



Michael J. Yox
Regulatory Affairs Director
Vogtle 3 & 4

7825 River Road
Waynesboro, GA 30830
706-848-6459 tel
410-474-8587 cell
myox@southernco.com

JUN 27 2018

Docket Nos.: 52-025
52-026

ND-18-0830
10 CFR 52.99(c)(1)

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 3 and Unit 4
ITAAC Closure Notification on Completion of ITAAC 3.2.00.01c.ii [Index Number 742]

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 and Unit 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 3.2.00.01c.ii [Index Number 742] for verifying the Human Factors Engineering (HFE) integrated system validation of the Main Control Room (MCR) configuration. The closure process for this ITAAC is based on the guidance described in Nuclear Energy Institute (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 Tom G. Petrak at 706-848-1575.

Respectfully submitted,

Michael J. Yox
Regulatory Affairs Director Vogtle 3 & 4

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4
Completion of ITAAC 3.2.00.01c.ii [Index Number 742]

MJY/LBP/amw

U.S. Nuclear Regulatory Commission

ND-18-0830

Page 2 of 3

To:

Southern Nuclear Operating Company/ Georgia Power Company

Mr. D. A. Bost (w/o enclosures)

Mr. M. D. Meier

Mr. D. H. Jones (w/o enclosures)

Mr. D. L. McKinney

Mr. M. J. Yox

Mr. D. L. Fulton

Mr. J. B. Klecha

Mr. G. Chick

Mr. F. H. Willis

Ms. A. L. Pugh

Mr. A. S. Parton

Mr. W. A. Sparkman

Mr. C. E. Morrow

Ms. K. M. Stacy

Mr. M. K. Washington

Mr. J. P. Redd

Ms. A. C. Chamberlain

Mr. D. R. Culver

Mr. T. G. Petrak

Document Services RTYPE: VND.LI.L06

File AR.01.02.06

cc:

Nuclear Regulatory Commission

Mr. W. Jones (w/o enclosures)

Ms. J. M. Heisserer

Mr. C. P. Patel

Mr. M. E. Ernstes

Mr. G. J. Khouri

Mr. T. E. Chandler

Ms. S. E. Temple

Ms. P. Braxton

Mr. N. D. Karlovich

Mr. A. J. Lerch

Mr. C. J. Even

Mr. F. D. Brown

Mr. B. J. Kemker

Ms. A. E. Rivera-Varona

Ms. L. A. Kent

Mr. P. B. Donnelly

Ms. N. C. Coovert

Oglethorpe Power Corporation

Mr. R. B. Brinkman

Municipal Electric Authority of Georgia

Mr. J. E. Fuller

Mr. S. M. Jackson

Dalton Utilities

Mr. T. Bundros

Westinghouse Electric Company, LLC

Dr. L. Oriani (w/o enclosures)

Mr. D. C. Durham (w/o enclosures)

Mr. M. M. Corletti

Ms. L. G. Iller

Mr. D. Hawkins

Ms. J. Monahan

Mr. J. L. Coward

Ms. N. E. Deangelis

Other

Mr. J. E. Hesler, *Bechtel Power Corporation*

Ms. L. Matis, *Tetra Tech NUS, Inc.*

Dr. W. R. Jacobs, Jr., Ph.D., *GDS Associates, Inc.*

Mr. S. Roetger, *Georgia Public Service Commission*

Ms. S. W. Kernizan, *Georgia Public Service Commission*

Mr. K. C. Greene, *Troutman Sanders*

Mr. S. Blanton, *Balch Bingham*

**Southern Nuclear Operating Company
ND-18-0830
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 3 and Unit 4
Completion of ITAAC 3.2.00.01c.ii [Index Number 742]**

ITAAC Statement

Design Commitment

1. The HFE verification and validation program is performed in accordance with the HFE verification and validation implementation plan and includes the following activities:

c) Integrated system validation

Inspections/Tests/Analyses

c)(ii) Tests and analyses of the following plant evolutions and transients, using a facility that physically represents the MCR configuration and dynamically represents the MCR HSI and the operating characteristics and responses of the AP1000 design, will be performed:

- Normal plant heatup and startup to 100% power
- Normal plant shutdown and cooldown to cold shutdown
- Transients: reactor trip and turbine trip
- Accidents:
 - Small-break LOCA
 - Large-break LOCA
 - Steam line break
 - Feedwater line break
 - Steam generator tube rupture

Acceptance Criteria

c)(ii) A report exists and concludes that: The test and analysis results demonstrate that the MCR operators can perform the following:

- Heat up and start up the plant to 100% power
- Shut down and cool down the plant to cold shutdown
- Bring the plant to safe shutdown following the specified transients
- Bring the plant to a safe, stable state following the specified accidents

ITAAC Determination Basis

Multiple ITAAC are performed to verify that the Human Factors (HF) Engineering (HFE) verification and validation (V&V) program, as described in VEGP 3 & 4 Updated Final Safety Analysis Report, Section 18.11, "Human Factors Engineering Verification and Validation" (Reference 1), is performed in accordance with the HFE V&V implementation plan. The subject ITAAC requires that tests and analyses of the following plant evolutions and transients, using a facility that physically represents the Main Control Room (MCR) configuration and dynamically represents the MCR Human-System Interface (HSI) and the operating characteristics and responses of the AP1000 design, be performed:

- Normal plant heatup and startup to 100% power
- Normal plant shutdown and cooldown to cold shutdown
- Transients: reactor trip and turbine trip
- Accidents:

- Small-break Loss of Coolant Accident (LOCA)
- Large-break LOCA
- Steam line break
- Feedwater line break
- Steam generator tube rupture

An Integrated System Validation (ISV) was conducted in accordance with the NRC approved "AP1000 Human Factors Engineering Integrated System Validation Plan" (Reference 2) to provide a human performance-based assessment of the HSI resources, based on their realistic operation within a simulator-driven MCR. The ISV used the plant evolutions, transients and accident scenarios listed above to assess the usability of the MCR and HSI resources. The objective of ISV was to ensure that the functions and tasks allocated to plant personnel can be accomplished with the HSI design implementation.

The HFE ISV plan for the AP1000 plant was developed based on the information and guidance described in NUREG-0711, "Human Factors Engineering Program Review Model" (Reference 3). The HFE V&V activities, which include HFE integrated system validation, confirm the adequacy of HSI resources and Operation and Control Center System (OCS) design. The overall objective of HFE V&V is to ensure that the AP1000 design attains a high standard of HF adequacy and thereby contributes to the safety, operability and maintainability of the plant.

Following completion of the ISV an evaluation was conducted of the ISV activity to ensure that the test and analysis results demonstrate that the MCR operators can perform the following: heat up and start up the plant to 100% power; shut down and cool down the plant to cold shutdown; bring the plant to safe shutdown following a reactor trip and a turbine trip; and bring the plant to a safe, stable state for the small-break LOCA, large-break LOCA, steam line break, feedwater line break and steam generator tube rupture accidents.

The results of the ISV are documented in the "AP1000 Human Factors Engineering Integrated System Validation Report" (Reference 4). The ISV results identified a number of Human Engineering Discrepancies (HEDs) during the performance of the normal plant heatup and startup, and small-break LOCA scenarios. Subsequently, these HEDs were resolved and targeted ISV retests were conducted using the "AP1000 Human Factors Engineering Discrepancy Resolution Process" (Reference 5). The results of the ISV retests are documented in the "AP1000 Human Engineering Discrepancy Resolution Summary Report" (Reference 6). These reports conclude that the test and analysis results demonstrate that the MCR operators can perform the following: heat up and start up the plant to 100% power; shut down and cool down the plant to cold shutdown; bring the plant to safe shutdown following a reactor trip and a turbine trip and bring the plant to a safe, stable state for the small-break LOCA, large-break LOCA, steam line break, feedwater line break and steam generator tube rupture accidents.

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 found that there are no relevant ITAAC findings associated with this ITAAC. The ITAAC completion review is documented in the Unit 3 and Unit 4 ITAAC Completion Package for ITAAC 3.2.00.01c.ii (Reference 7) and is available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 3.2.00.01c.ii was performed for Vogtle Units 3 and 4 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. Updated Final Safety Analysis Report, Section 18.11, "Human Factors Engineering Verification and Validation"
2. APP-OCS-GEH-320, Rev 7, "AP1000 Human Factors Engineering Integrated System Validation Plan"
3. NUREG-0711, "Human Factors Engineering Program Review Model"
4. APP-OCS-GER-320, Rev 3, "AP1000 Human Factors Engineering Integrated System Validation Report"
5. APP-OCS-GEH-420, Rev 2, "AP1000 Human Factors Engineering Discrepancy Resolution Process"
6. APP-OCS-GER-420, Rev 0, "AP1000 Human Engineering Discrepancy Resolution Summary Report"
7. 3.2.00.01c.ii-U0-CP-Rev0, ITAAC Completion Package