# Arkansas Nuclear 1
# 1Q/2013 Plant Inspection Findings

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## Initiating Events

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## Mitigating Systems

**Significance:** G Mar 22, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Provide Maintenance Instructions for Installation of Fluorescent Light Fixtures**
Inspectors identified a violation of Technical Specification 5.4.1.a, which requires that the licensee establish, implement, and maintain the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Paragraph 9.a of Appendix A requires, in part, that maintenance that can affect the performance of safety-related equipment be properly preplanned and performed in accordance with documented instructions. Contrary to the above, prior to March 2013, the licensee did not preplan and perform maintenance that could affect the performance of safety-related equipment in accordance with documented instructions. Specifically, the licensee failed to establish instructions to ensure that fluorescent light fixtures in both Unit 1 emergency diesel generator rooms were returned to their analyzed design configuration after maintenance was performed. The licensee documented the issue in Condition Reports CR-ANO-C-2013-0631 and CR-ANO-C-2013-0632.

Inspectors concluded that the licensee's failure to have work instructions to control the design configuration of fluorescent light fixtures, in the Unit 1 emergency diesel generator rooms, was a performance deficiency. The finding is more than minor because it is associated with the Mitigating System Cornerstone attribute of procedure quality and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power," the finding was screened against the mitigating systems cornerstone and determined to be 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 associated with it because the most significant contributor was not indicative of current performance. Specifically, the licensee had never established instructions to ensure that the fluorescent light fixtures were returned to their analyzed design configuration after maintenance was performed (4OA2.5)
Inspection Report# : 2013010 *(pdf)*

**Significance:** G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Implement Adequate Design Change Controls for Permanent Removal of Service Water Check**

**Valves SW-604A & SW-604B**
The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, which states, in part, that design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design. Specifically, from October 4, 2012, to November 8, 2012, the licensee failed to ensure that the design change, which directed the permanent removal of check valves SW-604A and SW-604B from the service water return lines of safety-related auxiliary building electrical rooms emergency chillers VCH-4A and VCH-4B, included the requisite evaluation of the initial design basis and mitigating safety system functions of these components. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-1-2012-1681.

The failure to ensure that safety-related system modifications were subject to design control measures commensurate with those applied to the original design for the removal of check valves SW-604A and SW-604B and replacement of these components with spool pieces was a performance deficiency. The finding is more than minor because it is 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. Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the finding was determined to have very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating component that did not affect the operability or functionality of the system. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance associated with the component of decision making because the licensee failed to use conservative assumptions and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. Specifically, the licensee assumed that the checkvalves had no safety function without determining the actual design basis and mitigating safety system functions of these components [H.1 (b)]
Inspection Report# : 2012005 *(pdf)*

**Significance:** G Sep 30, 2012
Identified By: NRC
Item Type: FIN Finding
**Failure to Implement Planning Procedure Results in Short across Hand Switch in Control Room Control Panel**
The inspectors identified a finding associated with a failure to implement a station procedure which resulted in not providing sufficient work instructions. Specifically, contrary to station procedure EN-WM-105, "Planning," Revision 10, the work instructions generated to replace the Unit 1 makeup tank level recorder did not provide sufficient detailed work instructions to prevent damage to adjacent equipment. This resulted in a technician causing a short across the makeup hand switch, blowing fuses, and losing power to several relays with the associated loss of relay functions. The licensee has placed the issue into their corrective action program as Condition Report CR-ANO-1-2012-0716.

The failure of station personnel to implement the requirements of station procedure EN-WM-105, "Planning," Revision 10, to generate a compliance work package with sufficient detail work instructions and/or documents 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 is therefore a finding. Using Manual Chapter 0609, Attachment 4 "Initial Characterization of Findings," and Appendix A "The Significance Determination Process for Findings at Power" the finding was screened against the mitigating systems cornerstone and determined to be of very low safety significance (Green) because the finding; 1) was not a deficiency affecting the design or qualification of a mitigating system that did maintain its operability or functionality, 2) did not represent a loss of system and/or function, 3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time, 4) did not 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) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. The finding was determined to have a cross-cutting aspect in the area of human performance, associated with work control component, in that the licensee failed to plan and coordinate work activities consistent with nuclear safety. Specifically, the licensee failed to identify the hand switch during walk downs and adequately consider the job site conditions such that adjacent equipment would be protected from damage [H.3(a)].

Inspection Report# : 2012004 *(pdf)*

**Significance:** G Sep 30, 2012
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Correct a Condition Adverse to Quality Associated with the Unit 1 Emergency Feedwater Initiation and Control System**
The inspectors documented a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to correct a condition adverse to quality associated with the Unit 1 emergency feedwater initiation and control system control cabinet C186. Specifically, the licensee failed to perform corrective actions related to a previously identified design deficiency resulting in a loss of power to the cabinet which caused a loss of redundancy in the main steam line isolation logic from the emergency feedwater initiation and control system. The licensee has taken immediate corrective by replacing the lamp and socket base and plans permanent corrective action to replace the lamp and socket with a more robust design in refueling outage 1R24. The licensee has entered this issue into the corrective action program as Condition Report CR-ANO-1-2012-1075.

The failure to perform previously identified corrective actions to address a condition adverse to quality associated with the emergency feedwater initiation and control system is a performance deficiency. Specifically, the licensee failed to complete corrective actions to correct the design deficiency associated with lamp and lamp socket design for emergency feedwater initiation and control system cabinet C186. The performance deficiency is determined to be more than minor because it is 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 therefore is a finding. Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings at Power," the finding was determined to have very low safety significance, Green, because: (1) the finding was a deficiency affecting the design of a mitigating SSC and SSC operability was not maintained, (2) it did not represent a loss of system and/or function, (3) it did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time, (4) it did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours, and (5) it did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather event. The finding was determined not to have a cross-cutting aspect because the performance deficiency occurred in 2007 and is not indicative of current plant performance.

Inspection Report# : 2012004 *(pdf)*

**Significance:** G Jun 30, 2012
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Install Correct Coupling on Service Water Pump Results in Pump Failure**
The inspectors documented a self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion VII, Control of Purchased Material, Equipment and Services for the licensee's failure to assure that purchased material

conformed to the procurement documents. Specifically, the licensee received, accepted and installed the wrong couplings on the Unit 1 service water pump C resulting in a coupling failure that left the pump inoperable. The licensee rebuilt service water pump C with the correct coupling material. This was documented in Condition Report CR ANO-1-2012-0864.

The inspectors determined that the failure to assure that purchased material conformed to the purchase order is a performance deficiency because the licensee failed to perform an adequate receipt inspection then accepted and installed the wrong couplings that subsequently failed. The performance deficiency had the potential to affect the Initiating Events or Mitigating Systems Cornerstones so a regional senior reactor analyst was contacted for assistance. The senior reactor analyst performed a phase 3 analysis and determined the dominant risk affected the Mitigating Systems cornerstone. The performance deficiency is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. The phase 3 analysis determined the majority of the risk resulted from a loss of AC Bus A3 combined with a loss of the turbine-driven emergency feedwater pump. The finding was determined to be of very low safety significance (Green). The finding was determined not to have a crosscutting aspect because the performance deficiency occurred in 2009 and is not indicative of current plant performance.

Inspection Report# : 2012003 *(pdf)*

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# Barrier Integrity

**Significance:** G Dec 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Perform Required Examinations of Reactor Vessel Flange Seal Leak-Off Lines**
The inspectors identified a non-cited violation, with two examples, of Title 10 CFR 50.55a(g)(4), which requires that components classified as ASME Code Class 1, Class 2, and Class 3 meet the requirements set forth in Section XI of the applicable editions of the ASME Boiler and Pressure Vessel Code and Addenda. Title 10 CFR 50.55(a)(g)(4)(ii) requires that inservice examination of components be conducted during successive 120-month inspection intervals and comply with the requirements of the latest edition and addenda of the Code applicable to the specific interval. Section XI (of prior and current applicable editions of the Code), Articles IWC-5221 and IWD-5221 require that, for Class 2 and Class 3 components, a system leakage test be performed at the system pressure obtained while the system, or portion of the system, is in service performing its normal operating function. Contrary to the above, prior to September 17, 2012, for the Class 2 and Class 3 reactor vessel flange leak-off lines for both Units 1 and 2, the licensee failed to perform leakage tests at the system pressure obtained while the system was performing its normal operating function. The licensee has entered this issue into the corrective action program as Condition Report CR-ANO-C-2012-02672.
The inspectors determined that the failure to perform the examinations required by 10 CFR 50.55a(g)(4) on the Units 1 and 2 reactor vessel flange seal leak-off lines is a performance deficiency. The performance deficiency is more than minor because it is associated with the Barrier Integrity Cornerstone attribute of structures, systems, and components and barrier performance and adversely affects the cornerstone objective to provide a 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 Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” the finding was determined to be of very low safety significance (Green) because the finding could not result in exceeding the reactor coolant system leak rate for a small loss-of-coolant accident, nor could the finding have likely affected other systems used to mitigate a loss-of-coolant accident resulting

in a total loss of their function. This issue did not have a cross-cutting aspect associated with it because it is not indicative of current performance
Inspection Report# : 2012005 *(pdf)*

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

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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

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