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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 3
ITAAC Closure Notification on Completion of ITAAC C.2.6.12.06 [Index Number 676]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 3 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item C.2.6.12.06 [Index Number 676] for verifying that the reactor coolant pumps continue to receive power from either the main generator or the grid for a minimum of 3 seconds following a turbine trip. The closure process for this ITAAC is based on the guidance described in NEI 08-01, "Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52," which was endorsed by the NRC in Regulatory Guide 1.215.

This letter contains no new NRC regulatory commitments. Southern Nuclear Operating Company (SNC) requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact David Woods at 706-848-6903.

Respectfully submitted,

Michael J. Yox
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Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 3
Completion of ITAAC C.2.6.12.06 [Index Number 676]

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Southern Nuclear Operating Company
ND-17-0789
Enclosure

Vogtle Electric Generating Plant (VEGP) Unit 3
Completion of ITAAC C.2.6.12.06 [Index Number 676]

ITAAC Statement

Design Commitment:

6. The reactor coolant pumps continue to receive power from either the main generator or the grid for a minimum of 3 seconds following a turbine trip.

Inspections, Tests, Analyses:

Analyses of the as-built offsite power system will be performed to confirm that power will be available to the reactor coolant pumps for a minimum of 3 seconds following a turbine trip when the buses powering the reactor coolant pumps are aligned to either the unit auxiliary transformers (UATs) or the reserve auxiliary transformers (RATs).

Acceptance Criteria:

A report exists and concludes that voltage at the high-side of the generator stepup transformer (GSU), and the RATs, does not drop more than 0.15 per unit (pu) from the pre-trip steady-state voltage for a minimum of 3 seconds following a turbine trip when the buses powering the reactor coolant pumps are aligned to either the UATs or the RATs.

ITAAC Determination Basis

The subject inspection, test, and analyses requires an analysis of the as-built offsite power system to confirm that power will be available to the reactor coolant pumps (RCPs) for a minimum of 3 seconds following a turbine trip when the buses powering the reactor coolant pumps are aligned to either the unit auxiliary transformers (UATs) or the reserve auxiliary transformers (RATs).

During normal plant operation, the main generator supplies power via the generator bus through the UATs to the plant auxiliary systems (which includes the RCPs); the remainder of the power is supplied to the grid through the generator stepup transformer (GSU). If a turbine trip occurs, the generator slows but continues to supply voltage to the UATs and the grid for several seconds, while the grid undergoes a transient voltage drop as it backfeeds plant auxiliary system power through the GSU and UATs.

The analyses of the as-built offsite power system utilized proprietary power transmission system planning software which used grid data from Plant Vogtle and nearby substations. The station service loads for all Vogtle units were modeled explicitly on the UATs and the RATs. To simulate the turbine trip, the mechanical power input to the generator model was decreased instantaneously to a value of -0.018 per unit (pu), of the generator rated values, for a 30 second simulation. The negative value of mechanical power represents the windage and friction losses of the generator acting as a motor.

The results of the analyses are documented in a turbine trip study (Reference 1) which shows that the maximum voltage drop at the high-side of the GSU and the RATs is 0.0178 pu and 0.0182 pu, respectively. The report concludes that the voltage at the high-side of the GSU and the RATs does not drop more than 0.15 pu from the pre-trip steady-state voltage for a minimum of 3 seconds following a turbine trip, when the buses powering the RCPs are aligned to either the UATs or the RATs, which meets the ITAAC acceptance criteria.

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This review determined that there are no relevant ITAAC findings associated with this ITAAC. The ITAAC finding completion review document number is included in the Vogtle Unit 3 ITAAC Completion Package for ITAAC C.2.6.12.06 (Reference 2) and available for NRC inspection.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC C.2.6.12.06 was performed for Vogtle Unit 3 and that the prescribed acceptance criteria are met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

References (available for NRC inspection)

1. C.2.6.12.06-PCD-Rev 0, "Vogtle 3 & 4 Turbine Trip Study (Updated) 4/27/2017"

2. C.2.6.12.06-U3-CP Rev 0, "Vogtle Unit 3 ITAAC C.2.6.12.06 (676) Completion Package", 4/28/2017