

## Monticello

### 1Q/2014 Plant Inspection Findings

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#### Initiating Events

**Significance:** G Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **RCS PRESSURE BOUNDARY LEAKAGE OPERATION PROHIBITED BY TECHNICAL SPECIFICATIONS.**

A finding of very low safety significance and a non-cited violation of Technical Specification (TS) 3.4.4, “RCS Operational Leakage,” was self revealed when the licensee failed to comply with TS 3.4.4, Condition C, which required the plant to be in MODE 3 within 12 hours if pressure boundary leakage exists. Specifically, the licensee operated with reactor coolant system (RCS) pressure boundary leakage as a result of corrosion in the 12 recirculation pump upper seal cooler between August 9, 2013, and January 17, 2014, which is a condition prohibited by TS. The site initiated a troubleshooting team, and following confirmation of the location of the leakage, the plant was shut down in accordance with TSs. The site performed an apparent cause evaluation; implemented a modification to remove the affected seal cooler from service; and developed a periodic replacement plan for heat exchangers in a similar configuration.

The inspectors determined that the licensee’s operation with RCS pressure boundary leakage, a condition prohibited by TSs, due to recirculation pump seal cooler leakage, was a performance deficiency requiring evaluation. The inspectors determined that the finding was more than minor in accordance with IMC 0612, Appendix B, because it adversely impacted the Initiating Events Cornerstone attribute of equipment performance—barrier integrity, 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 this finding was of very low safety significance. The inspectors concluded that this finding was cross-cutting in the Problem Identification and Resolution, Evaluation area, 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].

Inspection Report# : [2014002](#) (*pdf*)

**Significance:** G Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO FOLLOW PROCEDURE FOR RCS OPERABILITY DETERMINATION.**

The inspectors identified a finding of very low safety significance and a non-cited violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to ensure that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures. Specifically, the licensee failed to accomplish activities affecting quality in accordance with Fleet Procedure

FP–OP–OL–01, in that, on August 9, 2013, and January 3, 4, 7, and 17, 2014, the site failed to ensure that the operability determination for leakage into reactor building closed-cooling water (RBCCW) was sufficient to address the capability of a structure, system, and component (SSC) to perform its specified safety function and, as a result, the site failed to properly classify leakage from the recirculation system as reactor coolant system (RCS) pressure

boundary leakage. Following NRC questions and actions by the site to confirm the location of the leakage, the site revised the operability determination and classified the leakage as reactor coolant pressure boundary (RCPB) leakage. This issue was entered into their corrective action program; a root cause evaluation was performed; and additional corrective actions were in development at the time of this report.

The inspectors determined that the failure to properly classify RCS pressure boundary leakage in accordance with the fleet operability determination process was a performance deficiency requiring evaluation. The inspectors determined the issue was more than minor because, if left uncorrected, the failure to perform a thorough operability evaluation for conditions where potential RCPB leakage exists could lead to a more significant safety concern. The inspectors assessed the significance of this finding in accordance with IMC 0609 under the Initiating Events Cornerstone, and determined that it was of very low safety significance. The inspectors concluded that this finding was cross-cutting in the Human Performance, Conservative Bias area, because of the licensee's failure to use decision-making practices that emphasize prudent choices over those that are simply allowable, and a failure to ensure that proposed actions are determined to be safe in order to proceed, rather than unsafe in order to stop [H.14].

Inspection Report# : [2014002](#) (*pdf*)

**Significance:**  Sep 30, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

**RECIRCULATION SYSTEM VULNERABILITIES DUE TO INADEQUATE MODIFICATION REVIEW.**

. A self revealed finding of very low safety significance occurred on August 27, 2013, due to the licensee's failure to adequately review and control modification work. Specifically, the licensee failed to follow FP E MOD 07, "Design Verification and Technical Review," when the review process did not ensure that a 13.8 kV switchgear modification was adequate and maintained all functions of the recirculation system. This led to the failure of plant personnel to land wires necessary to transmit breaker position signals to the recirculation speed control system and, as a result, the site failed to maintain the recirculation function to initiate runbacks in response to a condensate or feedwater pump trip. In addition, the inadequate modification left both recirculation pumps susceptible to spurious runbacks, and resulted in two inadvertent runbacks when operators were lowering flow on each pump. The licensee took action to lock the recirculation scoop tubes to terminate the inadvertent runbacks, initiated complex trouble shooting and a root cause evaluation, and implemented a new modification to restore the recirculation system runback functions that were lost. The finding was more than minor because it was associated with the Initiating Events Cornerstone attribute of design control 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. Specifically, the inadequate modification disabled the recirculation function to initiate runbacks after feed or condensate pump trips, and left both recirculation pumps susceptible to inadvertent runbacks. The inspectors utilized IMC 0609, Appendix A, and determined a detailed risk assessment was required because the finding involved the partial loss of a support system that contributes to the likelihood of, or causes, an initiating event AND affected mitigation equipment. Based on the Detailed Risk Evaluation, the senior reactor analysts determined that the finding was of very low safety significance. The inspectors concluded that this issue was cross cutting in the Human Performance, resources area, because the modification development and review process failed to utilize complete, accurate, and up to date design documentation, procedures, and work packages [H.2(c)].

Inspection Report# : [2013004](#) (*pdf*)

**Significance:**  Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**LOSS OF ACCURATE LEVEL INDICATION DURING PARTIAL RCS DRAIN DOWN.**

A self revealed finding of very low safety significance and non cited violation of Technical Specification (TS) 5.4.1.a, "Procedures," occurred on June 3, 2013, due to the licensee's failure to implement procedures regarding maintenance

or operations activities for draining and refilling the reactor vessel. Specifically, the licensee failed to follow Step 10 of Operations Manual B.02.02 05, "Reactor Water Cleanup System Operation," Section G.1, "Reactor Vessel Draining during Cold Shutdown Conditions," to adequately monitor water levels in the reactor during the reactor pressure vessel (RPV) partial draining process. While relying on a temporary installed level instrument, operators performed an RPV drain down which introduced pressure related inaccuracies into the temporary instrument and prevented operators from adequately monitoring vessel level. This resulted in a loss of positive configuration control of reactor coolant system (RCS) level during an infrequently conducted risk significant evolution, and for four days thereafter. Corrective actions included transferring from the temporary level instrument to the flood up level instrument and enhancing RPV reassembly and temporary vessel installation procedures.

This issue is more than minor because it is associated with the configuration control "shutdown equipment lineup" attribute of the Initiating Events Cornerstone and impacted the cornerstone objective to limit the likelihood of those events that challenge critical safety functions during shutdown operations. In addition, if left uncorrected, the reliance on inaccurate RPV level instrumentation could lead to a more significant safety issue because it constitutes a loss of positive control of reactor vessel level during a risk significant RCS drain down. Using IMC 0609, Appendix G, for shutdown operations, the inspectors determined that the finding had very low safety significance because it did not represent an inadvertent loss of two feet of RCS inventory or inadvertent RCS pressurization, and it did not adversely affect core heat removal, inventory control, power availability, containment control, or reactivity guidelines. The inspectors determined that this finding was cross cutting in the Human Performance, decision making area, and involved aspects associated with using conservative assumptions in decision making and adopting a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe [H.1(b)].

Inspection Report# : [2013004](#) (*pdf*)

**Significance:** G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**INADVERTENT MISPOSITIONING OF INSTRUMENT AIR VALVE AND LOSS OF SPENT FUEL POOL COOLING.**

A finding of very low safety significance and an associated non-cited violation was self-revealed for the site's failure to implement the requirements of FP-OP-SC-01, "Status Control," when, on April 23, 2013, a valve in the instrument air system was mispositioned as a result of site personnel's failure to review high traffic scaffold access points for equipment bump hazards. Specifically, scaffold plan reviewers failed to ensure that components susceptible to inadvertent mispositioning were identified and protected in accordance with FP-OP-SC-01 and TS 5.4.1, "Procedures." As a result, an instrument air valve located near a scaffold ladder was inadvertently bumped, which led to the loss of instrument air to the reactor and turbine buildings, and the loss of the spent fuel pool cooling system, a system being used to provide cooling to the fully offloaded core in the spent fuel pool. Corrective actions included restoration of instrument air, installation of protective barriers for the affected instrument air valve, and revision of the site scaffold control procedure to ensure scaffold positioning would be reviewed post-construction by operations for bump hazards.

The inspectors determined that the issue was more than minor because it impacted the configuration control "shutdown equipment lineup" attribute of the Initiating Events Cornerstone and affected the cornerstone's objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. In addition, it impacted the Barrier Integrity attribute of configuration control to "maintain functionality of the spent fuel pool cooling system" and affected the cornerstone's objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Using IMC 0609 Appendix G for shutdown operations, the inspectors determined that the finding had very low safety significance because it did not adversely affect core heat removal, inventory control, power availability, containment control, or reactivity guidelines. The inspectors determined that this finding was cross-cutting in the Human Performance, work control area, and involved aspects

associated with planning work activities by incorporating risk insights and jobsite conditions [H.3(a)].

Inspection Report# : [2013003](#) (pdf)

## Mitigating Systems

**Significance:** G Mar 28, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

### **Shorting Switch Modification Failed to ensure Drywell Spray Valves would not Spuriously Open.**

The inspectors identified a finding of very-low-safety significance and associated NCV of 10 CFR Part 50, Appendix R, Section III.G.2 for the licensee's failure to ensure that safe shutdown (SSD) equipment were not susceptible to fire induced failures. Specifically, the licensee failed to ensure that the Drywell Spray Motor Operated Valves MO-2020 and MO-2021 would not spuriously open due to fire induced failures (i.e., open circuit and hot shorts) when they installed shorting switch modifications for these valves. The licensee entered the issue into their Corrective Action Program and established hourly fire tours in all affected fire areas.

The performance deficiency was determined to be more than minor because the multiple spurious operations of the drywell spray valves could affect safe shutdown of the plant in the event of fire. The finding affected the Mitigating Systems cornerstone. These valves were required to stay in their closed position during a fire event to ensure adequate net positive suction head (NPSH) for safe shutdown pumps. Fire induced circuit failures (i.e., open circuits and hot shorts) on their control cables could result in these valves spuriously opening. The finding represented a low degradation; and therefore, the inspectors determined that the finding screened as having very-low-safety significance (Green) in Task 1.3.1 of IMC 0609, Appendix F. The inspectors determined that the finding had a cross-cutting aspect in the area of Problem Identification and Resolution because the licensee did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the licensee's evaluation incorrectly concluded that the shorting switch modification would preclude multiple spurious operations of the Drywell Spray valves.

Inspection Report# : [2014008](#) (pdf)

**Significance:** G Mar 28, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

### **Both Redundant Safe Shutdown Trains of Nitrogen Bottles were Found Located In the Same Fire Area.**

The inspectors identified a finding of very-low-safety significance and associated NCV of 10 CFR Part 50, Appendix R, Section III.G.1 for the licensee's failure to ensure one of the redundant SSD trains located in the same fire area was free of fire damage. Specifically, both trains of redundant nitrogen bottles used to open and maintain open Safety Relief Valves (SRVs) to depressurize and cooldown the reactor were found located in the same fire area. The licensee entered the issue into their Corrective Action Program and established hourly fire tours in the affected fire areas.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of Protection Against External Factors (Fire) and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to fire events prevent undesirable consequences (i.e., core damage). Specifically, the licensee failed to ensure that one train of nitrogen to supply credited SRVs to achieve and maintain shutdown conditions would be free of fire damage because both trains of nitrogen bottles were located in the same fire area. The finding represented a low degradation and therefore the

inspectors determined that the finding screened as having very-low-safety-significance (Green) in Task 1.3.1 of IMC 0609, Appendix F. The finding was not associated with a cross-cutting aspect because the finding was not representative of current performance.

Inspection Report# : [2014008](#) (pdf)

**Significance:** G Mar 28, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Repairs Credited for Hot Shutdown Conditions.**

The inspectors identified a finding of very-low-safety significance and associated NCV of 10 CFR Part 50, Appendix R, Section III.G.1 for the licensee's failure to provide one train of systems necessary to achieve and maintain hot shutdown conditions. Specifically, the licensee failed to ensure that a sufficient quantity of nitrogen existed from the alternate nitrogen system to supply credited SRVs for the duration that the plant is expected to be in hot shutdown following a fire. Instead, the licensee relied on replacing the nitrogen bottles using a repair procedure. Similarly, the licensee failed to ensure one train of diesel fuel oil transfer system for the emergency diesel generator (EDG) was free of fire damage in the event of a fire. Instead the licensee relied upon repair activities for fuel transfer. The licensee entered the issue into their Corrective Action Program and established hourly fire tours in the affected fire areas.

The performance deficiency was determined to be more than minor because the licensee failed to ensure that safe shutdown equipment and circuits (i.e., alternate nitrogen system and EDG fuel oil) were free of fire damage for the duration that could be expected to maintain hot shutdown conditions following a fire. These repair activities could have potentially affected the plant and operators' activities during a challenging fire event. The finding affected the Mitigating Systems cornerstone. The finding represented a low degradation and therefore the inspectors determined that the finding screened as having very-low-safety significance (Green) in Task 1.3.1 of IMC 0609, Appendix F. The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance because the licensee did not recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals did not implement appropriate error reduction tools.

Inspection Report# : [2014008](#) (pdf)

**Significance:** G Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**SBLC DISCHARGE PRESSURE PROCEDURAL LIMITS EXCEEDED.**

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when the licensee failed to accomplish activities affecting quality in accordance with instructions, procedures, or drawings. Specifically, licensee personnel failed to abide by procedural requirements for pump discharge pressure limitations contained in Procedure 0255 02 III, "SBLC Quarterly Pump and Valve Tests," when they imprecisely controlled the 11 standby liquid control (SBLC) flow control valve during the test. This led to the halting of the SBLC test while the equipment condition was evaluated and resulted in the validity of the inservice test (IST) data being brought in to question. The licensee re performed the test for the 11 SBLC pump; stood down the workers involved; increased operational oversight of the test; evaluated the condition of the equipment; performed a human performance event review; and included communication of the error as part of a site wide stand down. This issue was entered into the licensee's corrective action program (CAP 1401816).

The inspectors determined that the licensee's failure to abide by SBLC procedural limitations was a performance deficiency, because it was the result of the failure to meet the requirements of 10 CFR 50, Appendix B, Criterion V; the cause was reasonably within the licensee's ability to foresee and correct; and should have been prevented. The inspectors screened the performance deficiency per Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, and determined that the issue was more than minor because, if left uncorrected, it

had the potential to lead to a more significant safety concern. Specifically, if pressure limitations had been further exceeded, the discharge relief valve would have lifted, which could result in inoperability of the 11 SBLC pump until repair or replacement of the relief valve. In addition, inadequately performing the SBLC surveillance and IST testing could have the potential to mask degraded conditions associated with the pump. The inspectors applied IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At Power,” to this finding. The inspectors utilized Exhibit 2, Section A, “Mitigating Systems,” to screen the finding. The finding was determined to have very low safety significance because the inspectors answered ‘No’ to all four questions. 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, having work practices components, and involving aspects associated with using human error prevention techniques during performance of work activities [H.4(a)].

Inspection Report# : [2013005](#) (*pdf*)

**Significance:**  Nov 22, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Evaluate the Effects of the HPCI Steam Isolation Outboard Valve Closure Time Increase**

Green. The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure to evaluate the effects of increasing the high pressure coolant injection (HPCI) steam isolation outboard valve allowed closure time from 40 to 50 seconds in several documents. Specifically, the licensee failed to evaluate the effect of the increased allowed closure time for MO-2035 in several analyses. The licensee entered this issue into their Corrective Action Program, where the licensee is reviewing the impact of increasing the allowed closure time for MO 2035 on high energy line break (HELB) calculations and will revise the applicable analyses and documentation as required. A preliminary analysis using actual stroke and delay times for MO-2035 verified the 55 seconds used in the analysis was still bounding.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green) because the finding was a design deficiency that did not result in a loss of operability or functionality. This finding has a cross-cutting aspect in the area of Human Performance, Resources because the licensee did not have complete, accurate, and up-to-date design documentation. Specifically, the licensee failed to revise all affected design documentation when the HPCI steam isolation outboard valve allowed closure time was increased from 40 seconds to 50 seconds.

Inspection Report# : [2013007](#) (*pdf*)

**Significance:**  Nov 22, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Ensure Required Design Basis Analysis was Maintained**

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure to verify that required analysis was in-place prior to superseding CA 00 082. Specifically, the licensee failed to recognize that the superseded calculation contained required analysis that was not verified in other current calculations. The licensee entered this issue into their Corrective Action Program where the licensee performed a preliminary analysis that verified the HPCI HELB was still bounded by the main steam line break analysis and to ensure that the analysis will be restored consistent with the provisions of CA 00 082 and License Amendment 117.

The performance deficiency was determined to be more than minor because the finding was associated with the

Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was a design deficiency that did not result in a loss of operability or functionality. This finding has a cross-cutting aspect in the area of Human Performance, Work Practices because the licensee did not use human error prevention techniques, such as self and peer checking, to ensure that work activities were performed safely. Specifically, the licensee failed to recognize that the superseded calculation contained required analysis that was not verified to be in other current calculations.

Inspection Report# : [2013007](#) (pdf)

**Significance:**  Nov 22, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Maintain Qualification of UV Relay 27 43A**

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to maintain seismic qualification of safety-related undervoltage (UV) relay 27-43A, where the UV relay's coil was replaced without proper analysis and documentation. Specifically, the licensee did not ensure there was proper test analysis and documentation in-place that specified the requirements to allow replacement of the UV relay's coil to maintain its seismic qualification. The licensee entered this finding into their Corrective Action Program to address the cause that lead to this issue. The relay had previously been replaced with a qualified component prior to this inspection.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green) because the finding was a design deficiency that did not result in a loss of operability or functionality. This finding has a cross-cutting aspect in the area of Human Performance, Decision-Making because the licensee did not make safety significant decisions using a systematic process, especially when faced with unexpected plant conditions, to ensure safety is maintained. Specifically, the licensee failed to recognize that to maintain seismic qualification, proper analysis and documentation must be in-place to identify those components that are authorized to be replaced without invalidating the seismic qualification analysis.

Inspection Report# : [2013007](#) (pdf)

**Significance:**  Nov 22, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**EDG Fuel Oil Supply System Design does Not Meet the Single Failure Criteria**

The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure the emergency diesel generator (EDG) fuel oil system original design met the single failure criteria with respect to having two safety-related pumps that were physically separated and provided with independent piping and safety-related power source. The licensee entered this finding into their Corrective Action Program and implemented actions that included separating the fuel oil system into individual trains for each EDG, providing each pump with safety-related power, and tracking the final resolution of this issue to completion.

The performance deficiency was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable

consequences. The finding screened as very low safety significance (Green) based on a Detailed Risk-Evaluation performed by the Senior Reactor Analysts. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : [2013007](#) (*pdf*)

**Significance:** **G** Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**INAPPROPRIATE EMERGENCY SHUTDOWN OF BOTH EDGS DURING A LONOP EVENT.**

A self revealed finding of very low safety significance and an associated non cited violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” occurred on June 13, 2013, due to the licensee’s failure to accomplish activities affecting quality in accordance with instructions, procedures, or drawings of a type appropriate to the circumstances. Specifically, operators failed to utilize B.09.08 05.E.1/2, “Emergency Diesel Generators [EDGs]—System Operation, 11/12 Emergency Diesel Generator Operation,” when verifying proper operation of both EDGs following their auto start during a loss of normal offsite power event. This resulted in an inappropriate emergency shutdown of both EDGs when circumstances did not warrant the action, making them inoperable during an event that could have resulted in the necessity of their use. In addition, this action unnecessarily challenged future reliability of the EDGs due to the bypassing of the normal engine cool down period. The licensee took immediate action to restore the EDGs to operable status once the inappropriate action was identified, performed a site clock reset, and improved training and associated procedures.

The finding was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of human performance 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). In addition, if left uncorrected, the performance deficiency could lead to a more significant safety concern. Specifically, failing to utilize necessary procedures when verifying proper operation of important safety related equipment during an event, could lead to unnecessary unavailability or inoperability of additional systems. The inspectors utilized IMC 0609, Appendix G, and determined the finding had very low safety significance because it did not adversely affect core heat removal, inventory control, power availability, containment control, or reactivity guidelines. The inspectors concluded that this issue was cross cutting in the Human Performance, resources area, because the licensee failed to make available complete, accurate, and up to date response procedures [H.2(c)].

Inspection Report# : [2013004](#) (*pdf*)

**Significance:** **Y** May 15, 2013

Identified By: NRC

Item Type: VIO Violation

**FAILURE TO MAINTAIN AN ADEQUATE FLOOD PLAN CONSISTENT WITH DESIGN REQUIREMENTS.**

The inspectors identified a Yellow finding with substantial safety significance and associated violation of Technical Specification 5.4.1 for the licensee’s failure to maintain a flood plan to protect the site from external flooding events. Specifically, the site failed to maintain flood Procedure A.6, “Acts of Nature,” such that it could support the timely implementation of flood protection activities within the 12 day timeframe credited in the design basis as stated in the updated safety analysis report (USAR.)

The inspectors determined that the licensee’s failure to maintain an adequate flood plan consistent with the USAR was a performance deficiency, because it was the result of the failure to meet the requirements of TS 5.4.1.a, “Procedures;” the cause was reasonably within the licensee’s ability to foresee and correct; and should have been prevented.

The inspectors screened the performance deficiency per Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, dated September 7, 2012, and determined that the issue was more than minor because it impacted the 'Protection Against External Factors' attribute of the Mitigating Systems Cornerstone and affected the cornerstone's objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, if the necessary flood actions cannot be completed in the time required, much of the station's accident mitigation equipment could be negatively impacted by flood waters.

Therefore, a detailed risk evaluation was performed.

This risk evaluation was performed using IMC 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria," dated April 12, 2012. A Significance and Enforcement Review Panel (SERP) determined this finding to have substantial safety significance (Yellow).

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, having decision-making components, and involving aspects associated with using conservative assumptions in decision making, verifying the validity of the underlying assumptions, and identifying possible unintended consequences.

Inspection Report# : [2013008](#) (*pdf*)

Inspection Report# : [2013009](#) (*pdf*)

**Significance:**  May 15, 2013

Identified By: NRC

Item Type: FIN Finding

**INADEQUATE TI-187 PROCEDURE WALK-THROUGH.**

The inspectors identified a finding of very low safety significance for the site's failure to perform adequate procedure walkthroughs to comply with NRC endorsed NEI 12-07, "Guidelines for Performing Walk-downs of Plant Flood Protection Features." Specifically, the licensee failed to perform flooding procedure walk-throughs necessary to verify that flood protection actions were achievable, and could be completed within their credited timeline. As a direct result, the licensee failed to verify that necessary resources for levee construction and other flood protection activities were adequately pre-staged or available to ensure that the site could meet its credited flood mitigation timeline.

The inspectors determined that the licensee's failure to adequately validate that external flood protection actions and timelines were achievable was a performance deficiency, because it was the result of the failure to meet the standards of NEI 12-07; the cause was reasonably within the licensee's ability to foresee and correct; and should have been prevented. The inspectors screened the performance deficiency per Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, dated September 7, 2012, and determined that the issue was more than minor because, if left uncorrected, failure to adequately validate levee construction and equipment pre-staging timelines has the potential to lead to a more significant safety concern. Specifically, if the site fails to account for the time and effort necessary to acquire flood mitigation resources prior to the flood, and the time and activities necessary to construct the ring levee, the site may not be able to complete their flood protection measures in time to mitigate floods on the design basis scale. The inspectors determined the finding could

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be evaluated using the SDP in accordance with IMC 0609, "Significance Determination

Process,” Attachment 0609.04, “Initial Characterization of Findings,” dated June 19, 2012, and Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” dated June 19, 2012. The inspectors answered “No” to all the questions in Section A, “Mitigating SSCs and Functionality,” Section C, “Reactivity Control Systems,” and Section D, “Fire Brigade.” The inspectors answered “No” to the Section B, “External Event Mitigating Systems,” question because the finding did not directly involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event (e.g., seismic snubbers, flooding barriers, tornado doors). Therefore, the inspectors determined the finding to be 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, having decision-making components, and involving aspects associated with using conservative assumptions in decision making, verifying the validity of the underlying assumptions, and identifying possible unintended consequences.

Inspection Report# : [2013008](#) (*pdf*)

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## Barrier Integrity

**Significance:** G Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

### **DRYWELL-TORUS VACUUM BREAKER INADEQUATE POST-MAINTENANCE AND RETURN-TO-SERVICE TEST.**

The inspectors identified a finding of very low safety significance and a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, “Test Control,” for the licensee’s failure to assure that all testing required to demonstrate that SSCs will perform satisfactorily in service are identified and performed in accordance with written test procedures, which incorporate the requirements and acceptance limits contained in applicable design documents. Specifically, on May 22, 2013, the licensee failed to ensure that

post-maintenance and return-to-service testing was performed on all eight safety-related drywell-torus vacuum breakers after refueling outage maintenance, to ensure that surveillance requirements for the valves’ opening setpoints were met prior to the valve being returned to service and prior to entry into MODE 2. The licensee entered this issue into their CAP, and additional corrective actions were in development at the time of this report.

The inspectors determined that the licensee’s failure to perform required PMTs for vacuum breakers prior to their return-to-service and making a mode change was a performance deficiency requiring evaluation. The inspectors determined that the finding was more than minor in accordance with IMC 0612, Appendix B, because it adversely impacted the Barrier Integrity Cornerstone attribute of SSC and Barrier Performance, and affected the cornerstone objective to provide reasonable assurance that physical design barriers, including containment, protect the public from radionuclide releases caused by accidents or events. The inspectors assessed the significance of this finding in accordance with IMC 0609 and determined this finding was of very low safety significance. The inspectors concluded that this finding was cross-cutting in the Human Performance, Work Management area, because of the failure to implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority, and to ensure that the work process includes the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities [H.5].

Inspection Report# : [2014002](#) (*pdf*)

**Significance:** G Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO FOLLOW PROCEDURE FOR DRYWELL-TORUS VACUUM BREAKER OPERABILITY DETERMINATION.**

The inspectors identified a finding of very low safety significance and a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to ensure that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances, and be accomplished in accordance with these procedures. Specifically, the licensee

failed to accomplish activities affecting quality in accordance with Fleet Procedure

FP-OP-OL-01, in that, on February 28, 2014, and March 5, 2014, the site failed to ensure that the operability determination for all eight safety-related drywell-torus vacuum breakers was sufficient to address the capability of the SSCs to perform their specified safety function. Following NRC questions, the site revised the operability determination to include newly discovered information of an instance where the equipment in question had been observed opening at the required setpoint during a plant evolution and, subsequently changing the operability evaluation final conclusion from "operable but nonconforming" to "operable." This issue was entered into their corrective action program (CAP), and additional corrective actions were in development at the time of this report. The inspectors determined that the failure to properly justify vacuum breaker operability in accordance with the fleet operability determination process was a performance deficiency requiring evaluation. The inspectors determined the issue was more than minor because, if left uncorrected, the failure to perform a thorough operability evaluation for conditions where a required post-maintenance testing (PMT) was not performed for all eight drywell-torus vacuum breakers could lead to a more significant safety concern. The inspectors assessed the significance of this finding in accordance with IMC 0609 under the Barrier Integrity Cornerstone, and determined the finding was of very low safety significance. The inspectors concluded that this finding was

cross-cutting in the Human Performance, Conservative Bias area, because of the licensee's failure to use decision-making practices that emphasize prudent choices over those that are simply allowable, and a failure to ensure that proposed actions are determined to be safe in order to proceed, rather than unsafe in order to stop [H.14].

Inspection Report# : [2014002](#) (*pdf*)

**Significance:** G Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**INADEQUATE DRYWELL-TORUS MONTHLY VACUUM BREAKER TEST PROCEDURE DUE TO PROCEDURALIZED UNACCEPTABLE PRECONDITIONING.**

The inspectors identified a finding of very low safety significance and a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," on February 14, 2014, for the licensee's failure to ensure that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances. Specifically, the site changed Procedure 0143, "Drywell-Torus

Monthly Vacuum Breaker Check," to include allowances for multiple cyclings on the safety-related drywell-torus vacuum breaker valves to ensure they met their surveillance requirements to close, which constituted unacceptable preconditioning. The licensee entered this issue into their CAP, and corrective actions were still in development at this time of this report.

The inspectors determined that the licensee's failure to ensure the vacuum breaker monthly testing surveillance procedure was appropriate to the circumstances was a performance deficiency requiring evaluation. The inspectors screened the performance deficiency per IMC 0612, "Power Reactor Inspection Reports," Appendix B, and determined that the issue was more than minor because it adversely impacted the Barrier Integrity Cornerstone attribute of Procedure Quality, and affected the cornerstone objective to provide reasonable assurance that physical design barriers, including containment, protect the public from radionuclide releases caused by accidents or events. In addition, if left uncorrected, the proceduralized unacceptable preconditioning has the potential to lead to a more

significant safety concern. The inspectors assessed the significance of this finding in accordance with IMC 0609 and determined this finding was of very low safety significance. The inspectors concluded that this finding was cross-cutting in the Human Performance, Conservative Bias area, because of the licensee's failure to use decision-making practices that emphasize prudent choices over those that are simply allowable, and a failure to ensure that proposed actions are determined to be safe in order to proceed, rather than unsafe in order to stop [H.14].

Inspection Report# : [2014002](#) (*pdf*)

**Significance:**  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO FOLLOW PROCEDURE FOR AO 13022 FURMANITE INJECTION.**

The inspectors identified a finding of very low safety significance and a NCV of Technical Specification (TS) 5.4.1 due to the failure to perform safety related maintenance in accordance with documented instructions. Specifically, the improper control of safety related maintenance on reactor core isolation cooling (RCIC) injection check valve AO 13 22 resulted in the injection of seven sticks of a leak sealing compound (e.g. Furmanite) instead of the maximum four called out in Work Order (WO) 486966. This issue was entered into the licensee's corrective action program (CAP 1402240). Corrective actions included a site stand down; down grade of the Furmanite technician's leak repair certification, pending investigation and retraining; revise procedures requiring each Furmanite injection be observed by maintenance supervision; and development of a fleet procedure/process for oversight of supplemental personnel. The inspectors determined that the failure to perform safety related maintenance in accordance with documented instructions was a performance deficiency requiring evaluation. The inspectors determined the issue was more than minor because, if left uncorrected, the failure to follow leak sealant work instructions could lead to more significant safety concerns. The inspectors assessed the significance of this finding in accordance with Inspection Manual Chapter (IMC) 0609 and determined that it was of very low safety significance. The inspectors concluded that this finding was cross cutting in the Human Performance, work practices area because of the failure to ensure supervisory and management oversight of work activities [H.4(c)].

Inspection Report# : [2013005](#) (*pdf*)

**Significance:**  Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**SAFETY RELIEF VALVE TAILPIPE SENSING LINE ISOLATION VALVE FOUND CLOSED.**

A finding of very low safety significance and non-cited violation of Technical Specification (TS) 3.3.6.3, "Low-Low Set (LLS) Instrumentation," was self-revealed when the licensee discovered during the performance of an unrelated surveillance test that an isolation valve, which impacts the operation of two differential pressure switches, associated with the 'E' LLS safety relief valve (SRV) was found closed. Specifically, valve MS-44-2B, the root valve for the 'E' SRV tailpipe pressure sensing line was discovered closed between June 28, 2011 and April 12, 2013. The licensee took corrective actions to restore MS-44-2B to its required open position. Additional corrective actions included plans to revise a standing SRV maintenance procedure which provided incorrect restoration guidance, post-maintenance, for four of the eight SRVs.

The inspectors determined that this issue was more than minor because it impacted the configuration control attribute of the Barrier Integrity Cornerstone and affected the cornerstone's objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. The inspectors applied IMC 0609, Appendix A to this finding and evaluated the issue under the Barrier Integrity Cornerstone, utilizing Exhibit 3, "Barrier Integrity Screening Questions," to screen the finding. The inspectors answered "No" to both Reactor Containment screening questions, and determined the finding to be of very low safety significance. The inspectors determined that this finding was cross-cutting in the

Human Performance, resources area, and involved aspects associated with having complete, accurate and up-to-date design documentation, procedures, and work packages, and correct labeling of components to assure nuclear safety [H.2(c)].

Inspection Report# : [2013003](#) (pdf)

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:**  Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **UNCONTROLLED HIGH RADIATION AREA FOLLOWING SHUT-DOWN COOLING RE-ALIGNMENT.**

A finding of very low safety significance and an associated non-cited violation of Technical Specification (TS) 5.7.1 was self-revealed following a worker's unexpected electronic dosimeter alarm, which resulted in the identification of an unbarricaded and unposted high radiation area. The inspectors determined a performance deficiency occurred when the licensee failed to perform radiological surveys following the implementation of noble metals chemistry which changed plant radiological conditions, and prior to authorizing entry into the 924' torus area. Specifically, on January 19, 2014, a fire watch entered this area when posted as a radiation area and received a dose rate alarm. Follow-up radiological surveys identified a high radiation area of 120 mrem/hr at 30 cm from the residual heat removal piping. This issue was entered into the licensee's corrective action program as CAP 01415285. The licensee immediately barricaded and posted the area as a high radiation area. Additionally, the licensee is performing a review of radiation protection fundamentals as the result of this event.

The finding was more than minor because it impacted the program and process attribute of the Occupational Radiation Safety Cornerstone and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that, the worker's entry into an unsurveyed high radiation area placed the worker at increased risk for unnecessary radiation exposure. Additionally, the inspectors reviewed the guidance in IMC 0612, Appendix E, "Examples of Minor Issues," and identified Example 6(h) as similar to the performance deficiency. The finding was assessed using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," and was determined to be of very low safety significance because the problem was not an as-low-as-reasonably-achievable planning issue; there were no overexposures nor substantial potential for overexposures given the highest dose rate present in the room and the scope of work; and the licensee's ability to assess dose was not compromised. The inspectors concluded that the cause of this event involved a cross-cutting component in the Problem Identification and Resolution, Operating Experience area, because the licensee failed to implement known industry concerns regarding changing radiological conditions as the result of implementation of noble metals chemistry (P.5).

Inspection Report# : [2014002](#) (pdf)

**Significance:**  Dec 31, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

### **FAILURE TO MAINTAIN RADIATION EXPOSURE ALARA DURING RFO 26.**

A finding of very low safety significance was self revealed due to the licensee having unplanned and unintended occupational collective radiation dose because of deficiencies in the licensee's radiological work planning and work control program. Specifically, the licensee failed to properly incorporate as low as reasonably achievable (ALARA) strategies and insights while planning and executing two work activities during the refueling outage (RFO) 26. The first was the inservice inspection (ISI) examinations performed in the drywell. The initial dose estimate for this activity was 7.500 person rem. However, 13.173 actual person rem of dose was received. The second activity was associated with drywell snubber inspection activities within the drywell. The initial estimate for this activity was 3.600 person rem. However, 7.243 actual person rem of dose was received. These results were caused by poor radiological planning and work execution of these tasks. The licensee entered this issue into their CAP as Action Reports 1404210 and 1404244.

The finding was more than minor because it was associated with the program and process attribute of the Occupation Radiation Safety Cornerstone. Additionally, this issue affected the cornerstone objective of ensuring the adequate protection of the workers' health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Additionally, the finding is very similar to Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," Example 6.i. This example provides guidance that an issue is not minor if the actual collective dose exceeded 5 person rem and exceeded the planned, intended dose by more than 50 percent. The inspectors determined that this finding was of very low safety significance because Monticello Nuclear Generating Plant's current 3 year rolling average collective is 110.633 person rem (2010 2012). This is less than the 240 person rem/unit referenced within IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process." This finding had a cross cutting aspect in the area of Human Performance, related to the cross cutting aspect of work control, in that the outage plan did not adequately incorporate action to address the impact of work on different job activities [H.3(b)].

Inspection Report# : [2013005](#) (pdf)

## Public Radiation Safety

**Significance:**  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **FAILURE TO MAINTAIN THE ODCM.**

A NRC identified finding of very low safety significance and an associated non cited violation of Technical Specification (TS) 5.5.1.a for the failure to perform an adequate technical review which led to the Offsite Dose Calculation Manual (ODCM) not being kept current. This issue was entered into the licensee's corrective action program as AR 01397500. The licensee is currently evaluating changes to the ODCM.

The performance deficiency was determined to be of more than minor safety significance in accordance with IMC 0612, Appendix B, "Issue Screening," because it was associated with the program and process attribute of the Public Radiation Safety Cornerstone and the performance deficiency adversely affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to maintain the ODCM current adversely impacted the licensee's ability to precisely determine offsite radiation dose under certain conditions. In accordance with IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," the inspectors determined that the finding had a very low safety significance (Green) because the finding was related to the Effluent Release Program but did not involve: (1) a failure to implement an effluent program; or (2) result in public dose exceeding a limit in 10 CFR 50 Appendix I or 10 CFR 20.1301(e). The inspectors identified that the primary cause of this finding was related to the cross cutting aspect of human performance with the component of resources. Specifically, the licensee did not ensure the ODCM (a procedure required by TSs) was up to date [H.2(c)]

Inspection Report# : [2013004](#) (*pdf*)

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## Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

Last modified : May 30, 2014