



Home > Nuclear Reactors > Operating Reactors > Reactor Oversight Process > Plant Summaries > Clinton > Quarterly Plant Inspection Findings

## Clinton – Quarterly Plant Inspection Findings

### 3Q/2017 – Plant Inspection Findings

On this page:

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness
- Occupational Radiation Safety
- Public Radiation Safety
- Security

#### Initiating Events

**Significance:** G Jun 30, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

#### **UNEXPECTED START OF THE DIVISION 3 EMERGENCY DIESEL GENERATOR**

The inspectors documented a self-revealed finding of very low safety significance and an associated non-cited violation of Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to follow steps in Work Order (WO) 04640788 while performing troubleshooting on blown power transformer fuses in the division 3 emergency diesel start circuitry. Specifically, the electricians opened test switches in the wrong electrical cubicle resulting in the unexpected start of the division 3 emergency diesel generator and a loss of power to the 1C1 bus from an offsite source. The licensee entered this issue into their corrective action program (CAP) as Action Request (AR) 04012393. As corrective actions, the licensee performed a human performance review to identify the reasons the procedure was not followed and restored power to the 1C1 safety bus.

The performance deficiency was determined to be more than minor because it impacted the Initiating Events cornerstone attribute of human performance and adversely 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 failure of the electrical maintenance technicians to follow their procedures resulted in a loss of power to the 1C1 electrical bus. The finding was screened against the Initiating Events cornerstone and determined to be of very low safety significance because the loss of power to the 1C1 bus occurred while Clinton was in a refueling outage when the high pressure core spray system was removed from service and not being relied upon for shutdown safety defense in depth. The loss of the 1C1 bus did not affect decay heat removal from the core, did not affect reactor coolant inventory, and the event occurred while the refuel cavity was flooded up for refueling operations. The inspectors determined that this finding affected the cross-cutting area of human performance in the aspect of avoid complacency where individuals implement appropriate error reduction tools. Specifically, as documented in the licensee's human performance review, the electricians performing the work did not utilize any human performance tools to flag the

equipment to be operated and improperly performed the concurrent verification of the component to be manipulated. [H.12]

Inspection Report# : 2017002 (*pdf*)

**Significance:**  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

**ROOT CAUSE EVALUATION FAILED TO IDENTIFY CORRECTIVE ACTION TO PRECLUDE REPETITION**

The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion II, "Quality Assurance Program," for the failure to implement a quality assurance program procedure. Specifically, the licensee failed to document a root cause and develop a corrective action to preclude repetition for the 1A bus transformer failure in accordance with quality assurance procedure PI-AA-125-1001, "Root Cause Analysis Manual." The licensee entered this issue into their CAP as AR 01594407. The corrective actions in response to this issue were to revise the root cause report with a root cause of insulation degradation of the phase windings over time and develop a corrective action to prevent recurrence by using Doble testing to ensure indication of transformer insulation degradation was discovered prior to failure.

The performance deficiency was determined to be more than minor because if left uncorrected the performance deficiency had the potential to lead to a more significant safety concern. Specifically, the root cause and corrective actions to prevent recurrence were not identified until the licensee was prompted by the inspectors. As a result, additional transformer failures could have occurred. The finding was screened against the Initiating Events cornerstone and determined to be of very low safety significance because the finding did not involve the complete or partial loss of a support system that contributes to the likelihood of or cause an initiating event nor did it affect mitigation equipment. The inspectors determined this finding affected the cross-cutting area of human performance, in the aspect of resources, where leaders ensure that personnel, equipment, procedures and other resources are available and adequate to support nuclear safety. Specifically, the licensee's station procedure did not provide guidance on when a corrective action to preclude repetition is required, regardless of whether a risk assessment was performed. [H.1]

Inspection Report# : 2017002 (*pdf*)

**Significance:**  May 08, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**FAILURE TO DEVELOP AND REVIEW A WORKER TAG OUT**

Inspection Report# : 2017001 (*pdf*)

**Mitigating Systems**

**Significance:** TBD Aug 14, 2017

Identified By: Self-Revealing

Item Type: AV Apparent Violation

**FAILURE TO EVALUATE REPLACEMENT RELAY DROPOUT VOLTAGE**

A self-revealed finding preliminarily determined to be of low to moderate safety significance, and an associated apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, "Design Control," was identified on March 9, 2017, for the licensee's failure to implement measures for the selection and review for suitability of application replacement relays for the Division 1 Emergency Diesel Generator (EDG) Room Vent

Fan, which were components subject to the requirements of 10 CFR Part 50, Appendix B. Specifically, Engineering Changes 330624 and 366624 failed to evaluate the change in the actual drop out voltages for replacement relays on the associated fan circuitry, and instead, introduced new relays into the circuit that resulted in the failure of the fan to operate during an under voltage condition. This rendered the Division 1 EDG inoperable for a time longer than its technical specification allowed outage time, which was a violation of Technical Specification 3.8.1, "AC Sources-Operating." The licensee entered this issue into the corrective action program as action request (AR) 03982792. Corrective actions for this issue included restoring the circuit to allow the ventilation fan to operate and returning the emergency diesel generator to an operable condition.

The inspectors determined that the licensee's failure to verify the suitability of the replacement relays for the Division 1 EDG room vent fan was contrary to the requirements of 10 CFR Part 50, Appendix B, Criterion III and a performance deficiency which was within the licensee's ability to foresee and correct. The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of the systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to verify the suitability of the replacement relays prior to installation in the Division 1 EDG room vent fan circuitry resulted in the inoperability and unavailability of the Division 1 EDG from May 18, 2016 to March 11, 2017, when one of the unsuitable relays was replaced. Using IMC 0609, Appendix A, "Significance Determination Process for Findings At Power," dated June 19, 2012, a Significance and Enforcement Review Panel preliminarily determined the finding to be of low to moderate safety significance. The inspectors determined that this finding affected the cross-cutting area of human performance in the aspect of challenge the unknown, where individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Specifically, a questioning attitude was not used to understand the consequence of the differences in relay features resulting with installing a relay that was incompatible with the current design. [H.11]

In the initial report, the item number was listed incorrectly as 2016009-01 in the "List of Items Open, Closed, and Discussed" section. The correct tracking number of 2017009-01 was entered into RPS.

Inspection Report# : 2017009 (*pdf*)

**Significance:**  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **FAILURE OF OPERATORS TO MEET TIME CRITICAL OPERATOR ACTIONS**

The inspectors identified a finding of very low safety significance and an associated non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to assure that applicable regulatory requirements and the design basis was correctly translated into specifications, drawings, procedures, and instructions and that design control measures provided for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. Specifically, the licensee failed to assure/validate operators were able to complete the standby liquid control time critical action for an anticipated transient without a scram specified in their licensing documents. The licensee entered this issue into their CAP as AR 03980202. As corrective actions, the licensee determined the scram choreography required to complete the time critical action in the specified time, initiated a standing order to inform the operating crews, processed a procedure change for the anticipated transient without scram choreography and performed an evaluation to determine the impact of initiating the standby liquid control system at 172 seconds.

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

operators initiating standby liquid control at 172 seconds instead of 120 seconds, the accident analysis calculations were required to be re-performed to assure the accident analysis requirements were met. The finding was screened against the Mitigating Systems cornerstone and determined to be of very low safety significance because the inspectors were able to answer all of the associated screening questions "No." The inspectors determined that this finding is not indicative of current performance and therefore did not assign a cross-cutting aspect.

Inspection Report# : 2017002 (*pdf*)

**Significance:**  Jun 30, 2017

Identified By: NRC

Item Type: FIN Finding

**FAILURE TO PERFORM PREVENTIVE MAINTENANCE ON A SAFETY-RELATED BREAKER CUBICLE**

The inspectors identified a finding of very low safety significance for the licensee's failure to perform maintenance on a safety-related motor control center cubicle. Specifically, the licensee failed to perform thermography on the division 1 shutdown service water pump room cooler breaker cubicle in accordance with the maintenance strategy/template without providing justification for differing from the template as required by MA-AA-716-210, "Performance Centered Maintenance Process," Revision 3. This resulted in the division 1 shutdown service water pump room cooler fan failing because of a high resistance connection that went undetected. The licensee entered this issue into their CAP as AR 02667822. As corrective actions, the licensee replaced the thermal overload relays and created a preventative maintenance action to perform thermography on this equipment on a periodic basis.

This performance deficiency was determined to be more than minor because it impacted the Mitigating Systems cornerstone attribute of equipment performance and adversely affected the cornerstone objective of ensuring the availability, capability and reliability of equipment that responds to initiating events. Specifically, the room cooler fan failure directly impacted the operability of the division 1 shutdown service water pump and the division 1 emergency diesel generator which are safety-related, risk significant systems. The finding was screened against the Mitigating Systems cornerstone and determined to be of very low safety significance because the inspectors were able to answer all of the associated screening questions "No." The inspectors determined that this finding is not indicative of current plant performance and therefore did not assign a cross-cutting aspect.

Inspection Report# : 2017002 (*pdf*)

**Significance:**  May 08, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

**PLANT BARRIER CONTROL PROGRAM FAILED TO COMPENSATE FOR AN IMPACTED FLOOD BARRIER**

Inspection Report# : 2017001 (*pdf*)

**Significance:**  May 08, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

**FAILED TO VERIFY AN APPROPRIATE ALTERNATE METHOD OF DECAY HEAT REMOVAL**

Inspection Report# : 2017001 (*pdf*)

**Significance:**  May 08, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**FAILURE TO PERFORM MAINTENANCE ON RESIDUAL HEAT REMOVAL PUMP 'C' BREAKER IN ACCORDANCE WITH PROCEDU**

Inspection Report# : 2017001 (*pdf*)

**Significance:**  Apr 21, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Perform Required Surveillances on Multiple Fire Dampers (Section 1R05.2b)**

Green. The inspectors identified a finding of very-low safety significance (Green), and an associated Non-Cited Violation of License Condition 2.C(f) for the licensee's failure to adequately implement surveillance procedures and work processes associated with fire barrier damper inspections. Specifically, the licensee failed to perform fire barrier damper inspections for 15 fire dampers once every 48 months (plus an additional 25 percent grace period) as required by the Fire Protection Program. The licensee entered the issue into their Corrective Action Program, and will inspect the fire barrier dampers during the next refueling outage.

The inspectors determined that the performance deficiency was more-than-minor because the licensee's failure to inspect the fire barrier dampers could result in not identifying degraded dampers which could affect their ability to prevent a fire from spreading from one fire area to another. The finding was of very-low safety significance because the failure to inspect the fire barrier dampers did not impact the plant's ability to reach and maintain safe-shutdown. The finding has a cross-cutting aspect in the area of Human Performance, Work Management because the licensee failed to execute a work order to inspect the fire dampers in accordance with the required frequency in Procedure CPS 9601.01 and instead improperly extended the frequency of the fire damper inspections. (Section 1R05.2b) [H.5]

Inspection Report# : 2017008 (*pdf*)

**Significance:**  Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Demonstrate the Condition of Flood Seals was being Effectively Controlled**

The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR 50.65(a)(2), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for the licensee's failure to demonstrate that the condition of flood seals was being effectively controlled through appropriate preventive maintenance such that the flood seals remained capable of performing their intended function. Specifically, the licensee failed to visually inspect flood seals per ER-AA-450, "Structures Monitoring" and ER-CL-450-1007, "Clinton Surveillance Inspection Program for Seals." As corrective actions, the licensee planned to visually inspect all accessible flood seals and generate an evaluation for inaccessible seals. In addition, the licensee planned to modify ER-AA-450 to clarify the frequency of flood seal inspection.

The inspectors determined the licensee's failure to demonstrate that the condition of flood seals was being effectively controlled by visual inspection, per ER-AA-450 and ER-CL-450-1007, was a performance deficiency. The performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to monitor the condition of the flood sales in a manner sufficient to

provide reasonable assurance they were capable of fulfilling the intended safety functions could adversely affect multiple mitigating systems in the event of a flood or line break. Using IMC 0609, Attachment 4, "Initial Characterization of Findings," issued October 7, 2016, and Appendix A, "The Significance Determination Process for Findings at Power," issued June 19, 2012, the finding was screened against the Mitigating Systems cornerstone and determined to be of very low safety significance because the inspectors answered no to the question "does the finding involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event?" The inspectors determined this finding affected the cross-cutting area of Problem Identification and Resolution, in the aspect of identification, where the organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program. Specifically, the licensee failed to identify the flood seals still had not been inspected when they performed the Maintenance Rule Program - Structures Monitoring Assessment which credited ER-CL-450-1007 in early 2014.

Inspection Report# : 2016004 (*pdf*)

**Significance:**  Dec 01, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Promptly Identify that the Incapability of the RHR Design to Support TS Operability Requirements Was a CAQ (Section 40A2.b(1))**

Green: The team identified a finding of very-low safety significance (Green) and an associated NCV of Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee failure to promptly identify that the incapability of the residual heat removal (RHR) design to support Technical Specifications (TS) operability requirements was a condition adverse to quality. Specifically, when reactor water temperature was greater than 150 degrees Fahrenheit, RHR could not be realigned from shutdown cooling mode of operations to provide the TS required functions of the emergency core cooling system, suppression pool cooling, containment spray, and feedwater leakage control system. The licensee captured this issue in their Corrective Action Program (CAP) as Action Request (AR) 02742439 and AR 03948042, and planned to submit a License Amendment Request to align TS requirements with the design capabilities.

The performance deficiency was determined to be more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of design control and adversely affected the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the performance deficiency resulted in voluntarily declaring TS functions inoperable when performing shutdown cooling operations, which did not ensure the associated mitigating systems availability or capability to respond to an initiating event. The team determined that this finding was of very low safety significance (Green). Specifically, there were no known instances where the finding: (1) represented a loss of system safety function; (2) represented an actual loss of safety function of at least a single train or two separate safety systems out of service for greater than their TS allowed outage time; (3) involved non-TS trains of equipment; (4) involved a degradation of a functional RHR auto-isolation on low reactor vessel level; (5) impacted external event protection; or (6) involved fire brigade issues. The team did not identify a cross cutting aspect associated with this finding because it did not reflect current licensee performance since the performance deficiency occurred more than 3 years ago. (Section 40A2.b(1))

Inspection Report# : 2016009 (*pdf*)

**Barrier Integrity**

**Significance:** G Jun 30, 2017

Identified By: NRC

Item Type: VIO Violation

**FAILURE TO PERFORM ADEQUATE EVALUATION OF CRANE RAIL CLIPS**

The inspectors identified a finding of very-low safety significance and an associated cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to properly verify the adequacy of design of the fuel building crane and crane support structure elements. Specifically, calculations involving the crane rail clips and clip bolts had multiple technical errors and failed to adequately demonstrate that the design met the design basis requirements. The licensee initiated corrective actions by documenting the deficiency in AR 4001089 and performed an evaluation demonstrating that the functionality of the crane was maintained.

The finding was determined to be more-than-minor because it was associated with the design control attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective of maintaining the functionality of the spent fuel pool (SFP) cooling system. Specifically, crane rail clip bolts were required to ensure structural integrity of structures, systems, and components described in the Updated Safety Analysis Report, when subjected to design loads as part of safe load handling of heavy loads near the SFP and to ensure integrity of the spent fuel cask. In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," Table 2, the inspectors determined the finding affected the Barrier Integrity cornerstone because it was associated with SFP/fuel handling activities. Based on answering "No" to questions A through F in Table 3, the inspectors determined the finding could be evaluated using Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, for the Barrier Integrity cornerstone screening questions. Based on the crane remaining functional, the inspectors answered "No" to Questions D.1 through D.4 because the finding did not adversely affect decay heat removal capabilities, did not result from fuel handling errors, did not result in loss of SFP inventory, and did not affect the SFP neutron absorber or fuel bundle misplacement; therefore, the finding screened as having very-low safety significance. The finding was cross-cutting in the resolution aspect of the problem identification and resolution area because the licensee failed to take effective corrective actions in a timely manner to address issues identified earlier in the rail clip evaluations. [P.3]

Inspection Report# : 2017002 (*pdf*)

**Significance:** G Jun 30, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**FAILURE TO PROVIDE SUFFICIENT WORK INSTRUCTIONS FOR PERFORMING MAINTENANCE ON THE CONTROL ROOM VENTILATION SYSTEM CHARCOAL FILTER**

The inspectors documented a self-revealed finding of very low safety significance and an associated non-cited violation of 10 of CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure of the licensee to provide sufficient work instructions for performing maintenance on the control room ventilation charcoal filter bed. Specifically, the work order used to change out the charcoal filter bed (Work Order 01494189) contained only the minimum required amount of charcoal to place in the bed. Sometime after filling the bed April 6, 2015, the charcoal settled, resulting in the 'B' control room ventilation system being declared inoperable after failing a surveillance test. The licensee entered this issue into their CAP as AR 03995612. As corrective actions, the licensee is revising the WO instructions and Clinton Power Station Procedure 9866.03 to require that charcoal be filled completely to the bottom of the deluge piping to allow for settling.

The performance deficiency was determined to be more than minor because it impacted the Barrier Integrity cornerstone attribute of procedure quality and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to provide sufficient guidance in the work order regarding the quantity of charcoal to be

installed resulted in the 'B' control room ventilation system failing a surveillance test and being declared inoperable. The finding was screened against the Barrier Integrity cornerstone and determined to be of very low safety significance because the finding only represents a degradation of a radiological barrier function provided for the control room. The inspectors determined that this finding affected the cross-cutting area of human performance in the aspect of design margins, where the organization operates and maintains equipment within design margins. Special attention is placed on maintaining fission product barriers, defense in depth, and safety-related equipment. Specifically, when performing maintenance on the charcoal bed, the licensee failed to recognize that filling the charcoal to the minimum bed level provided no margin if settling occurred. [H.6]

Inspection Report# : 2017002 (*pdf*)

**Significance:**  Dec 01, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Non Conservative Control Room Radiological Habitability Assessment (Section 1R21.3.b(1))**

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee failure to use a technically appropriate analytical methodology in the control room radiological habitability calculation. Specifically, the licensee used a methodology that inappropriately characterized the control room heating, ventilation and air conditioning (HVAC) system outside air intake design resulting in a calculated control room dose following a loss of coolant accident that exceeded the applicable limit. The licensee captured this issue in their CAP as AR 02742442, completed an operability evaluation, and issued an NRC event notification.

The performance deficiency was determined to be more-than-minor because it was associated with the Barrier Integrity cornerstone attribute of design control and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the performance deficiency resulted in the control room expected dose following a loss of coolant accident to exceed the applicable limits prompting an operability evaluation. The finding screened as of very-low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for the control room.

Specifically, the finding did not affect the control room barrier function against smoke or a toxic atmosphere. The team did not identify a cross-cutting aspect associated with this finding because it was not confirmed to reflect current performance due to the age of the performance deficiency. Specifically, the affected calculations were performed more than 3 years ago. (Section 1R21.3.b(1))

Inspection Report# : 2016009 (*pdf*)

**Significance:**  Dec 01, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Scope SFP Temperature and Level Instruments into the Maintenance Rule Program (Section 1R21.3.b(2))**

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of Paragraph (b) (2)(i) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for the licensee failure to scope non-safety related mitigating structure, systems, and components (SSCs) used within an emergency operating procedure (EOP) into Maintenance Rule Program. Specifically, an EOP used spent fuel pool (SFP) low-level and high-temperature parameters as distinct entry criteria but the associated components were not included in the scope of the Maintenance Rule Program. The licensee captured the team concerns in their CAP as AR 02736193, performed an extent of condition to identify any other SSC addition to the EOPs requiring them to be added to the Maintenance Rule Program scope, and initiated plans to incorporate the affected SSCs into the Maintenance Rule

### Program scope.

The performance deficiency was determined to be more-than-minor because it was associated with the Barrier Integrity cornerstone attribute of SSC performance and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, a key aspect of the Maintenance Rule is to ensure that maintenance activities are performed in a manner that provide reasonable assurance that SSCs within its scope perform reliably and are capable of providing their intended Maintenance Rule function(s). In the case of the SFP temperature instruments, the licensee was not performing preventive maintenance to ensure that degradation, such as instrument drift, did not adversely affect their ability to detect and alarm EOP entry conditions such that mitigating actions could be implemented to preserve secondary containment. The finding screened as of very-low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for the control room. Specifically, the finding did not cause SFP temperature to exceed the maximum analyzed limit, a detectable release of radionuclides, water inventory to decrease below the analyzed limit, or an adverse effect to the SFP neutron absorber or fuel loading pattern. The team determined that the finding had a cross cutting aspect in the area of human performance because the licensee did not use a systematic process for evaluating and implementing changes when updating the affected EOP in 2015. (Section 1R21.3.b(2)) [H.3]

Inspection Report# : 2016009 (*pdf*)

**Significance:** N/A Dec 01, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Amend the UFSAR Indicating Choice to Comply with 10 CFR 50.68(b) (Section 1R21.3.b(3))**

The team identified a Severity Level-IV NCV of 10 CFR 50.68, "Criticality Accident Requirements," Paragraph (b)(8), for the licensee failure to amend the Updated Final Safety Analysis Report (UFSAR) to indicate they chose to comply with 10 CFR 50.68(b). Specifically, in 2005, the licensee chose to comply with 10 CFR 50.68(b) but did not amend the UFSAR following the issuance of the associated license amendment. The licensee captured this issue in their CAP as AR 02741851, reasonably confirmed compliance with 10 CFR 50.68(b) requirements (1) through (7) was maintained, and initiated plans to update the UFSAR to specifically indicate that Clinton Power Station chose to comply with 10 CFR 50.68(b).

The Significance Determination Process does not specifically consider the impact to the regulatory process in its assessment of licensee performance. Therefore, it was necessary to address this violation, which potentially impacts the NRC's ability to regulate, using traditional enforcement to adequately deter non-compliance. Specifically, failure to update the UFSAR challenges the regulatory process because it serves as a reference document used, in part, for recurring safety analyses, evaluating License Amendment Request, and in preparation for and conduct of inspection activities. The team determined the traditional enforcement violation was a Severity Level-IV violation in accordance with Section 6.1.d.3 of the Enforcement Policy because the un-updated UFSAR had not been used to evaluate a facility or procedure change that resulted in a condition evaluated as having low-to-moderate or greater safety significance by the Significance Determination Process. However, it had a material impact on safety or licensed activities. Specifically, the un-updated UFSAR could be used to perform evaluations of facility or procedure changes, which would have the potential to result in unacceptable conditions and/or regulatory decisions. Traditional enforcement violations are not assessed for cross-cutting aspects. (Section 1R21.3.b(3))

Inspection Report# : 2016009 (*pdf*)

**Significance:**  Dec 01, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to Verify the Adequacy of Design Assumptions Related to Time Critical Operator Actions (Section 1R21.6.b(1))**

Green. The team identified a finding of very-low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee failure to verify the adequacy of design assumptions related to time critical operator actions made in calculations associated with the control room HVAC and RHR emergency SFP cooling functions. Subsequently, it was determined that operators did not fully understand the control room HVAC system operational demands and that the operational assumptions of the RHR emergency SFP cooling design were unrealistic. The licensee captured these issues into the CAP as AR 02739012, AR 03943566, and AR 02741909; reasonably demonstrated that SFP makeup sources would be available to cope with a prolonged loss of SFP cooling; conducted operator training; and provided refined procedural guidance to ensure the control room HVAC system would be operated consistent with the design assumptions.

The performance deficiency was determined to be more-than-minor because it was associated with the Barrier Integrity cornerstone attribute of human performance and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the pilot validations of the control room HVAC system operational assumptions demonstrated a significant reduction in margin due to, in part, a lack of operator understanding of the operational assumptions. Additionally, a preliminary review of procedures associated with SFP cooling and RHR determined the operational assumptions of the calculation related to RHR emergency SFP cooling were not bounding. The team determined that this finding was of very low safety significance (Green). Specifically, the control room HVAC system finding example only represented a degradation of the radiological barrier function provided for the control room in that it did not affect the control room barrier function against smoke or a toxic atmosphere. In addition, the finding example related to emergency SFP cooling did not cause SFP temperature to exceed the maximum analyzed limit, a detectable release of radionuclides, water inventory to decrease below the analyzed limit, or an adverse effect to the SFP neutron absorber or fuel loading pattern. The team determined that the finding had a cross-cutting aspect in the area of Human Performance because the operation and engineering organizations did not effectively communicate and coordinate their respective roles in developing the control room HVAC system validation in a manner that supported nuclear safety. (Section 1R21.6.b(1)) [H.4]

Inspection Report# : 2016009 (*pdf*)

**Significance:**  Dec 01, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Follow the Operability Determination Process Following the Identification of a Control Room HVAC System Design Issue (Section 40A2.b(2))**

Green: The team identified a finding of very-low safety significance (Green), and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawings," for the licensee failure to follow the operability evaluation procedure after the identification of a significant design error associated with the control room HVAC system. Specifically, the licensee did not identify the affected safety function, and promptly restore or confirm system operability. The licensee captured these issues into the CAP as AR 03948266 and performed a preliminary engineering evaluation using another alternative analytical methodology that reasonably determined the control room HVAC system remained operable.

The performance deficiency was determined to be more-than-minor because it was associated with the Barrier Integrity cornerstone attribute of human performance and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the performance deficiency resulted in a condition where reasonable doubt on the operability of the control room HVAC system remained following the identification of a significant design error. The finding screened as of very low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for the control room. Specifically, the finding did not affect the control room barrier function against smoke or a toxic atmosphere. The team identified that the finding had a cross-cutting aspect in the area of Human Performance

because the licensee did not provide training to maintain a knowledgeable workforce that would facilitate an adequate implementation of the operability evaluation process following the identification of a non-conforming design-related issue. (Section 40A2.b(2)) [H.9]

Inspection Report# : 2016009 (*pdf*)

## **Emergency Preparedness Occupational Radiation Safety Public Radiation Safety**

**Significance:** G Jun 30, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

### **FAILURE TO PROPERLY CLASSIFY A SHIPMENT PER DOT REGULATIONS**

A finding of very low safety significance and an associated non-cited violation of Title 10 of CFR 71.5(a) and 49 CFR 173.421(b) was self revealed when the licensee failed to properly classify a shipment per Department of Transportation (DOT) regulations. The failure to properly classify the shipment per DOT regulations allowed the shipment to proceed in transit with dose rates that were greater than what was stated on the shipping manifest. When the discrepancy in dose rates was noticed by the receiving entity, the shipment was immediately isolated and the licensee was contacted about the survey results. The licensee then dispatched two radiation protection technicians to perform confirmatory surveys. The survey data was confirmed, and the licensee was able to determine that the misclassification of the shipment was caused by dust and debris contained inside of a dust collector shifting during transportation, which created the elevated dose rate. The site implemented immediate corrective actions which included all shipments classified as limited quantity to be approved by a senior manager in the Radiation Protection Department prior to shipping. Another immediate corrective action required that the first 4 shipments conducted by the site shipper after this event be under the direct observation of a fleet independent shipper and a senior manager in the Radiation Protection Department. The licensee entered this event into their CAP as AR 03961544.

The inspectors determined that the performance deficiency was more than minor because the finding impacted the program and process attribute of the Public Radiation Safety cornerstone and adversely effected the cornerstone objective of ensuring adequate protection to public health and safety from exposure to radiation from routine civilian nuclear operations. Specifically, the misclassification of the shipment per DOT regulations could have led to individuals in the public domain being exposed to radiation dose that was greater than anticipated if conditions had been slightly altered. The finding was screened against the Public Radiation Safety cornerstone and determined to be of very low safety significance because: (1) the finding did not involve a certificate of compliance issue; (2) the failure to make emergency Notifications; (3) a low-level burial issue; or (4) a breach of the transportation package occurring during transit. The finding did involve a radioactive shipment above radiation limits. However, the shipment contained less than a Type A quantity of material (LSA I shipment), and dose rates were <2 millirem per hour on contact. The inspectors determined that this finding affected the cross cutting area of human performance in the aspect of challenging the unknown, where individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Specifically, the risk associated with the content of the dust-collector shifting during transportation and creating an area that would lead to elevated dose rates was not evaluated by Clinton Power Station radiation protection staff. [H.11]

Inspection Report# : 2017002 (*pdf*)

## **Security**

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive

Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

## **Miscellaneous**

**Significance:** N/A Dec 31, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

### **Dry Cask Storage Procedures were not Adequate to Ensure Correct Field Configuration**

A self-revealed violation of very low safety significance (Severity Level IV) of 10 CFR 72.150, "Instructions, Procedures, and Drawings," was identified for the failure of the licensee to ensure that ISFSI procedures contained the appropriate level of detail for the circumstances such that important loading activities would be satisfactorily accomplished. Specifically, procedure HPP-2226-200, Revision 0, "MPC Loading at Clinton," was not adequate to ensure that the Multi-Purpose Canister (MPC) was correctly oriented in the transfer cask (HI-TRAC) and procedure HPP-2226-300, Revision 4, "MPC Sealing at Clinton," was not adequate to ensure that two thermocouples were appropriately installed during the hydrostatic test of the MPC.

The licensee documented these issues in its corrective action program and took timely corrective actions.

The violation was determined to be of more than minor significance using Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues." Example 4e is applicable to this violation in that the MPC was incorrectly oriented in the transfer cask and then loaded with spent fuel in this incorrect configuration. Example 4b is also applicable to this violation in that unexpected leakage occurred during the hydrostatic test as a result of the failure to install the thermocouples. The violation screened as having very low safety significance. Cross cutting aspects are not assigned to traditional enforcement violations.

Inspection Report# : 2016004 (*pdf*)

Current data as of : November 29, 2017

*Page Last Reviewed/Updated Monday, November 06, 2017*