Canisters (DSC). The inspectors selected this issue as an in-depth review because the licensee declared six DSCs inoperable in CAP 1402246 dated October 18, 2013. The inspectors reviewed the NDE PAUT performed by the licensee. The inspectors assessed the licensee's implementation of the corrective actions to verify that the licensee appropriately prioritized the planned actions and that these actions were adequate to correct the problem. This issue was initially documented as an URI pending ongoing licensee actions and additional agency review of the event. **(URI 07200058/2013001–01, Dry Shielded Canister Liquid Penetrant Examination).**

As a result of CAP 1402246, the licensee formally submitted an exemption request to the NRC on July 16, 2014 however withdrew the request on December 16, 2014 after several Requests for Supplemental Information and public meetings with the NRC.

The licensee elected to perform additional NDE on the closure welds of DSC 16 to quantify the number and dimensions of potential indications (potential flaws) present in the closure welds of DSC 16 to support potential resubmittal of the exemption request to the NRC.

The licensee contracted with AREVA to perform PAUT examinations of the closure lid welds on DSC 16 during the period from February 6, 2015 through February 19, 2015. The inspectors observed a portion of the examinations.

Examinations were performed by scanning the canister outer diameter surface adjacent to closure lid welds. The examination procedure defines a two-step process. The first is to scan for flaw detection. When flaw locations are identified, supplemental scanning is performed to provide higher resolution for flaw dimensioning. Each flaw was then evaluated to quantify the length the height dimensions.

These examinations were performed using AREVA procedure 54–UT–114–001, "Phased Array Ultrasonic Examination of Dry Storage Canister Lid Welds," Revision 001, that was qualified by demonstration on a blind mockup. The examination equipment and data analysis personnel were also qualified by blind demonstration. The inspectors observed the blind mockup qualifications of the procedure, equipment, and personnel.

At the conclusion of the inspection, following completion of PAUT the licensee plans to utilize the examination results to perform additional structural analysis to demonstrate the structural capability of the DSC 16 closure welds to support potential resubmittal of the exemption request to the NRC.

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

b. Findings

No findings were identified.

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

.1 (Closed) Licensee Event Report 05000263/2014–007–00: “Non-Compliance with Technical Specification 3.4.9, “Reactor Coolant System Pressure and Temperature Limits” and Unresolved Item 05000263/2014003–02, “Operation Outside of Reactor Coolant System Pressure and Temperature Limits”

a. Inspection Scope

This event, which occurred on April 14, 2014, involved the licensee’s discovery of a previously unrecognized failure to operate within the bounds of the evaluation contained in the Pressure Temperature Limits Report (PTLR). While performing an operating experience review, plant personnel discovered that on seven occasions during the previous 3 years, reactor pressure vessel (RPV) pressure had been lowered below 0 pounds per square inch gauge (psig) during plant startup activities. Specifically, between May 22, 2011, and February 5, 2014, a vacuum of approximately -3 psig had been drawn on the RPV six times, and in one case a vacuum of -17.5 psig was drawn. These actions resulted in the operation of the plant outside of the parameters used in the licensee’s vendor analysis to generate the pressure/temperature limit curves contained in the PTLR. The licensee performed a causal evaluation for this issue and determined that the cause of the failure to operate within the bounds of the PTLR analysis was that station personnel did not recognize a vacuum was drawn on the RPV and the implications for operation outside of the PTLR curves.

The licensee evaluated the impacts of the partial vacuum on the structural integrity of the RPV. This evaluation examined several potential concerns that would be associated with violated the temperature and pressure limits specified in the PTLR. As a result of this analysis, the licensee concluded that the reactor vessel was not damaged by having a partial vacuum and has significant margin to collapse. The inspectors reviewed this analysis and did not identify any concerns. The licensee entered this issue into the corrective action program as CAP 1425020 and CAP 1427529. Corrective actions included an action to evaluate and revise the PTLR limits and submit the changes for NRC review.

Following this event, in consultation with NRR and Region III staff, the inspectors determined that the activities described in this LER did not represent a violation of TS 3.4.9, “Reactor Coolant System Pressure and Temperature Limits.” However, the NRC concluded that the operation of the reactor outside of the parameters of the PTLR analysis involved a violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings.” Criterion V requires, in part, that activities affecting quality be prescribed by procedures appropriate to the circumstances. Startup of the reactor is an activity affecting quality and the instructions and procedures used by the operators for this activity, C.1 “Startup Procedure,” 2167 “Plant Startup,” and 0118 “Reactor Vessel Temperature Monitoring” were not appropriate to the circumstances. Specifically, they allowed reactor vessel pressure during the seven plant startups from May, 2011 through February, 2014 to be less than 0 psig, outside of the pressure parameter inputs to the analysis that is the basis for the pressure/temperature limit curves of TS 3.4.9. A licensee-identified NCV of 10 CFR 50, Appendix B Criterion V, "Instructions, Procedures, and Drawings" is documented in Section 4OA7 of this report. Documents reviewed are listed in the Attachment to this report. This LER is closed. This Unresolved Item is closed.

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

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report 05000263/2013–008–00 and 05000263/2013–008–01: "Both Secondary Containment Doors Briefly Opened Simultaneously" and Unresolved Item URI 05000263/2014002–07, "Both Secondary Containment Doors Briefly Opened Simultaneously"

a. Inspection Scope

This event occurred on September 18, 2013. Specifically, while licensee staff performed the secondary containment airlock door interlock surveillance test, the interlock to the main plenum room did not prevent the opening of both doors to the plenum room airlock (DOOR-85 and DOOR-86). With the outer door to the main plenum room open, the inner door was able to be opened. The plenum airlock doors were then closed. The operator attempted a second time to verify the interlock functionality. That time the inner door was opened, and again the interlock did not prevent the opening of the outer door. The plenum airlock doors were immediately closed. The total time both doors were opened was estimated to be less than ten seconds. With both doors open, TS Surveillance Requirement 3.6.4.1.3 was not met and secondary containment was declared inoperable. Secondary containment was declared operable after independently verifying that one secondary containment access door was closed.

On September 18, 2013, the licensee reported this event in accordance with 10 CFR 50.73(a)(2)(v) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material and mitigate the consequences of an accident. The licensee submitted LER 2013–008–00 on November 8, 2013. The Inspectors reviewed this LER and questioned whether a statement in the LER which implied that the primary method for maintain airlock integrity utilized airlock door windows, was in conflict with the Monticello Updated Safety Analysis Report. The following statement was the subject of inspector questioning: "The safety related function of the airlock doors is to maintain secondary containment (SCT) boundary. The interlock is not required for the doors to maintain SCT operability; the doors have windows so personnel entering the airlock can visually validate the opposite door is not in use. The interlock provides redundancy to maintain SCT integrity". The inspectors initiated URI 05000263/2014002–07 as a result of the question.

The licensee submitted a revision (LER 2013-008-01) to the original LER on March 12, 2014 which deleted the above parenthetic statement. The inspectors reviewed the licensee's safety system functional failure evaluation documented in Engineering Change (EC) 23635, Revision 000. Inspectors determined the licensee's evaluation and conclusion were adequate. Specifically, the licensee concluded that the

SCT was inoperable because surveillance requirement 3.6.4.1.3 was not met with both door simultaneously open. However, the conclusions also determined the SCT function of minimizing off-site dose was maintained because the positive pressure period utilized in the dose calculations was not exceeded or compromised by the short-duration, simultaneous opening of the Main Exhaust Plenum airlock doors. Specifically, the doors were capable of being closed under accident conditions; the doors were closed within 10 seconds (10 seconds plus the 1.6 minute SCT ventilation drawdown time is less than the five minute positive pressure period); and the last TS surveillance measured SCT in leakage 900 cube feet per minute less than the modeled in leakage.

The licensee entered this issue into the corrective action program as CAPs 1397406 and 1397424. The licensee conducted an equipment cause evaluation as part of CAP 1397406 which concluded that both DOOR–85 and DOOR–86 were simultaneously opened during testing because the surveillance procedure lacked specific direction for the user to obtain visual or audible confirmation that the interlock energized prior to challenging the closed door. In addition, the failure of the interlock mechanism contributed to the ability to open both doors simultaneously. Licensee corrective actions included immediate verification both airlock doors were closed, the door interlock was repaired, and revision of station interlock testing procedures to provide specific instructions to not challenge the opposite door if there is no indication that the interlock activation is present when a door is open. Inspectors review the licensee corrective actions and did not identify any issues. Based on the inspector reviews, LER 2013–008–00, “Both Secondary Containment Doors Briefly Opened Simultaneously”, LER 2013–008–01, “Both Secondary Containment Doors Briefly Opened Simultaneously” and URI 2014002–07, “Both Secondary Containment Doors Briefly Opened Simultaneously” were closed.

This event follow up review constituted one sample as defined in IP 745305.

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report 05000263/2014–006–00: “Secondary Containment Doors Opened Simultaneously”

a. Inspection Scope

This event occurred on March 28, 2014. Specifically, two secondary containment doors in the main access airlock were opened at the same time. At approximately 1358 hours, plant personnel were passing through the main access secondary containment airlock. To prevent a breach of secondary containment, each pair of doors is electrically interlocked so only one door may be open at a time. Permissive buttons must be used to open the airlock doors. Personnel on the opposite sides of the airlock entered the airlock simultaneously allowing DOOR–62 and DOOR–63 to both be open at the same time. The personnel promptly closed the doors, restoring the secondary containment boundary, and notified the control room. Through interviews, the licensee determined the doors were open for approximately 2 seconds.

Control room licensed operators determined that TS Surveillance Requirement 3.6.4.1.3 was declared not met at 1358 due to both airlock doors being open. The TS action was exited at approximately 1359 hours upon verification that at least one door was closed.

Through investigation, the licensee determined the two individuals inappropriately applied an opening force to the secondary containment airlock doors prior to and while depressing the doors' interlock push buttons, defeating the interlock. The airlock interlock is intended to be operated by first depressing the interlock push button, then applying opening force to the door. The licensee verified the interlock function was properly working via the Secondary Containment Door Interlock Check Procedure following the event and did not identify any design deficiency or equipment issue.

The inspectors reviewed licensee actions and determined an adequate safety functional failure evaluation had been performed. Specifically, the licensee's engineering analysis concluded that a safety functional failure did not occur since the post-accident dose calculation does not credit secondary containment integrity for mitigation of off-site and control room doses for the first five minutes of an event. Secondary containment was determined to be inoperable since both doors were opened simultaneously. However, secondary containment's safety function of minimizing off-site dose was maintained because the positive pressure period utilized in the dose calculations has not been exceeded or compromised by the short-duration (2 second), simultaneous opening of the main access airlock doors. The inspectors did not identify any issues with the licensee's safety functional failure evaluation.

The licensee entered this issue into the corrective action program as CAP 1397406. The licensee causal evaluation determined the cause to be that plant employees do not have secondary containment airlock training and the airlock interlock did not have posted operating instructions. Licensee corrective actions included affixing permanent labels next to the interlock push button which provide instructions on how to appropriately open the doors. Additionally, the licensee replaced the doors with doors that have windows and evaluated the need for inclusion of proper airlock door operation in general access training. Inspectors review the licensee corrective actions and did not identify any issues. Based on the inspector reviews, LER 2014–006–00, "Secondary Containment Doors Opened Simultaneously" was closed.

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

b. Findings

No findings were identified.

.4 (Closed) Licensee Event Report 05000263/2014–011–00: "Two Emergency Diesels Inoperable Due to Human Error"

a. Inspection Scope

This event occurred on December 28, 2014. Specifically, during performance of the surveillance test for the 12 EDG a non-licensed operator inappropriately adjusted the local 11 EDG governor setting. The correct action was to adjust the 12 EDG setting. As a result, both EDGs were declared inoperable and the licensee entered Technical Specification 3.8.1, Condition E for both EDGs being inoperable. On February 26, 2015, the licensee reported this event in accordance with 10 CFR 50.73(a)(2)(v)(A–D) as an event or condition that could have prevented fulfillment of a safety function.

Immediate licensee actions included restoring operability to the administratively inoperable 12 EDG and for operators to complete actions to return the 11 EDG to an operable status following procedures and system walkdown. Additionally, the licensee conducted a root cause evaluation for the event and determined that insufficient controls were in place to prevent the operator from manipulating the wrong component when latent issues existed. An engineering analysis was performed and determined that at least one EDG was always capable of performing its safety function to support equipment needed to shutdown the reactor and maintain it in a safe shutdown condition, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident.

Documents reviewed are listed in the Attachment to this report. This LER is closed.

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

b. Findings

Introduction

A self-revealing finding of very low safety significance and an NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” was identified due to the failure to properly implement Procedure 0187-02B, “12 Emergency Diesel Generator /12 ESW Monthly Pump and Valve Tests.” Specifically, operations personnel failed to comply with Step 42 which directed the 12 EDG local governor control switch to be lowered to idle setting. Operators incorrectly manipulated the local governor control switch for the 11 EDG, changing its setting to an idle speed. This resulted in the 11 and 12 EDGs being inoperable for 1 hour 51 minutes and the 11 EDG being inoperable for 8 hours 27 minutes.

Description

On December 28, 2014 planned surveillance 0187–02B, “12 Emergency Diesel Generator/12 ESW Monthly Pump and Valve Tests”, was initiated by the Operations duty crew. While conducting pre-start procedure steps, operators incorrectly manipulated the 11 EDG local governor control switch rather than the 12 EDG local governor control switch. This resulted in the 11 EDG local governor control switch being set to an idle speed setting, which made the 11 EDG inoperable. At the time, the 12 EDG had previously been declared inoperable due procedure pre-start requirements for barring the engine. The failure of operators follow procedure requirements resulted the 11 and 12 EDGs being inoperable for 1 hour 51 minutes, and the 11 EDG being inoperable for 8 hours 27 minutes.

During the night shift on December 28, operators completed surveillance 0187–02B through step 40 to position the 12 EDG preferred start selector control switch. This included completing steps to bar the engine over which procedurally rendered the 12 EDG inoperable. They completed the surveillance through step 40 to position the 12 EDG preferred start selector control switch.

The dayshift crew conducted a turnover with the nightshift crew which included a review of the open steps left in the 0187–02B procedure. The new duty crew conducted their beginning of shift brief and identified the 12 EDG test as the priority item for that night. After rounds the Control Room Supervisor conducted a pre-job brief with the third Nuclear Assistant Plant Equipment Operator (NAPEO) and the Turbine Building Operator (TBO) in attendance. The brief included step 41 of 0187–02B which directed the manipulation of the 2R transformer load tap changer. The third NAPEO was assigned as a peer check to the TBO due to experience level with the task. The next step in the 0187–02B was step 42 which directed use of the local governor control switch to lower the governor to idle setting. This step was also briefed with the CRS, third NAPEO, and TBO in attendance. The third NAPEO was designated as the performer and no peer check was assigned for step 42 due to the simplicity of the step and the experience level of the third NAPEO.

After completion of step 41, the third NAPEO conducted a 2-minute drill at the 12 EDG, verified pre-run data, walked down the 12 EDG, staged tools, reviewed the procedure and verified a functioning phone. (The phone in the 12 EDG room did not work, so the operator was using the phone in the 11 EDG room). While still in the 11 EDG room, the third NAPEO went to EDG control panel C-93, read the instructions in step 42, and then proceeded to manipulate the 11 EDG governor control switch.

Upon completion of this action, the third NAPEO telephoned the control room and informed them that step 42 was complete. Control room operators started the 12 EDG per procedure and were notified a short period later by the third NAPEO that the engine idling speed of the 12 EDG was high (~900 rpm) outside the normal band of 450–490 rpm. After investigating the condition, the third NAPEO realized that he had manipulated the 11 EDG governor control switch instead of the 12 EDG and informed the control room of the error.

The Operations duty crew determined that having the 11 EDG governor speed set at idle caused it to be inoperable. Since the 12 EDG was already inoperable per procedure, both EDGs were consequently inoperable, requiring a 2-hour technical specification action to restore one of the EDGs to operable status per TS Limiting Condition for Operation 3.8.1 Condition E. If the required action to restore one EDG to operable status was not performed within the 2-hour completion time, TS conditions required the plant be placed in Mode 3 within 12 hours and Mode 4 within 36 hours.

The Operations duty crew utilized a conservative decision making process and decided to perform the remaining applicable steps of 0187–02B to restore the 12 EDG to an operable status. This was completed within the 2 hour Technical Specification completion time requirement and LCO 3.8.1.E was declared met. The operating crew protected the 12 EDG in accordance with station procedures. LCO 3.8.1.B remained not met with the 11 EDG inoperable. The 11 EDG was restored to operable status the morning of December 29, 2014, after the governor speed setting was returned to normal.

The licensee made an 8-hour non-emergency report in accordance with 10 CFR 50.72(a)(2)(v)(A), (B), (C), and (D) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to shut down the reactor and maintain it in a shutdown condition, remove residual heat, control release of radioactive material, or mitigate the consequences of an accident.

Analysis

The inspectors determined that the failure to correctly perform Step 42 of Procedure 0187–02B was a performance deficiency since it resulted in both the 11 and 12 EDGs being inoperable for 1 hour, 51 minutes and the 11 EDG being inoperable for 8 hours, 27 minutes. This issue was more than minor because if left uncorrected, the failure to properly implement procedures associated with safety-related equipment would have the potential to lead to a more significant safety concern. Specifically, the failure to follow procedure resulted in both the 11 and 12 EDGs being inoperable for 1 hour 51 minutes and the 11 EDG being inoperable for 8 hours, 27 minutes.

The inspectors utilized IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," and determined that this issue was of very low safety significance because each question provided in IMC 0609, Appendix A, Exhibit 2, was answered "No." The inspectors concluded that this finding was cross-cutting in the Human Performance area, Avoid Complacency, because of a failure of individuals to implement error reduction tools [H.12].

Enforcement

Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures. The licensee established Step 42 of Procedure 0187–02B, "12 Emergency Diesel Generator/12ESW Monthly Pump and Valve Tests," Revision 26, as the implementing procedure for surveillance of the 12 EDG. Step 42 stated the following: "PLACE GCS2/CS, 12 EDG Governor Control Switch (C–94), in the LOWER position until the governor Speed Setting knob reaches its lower limit."

Contrary to the above, on December 28, 2014, operations personnel failed to correctly perform Step 42 of Procedure 0187–02B. This resulted in both the 11 and 12 EDGs being inoperable for 1 hour 51 minutes and the 11 EDG being inoperable for 8 hours 27 minutes. Because this violation was of very low safety significance and entered into the licensee's CAP (1460675), this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000263/2015001–05, Two Emergency Diesels Inoperable Due to Human Error).**

Corrective actions included procedure revisions requiring the following: 1) protection/flagging of redundant equipment when technical specification equipment is declared inoperable for any reason, including planned maintenance and surveillance; 2) peer checking or concurrent verification for manipulation of operable technical specification related equipment; and 3) all equipment manipulations require a hard match (between procedure and equipment labeling).

.5 (Closed) Licensee Event Report 05000/2013–006–01, Unanalyzed condition for Emergency Diesel Generator Fuel Oil Pumps Train Separation

a. Inspection Scope

On August 21, 2013, Monticello Nuclear Generating Plant (MNGP) received the final NRC response to Task Interface Agreement (TIA) 2012–03, regarding the URI for the design and plant licensing basis for the plant EDG fuel oil supply. The NRC concluded that the system was not consistent with the current and historical licensing and design basis documents; specifically, the intent of the current and historical licensing and design basis requires a redundant and independent diesel fuel oil system for each EDG. Further, the NRC indicated that they did not approve any changes to the current licensing basis to allow manual operator actions to restore the Fuel Oil (FO) transfer function for the EDG system. A revision to the LER was developed to address the root cause evaluation and corrective actions resulting from the investigation into the event. The root cause evaluation identified the condition is that MNGP personnel institutionalized the acceptability of manual operator action to meet single failure requirements in the diesel fuel oil system without formalizing it into an NRC docketed licensing basis. Corrective Action that will be taken to prevent recurrence and/or address the root cause:

- Modify the Fuel Oil transfer system to close the cross-tie valve between the discharge lines of the Fuel Oil Transfer Pump P–11 and the Service Pump P–77;
- Modify the Service Pump P–77 power supply to have essential power to the pump motor;
- Modify the controls for both pumps (P–11 and P–7) so that both pumps will automatically restart when their essential motor control center is restored following a loss of off-site power; and
- Review and revise of existing 10 CFR 50.59 and Time Critical Operator Action processes by the Design Engineering Manager to ensure robust barriers are in place to prevent incorporating manual Operator actions that do not comply with current licensing bases.

The inspectors reviewed this Root Cause Evaluation and did not identify any concerns. Documents reviewed are listed in the Attachment to this report. This LER is closed.

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

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Power Uprate Related Inspection Activities (71004)

a. Inspection Scope

During this inspection period, the inspectors observed activities related to the power uprate amendment. Specific activities are documented below, and as referenced:

- Section 1R13–This section documents specific inspector observation of turbine control valve and pressure fluctuations during EPU testing.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On April 7, 2015, the inspectors presented the inspection results to Mr. Peter Gardner and other members of the licensee staff. On April 13, 2015, an additional licensee-identified issue associated with the failure to perform four emergency preparedness drill objectives at the required frequency listed in the Monticello Emergency Plan, was discussed with the Regulatory Affairs Manager, Anne Ward. 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:

- The inspection results for the areas of in-plant airborne radioactivity control and mitigation; occupational dose assessment; radiation monitoring instrumentation; and radioactive gaseous and liquid effluent treatment with Ms. Karen Fili, Site Vice President, on January 16, 2015.

- Results of NRC Emergency Action Level and Emergency Plan Changes Inspection and Follow-up of URI 05000263/2014005–02 with the Licensee's Regulatory Affairs Analyst, Ms. Sandra O'Connor, on March 31, 2015.

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

4OA7 Licensee-Identified Violations

The following violations of very-low significance (Green) were identified by the licensee and are violations of NRC requirements and meet the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- The licensee identified a finding of very low safety significance (Green) and an associated NCV of Technical Specification 5.5.1, "Offsite Dose Calculation Manual," (ODCM) which requires in part, that licensee initiated changes to the ODCM shall be effective after approval of the plant manager.

  Contrary to the above, ODCM–01.01 Revision 6 and ODCM–02.01 Revision 10, were not approved by the plant manager prior to implementation. This was identified by the licensee as part of the self-assessment process. The licensee documented this issue in the corrective action program (CAPs 1455999 and 1462092). This finding was determined to be of very-low safety significance (Green) because it was not a failure to implement an effluent program and public dose did not exceed Appendix I of 10 CFR 20.1301(e) criteria. (Green)

- The licensee identified a finding of very low safety significance (Green) and an associated NCV of Technical Specification 5.5.11 which requires in part, that the Primary Containment Leakage Rate Testing (LRT) Program shall be in accordance with the guidelines contained in RG 1.163, "Performance-based Containment Leak-Test Program," dated September, 1995. RG 1.163 directs use of ANSI/ANS–56.8–1994, "Containment System Leakage Testing Requirements" as an acceptable testing standard. ANSI/ANS–56.8–1994 states, in part that for pressure decay testing, temperature shall be recorded at the start and end of each test, and the leakage rate shall be calculated using a specific formula which incorporates this temperature data to temperature-compensate the volume lost. Contrary to these requirements, the licensee's Containment Leakage Rate Testing Program failed to include direction to take temperature data and perform temperature compensation, which resulted in a failure to perform testing in accordance with the ANSI standard and RG 1.163. Specifically, during this time, the licensee failed to correctly perform pressure decay testing for approximately 44 containment penetrations, including the Personnel Airlock. Upon discovery, engineers performed a bounding engineering analysis which verified the containment barrier remained operable but nonconforming and entered the issue into the corrective action program (CAPs 1463917 and 1465869).

The performance deficiency was more than minor because the issue is associated with the barrier performance reliability attribute of the Barrier Integrity cornerstone and adversely affected the associated cornerstone objective to provide reasonable assurance that the physical containment barrier protects the public from radionuclide releases. Specifically, the repeated failure to ensure containment leakage testing met technical specification and regulatory requirements was programmatic, affected multiple components, adversely affected LRT test accuracy, and consequently impacted the licensee's ability to verify the containment barrier remained operable. The finding was of very low safety significance because the finding did not represent an actual open pathway in the physical integrity of the containment barrier and did not result in a loss of containment barrier operability. (Green)

- The licensee identified a finding of very low safety significance (Green) and an associated NCV of Title 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Criterion V which requires in part, that activities affecting quality be prescribed by procedures appropriate to the circumstances. Contrary to this requirement, between May 22, 2011 and February 5, 2014, MNGP startup instructions and procedures, C.1 "Startup Procedure," 2167 "Plant Startup," and 0118 "Reactor Vessel Temperature Monitoring," were not appropriate to the circumstances. Specifically, during this time these procedures allowed reactor coolant system pressure to be decreased below 0 psig seven times during reactor startup activities, which was outside of the pressure parameter inputs to the analysis that is the basis for the pressure/temperature limit curves of TS 3.4.9. The licensee's analysis showed that there was no impact on RPV integrity due to the existence of the partial vacuum conditions. This issue was identified by the licensee as a result of an operating experience review. The licensee entered this issue into the corrective action program (CAPs 1425020 and 1427529) and initiated action to revise the PTLR limits and submit them for NRC review.

The performance deficiency was determined to be more than minor because it was associated with the Barrier Integrity Cornerstone attribute of Procedure Quality—Routine Operations Performance, and had the potential to adversely affect the associated cornerstone objective of providing reasonable assurance that a physical design barrier, the reactor coolant system, protects the public from radionuclide releases caused by accidents or events. The finding screened as very low safety significance because analysis determined that there was no change in risk to the RCS boundary due to the performance deficiency. (Green)

- The licensee identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E, Section IV.F.1. In part, Title 10 CFR 50.47(b)(14) states, "Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected. Additionally, Title 10 CFR Part 50, Appendix E, Section IV.F.1 states, "The program to provide for: (a) The training of employees and exercising, by periodic drills, of emergency plans to ensure that employees of the licensee are familiar with their specific emergency response duties, and (b) The participation in the training and drills by other persons whose assistance may be needed in the event of a radiological emergency shall be described." The Monticello Emergency Plan, Section 8.1.2.4, describes the required demonstration periodicity for drill and exercises.

  Contrary to the above, on January 1, 2015, the licensee failed to perform four emergency preparedness drill objectives at the required frequency listed in the Monticello Emergency Plan, Section 8.1.2.4. Specifically, Objectives 11.01, 11.03, and 11.04 were required to be performed annually and were not performed in 2014. Additionally, Objective 11.04 was required to be performed semi-annually and was only performed once in 2014. All missed objectives were associated with radiological exposure controls. The NRC determined that the failure to comply with the established drill and exercise program was a degradation of a planning standard function in accordance with 10 CFR 50.47(b)(14) and was a very low safety significance issue (Green) as indicated in IMC 0609, Emergency Preparedness SDP, Appendix B, Attachment 2, Failure to Comply Significance Logic. The licensee entered this issue in the corrective action program (CAP 1463920). As such, the NRC determined this to be an NCV in accordance with Section 2.3.2 of the Enforcement Policy.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

P. Gardner, Site Vice President
H. Hanson, Jr., Plant Manager
T. Witschen, Operations Manager
M. Lingenfelter, Director of Engineering
L. Anderson, Emergency Preparedness Manager
B. Carberry, Emergency Preparedness
D. Bosnic, Business Support Director
S. Mattson, Maintenance Manager
S. Quiggle, Chemistry Manager
G. Huff, Chemist
T. Hedges, Chemistry Manager
C. England, Radiation Protection Manager
A. Ward, Regulatory Affairs Manager
G. Adams, Project Licensing
J. Becka, Project Supervisor
J. Fields, Regulatory Assurance
M. Baumann, Nuclear Fuels Director
M. Hacker, Level III Analyst
M. McKeown, Project Manager
R. Rose, Level II Analyst
T. Crippes, Refueling Floor Supervisor
T. Jones, NDE Coordinator

Nuclear Regulatory Commission

K. Riemer, Chief, Reactor Projects Branch 2

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000263/2015–001–01	NCV	Failure to Identify High Pressure Coolant Injection (HPCI) Seismic Support Nonconformance (Section IR04)
05000263/2015–001–02	NCV	Failure to Maintain Fire Protection Program Procedures for Control of Portable Heater/Extension Cord Fire Hazards (Section 1R05)
05000263/2015–001–03	NCV	Failure to Maintain a Standard Emergency Action Level Scheme for Flooding (Section 1EP4)
05000263/2015–001–04	URI	Unresolved Item: Inadequate Evaluation of Operating Crew During Simulator Assessment (Section 1EP6)
05000263/2015–001–05	NCV	Two Emergency Diesels Inoperable Due to Human Error (Section 4OA3.4)

Closed

05000263/2015–001–01	NCV	Failure to Identify High Pressure Coolant Injection (HPCI) Seismic Support Nonconformance (Section IR04)
05000263/2015–001–02	NCV	Failure to Maintain Fire Protection Program Procedures for Control of Portable Heater/Extension Cord Fire Hazards (Section 1R05)
05000263/2015–001–03	NCV	Failure to Maintain a Standard Emergency Action Level Scheme for Flooding (Section 1EP4)
05000263/2015–001–05	NCV	Two Emergency Diesels Inoperable Due to Human Error (Section 4OA3.4)
05000263/2014–007–00	LER	Non-Compliance with Technical Specification 3.4.9, Reactor Coolant System Pressure and Temperature Limits (Section 4OA3.1)
05000263/2014–003–02	URI	Operation Outside of Reactor Coolant System Pressure and Temperature Limits (Section 4OA3.1)
05000263/2013–008–00	LER	Both Secondary Containment Doors Briefly Opened Simultaneously (Section 4OA3.2)
05000263/2013–008–01	LER	Both Secondary Containment Doors Briefly Opened Simultaneously (Section 4OA3.2)
05000263/2014–002–07	URI	Both Secondary Containment Doors Briefly Opened Simultaneously (Section 4OA3.2)
05000263/2014–006–00	LER	Secondary Containment doors Opened Simultaneously (Section 4OA3.3)
05000263/2014–011–00	LER	Two Emergency Diesels Inoperable due to Human Error (Section 4OA3.4)
05000263/2013–006–01	LER	Unanalyzed Condition for Emergency Diesel Generator Fuel Oil Pumps Train Separation (Section 4OA3.5)
05000263/2014–005–02	URI	Incorrect Emergency Action Level Threshold (Section 1EP4)

Discussed

07200058/2013001–01	URI	Dry Shielded Canister Liquid Penetrant Examination (Section 4OA2.3)

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector 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

- 1151; Winter Checklist; Revision 82
- A.6; Acts of Nature; Revision 50
- C.4-B.08.03.A; Loss of Heating Boiler; Revision 12
- CAP 1466739; Intake Ice Caused Adjustment of Cooling Tower Return and Deice
- CAP 1466772; Hotwell Hi Hi Level Alarm Due to Intake Issues
- CAP 1466802; North EPA Sparger on the Log Boom Appears to be Frozen

Section 1R04

- 1020-37; Vibration Check – Offgas Dilution Fan Motors; Revision 12
- 2112; Plant Prestart Checklist Standby Gas Treatment System; Revision 13
- 2154-06; Standby Gas Treatment System Prestart Valve Checklist; Revision 11
- 2154-10; High Pressure Coolant Injection System Prestart Valve Checklist; Revision 34
- 2154-12; Residual Heat Removal System Prestart Valve Checklist; Revision 47
- 2154-23; Residual Heat Removal System Service Water System Prestart Valve Checklist; Revision 32
- 2154-35; HPCI Hydraulic Control and Lubrication System Prestart Valve Checklist; Revision 8
- 4115-PM; HPCI System Inspection; Revision 28
- B.03.04-01; Residual Heat Removal System; Revision 12
- B.03.04-05; Residual Heat Removal System; Revision 73
- B.04.02-02; Operations Manual Secondary Containment/Standby Gas Treatment—Description of Equipment; Revision 14
- B.04.02-05; Operations Manual Secondary Containment/Standby Gas Treatment—System Operation; Revision 33
- B.04.02-06; Operations Manual Secondary Containment/Standby Gas Treatment—Figures; Revision 2
- CAP 1366857; Vibration and Excessive Noise From V-EF-18B, Dilution Fan
- CAP 1380831; FIC-2942 B SBGT Does Not Show Flow
- CAP 1383844; FIC-2943 “A” SBGT Flow Controller Not Working Properly
- CAP 1383850; Inadequate ‘B’ SBGT Flow During Surveillance Testing
- CAP 1384705; B SBGT Flow Out of Spec During 0151-01
- CAP 1385232; SCT, Reduced Secondary Containment Capability B SBGT
- CAP 1390859; OGHU Dilution Air Flow Indicator is Stuck
- CAP 1420019; High Area Temperature Alarm & EOP Entry During SBGT Test
- CAP 1430292; POI-2943 Indicating Less Than Full Open
- CAP 1444119; ‘A’ SBGT Inop Due to Apparent Flow Controller Malfunction
- CAP 1444198; SBGT Flow Indication/Controller Failure Trend
- CAP 1465906; NRC Question Concerning Tray Running Along Sensing Line
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- M-121; P&ID Residual Heat Removal System; Revision 85
- NH-36249; P&ID (Steam Side) High Pressure Coolant Injection System; Revision 81

- NH-36249-1; P&ID HPCI Hydraulic Control & Lubrication System; Revision 77
- NH-36250; P&ID (Water Side) High Pressure Coolant Injection System; Revision 83
- Operations Manual B.03.02-01; HPCI—Function and General Description of System; Revision 12
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- QF-1122; Protected Equipment Log; January 11, 2015
- SCR-05-0816; Off-Gas Dilution Fan Motor Impact on SBGT LCO; December 19, 2005

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- CAP 1463506; Smoke/fire in Recombiner Hallway
- CAP 1464188; NRC Resident Raised Concerns on Door 189 and Combustible Load
- Fire Event in Recombiner Timeline; January 26, 2015
- FP-PE-CC-01; Combustible Control; Revision 2
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- Monticello Combustible Loading Manager—Fire Zone 22, Recombiner Building; January 30, 2015
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- EPRI NP-7552; Heat Exchanger Performance Monitoring Guidelines; December 1991
- GL 89-13; Generic Letter—Service Water System Problems Affecting Safety Related Equipment; July 18, 1989
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- CAP 1411235; HPCI Test Return Valve CV-3503 Closed During HPCI Run
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- CAP 1471082; LS-23-90, HPCI Steam Supply Drain Hi Level Bypass PMT Failed
- HPCI System Maintenance Rule Program 2 Year Reliability/Availability Data
- SCR 15-0131; 50.59 Screening—Operation with HPCI Line Drain Trap Bypass (CV-2403) in the Open Position and Annunciator 3-B-10 Non-functional Until the Spring 2015 Refueling Outage; Revision 0

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- CAP 1463106; Temp Change Removed From C.4-F
- CAP 1463431; MELLLA+ Untested Area Guidance
- CAP 1463432; NRC Question for Clarification of MELLLA+ Untested Area
- CAP 1464728; NRC Notifies OSHA on Confined Space Concern
- CAP 1464925; Potential Gap in Confined Space Data Sheet Usage
- CAP 1465684; Inconsistent Delivery of the OATC Reactivity Brief
- Correspondence Between General Electric and MNGP regarding MELLLA+ Testing Requirements; January 14, 2015
- DRF 60-8818; NSMP MNGP MELLLA+ Startup Test Specifications; Revision 0
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- MNGP-088; MNGP Confined Space Data Sheet—IsoPhase Bus Ducts/Blower Enclosure; July 16, 2012
- NEDC-33435P; Safety Analysis Report for Monticello Maximum Extended Load Line Limit Analysis Plus; Revision 1
- ODMI 1460943; Turbine Control Valve 1 (CV-1)/Oil Pressure Fluctuations; 1-19-2015
- Operations Manual C.4-F; Rapid Power Reduction; Revision 29
- QF0465; Pre-job Brief Checklist; Revision 2
- Troubleshooting Plan—Level 3—Turbine Control Valve and Oil Pressure Fluctuations During EPU Power Ascension; 1/1/2015 and 1/15/2015
- ODMI 1460943-1; Type 2 ODMI—Turbine Control Valve 1 (CV-1) / Oil Pressure Fluctuations; Revision 3
- CAP 1465718; NRC Resident Concern: ODMI Risk Matrix Scoring Process
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- 8216-02; EPU Dynamic Test: EPR Testing at Reduced Step Changes; Revision 0
- EC 13638; EPU—Extended Power Uprate Implementation; Revision 5
- WO 515709-01; Adjust Turbine Main Shaft Oil Pump Suction Pressure; 1-20-2015
- 0074; Control Rod Drive Exercise; Revision 62
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- CAP 1470115; NRC Question about Fire Extinguisher Inspection Frequency
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- CAP 1470133; Precondition Ramp Wording in 2300 Potentially Confusing
- 2300; Reactivity Adjustment; Revision 13
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- NUC-01.02; Power Adjustment Planning; Revision 28
- Troubleshooting Plan—Level 3—V-ERF-14B Trip; January 9, 2015
- WO 515709-01 3560; Infrequent Test or Evolution Brief; January 20, 2015
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- C.2-05; Power Adjustments; Revision 57
- WO 00515345; V-EAC-14B Tripped Shortly After Start; January 9, 2015

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- CAP 1461773; CA 94-017 Deficiencies Identified
- CAP 1463523; NSR Pressure Indicators Used on HPCI System
- CAP 1463917; Temp Data Not Recorded During LLRT Pressure Decay Testing
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- CAP 1465705; NRC Questions on LLRT Temp Compensation OPR
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- CAP 1465906; NRC Question Concerning Tray Running Along Sensing Line
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- NH-36250; P&ID (Water Side) High Pressure Coolant Injection System; Revision 83
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- OPR 1463917-01; Ambient Temperature Data Was Not Recorded as Required for the Pressure Decay Method; Revision 0
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- OWL 100 Single-Channel Temperature Thermistor Product Specifications; May 23, 2015
- Regulatory Guide 1.163; Performance-Based Containment Leak-Test Program; September 1995
- CAP 1463095; Non-conservative Estimate of EQ MOV Cycling
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- USAS B31.1.0-1967; Power Piping; 1967
- Operations Manual B.03.02-05; HPCI—System Operation; Revision 50
- Timeline Related to LLRT Pressure Drop CAP; February 17, 2015
- CD 5.32; Containment Leakage Testing Standard; Revision 6
- 2154-10; High Pressure Coolant Injection System Prestart Valve Checklist; Revision 34

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- ASME, Section III, Appendices, 1983, 1986, 1989 and Subsection NF
- ASME, Section III, Subsection NB, NC, and Appendices, 1977 with Addenda through Winter 1978
- Calculation A11310-C-025; Valve Thrust Assessment 4" Anchor Darling Gate Valve: MO-3502; Revision 1 & 2
- CAP 1465736; Trace Anomalies During MO-3502 Diagnostic Testing
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- CAP 1466269; Error in Analysis of NRC IN 93-098 for Motor Brakes (MO3502)
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- 7100; CRD-HCU Instrument Maintenance Procedure ; Revision 8
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- CAP 1469177; Results of PMT for RHR 2-1 Indicate Further Work is Needed
- CAP 1471401; NRC Question on Pre-Op Testing of D54 Charger; March 24, 2015
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- CAP 1471591; NRC Question on ARP for D54 High Voltage Shutdown Response; March 25, 2015
- CAP 1471601; NRC Question During Observation of Post-Modification Testing; March 25, 2015
- ESP-ELE-0549-06; D54 250VDC Swing Charger 24 month Capacity Test; Revision 4
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- NF-36709; Generator & Auxiliary Power Bench Board C-08 Annunciator Cabinet A; Revision 85
- RHR 2-1 Action Plan For Failed PMT; March 18, 2015
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- CAP 1464819; 12 SBLC in IST Alert Range

- CAP 1471347; #13 (Div 1) 125/250 DC Battery "A" (60 Cells)
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- MTCP-03.49; Conduct of Training Cycle Self-Assessments; Revision 5
- MT-LOR-15B-001V; Training Cycle Simulator Crew Evaluation; March 16, 2015
- OWI-03.06; Strategies for Successful Transient Mitigation; Revision 8
- QF107302; Crew Simulator Examination Summary; Revision 3
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- CAP 1462426; NRC Feedback on Prompting for Previous Internal Deposition
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- CAP 1379350; Two Dose Rate Alarms – 935 Reactor Building, Reactor Water Clean-up Valve Gallery
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- CAP 1410547; Workers Being Brought On-site Bypassing In Processing
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- 2014 Annual Radiological Effluent Report, May 15, 2015
- CAP 1380497; TBNW Sump Tritium Activity Level Increased by 100 Times
- CAP 1438884; Annual Report Not Submitted per Tech Spec Time Frame
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- CAP 1456895; Cow Meat Pathway Not Considered in Land Use Census
- CAP 1459300; MW9 Tritium Concentration Trend
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- CAP 1462101; NRC Identified Improvement to Annual Environmental Report
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- CAP` 1462116; 2013 Annual Radioactive Effluent Report
- Chemistry Interlaboratory Analysis; Fourth Quarter 2013 through Third Quarter 2014
- Containment Purge Release Package; February 28, 2013
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- EFT Charcoal Filter Laboratory Test; December 2, 2014
- EFT Charcoal Filter Laboratory Test; December 9, 2014
- FP-CY-GWPP-01; Fleet Groundwater Protection Program; Revision 2
- Gaseous Effluent Release Data and Dose Calculations; December, 2014
- Groundwater Monitoring Program Data; 2013-2014
- I.06.05; Inter/Intralaboratory Results Analysis; Revision 7
- Land Use Census; Dated 2013-2014
- Main Stack Flow Calibration; December 5, 2013
- ODCM Revisions; Various Records
- Reactor Building Vent Flow Calibration; June 19, 2014
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- Review of Meteorological Data for Calendar year 2013; December 2014
- Standby Gas Treatment Filtration Test; June 2, 2013
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- Monticello Station Log Entries; January 2014 through December 2014
- NEI 99-02; Regulatory Assessment PI Guideline; Revision 7
- PRA-CALC-05-003; MSPI Basis Document; Revision 5
- QF0445; NRC Data Collection and Submittal – 1st Quarter 2014; April 16, 2014
- QF0445; NRC Data Collection and Submittal – 2nd Quarter 2014; July 8, 2014
- QF0445; NRC Data Collection and Submittal – 3rd Quarter 2014; October 31, 2014
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- 51-9229449; Monticello Dry Shielded Cask Volumetric Inspection; Revision 000
- 51-9230013; Monticello DSC Ultrasonic Inspection Feasibility Study; Revision 000
- 51-9234666; Protocol for Dry Shielded Canister (DSC) Inner and Outer Closure Lid Weld Ultrasonic Examination Capability Assessment; Revision 001
- 54-PQ-1114; Technical Justification, PAUT Examination of Dry Shielded Canister Lid Welds; Revision 001
- 54-UT-111; Phased Array Ultrasonic Examination of Dry Storage Canister Lid Welds; Revision 001
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- ACE 1257186; Apparent Cause - Door-62 & Door-63 Momentarily Opened at Same Time; February 22, 2011
- B.04.02-01; Operations Manual – Secondary Containment; Revision 9
- C.1; Startup Procedure; Revision 81
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- CAP 1397406; Door 86/85 Plenum Room Airlock Failed Interlock Test
- CAP 1397406; Door-86/85 Plenum Rom Airlock Failed Interlock Testing
- CAP 1397424; SCT Inoperable – Missed Opportunity
- CAP 1411964; NRC Question – SCT Airlock Interlock Function
- CAP 1425020; Procedure Allows Vacuum on RPV Outside of PTLR Limits
- CAP 1460675; #11 EDG Governor Control Switch Inadvertently Lowered
- DBD-B.04.02; Secondary Containment/Standby Gas Treatment Systems; Revision 4
- EC 17108; Replace SCT Airlock Doors with Doors with Windows Room and Plenum Room Airlocks; Revision 000
- EC 23635; Main Exhaust Plenum Airlock Breach Safety System Functional Failure Evaluation; Revision 000
- EC 23962; Structural Integrity of the RPV Under a Vacuum; Revision 0
- ECE 1397406; Door-86/85 Plenum Rom Airlock Failed Interlock Testing; October 11, 2013
- EWI-08.01.06; Monticello Pressure Temperature Limits Report PTLR Guidelines; Revision 0
- QF0565; CAP 1397406 Maintenance Rule Functional, MSPI, and Equipment Reliability Failure Evaluation; September 18, 2013
- QF0583; CAP 1397406 Maintenance Preventable/Performance Criteria Evaluation; November 1, 2013
- RCE 1460675; #11 EDG Governor Control Switch Inadvertently Lowered; January 23, 2015
- WO 501599-01; 0187-02B 12 EDG Start & Load Test; December 31, 2014

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
AR	Action Request
ATWS	Anticipated Transient without Scram
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CRD	Control Rod Drive
CRV	Control Room Ventilation
DC	Direct Current
DEP	Drill/Exercise Performance
DRP	Division of Reactor Projects
DSC	Dry Shielded Canister
EAL	Emergency Action Level
EC	Engineering Change
EDG	Emergency Diesel Generator
EFT	Emergency Filtration Ventilation
EP	Emergency Preparedness
EPU	Extended Power Uprate
EQ	Equipment Qualification
ESW	Emergency Service Water
FO	Fuel Oil
HCU	Hydraulic Control Unit
HPCI	High Pressure Coolant Injection
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
IST	Inservice Testing
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LLRT	Local Leak Rate Testing
LRT	Leakage Rate Testing
MG	Motor-Generator
MNPG	Monticello Nuclear generating
MOV	Motor-Operated Valve
MSHA	Mine Safety and Health Administration
NAPED	Nuclear Assistant Plant Equipment Operator
NCV	Non-Cited Violation
NDE	Non-Destructive Evaluation
NEI	Nuclear Energy Institute
NIOSH	National Institute of Safety & Health
NOUE	Notification of Unusual Event
NRC	U.S. Nuclear Regulatory Commission
NUHOMS	Nutech Horizontal Modular Storage Sytem
NVLAP	National Voluntary Laboratory Accreditation Program
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records System
PAUT	Phased Array Ultrasonic Testing
PI	Performance Indicator

PM	Planned or Preventative Maintenance
PMT	Post-Maintenance Testing
psig	Pounds Per Square Inch Gauge
PTLR	Pressure Temperature Limits Report
RCIC	Reactor Core Isolation Cooling
RG	Regulatory Guide
RHR	Residual Heat Removal
RPV	Reactor Pressure Vessel
SBGT	Standby Gas Treatment
SBLC	Standby Liquid Control
SCBA	Self-Contained Breathing Apparatus
SCT	Secondary Containment
SDP	Significance Determination Process
SFP	Spent Fuel Pool
SLC	Standby Liquid Control
SM	Shift Manager
SPDS	Safety Parameters Display System
SSC	Structure, System and Component
SW	Service Water
TBO	Turbine Building Operator
TIA	Task Interface Agreement
TLD	Thermoluminescent Dosimeters
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
Vdc	Volts Direct Current
WO	Work Order

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Sincerely,

/RA Nick Shah Acting for/

Kenneth Riemer, Branch Chief
Branch 2
Division of Reactor Projects

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