

# Oconee 1

## 4Q/2016 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  Sep 30, 2016

Identified By: NRC

Item Type: FIN Finding

#### **Failure to Translate Design Requirements to Prevent the Effects of Waterhammer**

Green. The NRC identified a finding for the licensee's failure to translate the limiting flow rate design requirement into station procedures used to start and operate the alternate reactor building cooling (RBC) system, in accordance with the Duke Energy Carolinas Topical Report, Quality Assurance Plan (QAP). Specifically, the licensee failed to translate the limiting flow rate of 170 gallons per minute (gpm) into Procedure AP/0/A/1700/051, "Alternate Reactor Building Cooling," Revision (Rev.) 2, to ensure prevention of waterhammer on the "A" reactor building cooling unit (RBCU) or connecting low pressure service water (LPSW) lines when starting the RBCU Hale pump. The licensee entered this issue into their corrective action program as Action Request (AR) 02049903 and revised Procedure AP/0/A/1700/051 to limit the RBCU Hale pump discharge flow to each affected unit to an initial fill rate of 120 gpm or less.

The performance deficiency was determined to be more than minor because it adversely affected the protection against external factors 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, opening the RBCU Hale pump discharge valve four turns, as specified in the procedure, would have resulted in filling the alternate RBC system at approximately 600-700 gpm and exceeding the design flow rate of 170 gpm established to prevent equipment and piping damage as a result of waterhammer. This provided a reasonable doubt that the alternate RBC system had the capability to reliably perform its intended safety function and, in turn, that the protected service water (PSW) system had the capability to meet its 30-day mission time during a turbine building fire that resulted in a loss of offsite power. The finding was determined to be of very low safety significance (Green) because the finding would not have resulted in a fire that caused secondary fires outside of the originating fire area due to circuit issues and did not affect the ability to reach and maintain a stable plant condition within the first 24-hours of a fire event. The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of design margin, in the area of human performance. Specifically, the licensee failed to operate and maintain the alternate RBC system equipment within design margins when they did not translate design requirements from Engineering Change (EC) 110008 and Calculation OSC-8107 into station procedures. [H.6] (Section 1R17)

Inspection Report# : [2016003](#) (*pdf*)

**Significance:**  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to properly control transient combustible materials in the Oconee Main Control Rooms.**

Green: An NRC-identified Green non-cited violation (NCV) of Oconee Nuclear Station Units 1, 2, and 3 Renewed Facility Operating License Condition 3.D, "Fire Protection," was identified for the licensee's failure to adequately implement the requirements of the transient combustible material program. Specifically, licensee failed to control the storage of transient combustible material in the Oconee main control rooms with the proper evaluation in accordance with procedure AD-EG-ALL-1520, "Transient Combustible Control," Attachment 3, "Allowed Combustible Materials in Level B and Level C Areas." The licensee removed the stored items from each of the main control rooms and entered this issue into their corrective program as nuclear condition reports (NCRs) 02012091; 02012290; and 02013990.

The licensee's failure to control the storage of transient combustible material in the Oconee main control rooms with the proper evaluation in accordance with procedure AD-EG-ALL-1520 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 and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, uncontrolled transient combustibles challenge the habitability requirements of the main control room in the event of a fire and the ability of licensed operators to respond to events using the systems designed to prevent undesirable consequences. The finding was screened in accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings" and IMC 0609 Appendix F, "Fire Protection Significance Determination Process" Task 1.3.1, and determined to be of very low safety significance (Green) because the finding did not prevent the reactor to reach and maintain a safe shutdown condition. The finding was determined to have a cross-cutting aspect of procedure adherence in the human performance cross-cutting area because the licensee failed to implement the requirements of station procedure AD-EG-ALL-1520, "Transient Combustible Control" [H.8]. (Section 40A2)

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

**Significance:**  Mar 18, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Postulated Fire Affecting High Pressure Injection Pump Did Not Receive a VFDR Evaluation**

Green. The NRC identified a Green NCV of 10 CFR 50.48(c) and National Fire Protection Association Standard (NFPA) 805, Section 2.4.2.4 for the licensee's failure to perform an adequate engineering analysis to determine the effects of fire on the ability to achieve the nuclear safety performance criteria, and consequently, did not add an associated variation from deterministic requirements (VFDR) into the Fire probabilistic risk assessment (PRA). Specifically, the licensee's Nuclear Safety Capability Assessment (NSCA) failed to identify cables in the turbine building (TB) that could prevent the operation of the High Pressure Injection (HPI) Pumps. This item was entered into the corrective action program (CAP) as action request (AR) 02011673, and the licensee implemented compensatory measures in the form of hourly fire watches.

The performance deficiency (PD) was more than minor because it was associated with the reactor safety Mitigating Systems cornerstone attribute of protection against external factors (i.e. fire), 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, the licensee's failure to analyze the effects of fire damage on the HPI cables in the TB could result in fire damage adversely affecting the ability to achieve and maintain safe and stable conditions. Using the guidance of IMC 0609, App. F, the finding was screened as Green because the finding did not affect the ability to reach and maintain a stable plant condition within the first 24 hours of a fire event (Task 1.4.5-B). Across cutting aspect in the area of Human Performance, Consistent Process because the licensee did not use a consistent, systematic approach to make decisions, and did not incorporate appropriate risk insights (H.13). (Section 1R05.06)

Inspection Report# : [2016007](#) (*pdf*)

## 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**

Last modified : February 01, 2017