

## Fort Calhoun

### 3Q/2016 Plant Inspection Findings

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## Initiating Events

**Significance:** G Jun 30, 2016

Identified By: Self-Revealing

Item Type: FIN Finding

### **Failure to Develop Adequate Procedures for Post Modification Testing**

The inspectors reviewed a self-revealing, non-cited violation of Technical Specification 5.8.1., for failure to establish, implement, and maintain a procedure recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Specifically, the licensee failed to develop adequate procedures for testing equipment important to safety. The licensee failed to identify and mitigate all possible turbine logic trip signals when testing Distributed Control System logic. Following the logic modification of the Turbine Control System, post modification testing inserted two Emergency Trip System test signals which caused an automatic turbine trip resulting in an automatic reactor protective system scram actuation.

Failure to establish, implement, and maintain procedures as required by technical specifications is a performance deficiency. The performance deficiency is more than minor because it adversely affected the procedure quality attribute of the initiating event cornerstone 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 mitigate all possible turbine trip signals while testing the Distributed Control System which caused the turbine to trip and thereby caused a loss of load reactor trip. Using NRC Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," the finding screened as having very low safety significance (Green) because although the deficiency resulted in a reactor trip, the trip was uncomplicated and mitigating equipment remained unaffected. This finding has a cross-cutting aspect in the teamwork component of the human performance cross-cutting area because the licensee did not ensure that individuals and work groups communicate across organizational boundaries to ensure nuclear safety is maintained. Specifically, the Distributed Control System expert did not review the post modification testing procedure prior to implementation [H.4].

Inspection Report# : [2016002](#) (*pdf*)

**Significance:** G Dec 11, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

### **Failure to Revise Procedures and Perform Additional Training**

Green. The team evaluated a self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions", which states, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies... are promptly identified and corrected." Specifically, prior to September 30, 2015, the licensee failed to revise procedures, and perform additional operator training, to prevent the inadvertent opening of steam bypass and steam dump valves during plant startup, and any subsequent plant impacts. In response to this issue, the licensee initiated a condition report to document these corrective actions. This finding was entered into the licensee's corrective action program as Condition Report CR FCS 2015 13718.

The team determined that the failure to take timely corrective actions to revise procedures and complete additional training to correct a condition adverse to quality, was a performance deficiency. This finding was more than minor

because it was associated with the initiating events cornerstone objective of configuration control 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 take recommended corrective actions to revise procedures and perform additional operator training to ensure proper alignment of the steam dump and bypass valves controller during startup. In accordance with Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” dated June 19, 2012, Exhibit 1, “Initiating Events Screening Questions,” the team determined that the finding was determined to have very low safety significance (Green) since the transient did not result in a reactor trip or loss of mitigation equipment. The finding has a problem identification and resolution cross-cutting aspect in the area of “Operating Experience,” because the licensee failed to systematically and effectively collect, evaluate, and implement relevant internal operating experience in a timely manner [P.5].  
Inspection Report# : [2015009](#) (*pdf*)

## Mitigating Systems

**Significance:** G Aug 12, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Obtain Prior NRC Approval for a Change When Required**

The inspectors identified a Severity Level IV, Green, non cited violation of 10 CFR 50.59, “Changes, Tests, and Experiments,” Section (c)(1), which states, in part, that a licensee may make changes in the facility as described in the final safety analysis report (as updated) without obtaining a license amendment pursuant to 10 CFR 50.90 only if: (i) a change to the technical specifications incorporated in the license is not required, and (ii) the change, test, or experiment does not meet any of the criteria in paragraph (c)(2). Title 10 CFR 50.59, Section (c) (2), states, in part, that a licensee shall obtain a license amendment pursuant to Section 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report (as updated). Specifically, from June 9, 2015 through August 11, 2016, the licensee implemented a change to Operating Instruction OI-VA-2, “Auxiliary Building Ventilation System Normal Operation,” Attachment 11, Revision 47, after incorrectly concluding that the opening of certain high-energy line break barriers and selected fire barrier doors to allow supplemental cooling of both safety-related switchgear rooms did not increase the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report. In response to this issue, the licensee revised entry conditions to Operating Instruction OI-VA-2, Attachment II, to ensure that high energy line break barriers are not impaired prematurely. This finding was entered into the licensee’s corrective action program as Condition Report CR-2016-06667.

The licensee’s failure to implement the requirements of 10 CFR 50.59 and adequately evaluate the disabling of certain high-energy line break barriers to facilitate supplemental cooling of both safety-related switchgear rooms was a performance deficiency. This finding was evaluated using traditional enforcement because it had the potential for impacting the NRC’s ability to perform its regulatory function. In accordance with Section 2.1.3.E.6 of the NRC Enforcement Manual, the inspectors used Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process For Findings At-Power,” dated June 19, 2012, to determine that this performance deficiency was of very low safety significance (Green) because it (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than its technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more

non-technical specification trains of equipment designated as high safety significance in accordance with the licensee's maintenance rule program. Therefore, in accordance with Section 6.1.d.2 of the NRC Enforcement Policy, the inspectors characterized this performance deficiency as a Severity Level IV violation. As described in Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," no cross-cutting aspect was assigned to this violation because traditional enforcement violations are not assessed for cross-cutting aspects.

Inspection Report# : [2016008](#) (*pdf*)

**Significance:**  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Perform an Adequate Evaluation of Service Life for Component Cooling Water Pump Motors**

The inspectors identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion III, design control, associated with the licensee's failure to perform an adequate evaluation of the service life of component cooling water pump motors. Specifically, the licensee operated component cooling water pump motors beyond the vendor recommended

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horsepower, temperature and voltage limits for the pumps which resulted in the potential for early winding failure of the motors. The licensee's existing calculation determined a component cooling water pump motor life of 16.9 years. During the inspection, the licensee re-evaluated component cooling water pump motor life and determined the expected motor life was actually between 6.8 (if degraded voltage is considered) and 7.2 years. Actual in-service life of the longest operating component cooling water pump was approximately 6.13 years. The licensee entered this issue into the corrective action program as Condition Report 2016-04319.

The inspectors determined that the failure to adequately evaluate the service life of the component cooling water pump motors is a performance deficiency. This performance deficiency was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. The inspectors determined the finding was of very low safety significance in accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012, because although the finding was a deficiency affecting the design of a mitigating system, it did not result in a loss of operability or functionality. Specifically, although there was a significant reduction in the calculated service life of the component cooling water pump motors, the actual in-service life of the longest operating component cooling water pump was approximately 6.13 years, which is still encompassed by the revised service life calculation. The finding does not have a cross-cutting aspect because the failure to perform an adequate service life evaluation for component cooling water pump motors is not indicative of current licensee performance. The licensee's current design process requires reviews of in-service temperature effects on equipment service life including pump motors.

Inspection Report# : [2016002](#) (*pdf*)

**Significance:**  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Implementing a Procedure Change for Alternative Shutdown Cooling that would have Required NRC Approval**

The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," for the failure to recognize that a change to the facility as described in the Updated Safety Analysis Report would require prior NRC review and approval. Specifically, the 10 CFR 50.59 evaluation revised a site procedure, without NRC approval, to substitute automatic flow control of shutdown cooling flow and temperature with manual control using the low pressure safety injection loop injection valves. The licensee's corrective actions included revising the affected procedure to reflect the original automatic flow control. The licensee entered this issue in the corrective action program as Condition Report 2013-15342.

The licensee's failure to implement the requirements of 10 CFR 50.59 and adequately evaluate changes to determine if prior NRC approval is required was a performance deficiency. Because this violation had the potential to impact the NRC's ability to perform its regulatory function, the inspectors evaluated the violation using traditional enforcement. In accordance with Section 2.1.3.E.6 of the NRC Enforcement Manual, the team evaluated this finding using the significance determination process to assess its significance. The inspectors performed an initial screening of the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated July 1, 2012. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was determined to have very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) 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. Therefore, in accordance with Section 6.1.d.2 of the NRC Enforcement Policy, the inspectors characterized this performance deficiency as a Severity Level IV violation. The inspectors determined that a cross-cutting aspect was not applicable because the issue involving the failure to perform an adequate 10 CFR 50.59 evaluation was strictly associated with a traditional enforcement violation.

Inspection Report# : [2016001](#) (*pdf*)

**Significance:**  Dec 11, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Take Adequate Corrective Action to Preclude Repetition of a Significant Condition Adverse to Quality Associated with Emergency Diesel Generator Room Water Intrusions**

Green. The team identified an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the licensee's failure to take corrective actions to prevent repetition of a significant condition adverse to quality. Specifically, since February 2009, the licensee failed to take corrective actions to prevent repetitive water intrusions from the Auxiliary Building HVAC room (Room 82) into the number one Emergency Diesel Generator room (Room 63).

The inspectors determined that the licensee's failure to implement corrective actions to preclude repetitive water intrusions into Room 63 was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external factors attribute of the mitigating systems cornerstone. Specifically, water intrusion events from Room 82 into Room 63 could challenge the reliability of the emergency diesel generator when relied upon during a loss of offsite power. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Question," inspectors determined that the finding was of very low safety significance (Green). The finding has a problem identification and resolution cross-cutting aspect within the area of "Resolution," because the licensee did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance [P.3].

Inspection Report# : [2015009](#) (*pdf*)

**Significance:**  Nov 06, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Adequately Implement and Maintain Required NFPA 805 Implementation Items**

• Green. The inspectors identified two examples of a non-cited violation of License Condition 3.D, "Fire Protection

Program,” for the failure to adequately implement required National Fire Protection Association Standard 805 implementation items in accordance with the approved fire protection program. Specifically, the licensee did not implement two items listed in Table S-3, “Implementation Items,” of Omaha Public Power District letter LIC-14-0042 by June 15, 2015. There was no immediate safety concern with either example and the licensee entered this violation into the corrective action program as Condition Reports 2015-2620 and 2015-2683.

The failure to implement a requirement of a license condition within the allowed implementation period was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated this finding using Inspection Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process,” and determined that the issue was of very low safety significance (Green). These findings had a cross-cutting aspect associated with change management within the human performance area since the leaders failed to use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the inspectors determined that the licensee did not have a process in place to ensure system level design basis documents were updated within the period required by a license condition and to assure plant-specific requirements were incorporated into the appropriate procedures (H.3). (Section 1R05.01.b)

Inspection Report# : [2015012](#) (*pdf*)

**Significance:**  Nov 06, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Provide Adequate Isolation for Pressurizer Heaters**

- Green. The inspectors identified a non-cited violation of License Condition 3.D, “Fire Protection Program,” for the failure to ensure one success path necessary to achieve and maintain the nuclear safety performance criteria was maintained free of fire damage for all single fires. Specifically, the licensee failed to provide adequate isolation for the pressurizer heaters credited for achieving safe and stable plant conditions for fires that require shutdown from outside the control room. The licensee entered this issue into their corrective action program as Condition Report 2015-12195 and added this issue to their compensatory measures for the control room and cable spreading room.

The failure to provide adequate isolation for equipment relied upon to achieve safe and stable plant conditions for a shutdown from outside of the control room was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated this finding using Inspection Manual Chapter 0609, Appendix F, “Fire Protection Significance Determination Process.” Because the finding affected the ability to reach and maintain safe shutdown conditions in case of a fire requiring evacuation of the control room, a senior reactor analyst performed a Phase 3 evaluation and determined that the issue was of very low safety significance (Green). This finding did not have a cross-cutting aspect since it was not indicative of present performance in that the performance deficiency occurred more than three years ago.

Inspection Report# : [2015012](#) (*pdf*)

**Significance:**  Nov 06, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Set Action Levels to Ensure that the Assumptions in the Engineering Analysis Remain Valid**

- Green. The inspectors identified a non-cited violation of License Condition 3.D, “Fire Protection Program,” for the

failure to establish an appropriate monitoring program in accordance with National Fire Protection Association Standard 805, Section 2.6. Specifically, the licensee failed to set the action level for the availability of the raw water system pumps to ensure that the assumptions in the engineering analysis remained valid. There was no immediate safety concern since the raw water pumps availability remained above the value assumed in the analysis and the licensee entered this violation into the corrective action program as Condition Report 2015 12612.

The failure to set the action level for the availability of the raw water system pumps to ensure that the assumptions in the engineering analysis remained valid was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated this finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," and determined that the issue was of very low safety significance (Green). This finding had a cross-cutting aspect associated with change management within the human performance area since the leaders failed to use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the inspectors determined that the licensee did not use the process that was in place to ensure that the appropriate fire risk assessment monitoring action levels were incorporated into the maintenance rule program and monitored (H.3)

Inspection Report# : [2015012](#) (*pdf*)

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## **Barrier Integrity**

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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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