

Oconee 1

4Q/2014 Plant Inspection Findings

Initiating Events

Significance: **W** Jun 27, 2014

Identified By: NRC

Item Type: VIO Violation

Failure to Identify and Correct Weld Cracking in HPI Nozzle

A White violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” was identified when the licensee failed to identify a crack in a weld located in the Unit 1 High Pressure Injection (HPI) system. In 2004, a procedure was developed for augmented in-service inspection program ultrasonic examinations which effectively removed reasonable assurance that HPI nozzle component cracking would be identified and corrected. NDE-995, “Ultrasonic Examination of Small Diameter Piping Butt Welds and Base Material for Thermal Fatigue Damage,” did not contain the necessary steps to achieve acceptable coverage for UT examinations when limitations were encountered.

The inspectors determined that the failure to ensure that station procedure NDE-995 was adequate to identify and correct cracking in weld 1-RC-201-105 was a performance deficiency. The inspectors determined that the performance deficiency was more than minor because it affected the Design Control attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective in that an unidentified crack resulted in reactor coolant system pressure boundary leakage and a forced shutdown of Unit 1. The finding was determined to be White based on a detailed risk analysis. There was no immediate safety concern because the crack was repaired. The inspectors determined this finding has a cross-cutting aspect of H.7 in the Documentation component of the Human Performance area because the licensee did not create and maintain complete, accurate, and up-to-date documentation in procedure NDE-995 to ensure acceptable coverage for UT examinations.

Inspection Report# : [2014011](#) (*pdf*)

Inspection Report# : [2014012](#) (*pdf*)

Inspection Report# : [2015008](#) (*pdf*)

Mitigating Systems

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*)

Significance:  Mar 21, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate the Under Voltage Relays at the Worst Case Minimum Drop Out Bus Voltage

The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to ensure that at the worst-case voltage, protective devices and thermal overload relays for safety-related loads would not trip prior to and after the transfer to the emergency power source. This transfer occurs for a sustained degraded voltage below the under voltage relay voltage settings for the duration of the time delay setting or the manual actions credited. The licensee revised their voltage calculations to account for previously unanalyzed loads. The licensee entered this issue into its corrective action program as problem identification program (PIP) O-14-2280.

The team determined that the performance deficiency was more than minor because it was associated with the Design Control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the team identified that the voltages evaluated in the licensee's analysis were nonconservative and could result in lower unanalyzed voltages that could result in connected safety-related loads stalling, becoming damaged, their protective devices tripping, or loads such as battery chargers being below their minimum operating voltages. The team determined that the finding was of very low safety significance (Green) because it was a design deficiency that did not result in a loss of off-site power operability. The team determined that no cross cutting aspect was applicable because this finding was not indicative of current licensee performance.

Inspection Report# : [2014007](#) (*pdf*)

Significance:  Mar 21, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Correct Issues with DC System Voltage Calculations and 120Vac Motor Control Center (MCC) Control Circuit Calculations

The team identified a Green non-cited violation (NCV), with two examples, of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to correct conditions adverse to quality. Specifically, the licensee (1) failed to correct voltage calculations for safety-related 4160 volt circuit breaker 125 volt-direct current control circuits and (2) failed to correct voltage calculations for safety-related 120 volt alternating current motor control center control circuits. The above issues were previously identified as NCV

05000269,270,287/2011010-04 and NCV 05000269,270,287/2011010-03, respectively. The incomplete corrective actions were newly entered in the licensee's corrective action program as problem identification program (PIP) reports O-14-2781 and O-14-2811 to track their completion.

The team determined that the performance deficiency was more than minor because it affected the Equipment Performance attribute of the Mitigating Systems Cornerstone, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because the inadequate corrective actions did not result in losses of operability or function for either example. The violation was assigned the cross-cutting aspect of Resolution in the area of Problem

Identification and Resolution because the licensee did not take effective corrective actions to address issues in a timely manner. [P3]

Inspection Report# : [2014007](#) (*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

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