Oconee 2
3Q/2015 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Jun 30, 2015
Identified By: NRC
Item Type: FIN Finding
Inadequate Design Inputs for PSW Testing and Engineering Evaluations
• Green. The NRC identified a finding for the licensee's failure to verify the adequacy of design inputs used in protected service water (PSW) testing and engineering evaluations to validate that the PSW system could perform its design function with respect to Milestone 4 of order EA-13-010, in accordance with the Duke Energy Carolinas Topical Report, Quality Assurance Program. The licensee entered this issue into their corrective action program as problem investigation program reports (PIPs) O-15-03630, O-15-03527, O-15-03529, O-15-03631, O-15-03530, NCR 01930521, NCR 01929161, and PIP 0-15-4544.

The performance deficiency was more than minor because it was associated with the design control attribute and adversely affected the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the errors identified in the hydraulic flow modeling software, Calculation OSC-9595, "Protected Service Water (PSW) Hydraulic Model," Rev. 6, and supporting documentation required significant revision and reanalysis in order to determine that the PSW system was capable to meet its design flow requirements for short term secondary heat removal capability. The inspectors determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality. The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of avoid complacency within the human performance area. Specifically, the licensee failed to utilize standard human error prevention tools to ensure critical reviews were performed for the PSW testing and engineering evaluations supporting the completion of Milestone 4 of order EA-13-010 dated July 1, 2013. [H12]

Inspection Report# : 2015002 *(pdf)*

Significance: G Jun 30, 2015
Identified By: NRC
Item Type: FIN Finding
Inadequate Acceptance Criteria for PSW Pump Surveillance Testing
Green. The NRC identified a finding for the licensee's failure to ensure that appropriate acceptance criteria was used during testing to verify PSW primary pump functionality in accordance with the Duke Energy Carolinas Topical Report, Quality Assurance Program. The licensee entered this issue into their corrective action program as PIP O-15-03190.

The performance deficiency was more than minor because if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, PSW pump surveillance PT/0/A/0500/001, "Protected Service Water Primary and Booster Pump Test," Rev. 0, did not incorporate acceptance limits established by design documents, and as a result, the licensee could unknowingly consider the PSW primary pump functional beyond 7 percent pump degradation. The inspectors determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component (SSC), and the SSC maintained its functionality. The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of avoid complacency within the human performance area. Specifically, the licensee failed to utilize standard human error prevention tools to ensure critical reviews were performed for PSW pump testing. [H.12]
Inspection Report# : 2015002 *(pdf)*

Significance: G Jun 30, 2015
Identified By: NRC
Item Type: FIN Finding
Failure To Translate The Design Basis Into Procedures Used To Test The HPI Motor Coolers
Green. The NRC identified a finding for the licensee's failure to translate the design requirements of the high pressure injection (HPI) pump motor coolers into the procedure used to verify adequate flow from PSW, in accordance with the Duke Energy Carolinas Topical Report, Quality Assurance Program. Specifically, the licensee failed to incorporate the fouling factor assumed in Calculation OSC-2042, "HPI Pump Motor Upper Bearing Cooling Report," Rev. 8, into Procedure TT/1/A/05000/008, "High Pressure Injection Motor Cooler Flow Test from PSW," Rev. 2. The licensee entered this issue into their corrective action program as PIPs O-15-03608 and O-15-04544.

The performance deficiency was more than minor because if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, the low pressure service water (LPSW) and PSW flow test acceptance criteria could have been met without ensuring adequate heat transfer could be provided from the HPI motor coolers to PSW. The inspectors determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality. The inspectors determined the finding was indicative of present licensee performance and was associated with the cross-cutting aspect of teamwork within the human performance area. Specifically, the licensee failed to demonstrate a strong sense of collaboration and cooperation in connection with projects to ensure critical reviews were performed for the procedures used to test the HPI motor coolers. [H.4]

Inspection Report# : 2015002 *(pdf)*

Significance: G Dec 29, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
Keowee Hydro Unit 2 Inoperable for Longer Than Allowed TS Outage Time
•Green A self-revealing Green NCV of Oconee Nuclear Station Technical Specification (TS) 3.8.1, "AC Sources – Operating," was identified for Keowee Hydro Unit 2 being inoperable for longer than allowed TS outage time. The licensee modified Keowee Hydro Unit 2 electrical protection circuitry with a faster response relay which was susceptible to an existing degraded system condition and ultimately caused Keowee Hydro Unit 2 to be inoperable. The licensee initiated PIP-O-13-09152 in order to determine future corrective actions. Continued non-compliance does not present an immediate safety concern because the inspectors assessed this as a very low safety significance issue.

The licensee's failure to properly evaluate a modification to the electrical control circuit of the governor oil system,

which resulted in Keowee Hydro Unit 2 being inoperable for longer than allowed TS outage time, was a performance deficiency. The issue is more than minor because it was associated with the equipment performance attribute of the mitigating system 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 (i.e., core damage). Specifically, the modification of the governor oil system, including the addition of the 86E2X governor TXS catastrophic relay, resulted in Keowee Hydro Unit 2 being inoperable for longer than allowed TS outage time. The finding was screened in accordance with NRC IMC 0609, "Significance Determination Process (SDP)," Attachment 4 and Attachment A and determined to require a detailed risk evaluation. A regional Senior Reactor Analyst performed a risk analysis of the performance deficiency which was found to be Green (?CDF < 1E-6/year). The dominant accident sequence was a loss of offsite power where Keowee Unit 1 fails independently and unrelated to the performance deficiency and power is not successfully restored by Oconee operators. The influential factors in the Green result were the limited exposure time (19 days) and the ability to quickly restore power to the unit via the Lee Station gas turbines via the Fant Line.

This finding was determined to have a cross-cutting aspect in the problem identification and resolution cross cutting area because the licensee's organization failed to take effective corrective actions to address the issue in a timely manner commensurate with its safety significance. Specifically, the licensee failed to take effective corrective actions to address system interactions (i.e. high vibrations) which ultimately had an adverse effect upon modifications to the governor oil system of the Keowee Hydro Unit 2. (P.3) (Section 4OA3.1)

Inspection Report# : 2014005 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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 : December 15, 2015