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Duke Energy Carolinas, LLC (Duke Energy) Oconee Nuclear Station (ONS), Unit 2 Docket Nos. 50-270 Renewed License No. DPR-47

### Subject: Special Report in accordance with Selected Licensee Commitment (SLC) 16.7.4, "Hydrogen Analyzers"

Oconee Nuclear Station's Selected Licensee Commitment (SLC) 16.7.4, Condition C, requires that if one Hydrogen Analyzer channel is inoperable for greater than 30 days or if both channels are inoperable for greater than 72 hours, a Special Report shall be prepared and submitted within 14 days of the entering the condition. The report is to outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the channel(s).

This Special Report is submitted due to the "A" channel of the Unit 2 Hydrogen Analyzer being non-functional for greater than 30 days. The information required by this Special Report is included as an attachment. This letter contains no regulatory commitments.

If you have any questions regarding this submittal, please contact Sandra Severance, Oconee Regulatory Affairs, at 864-873-3466.

Sincerely,

Scott L. Batson Site Vice President, Oconee Nuclear Station

Attachment

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cc w/ Attachment:

Mr. Victor McCree Administrator, Region II U.S. Nuclear Regulatory Commission Marquis One Tower 245 Peachtree Center Ave., NE, Suite 1200 Atlanta, Georgia 30303-1257

Mr. James R. Hall Senior Project Manager (by electronic mail only) U.S. Nuclear Regulatory Commission Office of Nuclear Reactor Regulation 11555 Rockville Pike Mail Stop O-8 G9A Rockville, MD 20852-2746

Mr. Jeffrey Whited Project Manager (by electronic mail only) U.S. Nuclear Regulatory Commission Office of Nuclear Reactor Regulation 11555 Rockville Pike Mail Stop O-8 B1A Rockville, MD 20852-2746

Mr. Eddy Crowe NRC Senior Resident Inspector Oconee Nuclear Station

## <u>Attachment</u> Oconee Nuclear Station, Unit 2 Special Report per SLC 16.7.4, Condition C

## **Reporting Requirement**

Oconee Nuclear Station (ONS) Selected Licensee Commitment (SLC) 16.7.4, "Hydrogen Analyzers," is applicable in Modes 1, 2, and 3. Condition C of the SLC addresses the circumstance of having one Hydrogen Analyzer channel inoperable for greater than 30 days or two channels inoperable for greater than 72 hours. When either of these scenarios occurs, a Special Report is required to be prepared and submitted within 14 days. The report is to outline a preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the channel(s).

# **Background**

The Hydrogen Analyzers provide a means to detect high hydrogen concentrations in containment. The Hydrogen Analyzers serve as Regulatory Guide 1.97, Category 3 instrumentation and are used to assess the degree of core damage following a severe accident. They can also confirm if an ignition of hydrogen has occurred. Two channels ensure that no single failure prevents having the information necessary to determine if high hydrogen concentrations are present.

# **Description of Condition**

During the quarterly functional check of the 2A Hydrogen Analyzer, as found indications were found out of tolerance (OOT). While attempting to calibrate the 2A Hydrogen Analyzer skid, the required vacuum readings could not be obtained for the cell bypass flow meter. Higher than expected vacuum readings at the cell bypass flow meter can be caused by either a failed R1 regulator or a restriction within the inlet sample lines. After replacing the R1 regulator, the 2A Hydrogen Analyzer skid was disconnected from the reactor building sample lines. While disconnected from the reactor building, the 2A Hydrogen Analyzer required cell bypass vacuum reading could be obtained and the 2A Hydrogen Analyzer could be calibrated within its required tolerances. This demonstrated that the R1 regulator was functioning properly, with the inlet sample lines being suspect.

## **Cause of the Non-functional Monitor**

Multiple calibration attempts have been made, systematically working through possible failure modes for a cause of the apparent restriction within the inlet tubing. The outlet tubing has been validated to not be the cause of the issue. There appears to be a restriction within a 250-foot run of sample tubing. This heat traced sample tubing travels through multiple rooms within the auxiliary building.

## Preplanned Alternate Method of Monitoring

The pre-planned alternate method for monitoring Reactor Building hydrogen concentrations is to obtain discrete samples for manual analysis.

During times when information regarding Reactor Building Hydrogen concentration would be needed, the Technical Support Center (TSC) will initiate a request (via the Operational Support Center) for Radiation Protection (RP) to obtain a grab sample from the applicable Reactor Building process radiation monitor sample line. The sample is given to Chemistry for analysis and the results (% of H<sub>2</sub>) are provided back to the TSC.

#### <u>Attachment</u> Oconee Nuclear Station, Unit 2 Special Report per SLC 16.7.4, Condition C

This method has been reviewed and determined to provide adequate information for the decision making processes that would use hydrogen concentration as an input.

#### Plans and Schedule for Restoring Functionality

Current activities include removal of the insulation from this sample tubing and performing a hand over hand examination of the sample tubing for any damage that would restrict flow to the hydrogen analyzer skid. Scaffolding is being built to allow for removal of insulation and to support the examination activity. Additionally, the insulation must be tested for possible asbestos prior to removal. If no obvious damage is found, the tubing will be disconnected at multiple break points to narrow down where the restriction is within the tubing. Once the restriction is found and eliminated, a leakage test will be conducted, the insulation will be replaced on the affected sample tubing, and the heat trace will be re-powered. Once reconnected to the reactor building, the calibration check will be performed and the required quarterly check will be completed.

This work is identified as emergent with significant impact to the station and work to resolve will continue until the equipment is returned to service. It is believed that this issue can be resolved within the next 30 days.