

Arkansas Nuclear 1 2Q/2014 Plant Inspection Findings

Initiating Events

Significance:  Jun 29, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Evaluate Reactor Coolant Sample System Pressure Boundary Flaw

DRAFT

The inspector identified a Green non-cited violation of 10 CFR 50.55a (g) (4) for the licensee's failure to evaluate the acceptability of the E30 cooler in the reactor sample system for continued service until challenged by NRC.

Specifically, when the licensee determined that the E30 cooler for the Unit 1 reactor coolant sample system had developed leaks, the licensee failed to evaluate the acceptability of the component for continued service as required by the ASME Code for a high energy ASME Code system. In March 2013, the licensee identified a leak from the reactor coolant system cooler into the Intermediate Cooling Water (ICW) System. The E30 heat exchanger is used to cool samples obtained from the Reactor Coolant System. These samples are used to verify the reactor coolant system meets Technical Specifications. The E30 heat exchanger is within the ISI Class 2 boundary (ASME Section XI paragraph IWC for class 2). It is exempted by IWC-1222(a) from the volumetric and surface (inspection) requirements of IWC-2500 due to its size and the system in which it is installed and it is exempted by IWC-5222(b) from pressure testing requirements of ASME Code. However, the ASME Code Section XI repair replacement activities of IWA-4000, do apply to the E30 heat exchanger.

The inspector concluded that the licensee's failure to evaluate the acceptability of the E30 heat exchanger is a performance deficiency. The performance deficiency is more than minor because it is associated with the human performance attribute of the initiating events cornerstone 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, from March 2013 until present, the licensee failed to evaluate flaws in the ASME Code system for acceptability for continued service until challenged by the resident inspectors. Using Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," the inspectors determined that the finding was of very low safety significance (Green) because the finding did not result in a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of a trip to a stable shutdown condition.

This finding has a cross-cutting aspect in the area of Human Performance, Resources, because the licensee failed to ensure personnel and procedures were adequate to support nuclear safety. Specifically, the licensee failed to ensure personnel and procedures were available and adequate to recognize the regulatory requirement to evaluate components in ASME Code systems that do not comply with Code requirements [H.1].

Inspection Report# : [2014003](#) (pdf)

Significance:  Jun 29, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedures for Through Wall Leaks

DRAFT

The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Failure to Follow Procedures,” with two examples. Criterion V, “Instructions, Procedures, and Drawings,” states, in part, “Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.” Contrary to the above, the licensee failed to accomplish operability and functionality assessments in accordance with EN-OP-104, Revision 7, “Operability Determination Process.”

Example 1. In March of 2013, the licensee identified that the pressurizer sample cooler was leaking into the Nuclear Intermediate Cooling Water (ICW) system. In their operability/functionality assessment, the licensee stated in part, “This condition report identifies the E-30 Pressurizer Sample Cooler as the (or a) source of Reactor Coolant System (RCS) in-leakage into the Nuclear ICW System. E 30 is not required per Technical Specifications and is a Non-Safety-Related SSC. It has a QA program code of S-S1 R.G. 1.26 for compliance with Regulatory Guide 1.26 (Quality Group Classifications and Standards for Water, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants). R.G. 1.26 compliant components do not specifically require a functionality assessment per EN-OP-104 Section 5.1 [5]; therefore, E-30 is not within the scope of the Operability Determination Process. Technical Specification 3.4.13 (RCS Operational Leakage) requires identified leakage to be less than 10 gallons per minute and unidentified leakage to be less than 1 gallon per minute. E-30 is not considered part of the RCS pressure boundary and is normally isolated from the RCS when a sample is not being collected; therefore, the RCS is not affected by this condition and remains OPERABLE with respect to this condition. The ICW system is not within the scope of the Operability Determination Process. No Degraded or Nonconforming Condition exists per EN-OP-104 Revision 6 Attachment 9.1 Table 1.” No functionality assessment of the RCS Sample system was performed.

Example 2. Two through wall leaks in the supply line to the 2E30 cooler for the reactor coolant sample system were identified on February 3, 2014. After a visual inspection of the leaks in the reactor coolant sample system, the licensee documented the following information in the operability description of CR ANO 2-2014-00268: “For the stated condition, the Reactor Coolant System (RCS) and the Unit 2 Containment Building are OPERABLE. No Degraded or Nonconforming Condition exists per EN-OP-104 Revision 7 Attachment 9.1 Table 1.” There was no documentation that the licensee had performed a functionality assessment of the reactor coolant sample system as required by EN-OP-104, Revision 7, “Operability Determination Process.” The sample system was the system directly affected by the degraded condition. When this assessment was challenged by the NRC inspectors and the licensee’s ability to meet the Technical Specification 4.4.8.1, Surveillance for Dose Equivalent Xenon (DEX), which is required once per seven days as well as the acceptability of the system for continued service, the licensee recognized that the late date for the DEX Surveillance was Friday, February 7, at 3:50 a.m. (This included the +25 percent allowed by the Technical Specification) and that permanent repairs to the sample system would not be completed by that time.

The inspector determined that the failure to perform functional assessments of the Unit 1 and 2 Reactor Coolant Sampling Systems is a performance deficiency. The finding is more than minor because it is associated with the human performance attribute of the initiating events cornerstone 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 licensee failed to perform a functionality assessment for the Unit 1 Reactor Coolant Sampling System from March 2013 to February 2014 and the Unit 2 reactor coolant sample system on February 3, 2014, as required by EN OP-104, Revision 7. Using Inspection Manual Chapter 0609, Attachment 4, “Initial Characterization of Findings,” and Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 1, “Initiating Events Screening Questions,” the inspectors determined that the finding was of very low safety significance (Green) because the finding did not result in a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of a trip to a stable shutdown condition.

This finding has a cross-cutting aspect in the area of Human Performance, Training, because the licensee failed to provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent work force and instill nuclear safety values. Specifically, the licensee failed to ensure that operators were adequately trained on the use of EN-OP-104, Revision 7, "Operability Determination Process," such that required functionality assessments for degraded and/or non-conforming non-technical specification systems were performed as required [H.9].

Inspection Report# : [2014003](#) (*pdf*)

Significance: Y Feb 10, 2014

Identified By: NRC

Item Type: VIO Violation

Unit 1 - Failure to Follow the Materials Handling Program during the Unit 1 Generator Stator Move

Unit 1 Apparent Violation. The inspectors reviewed a self-revealing apparent violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," which states, in part, that "activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures or drawings." The licensee did not follow the requirements specified in Procedure EN-MA-119, "Material Handling Program," in that, the licensee did not perform an adequate review of the subcontractor's lifting rig design calculation and the licensee failed to conduct a load test of the lifting rig prior to use. The licensee initiated Condition Report CR-ANO-C-2013-00888 to capture this issue in the corrective action program. The licensee's corrective actions included repairing damage to the Unit 1 turbine deck, fire main system, and electrical system. In addition, changes were made to various procedures including Procedure EN-DC-114, "Project Management," to provide guidance on review of calculations, quality requirements, and standards associated with third party reviews.

The inspectors determined that the finding was more than minor because it was associated with the procedural control attribute of the initiating event cornerstone, and adversely 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. The stator drop affected offsite power to Unit 1, resulting in a loss of offsite power for approximately 6 days and a loss of the alternate AC diesel generator. The inspectors used Inspection Manual Chapter 0609, Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, to evaluate the significance of the finding. Since the plant was shutdown, the inspectors were directed to Inspection Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for Both PWRs and BWRs," Checklist 4, dated May 25, 2004. Using Appendix G, Attachment 1, Checklist 4, the inspectors concluded that this finding represented a degradation of the licensee's ability to add reactor coolant system inventory when needed since a loss of offsite power occurred and therefore, this finding required a Phase 3 analysis. A shutdown risk model was developed by modifying the at-power Arkansas Nuclear One Unit 1 Standardized Plant Analysis Risk Model, Revision 8.19. The NRC risk analyst assessed the significance of shutdown events by calculating an instantaneous conditional core damage probability. The results were dominated by two sequences. The largest risk contributor (approximately 97 percent) was based on a failure of the emergency diesel generators without recovery. The second largest risk contributor was the failure to recover decay heat removal. The result of the analysis was an instantaneous conditional core damage probability of $3.8E-4$; therefore, this finding was preliminarily determined to have high safety significance (Red).

This finding had a cross-cutting aspect in the area of human performance associated with field presence, because the licensee did not ensure adequate supervisory and management oversight of work activities, including contractors and supplemental personnel. Specifically, the licensee did not provide a sufficient level of oversight in that, the requirements in Procedure EN-MA-119, for design approval and load testing of the temporary hoisting assembly, were not followed

Inspection Report# : [2013012](#) (*pdf*)

Mitigating Systems

Significance:  Jun 29, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Filling and Venting of High Pressure Injection Pump

DRAFT

The inspectors identified a Green non-cited violation of Unit 1 Technical Specification 5.4, "Procedures," for the licensee's failure to establish adequate instructions for filling and venting the emergency core cooling system. Specifically, an inadequate fill and vent could have allowed gas voids to enter the suction of an operable high pressure injection pump. As immediate corrective actions, the licensee revised the filling and venting instructions. The issue was documented in Condition Report CR ANO 1-2014-00295.

The failure to establish adequate filling and venting instructions for a drained high pressure injection pump was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and was therefore a finding. Specifically, the inadequate fill and vent instructions caused a high pressure injection pump to become inoperable for the standby emergency core cooling function. Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, and Appendix A, "The Significance Determination Process (SDP) for Findings at Power," June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined this finding was of very low safety significance (Green) because the degraded condition was not a design or qualification deficiency; did not represent an actual loss of function or a system; did not represent an actual loss of function of a single train or two separate trains for greater than its technical specification allowed outage time; did not represent an actual loss of function of one or more non technical specification trains of equipment designated as high safety significant; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The finding was determined to have a cross-cutting aspect in the area of problem identification and resolution for the licensee's failure to effectively evaluate and implement external operating experience. Specifically, the licensee failed to effectively evaluate and implement gas voiding operating experience when establishing filling and venting instructions

Inspection Report# : [2014003](#) (*pdf*)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Alternate ac Diesel Generator Governor

The inspectors documented a self-revealing non-cited violation of 10 CFR 50.63, "Loss of all alternating current power," for the licensee's failure to maintain the alternate ac diesel generator so that a power source would be available to withstand and recover from a station blackout. Specifically, the licensee failed to perform adequate preventive maintenance on the governor of the diesel in accordance with the recommended vendor maintenance, which resulted in an overspeed trip of the engine during testing. The licensee repaired the governor and documented the issue in Condition Report CR-ANO-C-2013-00331.

The inspectors determined that the failure to perform adequate preventive maintenance on the governor of the

alternate ac diesel generator in accordance with the recommended vendor maintenance was a performance deficiency. This performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and was therefore a finding. Specifically, the reliability of the alternate ac diesel generator was adversely affected by the lack of governor maintenance so that the diesel was unavailable to respond to a postulated station blackout. Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," June 19, 2012, and Appendix A, "The Significance Determination Process (SDP) for Findings at Power," June 19, 2012, Exhibit 2, "Mitigating System Screening Questions," the inspectors determined that the finding required a detailed risk evaluation because it was an actual loss of function of a non-technical specification train of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The Region IV senior reactor analyst performed a detailed risk evaluation in accordance with Appendix A, Section 6.0, "Detailed Risk Evaluation." The risk was dominated by internal loss of offsite power initiators and fire-induced loss of offsite power scenarios. The calculated change in core damage frequency was 8.9×10^{-7} for Unit 1 and 5.6×10^{-7} for Unit 2. The analyst also determined that the finding would not involve a significant increase in the risk of a large, early release of radiation. This finding has been determined to be of very low safety significance (Green).

Although the performance deficiency initially occurred over three years ago, the licensee documented in Condition Report CR-ANO-C-2014-00166 that the alternate ac diesel generator was not maintained commensurate with its risk significance and that a contributing cause was that management had not implemented a comprehensive maintenance strategy in accordance with the risk significance of the diesel. Therefore, inspectors concluded that the cause of the performance deficiency was reflective of present performance. Specifically, the licensee failed to implement a comprehensive preventative maintenance strategy on the alternate ac diesel generator governor commensurate with its risk significance [H.13]

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

Significance:  Feb 10, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Develop and Implement Adequate Procedural Controls to Remediate the Anticipated Effects of Internal Flooding for Either Unit

The inspectors reviewed a self-revealing, non-cited violation of Unit 1 Technical Specification 5.4.1.a and Unit 2 Technical Specification 6.4.1.a, involving the licensee's failure to develop and implement procedural controls for response to internal flooding. Specifically, the licensee did not incorporate any instructions for the operation of the permanently installed temporary fire pump into procedures, which resulted in flooding due to the ruptured fire main header and not securing the temporary fire pump for approximately 50 minutes. The licensee's corrective actions included changing Checklist 1104.032, "Fire Protection Systems," Revision 76, to include guidance for securing the temporary fire pump in the event of a leak or rupture in the fire main header and provided personnel training on this change. This issue was entered into the corrective action program as Condition Reports CR-ANO-C-2013-01072 and CR ANO-C-2013-01962.

The inspectors determined that the licensee's failure to develop and implement adequate procedural controls for the permanently installed temporary fire pump was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedural quality 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 prevention/mitigation actions cannot be completed in the time required, much of the station's accident mitigation

equipment could be adversely impacted.

Unit 1 Analysis:

Inspection Manual Chapter 0609, Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, Table 3, Section A, directs the user to Appendix G. The inspectors used Inspection Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Operational Checklists for Both PWRs and BWRs," dated May 25, 2004, Checklist 4, to evaluate the significance of the finding. The inspectors determined that the finding was of very low safety significance (Green) because the finding did not: (1) increase the likelihood of a loss of reactor coolant system inventory, (2) degrade the licensee's ability to terminate a leak path or add reactor coolant system inventory when needed, or (3) degrade the licensee's ability to recover decay heat removal once it is lost.

Unit 2 Analysis:

Inspection Manual Chapter 0609, Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, Table 3, Section E, Step 2, directs the user to Appendix F, "Fire, Protection Significance Determination Process," dated September 20, 2013. The inspectors used Appendix F, to evaluate the significance of the finding. The finding involved a fixed fire protection system and the fire water supply (temporary fire pump). The finding was screened against the qualitative screening question in Appendix F, Task 1.3.1 and the inspectors determined it was of very low safety significance (Green), because the reactor was able to reach and maintain safe shutdown.

The finding had a cross-cutting aspect in area of the human performance associated with documentation, because the licensee failed to create and maintain complete, accurate, and up-to-date documentation for the use of the temporary fire pump

Inspection Report# : [2013012](#) (pdf)

Significance:  Feb 10, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Scope Required Components in the Station's Maintenance Rule Monitoring Program

The NRC identified a non-cited violation of 10 CFR 50.65(b)(2)(i) for the licensee's failure to monitor non-safety-related structures, systems, or components that are relied upon to mitigate accidents or transients. Specifically, the Unit 1 decay heat removal pump room level switches, which were credited for mitigating the effects of internal flooding, were not being monitored as part of the maintenance rule. The licensee's corrective actions included developing a preventative maintenance task to test the operation of the level switches. This issue was entered into the corrective action program as Condition Report CR-ANO-1-2013-03168.

The inspectors determined that the failure to effectively monitor the performance of both Unit 1 decay heat removal room level switches in accordance with 10 CFR 50.65(a)(1) was a performance deficiency. The performance deficiency was determined to be more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone and directly affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences, in that it called into question the reliability of flood mitigation equipment. The inspectors used Inspection Manual Chapter 0609, Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012, and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, to evaluate the significance of the finding. The inspectors determined the finding was of very low safety significance (Green) because the finding did not: (1) result in an actual loss of operability or functionality, (2) represent a loss of system and/or function' (3) represent an actual loss of function of a single train for greater than its technical specification allowed outage time, (4) represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours, and (5) involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. This finding did not have a cross-cutting aspect

since the switches were installed and evaluated in 2003, and therefore it is not indicative of current performance
Inspection Report# : [2013012](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Fluorescent Light Fixture Above Emergency Feedwater Pump in Seismically Qualified Configuration

Inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to hang the fluorescent light fixture above the Unit 1 motor driven emergency feedwater pump in a seismically qualified design configuration. This was not an immediate safety concern because operability was adequately demonstrated when the misconfiguration was identified and because the licensee restored the light fixture to its seismically qualified configuration on November 12, 2013. The licensee entered this issue into their corrective action program as Condition Report CR-ANO-1-2013-02830.

Inspectors concluded that the licensee’s failure to hang the fluorescent light fixture above the Unit 1 motor driven emergency feedwater pump in accordance with Drawing E-2060 was a performance deficiency. The performance deficiency was more than minor because it was associated with the design control attribute of the mitigating system 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, and is therefore a finding. Specifically, the licensee failed to ensure that, during a design basis seismic event, the light would not fall and adversely impact the safety-related pump below. Using Manual Chapter 0609, Attachment 4, “Initial Characterization of Findings,” and Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, the inspectors determined that this finding was of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of mitigating equipment, in which the equipment maintained its operability; and did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic event.

The finding was determined to have a cross-cutting aspect in the area of human performance, associated with resources, for the licensee’s failure to ensure that sufficient personnel were available for light inspections. Specifically, during the safety-related room inspections that were completed on August 27, 2013, the licensee failed to identify that the light above the motor driven emergency feedwater pump was inappropriately hung, due to the hurried nature of the inspections.

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

Significance:  Nov 19, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely Corrective Action For a Condition Adverse to Fire Protection

The team identified a non-cited violation of Unit 1 License Conditions 2.C.(8), “Fire Protection,” for the failure to implement and maintain in effect all provisions of the approved fire protection program. Specifically, the team identified that the licensee failed to implement timely corrective actions for a condition adverse to fire protection related to a condition that could disable the automatic starting of both fire pumps as a result of fire damage. The licensee confirmed that the diesel fire pump could be started locally at its control panel in the Unit 1 Intake Structure as a compensatory measure and entered the issue into the corrective action program.

The failure to take timely corrective action for a condition adverse to fire protection was a performance deficiency. This finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of Protection Against External Events (fire) and affected the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspector performed walkdowns of the fire zones of concern. Using NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," the finding was assigned a low degradation rating and screened to Green in Attachment 1, Task 1.3.1, "Qualitative Screening for All Finding Categories." This finding had a cross-cutting aspect in the area of human performance associated with resources because the licensee failed to maintain long-term plant safety by minimizing long-standing equipment issues. Specifically, the licensee did not implement a modification to correct a condition adverse to fire protection in a timely manner [H.2(a)].

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

Significance:  Nov 19, 2013

Identified By: NRC

Item Type: FIN Finding

Emergency Lights Satisfied their Maintenance Rule Performance Criteria

The team identified a finding for the failure to provide an adequate testing scheme to demonstrate that the Appendix R emergency lights satisfied their maintenance rule performance criteria. The team determined that operators were provided flashlights when they obtained the equipment bags required to perform an alternative shutdown. The licensee entered the issue into the corrective action program.

The failure to provide an adequate testing scheme to demonstrate that the Appendix R emergency lights satisfied their maintenance rule performance criteria was a performance deficiency. The performance deficiency was more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern.

The team assigned the finding a low degradation rating since the ability to reach and maintain safe shutdown conditions in the event of a control room fire would be minimally impacted by the potential failure of the emergency lights to function for 8-hours. Specifically, the team determined that the results of the previous annual 8-hour discharge tests provided reasonable assurance that the lights would function for 8 hours since the licensee had maintained the same battery replacement frequency. Because this finding had a low degradation rating, it screened as having very low safety significance. This finding had a cross-cutting aspect in the decision making component of the human performance area because the licensee's decisions failed to demonstrate that nuclear safety is an overriding priority. Specifically, the licensee failed to use conservative assumptions in decision making when changing the testing scheme for the Appendix R emergency lights. The team determined that the licensee failed to use conservative assumptions in decision making because the licensee failed to consider how the revised testing scheme would impact the maintenance rule program or demonstrate compliance with 10 CFR Part 50, Appendix R, Section III.J

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

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Inadequate Design Change for Main Feedwater Flow Control Valves

The inspectors documented a self-revealing finding for the licensee's failure to adequately implement a design change to the main feedwater startup and low load feedwater control valves. As a result, the valves were inoperable for longer than their technical specification allowed outage time for their main feedwater isolation safety function. The licensee entered this issue into their corrective action program as Condition Report CR-ANO-1-2012-00267.

The inspectors determined that the failure to adequately implement a design change to the main feedwater control valve circuitry was a performance deficiency. The performance deficiency was 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 systems that respond to initiating events to prevent undesirable consequences, and was therefore a finding. Specifically, the latent design error adversely

affected the ability of the main feedwater valves to close on a main steam line isolation signal. Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, the inspectors determined this finding to be of very low safety significance (Green) because the degraded condition was a design deficiency that affected system operability; did not represent an actual loss of function of a system; did not represent an actual loss of function of a single train or two separate trains for greater than its technical specification allowed outage time; did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that there was no cross-cutting aspect associated with this finding because the cause of the performance deficiency occurred more than three years ago, and was not representative of current licensee performance.

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

Barrier Integrity

Significance: G Jun 29, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Evaluate a Spent Fuel Pool Pressure Boundary Flaw.

DRAFT

The inspector identified a Green non-cited violation of 10 CFR 50.55a(g)(4) for the licensee's failure to evaluate an American Society of Mechanical Engineers (ASME) Code Class pressure boundary leak in the Unit 1 spent fuel pool piping, or perform evaluation prior to returning the system to service. A through wall leak in the piping of the spent fuel pool (SPF) cooling system downstream of valve SPF 23, spent fuel pool to the Cask Loading Pit isolation valve, was identified in August, 2009. The licensee closed the associated condition report, CR-ANO-1-2009-1521, and its associated work order, WO 03771, having completed the clean-up activities. As of May 23, 2014, the exact location, size, and geometry of the flaw are still unknown. There has been no evaluation of the flaw as required by ASME Code, and the danger tags originally placed on system were cleared.

The inspector determined that the licensee's failure to follow the ASME Code requirements for evaluating the leak in the Unit 1 spent fuel pool cooling system is a performance deficiency. The finding is more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because it is associated with the Barrier Integrity Cornerstone attribute of design control and adversely affected the structural integrity of the spent fuel pooling cooling system. Specifically, the licensee failed to appropriately evaluate a through wall flaw in the piping in the spent fuel pool cooling system in accordance with the requirements of ASME Code, Section XI, to ensure structural integrity of the piping. The inspectors evaluated the finding using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," Tables 2 and 3, dated June 19, 2012, and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 3, Part D, for the spent fuel pool, dated June 19, 2012. The inspector determined the finding to be of very low safety significance (Green) because the finding did not cause the pool temperature to exceed the maximum analyzed temperature limit specified in the site-specific licensing basis. It did not result from fuel handling errors, dropped fuel assembly, dropped storage cask, or crane operations over the spent fuel pool that caused mechanical damage to fuel clad and a detectible release of radionuclides. It did not result in a loss of spent fuel pool water inventory below the minimum analyzed level limit specified in the site-specific licensing basis, nor did it affect the spent fuel pool neutron absorber, fuel bundle misplacement or soluble boron concentration.

This finding has a cross-cutting aspect in the area of human performance, resources, because the licensee failed to

ensure personnel and procedures were adequate to support nuclear safety. Specifically, the licensee failed to ensure personnel and procedures were available and adequate to recognize the regulatory requirement to evaluate components in ASME Code systems that do not comply with Code requirements [H.1].

Inspection Report# : [2014003](#) (*pdf*)

Significance:  Jun 29, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correct Through Wall Flaw in Spent Fuel Pool Piping

DRAFTThe inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to repair a through wall flaw in spent fuel pool piping. A through wall leak in the piping of the spent fuel pool cooling (SFP) system downstream of valve SFP 23, spent fuel pool to the Cask Loading Pit isolation valve, was identified in August 2009. The flaw was not evaluated per requirements of ASME Code to ensure structural integrity, but the licensee cleared the tags and restored the system to service. The boric acid residue resulting from the through wall flaw was cleaned up and Condition Report CR-ANO-1-2009-1521 and its associated work order, WO 03771, were closed. As of May 23, 2014, the exact location, size, and geometry of the flaw are still unknown. There has been no evaluation of the flaw as required by ASME Code and the danger tags originally placed on system were cleared.

The inspector determined that the licensee's failure to repair the leak in the Unit 1 spent fuel pool cooling system is a performance deficiency. The finding is more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because it was associated with the Barrier Integrity Cornerstone attribute of design control and adversely affected the structural integrity of the spent fuel pooling cooling system. Specifically, from August 2009 to present, the licensee failed to repair or evaluate a through wall flaw in the piping in the spent fuel pool cooling system. The inspectors evaluated the finding using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," Tables 2 and 3, dated June 19, 2012, and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 3, Part D for the spent fuel pool, dated June 19, 2012. The inspector determined the finding to be of very low safety significance (Green) the finding did not cause the pool temperature to exceed the maximum analyzed temperature limit specified in the site-specific licensing basis. It did not result from fuel handling errors, dropped fuel assembly, dropped storage cask, or crane operations over the SFP that caused mechanical damage to fuel clad and a detectible release of radionuclides. It did not result in a loss of spent fuel pool water inventory below the minimum analyzed level limit specified in the site-specific licensing basis, nor did it affect the SFP neutron absorber, fuel bundle misplacement or soluble boron concentration.

This finding has a cross-cutting aspect in the area of human performance, conservative bias, because the licensee failed to use decision-making-practices that emphasize prudent choices over those that are simply allowable. Specifically, the licensee failed to make conservative decisions regarding a through wall flaw in the spent fuel pool cooling system, an ASME Code Class 3 moderate energy component, to ensure that the resolution addressed the condition commensurate with its safety significance [H.14]

Inspection Report# : [2014003](#) (*pdf*)

Significance:  Mar 13, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Reassess the Effects of Aging

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to follow procedures related to review of indications that could affect the structural integrity of the Unit 2 reactor building. Specifically, the licensee failed to perform a subsequent visual inspection of concrete cracks that exceeded acceptable criteria in the previous 5 year inspection as specified in Procedure CEP-CII-004, "General and Detailed Visual Examinations of Concrete Containments," Revision 306. The corrective actions included verifying that the indications did not structurally affect the reactor building in these instances, initiating Condition Report C 2014-00597, and scheduling the affected areas for review during the upcoming 5-year inspection. The team determined that the failure to assess previous indications of concrete degradation, as specified in plant procedures, was a performance deficiency. The team considered the finding more than minor because, if left uncorrected, the finding would have the potential to lead to a more significant safety concern. Specifically, failure to track the growth of existing cracks on the reactor building could allow degradation to continue to the point of affecting the structural integrity. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 3, "Barrier Integrity Screening Questions," the issue screened as having very low safety significance (Green) because it did not involve an actual open pathway in the physical integrity of the containment, loss of containment isolation, or reduction in heat removal capability and it did not affect hydrogen igniters. The team determined that this finding had a human performance cross cutting aspect in the area of work management. The licensee did not implement a process of planning, controlling, and executing work activities such that nuclear safety was the overriding priority [H.5
Inspection Report# : [2014007](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 29, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish, Implement, and Maintain Appropriate Changes to the Offsite Dose Calculation Manual For Airborne Sampling

DRAFT

The inspectors identified two examples of a non-cited violation of Unit 1, Technical Specification 5.5.1, "Offsite Dose Calculation Manual (ODCM)," and Unit 2, Technical Specification 6.5.1, "Offsite Dose Calculation Manual." When changes were made to the ODCM in 1999, the licensee failed to (1) perform analyses or evaluations to justify changes to airborne radionuclide and/or particulate sampling requirements related to particulate air sampling collection frequency and (2) establish an airborne sampling location for a community in the highest deposition factor (D/Q) wind sector for the site. As immediate corrective actions, the licensee evaluated their offsite dose calculation manual and developed a plan to meet the environmental sampling requirements. The issue was documented in Condition Report CR-ANO-C-2014-01380.

The failure to follow the requirements of Unit 1, Technical Specification 5.5.1, and Unit 2, Technical Specification 6.5.1, is a performance deficiency. The performance deficiency is more than minor because it adversely affects the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the environment and public domain. Specifically, the failure to maintain the Offsite Dose Calculation Manual with appropriate airborne radionuclide sampling requirements adversely impacts the licensee's ability to validate offsite radiation dose assessments for members of the public under certain effluent release conditions. Using Inspection Manual Chapter 0609, Appendix D, dated February 12, 2008, "Public Radiation Safety Significance Determination Process," the inspectors determined that the violation has very low safety significance because it involves the environmental monitoring program. The violation has a cross-cutting aspect in the area of human performance, associated with procedure adherence, because licensee personnel failed to follow procedures when they established the sampling frequency and locations for the updated Radiological Environmental Monitoring Program Inspection Report# : [2014003](#) (*pdf*)

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.

Miscellaneous

Last modified : August 29, 2014