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SOUTHERN COMPANY

July 19, 2012

Docket Nos.: 52-025
52-026

ND-12-1483

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 & 4
Reply to a Notice of Violation

Ladies and Gentlemen:

By letter dated June 19, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Inspection Report Number 05200025/2012-009, 05200026/2012-009 concerning the inspection at Vogtle Electric Generating Plant. The inspectors examined activities associated with ITAACs 2.5.2.11.b [550] and 2.5.2.12 [551] to determine if construction activities associated with these ITAACs were conducted under the conditions of the combined license (COL) and in compliance with the Commission's rules and regulations.

The inspection report identified a Severity Level IV violation of NRC requirements and a Green ITAAC Finding. Enclosure 1 contains the response to Violation 5200025/2012-09-01, 5200026/2012-09-01.

There is one regulatory commitment regarding Violation 5200025/2012-009-01, 5200026/2012-009-01 contained in Enclosure 2.

If you have any questions regarding this letter, please contact Mr. Howard Mahan at (706) 437-6417.

IE01
NRO

Mr. Charles R. Pierce states he is the Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Charles R. Pierce

Charles R. Pierce

Sworn to and subscribed before me this 19th *day of* July, *2012*

Notary Public: Dana Marie Williams

My commission expires: 12/01/2014

NOTARY PUBLIC STATE OF ALABAMA AT LARGE
MY COMMISSION EXPIRES: Dec 1, 2014
BONDED THRU NOTARY PUBLIC UNDERWRITERS

CRP/DRC/kms

Enclosures: 1) Reply to a Notice of Violation 5200025/2012-09-01, 5200026/2012-09-01
2) List of Regulatory Commitments Violation 5200025/2012-009-01, 5200026/2012-009-01

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO (w/o enclosures)
Mr. J. A. Miller, Executive VP, Nuclear Development
Mr. D. A. Bost, Chief Nuclear Officer (w/o enclosures)
Mr. B. L. Ivey, VP, Regulatory Affairs
Mr. M. D. Rauckhorst, VP, Vogtle 3 & 4 Construction (w/o enclosures)
Mr. D. H. Jones, VP, Regulatory Affairs, Vogtle 3 & 4
Mr. J. R. Johnson, VP, Operational Readiness, Vogtle 3 & 4 (w/o enclosures)
Mr. T. E. Tynan, Site VP, Vogtle 1 & 2
Mr. D. M. Lloyd, Project Support Director, Vogtle 3 & 4 (w/o enclosures)
Mr. C. R. Pierce, Regulatory Affairs Director
Mr. M. J. Ajluni, Nuclear Licensing Director
Mr. D. L. Fulton, Environmental Manager
Mr. C. H. Mahan, Site Licensing Manager, Vogtle 3 & 4
Ms. A. G. Aughtman, Corporate Licensing Manager, Vogtle 3 & 4
Mr. M. C. Medlock, ITAAC Project Manager, Vogtle 3 & 4
Mr. W. A. Sparkman, Licensing Supervisor
Mr. D. W. Midlik, Licensing Supervisor
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Nuclear Regulatory Commission
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Mr. M. E. Tonacci, AP1000 Licensing Branch Chief (w/o enclosures)
Mr. R. G. Joshi, Lead Project Manager of New Reactors
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Mr. L. M. Cain, Senior Resident Inspector of VEGP 1 & 2
Mr. J. D. Fuller, Senior Resident Inspector of VEGP 3 & 4
Mr. G. Khouri, Senior Project Engineer VEGP 3 & 4
Mr. C. Abbott, Resident Inspector of VEGP 3 & 4
Mr. C. Huffman, Resident Inspector of VEGP 3 & 4

Georgia Power Company
Mr. B.H. Whitley, Nuclear Development Director

Oglethorpe Power Corporation
Mr. M. W. Price, Executive VP and Chief Operating Officer
Mr. K. T. Haynes, Director of Contracts and Regulatory Oversight

Municipal Electric Authority of Georgia
Mr. J. E. Fuller, Senior VP, Chief Financial Officer
Mr. S. M. Jackson, VP, Power Supply

Dalton Utilities
Mr. D. Cope, President and Chief Executive Officer

Bechtel Power Corporation
Mr. J. S. Prebula, Project Engineer (w/o enclosures)
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Mr. T. H. Dent, VP, Consortium Project Director Vogtle Units 3 & 4 (w/o enclosures)
Mr. R. F. Ziesing, Director, Vogtle AP1000 Operations and Consortium Licensing (w/o encl.)
Mr. P. A. Russ, Director, AP1000 Global Licensing
Mr. R. A. DeLong, Director of U.S. & International Licensing (acting)
Mr. S. A. Bradley, Vogtle Project Licensing Manager
Mr. T. J. Ray, Manager, AP1000 COL Licensing Support

Southern Nuclear Operating Company

ND-12-1483

Enclosure 1

Reply to a Notice of Violation

5200025/2012-09-01, 5200026/2012-09-01

Reply to a Notice of Violation 05200025/2012-009-01, 05200026/2012-009-01

This enclosure provides Southern Nuclear Operating Company's (SNC's) reply to the Notice of Violation (NOV) issued to SNC by the U.S. Nuclear Regulatory Commission (NRC) in a letter dated June 19, 2012. The NOV was generated from NRC inspections ending on May 25, 2012 that were performed with the purpose of determining whether construction activities associated with Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.5.2.11.b [ITAAC 550, Protection and Safety Monitoring System (PMS) Hardware and Software Development, System Definition Phase], and ITAAC 2.5.2.12 [ITAAC 551, PMS Software Planning Documents] were conducted under the conditions of the combined license (COL) and in compliance with the Commission's rules and regulations.

Violation 05200025/2012-009-01, 05200026/2012-009-01 states:

10 CFR 50 Appendix B Criterion III, Design Control, requires, in part, that measures be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

Vogtle Units 3 & 4 Final Safety Analysis Report Chapter 7 incorporates by reference the AP 1000 Design Control Document (DCD) Revision 19.

DCD Subsection 7.1.2.14.1, "Design Process," states "WCAP-16096-NP-A (Reference 9) ... describes design processes that will be used for AP1000." WCAP-16096-NP-A Section 5.1 Software Verification and Validation Plan states that, "This SVVP complies with Reference 8 [IEEE Std. 1012-1998]." IEEE Std. 1012-1998 Subsection 5.4.2 states, in part, that "The V&V effort shall perform, as appropriate for the selected software integrity level, the minimum V&V tasks," including Software Requirements Evaluation, Interface Analysis, Criticality Analysis, Hazard Analysis, and Risk Analysis.

DCD Subsection 7.1.2.14.1, "Design Process," states "Westinghouse Quality Management System (Reference 21) describes design processes that will be used for AP1000." Westinghouse Quality Management System Subsection 4.2.9, Computer Software states, in part, "Computer software developed as a deliverable safety-related product ... is developed, controlled, and maintained in accordance with procedures and instructions that comply with ASME NQA-1, (i.e., Part I Supplement 11S-2; Part II, Subpart 2.7)." NQA-1-1994 Subpart 2.7 Section 4 states in part, "Software verification and validation shall be performed by individuals other than those who designed the software."

DCD Subsection 7.1.4.2 , "Conformance with Industry Standards," states, "The instrumentation and control systems are designed in accordance with guidance provided in applicable portions of the following standards...IEEE 1074-1995; "IEEE Standard for Developing Software Life Cycle Processes." IEEE Std. 1074-1995 Section 5 describes the processes that must be performed during the development of a software product and states that "Prior to the distribution of the Preliminary Software Requirements... [and] distribution of the Output Information...[and] distribution of the Software Requirements the following Processes shall be invoked [which includes Verification and Validation]." Moreover Subsection 5.1.3.2 states that, "the developer shall analyze the software requirements to determine traceability, clarity, validity, testability, safety, and any other project-specific characteristics."

DCD Subsection 7.1.7 lists WCAP-16097-NP-A as a Tier 2* reference. WCAP-16097-NP-A, Section 4 identifies compliance to the codes and standards applicable for the Common Q designs and states that it conforms to IEEE Std. 830-1993 as endorsed by Reg. Guide 1.172 and as described in the Common Q SPM. IEEE 830-1993 Subsection 4.3, as modified by Reg. Guide 1.172, Rev. 0, states the SRS must be complete, unambiguous, and be ranked for importance and/or stability. The SRS is complete if and only if, it includes all significant requirements, whether relating to functionality, performance, design constraints, attributes, or external interfaces. The SRS is unambiguous if, and only if, every requirement stated therein has only one interpretation. The SRS is ranked for importance and/or stability if each requirement in it has an identifier to indicate either the importance or stability of that particular requirement.

Contrary to the above, as of May 25, 2012, the licensee failed to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for the Protection and Safety Monitoring System, were correctly translated into specifications, drawings, procedures, and instructions in that:

1. The verification and validation (V&V) effort did not adequately perform, the minimum V&V tasks including software requirements evaluation, interface analysis, criticality analysis, hazard analysis, and risk analysis, in that; the required input documents were not available to perform the hazard analysis, criticality analysis, and risk analysis, and the software requirements specification was inadequate to perform the software requirements evaluations and interface analysis.

2. The software V&V activities included individuals who designed the software in that; the V&V team took credit for the design team's activities, thus the V&V activities were not performed independently from the design team.

3. The developer did not analyze the software requirements to determine safety characteristics in that; a software hazard analysis of the software requirements specification was not performed.

4. The reusable software element document (RSED) development did not follow the prescribed software lifecycle process and activities, in that V&V tasks were not invoked. The RSEDs requirements were not analyzed to determine traceability, clarity, validity, testability, safety, or other project specific characteristics.

5. The SRS was ambiguous, not complete, and was not ranked for importance, in that; the software requirement for the reactor coolant flow compensation was incomplete and ambiguous as more than one interpretation of the software requirement could be implemented, the requirements for loss and subsequent restoration of power were incomplete, and no requirements were ranked for importance.

This violation is associated with a Green Significance Determination Process ITAAC Finding.

Reasons for Violation 05200025/2012009-01, 05200026/2012009-01:

SNC accepts the Violation and offers the following discussion regarding the circumstances which resulted in the Violation:

A root cause analysis performed by Westinghouse, with SNC participation, identified the following issues in the Westinghouse organization responsible for digital I&C projects:

- When developing work products for I&C projects, guidance from regulatory requirements was not referenced; specifically, 10 CFR 52, IEEE standards, Regulatory Guides, and Licensing Documents (WCAPS). Additionally, no process was in place to review procedures and guidelines from a regulatory compliance standpoint.
- The Corrective Action Program was not properly utilized due to gaps in training programs, and a lack of management enforcement of the Corrective Action Program to resolve the systemic causes of issues and problems on the I&C systems.
- A decision was made concerning which requirements were included and verified in supporting documents. Technical requirements, such as the PMS must have four divisions, were included; however, process requirements, such as V&V activities must be performed independently from the design team, were not.

Corrective Steps That Have Been Taken and the Results Achieved:

Westinghouse conducted two mandatory stand-downs that included 10 CFR 52 and regulatory training for Westinghouse personnel responsible for digital I&C projects associated with Vogtle 3&4. Westinghouse performed an internal Quality Assurance audit of CSI in Scottsdale (a Westinghouse subsidiary) since CSI is developing some of the PMS modules and the Diverse Actuation System for Vogtle 3&4. These two actions ensured an increased level of awareness in the appropriate digital I&C projects associated with Vogtle 3&4.

Intermediate Corrective Steps to be Taken:

The root cause analysis also identified the following intermediate corrective steps that will be taken:

- The five examples provided by the NRC in the Violation will be corrected.
  1. The verification and validation (V&V) effort will perform the required V&V tasks.
  2. The software V&V activities will be performed by individuals independent of the design team, and credit will not be taken for design team activities.
  3. A software hazard analysis of the software requirements specification will be performed.
  4. The reusable software element document (RSED) development will be revised to follow the prescribed software lifecycle process and activities, including V&V tasks and analysis of RSEDs requirements to determine traceability, clarity, validity, testability, safety, or other project specific characteristics.

5. The Software Requirement Specification (SRS) will be revised to address IEEE requirements for unambiguity, completeness and requirement ranking. The software requirement for the reactor coolant flow compensation and for loss and subsequent restoration of power will be reviewed and revised as needed to resolve ambiguity and to specify ranking.

- A review will be performed of AP1000 / Vogtle 3&4 I&C licensing basis and applicable industry codes and standards (e.g., IEEE 830 and 1074) to identify any process or implementation gaps.
- Impacted processes and procedures (e.g., IV&V plan) will be updated based on results of the licensing basis verification.
- Training will be provided for revised processes, key industry codes and standards, and AP1000 / Vogtle 3&4 licensing basis.
- Work products will be reviewed based on the above actions and updated as necessary. Examples of the products to be updated are Software Requirement Specification, Requirement Traceability Matrix, IV&V documentation, and Software Hazard Analysis.

Corrective Steps That Will Be Taken to Avoid Further Violations:

The root cause analysis also identified the following long term corrective steps that will be taken within the Westinghouse organization responsible for digital I&C projects to avoid further Violations:

- Implement a training oversight process to ensure that all groups within the digital I&C project have adequate training programs. This oversight process will ensure the training program encompasses both the work functions, regulatory requirements, and Corrective Action Program training.
- Implement a process for the review of procedures, Westinghouse guidelines, work instructions, and work products (e.g., Software requirement Specification and IV&V Summary Report) with respect to regulatory compliance. The process will include mapping the procedure to the codes and standards, identifying any gaps, and determining exceptions.
- Develop a process for project licensing plans or incorporate licensing into the main project plan (as applicable) to ensure regulatory requirements and commitments are addressed by each project.

Date When Full Compliance Will Be Achieved:

Full compliance will be achieved by translating applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, into specifications, drawings, procedures, and instructions for the PMS by June 28, 2013.

Southern Nuclear Operating Company

ND-12-1483

Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

List of Regulatory Commitments

Violation 5200025/2012-009-01, 5200026/2012-009-01

List of Regulatory Commitments
Violation 5200025/2012-009-01, 5200026/2012-009-01

The following table identifies those actions committed to by the Southern Nuclear Operating Company in this submittal. Any other statements are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to Mr. Howard Mahan at (706) 437-6417.

REGULATORY COMMITMENT	DUE DATE/EVENT
A regulatory commitment to ensure that a review will be performed of AP1000 / Vogtle 3&4 I&C licensing basis and applicable industry codes and standards (e.g., IEEE 830 and 1074) to identify any process or implementation gaps. Impacted processes and procedures will be updated based on the results of the licensing basis verification. Also, work products resulting from these processes will be reviewed and updated as necessary.	June 28, 2013