UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

October 27, 2010

Southern Nuclear Operating Company, Inc.
ATTN: Mr. David H. Jones
Nuclear Site Vice President Vogtle Units 3 and 4
7825 River Road
Waynesboro, GA 30830

SUBJECT: SIMULATED INSPECTION AT SOUTHERN NUCLEAR OPERATING COMPANY VOGTLE ELECTRIC GENERATING PLANT UNIT 3 AND WESTINGHOUSE IN SUPPORT OF THE ITAAC CLOSURE DEMONSTRATION PROJECT (PROJECT NUMBER 0783)

Dear Mr. Jones:

Earlier this year the U.S. Department of Energy (DOE) proposed sponsoring an exercise with the NRC and industry to demonstrate the review and closure of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC). The purpose of the demonstration was to (1) gain insights into the readiness of the industry's closure process and the NRC inspection and closure verification process, (2) test aspects of the construction assessment and enforcement process, and (3) evaluate the surge in ITAAC closure submittals during the last year of construction. The NRC and industry agreed to cooperatively pursue this demonstration project. The project was divided into four stages; the first stage involved the industry simulating ITAAC performance and the NRC assessment of the industry ITAAC performance. The enclosed simulated inspection report for Southern Nuclear Operating Company Vogtle Electric Generating Plant Unit 3, completes the first stage of the project.

During the next stage of the demonstration project the industry will complete the development of several ITAAC closure documents and submit the associated ITAAC closure notifications to the NRC in accordance with 10 CFR 52.99(c)(1). The NRC's Office of New Reactors (NRO) will simulate the review and disposition of closure letters submitted by the industry using the results of the NRC simulated inspections. NRO will also simulate the NRC's internal ITAAC closure verification process.

Participants in this exercise included the NRC, DOE as a project sponsor, Westinghouse, and Southern Nuclear Company as the participating applicant/licensee. Based on available resources, schedule implications, and expected benefits, the NRC staff may engage other new reactor vendors and applicants in similar demonstrations. For purposes of this demonstration project, it is assumed that a combined license (COL) has been issued, ITAAC exist, and that the plant is being constructed.

As previously noted, the initial simulated inspection to review ITAAC closeout documentation for VEGP Unit 3 has been completed. Enclosed with this letter you will find the simulated inspection cover letter and inspection report that represent the first stage of the project.

Sincerely,

/RA/

Alan J. Blamey, Chief
Construction Projects Branch 2
Division of Construction Projects

Project No.: 0783

Enclosures: 1. Inspection Report Cover Letter
2. Notice of Violation
3. Inspection Report 05200025/2010001
w/Attachment: Supplemental Information

cc w/encls:
Paulo C. Albuquerque
7825 River Road
Waynesboro, GA 30830

Brandon Waites, P.E.
42 Inverness Center Parkway/Bin B237
Birmingham, AL 35242

Thomas J. Ray
1000 Westinghouse Drive
CWHQ-1, Suite 115
Cranberry Township, PA 16066

Thomas Miller
Department of Energy
NE-72, GTN, Room D430
1000 Independence Ave, SW
Washington, DC 20585

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October 27, 2010

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ATTN: Mr. David H. Jones
Nuclear Site Vice President Vogtle Units 3 and 4
7825 River Road
Waynesboro, GA 30830

SUBJECT: SIMULATED INSPECTION AT SOUTHERN NUCLEAR OPERATING COMPANY VOGTLE ELECTRIC GENERATING PLANT UNIT 3 – SIMULATED NRC INSPECTION REPORT 05200025/2010001 AND SIMULATED NOTICE OF VIOLATION

Dear Mr. Jones:

This refers to the simulated inspection conducted on September 14 - 15, 2010, at your Vogtle Electric Generating Plant (VEGP) Unit 3 and on September 22 - 23, 2010, at Westinghouse Electric Company in Cranberry Township, Pennsylvania. The purpose of this inspection was to review Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) closeout documentation for VEGP Unit 3.

During this inspection, the NRC staff examined activities conducted under your license as they relate to public health and safety and/or the common defense and security to confirm compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC has determined that two simulated Severity Level IV violations of NRC requirements occurred. These simulated violations were evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at (http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html).

The simulated violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The simulated violations are being cited in the Notice because for reactor facilities under construction in accordance with 10 CFR Part 52, the corrective action program must have been demonstrated to be adequate and as of this inspection the NRC had not yet made this determination for VEGP Unit 3.

Enclosure

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal, privacy or proprietary information so that it can be made available to the Public without redaction.

Sincerely,

/RA/

David A. Ayres, Chief
Construction Projects Branch 4
Division of Construction Projects

Project No.: 0783

Enclosures: 1. Notice of Violation
2. Inspection Report 05200025/2010001
w/Attachment: Supplemental Information

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Sincerely,

/RA/

David A. Ayres, Chief
Construction Projects Branch 4
Division of Construction Projects

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Enclosures: 1. Notice of Violation
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ADAMS: ■ Yes ACCESSION NUMBER:_____ ■ SUNSI REVIEW COMPLETE

OFFICE	RII:DCP	RII:DCP	RII:DCI	RII:DCI	RII:DCP	RII:DCP
SIGNATURE	/RA/	via email	via email	via email	via email	via email
NAME	S. Freeman	R. Lanksbury	J. Calle	C. Jones	L. Mellen	M. Patterson
DATE	10/27/2010	10/27/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\CCI\DCP\CPB4\PROJECT VOGTLE\ITAAC DEMONSTRATION PROJECT\VOGTLE 0520025 2010001-FINAL.DOCX

Letter to David H. Jones from David A. Ayres, dated October 27, 2010

SUBJECT: SIMULATED INSPECTION AT SOUTHERN NUCLEAR OPERATING COMPANY VOGTLE ELECTRIC GENERATING PLANT UNIT 3 – SIMULATED NRC INSPECTION REPORT 05200025/2010001 AND SIMULATED NOTICE OF VIOLATION

Distribution w/encl:
M. Jardaneh, NRO
M. Kowal, NRO
R. Laura, NRO
J. Beardsley, NRO
R. Lukes, NRO
T. Frye, NRO
J. Peralta, NRO
G. Galletti, NRO
J. Tappert, NRO
M. Shuaibi, NRO
G. Tracy, NRO
L. Plisco, RII
C. Ogle, RII
R. Croteau, RII
J. Moorman, RII
D. Ayres, RII
A. Blamey, RII
M. Lesser, RII
K. O'Donohue, RII
D. Gamberoni, RII
L. Mellen, RII
J. Fuller, SRI-Vogtle Units 3 & 4
G. Gardner, RII
S. Freeman, RII
J. Calle, RII
C. Jones, RII
M. Patterson, RII
B. Adkins, RII
PUBLIC

NOTICE OF VIOLATION

Southern Nuclear Operating Company Project No. 0783
Vogtle Unit 3

During an NRC inspection conducted on September 14-15 and September 22-23, 2010, two simulated violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

1. Title 10 of the Code of Federal Regulations (10 CFR) 50.49(e)(1), Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants, "Temperature and Pressure," stated, in part, that the time dependent temperature and pressure at the location of the electric equipment important to safety must be established for the most severe design basis accident during or following which the equipment is required to remain functional.

   Contrary to the above, on September 23, 2010, the inspectors identified that test report APP-PV01-EQPD-XXX did not establish for the most severe design basis accident during or following which the equipment is required to remain functional the time dependent temperature at the location of the electric equipment important to safety. Specifically, the requirements for the Design Basis Accident of the Reactor Coolant System (RCS) were not adequate in that the Equipment Qualification Test Report for the RCS Class 1E Fourth Stage Automatic Depressurization System (ADS) motor operated valve actuator, RCS-PL-VO14A, specified and documented a test temperature that did not achieve the time dependent temperature established for the most severe design basis accident. The Design Basis Accident temperature identified in Design Control Document (DCD) Tier 2, Appendix 3D, peaked at 422°F; whereas the temperature specified and recorded in the test report peaked at 420°F.

   This is a Severity Level IV violation (Enforcement Policy Section 6.5.d)

2. Criterion III of 10 CFR Part 50, Appendix B, stated, in part, that measures shall 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. The criterion also stated that measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components.

   DCD Tier 2, Section 8.3.2.2, stated that the Class 1E DC and Uninterruptible Power Supply (UPS) system is designed in accordance with Institute of Electrical and Electronic Engineers (IEEE) Standard 308-2001. Section 5.4.5.2 of IEEE 308-2001 stated, in part, that the capacity of each redundant instrument and control power system alternating current supply shall be based on the largest combined demands of the various continuous loads plus the largest combination of non-continuous loads that would likely be connected to the bus simultaneously during normal or accident plant operation, whichever is higher.

   Contrary to the above, on September 23, 2010, the inspectors identified that the capacity of 208V/120V AC Distribution Panel IDSA-EA-2 was not based on the largest combined

demands of the various continuous loads plus the largest combination of non-continuous loads that would likely be connected to the bus simultaneously during normal or accident plant operation, whichever is higher. Specifically, calculation APP-IDS-E0C-001, Class 1E 250 V DC Battery Sizing, Charger Sizing, and Available Short Circuit Current, did not adequately address a system configuration under which the output power from the UPS Inverter had been switched to the backup alternating current source. The load analysis contained in APP-IDS-E0C-001 documented that Panel IDSA-EA-2 is rated for a maximum capacity of 100 amperes. However, the analysis also documented that the panel will be required to carry a load of 120 amperes when the UPS Inverter is switched to the backup alternating current source. The analyzed combined loads for this configuration would exceed the 100 ampere rating specified for Panel IDSA-EA-2.

This is a Severity Level IV violation (Enforcement Policy Section 6.5.d)

Pursuant to the provisions of 10 CFR 2.201, Southern Nuclear Operating Company would normally be required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply would be marked as a "Reply to a Notice of Violation" and would include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. However, because these are simulated violations, no response is required.

If you were to contest this enforcement action, you would also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because any response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that delete such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information).

If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

U.S. NUCLEAR REGULATORY COMMISSION
Region II

Project No.:	0783
License No.:	(Not Applicable for Demonstration)
Report No.:	05200025/2010001
Applicant/Licensee:	Southern Nuclear Operating Company
Facility:	Vogtle Electric Generating Plant Unit 3
Location:	7825 River Road Waynesboro, GA 30830
Inspection Dates:	September 14-15, 2010 (Vogtle), and September 22-23, 2010 (Westinghouse)
Inspectors:	S. Freeman, Senior Construction Inspector, RII (Lead) J. Calle, Senior Construction Inspector, RII C. Jones, Senior Construction Inspector, RII L. Mellen, Senior Construction Inspector, RII M. Patterson, Reliability & Risk Analyst, NRO (Westinghouse Only)
Accompanying Personnel:	R. Lanksbury, Senior Project Manager, RII W. Fowler, Construction Inspector, RII (Vogtle Only) Sarah Alexander, Construction Inspector Trainee, RII Jose Vasquez, Construction Inspector Trainee, RII T. Chapman, Reactor Operations Engineer, NRO (Westinghouse Only) J. Gaslevic, Reactor Operations Engineer, NRO M. Jardaneh, Reactor Operations Engineer, NRO C. Cheung, Reactor Operations Engineer, NRO (Vogtle Only) J. Cruz-Ayala, Project Engineer Trainee, NRO (Westinghouse Only) O. Chopra, Senior Electrical Engineer, NRO (Westinghouse Only) P. Kang, Senior Electrical Engineer, NRO (Westinghouse Only) E. Kleeh Reactor Operations Engineer, NRO (Westinghouse Only) J. Budzynski, Reactor Systems Engineer, NRO (Westinghouse Only)
Approved by:	David A. Ayres, Chief Construction Projects Branch 4 Division of Construction Projects

SUMMARY OF FINDINGS

Simulated Inspection Report 05200025/2010001; September 14, 2010 through September 23, 2010; Vogtle Electric Generating Plant (VEGP) Unit 3; Inspection of ITAAC-Related Qualification Program, Stage 1 Demonstration Inspection of Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) Closeout.

The report covered a simulated announced inspection to review ITAAC closeout documentation for VEGP Unit 3. Two simulated findings (one ITAAC-related construction finding and one construction finding), both Severity Level (SL) IV violations, were identified. The Nuclear Regulatory Commission's (NRC's) program for the inspection of ITAAC programs is described in Inspection Manual Chapter 2503, Construction Inspection Program – Inspection of Inspections, Analyses, and Acceptance Criteria.

A. NRC-Identified Findings and Licensee Identified/Self-Revealing Violations Evaluated as Findings

1. Inspection Procedure: 65001.E, Inspection of ITAAC-Related Qualification Program (IP 65001.E)

   2010001-01: Failure to Adequately Substantiate the Basis for Environmental Qualification of Class 1E Equipment: The inspectors review of records for the Class 1E motor actuator for Automatic Depressurization System (ADS) Fourth Stage valve RCS-PL-V014A identified that environmental qualification type tests documented a maximum test temperature of 420 degrees Fahrenheit (°F) as compared to the design basis peak temperature of 422 °F. The issue was determined to be an ITAAC-related Construction Finding and a Severity Level IV Violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.49 for failure to establish a temperature consistent with the most severe design basis accident condition.

2. Inspection Procedure: 65001.E, Inspection of ITAAC-Related Qualification Program (IP 65001.E)

   2010001-02: Failure to Adequately Size the Class 1E 208V/120V Instrumentation and Control (I&C) Distribution Panel, IDSA-EA-2, to carry Full Load Current: The inspectors review of the electrical load analysis for the Class 1E Uninterruptible Power Supply (UPS) system determined the analysis did not adequately address a system configuration under which the output power from the UPS Inverter is switched to the backup alternating current source. As a result, the specified capacity of safety-related 208V/120V I&C Distribution Panel IDSA-EA-2 was not sufficient to carry the maximum analyzed load. This issue was evaluated to be a Construction Finding and a Severity Level IV Violation of 10 CFR Part 50, Appendix B, Criterion III, for failure to correctly translate requirements into design specifications and drawings and for unsuitable application of equipment essential to the safety-related functions of the UPS system.

B. Licensee-Identified and Self-Revealing Violations Not Evaluated as Findings

None

REPORT DETAILS

A. ITAAC-RELATED INSPECTIONS

1. Inspection of ITAAC-Related Operational Testing Program (IP 65001.D)

   a. ITAAC No./Family: 2.2.03.08c.i/06D

   1) Inspection Scope

   The inspectors reviewed the test specification for the nitrogen charged accumulator flow to the vessel to verify that it included requirements that each accumulator would be partially filled with water and pressurized with nitrogen; that it included requirements that all valves in these lines would be open during the test; that it demonstrated that sufficient flow would be provided to fully open the check valves; and that the calculated flow resistance between each accumulator and the reactor vessel was ≥ 1.47×10^{-5} ft/gpm^2 and ≤ 1.83×10^{-5} ft/gpm^2. This inspection activity constitutes a partial sample for ITAAC 2.2.03.08c.i.

   2) Findings

   No findings of significance were identified.

2. Inspection of ITAAC-Related Qualification Program (IP 65001.E)

   a. ITAAC No./Family: 2.1.02.07ai/10E

   1) Inspection Scope

   The inspectors conducted document reviews and interviewed licensee personnel to evaluate the qualification of Reactor Coolant System (RCS) Class 1E equipment for operation in harsh environments. The associated design commitment was ITAAC 2.1.02.07ai, "Reactor Coolant System –Valves, Actuators, and Sensors," which required the Class 1E equipment listed in Design Control Document (DCD) Tier 1 Table 2.1.2-1 as being qualified for harsh environment to be able to withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

   Specifically, the inspectors examined the equipment qualification data package created to document the qualification of RCS Fourth Stage Automatic Depressurization System (ADS) motor-operated valve RCS-PL-V014A. Qualification test records referenced in APP-PV01-EQPD-XXX, "AP1000 Equipment Qualification Data Package" were reviewed to verify type test reports contained an adequate representation of test results and conclusions to support a determination that the components covered by this ITAAC were qualified.

   The inspectors reviewed records to verify if environmental qualification for electrical equipment was consistent with IEEE 323-1974. They reviewed the test data to compare

the qualified life of the equipment and its basis with age conditioning test results and to determine whether the test samples and test configurations were representative of the qualified equipment. The inspectors also checked whether the qualification program identified significant aging mechanisms and provided methods for addressing them.

Additionally, the inspectors conducted a review to verify that the test documentation for effects of gamma radiation doses demonstrated equipment were tested under minimum exposures of 10xE4 rads for electrical equipment and 10xE3 rads for electronic equipment.

2) Findings

a) Description:

On September 23, 2010, the inspectors identified a finding for a failure of the environmental qualification test report to adequately substantiate a conclusion that the actuator met the Design Commitment of ITAAC 2.1.02.07a.i. The review of qualification test records that were cited by APP-PV01-EQPD-XXX, “AP1000 Equipment Qualification Data Package,” determined that the test temperature did not achieve the minimum value specified in DCD Tier 2, Section 3D.5.5.1.5. Specifically, the type test for the Class 1E Limitorque actuator that was purchased and accepted for installation on the Fourth Stage ADS motor-operated valve RCS-PL-V014A documented a maximum test temperature of 420°F compared to the design basis peak temperature of 422 °F. Therefore, the ability of the valve actuator to function in harsh environments was indeterminate.

b) Analysis:

The inspectors determined that the failure to test the limitorque at the maximum design basis peak temperature was a violation. The finding was associated with a specific ITAAC (2.1.02.07ai) and was material to an ITAAC acceptance criteria which stated, ”A report exists and concludes that the Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function”.

Contrary to the ITAAC, the Equipment Qualification Data Package APP-PV01-EQPD-XXX incorrectly concluded that the acceptance criteria of ITAAC 2.1.02.07ai were met. No ITAAC closure letter had been issued by the licensee. Therefore, this is an ITAAC-Related Construction Finding. The violation was more than minor because if left uncorrected, it represented a condition adverse to quality that rendered the quality of the Limitorque indeterminate. The violation did not meet the criteria to be greater than a SL IV violation. Therefore, this finding is a SL IV violation as described in NRC Enforcement Policy Section 6.5.

c) Enforcement:

Title 10 of the Code of Federal Regulations (CFR) 50.49(e)(1) required, in part, that the electric equipment qualification test program be based upon time dependent

temperature that had been established for the most severe design basis accident during or following which the equipment was required to remain functional.

Contrary to the above, on September 23, 2010, the inspectors identified that test report APP-PV01-EQPD-XXX did not establish for the most severe design basis accident during or following which the equipment is required to remain functional the time dependent temperature at the location of the electric equipment important to safety. Specifically, the requirements for the Design Basis Accident of the Reactor Coolant System (RCS) were not adequate in that the Equipment Qualification Test Report for the RCS Class 1E Fourth Stage Automatic Depressurization System (ADS) motor operated valve actuator, RCS-PL-VO14A, specified and documented a test temperature that did not achieve the time dependent temperature established for the most severe design basis accident. The Design Basis Accident temperature identified in Design Control Document (DCD) Tier 2, Appendix 3D, peaked at 422°F; whereas the temperature specified and recorded in the test report peaked at 420°F.

Because the licensee's corrective action program had not yet been demonstrated to be effectively implemented, this violation is being cited in a Notice of Violation (NOV) (VIO 5200025/2010001-01), consistent with the NRC Enforcement Policy.

b. ITAAC No./Family: 2.6.03.08/8E

1) Inspection Scope

The inspectors interviewed responsible licensee staff and reviewed design documents to verify the licensee had conducted analyses to determine that fault currents were in accordance with the ITAAC acceptance criteria for the as-built Class 1E direct current (DC) and Uninterruptible Power Supply (UPS) system.

The licensee's analysis, including short circuit studies, was compared to engineering specifications which defined interrupting ratings for Class 1E DC and UPS system overcurrent protective devices (i.e. fuses and circuit breakers). The inspectors conducted the review to verify that analyzed fault currents do not exceed the interrupt capacity of circuit breakers and fuses in the battery, battery charger, DC distribution panel, and motor control center circuits, as determined by their nameplate ratings.

The inspectors reviewed calculation APP-IDS-E0C-001, Class 1E 250 V DC Battery Sizing, Charger Sizing and Available Short Circuit Current, to verify that the applicant used validated analytical software for its analysis, and to confirm that the licensee used industry accepted methodology. In addition, the calculation was compared to drawing APP-IDS-E3-001, Class 1E System Station One Line Diagram Divisions A & C, to confirm that the fault current analysis included short circuit current contribution from batteries, chargers, and motors.

2) Findings

a) Description:

On September 23, 2010, the inspectors identified a construction finding for failure to adequately size Class 1E safety-related 208V/120V Instrumentation and Control (I&C)

Distribution Panel, IDSA-EA-2, to carry full load current. The finding was the result of the licensee not properly translating the design basis as specified in the license application into the specification and drawings of I&C Distribution Panel IDSA-EA-2. The inspectors' review of load analysis contained in APP-IDS-E0C-001 determined that it did not adequately address a system configuration under which the output power from the UPS Inverter had been switched to the backup alternating current source as described in DCD Tier 2 Section 8.3.2.1.1.2. DCD Tier 2, Section 8.3.2.2, stated that the Class 1E DC and UPS system was designed in accordance with Institute of Electrical and Electronics Engineers (IEEE) 308-2001. Section 5.4.5.2 of IEEE 308-2001 stated in part, that the capacity of each redundant instrument and control power system alternating current supply shall be based on the largest combined demands of the various continuous loads plus the largest combination of non-continuous loads that would likely be connected to the bus simultaneously during normal or accident plant operation, whichever is higher.

According to the load analysis, 208V/120V I&C Distribution Panels IDSA-EA-1 and IDSA-EA-2 are each rated for a maximum capacity of 100 amperes (A). Normal loading of Panel IDSA-EA-1 was analyzed to be 40 A, and loading of Panel IDSA-EA-2 was analyzed to be 80 A. Under certain operating conditions, the UPS Inverter could be switched to the backup alternating current source. In this configuration, power for Panel IDSA-EA-1 is fed from Panel IDSA-EA-2, which in turn is supplied by the Voltage Regulating Transformer. This results in a combined load on Panel IDSA-EA-2 of 120 A, which exceeds the rating of the panel.

b) Analysis:

The inspectors determined that the failure to properly translate the design basis into specifications and drawings was a violation. The violation resulted in Distribution Panel IDSA-EA-2 loads that could exceed the panel rating when aligned to the backup alternating current source. The violation was not material to the ITAAC acceptance criteria, because the ITAAC acceptance criteria were based on the DC loads. The violation was more than minor because if left uncorrected, it represented a condition adverse to quality that rendered the quality of a SSC or activity, unacceptable or indeterminate, and represented a deficiency in the design of a safety-related SSC, which required a re-design or detailed engineering justification to establish the adequacy of the SSC to perform its intended safety function. The violation did not meet the criteria to be greater than a SL IV violation. Therefore, this finding is a SL IV violation as described in NRC Enforcement Policy Section 6.5.

c) Enforcement:

Criterion III of 10 CFR Part 50, Appendix B, stated in part, that, measures shall 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. The criterion also stated that measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components.

DCD Tier 2, Section 8.3.2.2, stated that the Class 1E DC and UPS system is designed in accordance with Institute of IEEE Standard 308-2001. Section 5.4.5.2 of IEEE 308-2001 stated, in part, that the capacity of each redundant instrument and control power system alternating current supply shall be based on the largest combined demands of the various continuous loads plus the largest combination of non-continuous loads that would likely be connected to the bus simultaneously during normal or accident plant operation, whichever is higher.

Contrary to the above, on September 23, 2010, the inspectors identified that the capacity of 208V/120V I&C Distribution Panel IDSA-EA-2 was not based on the largest combined demands of the various continuous loads plus the largest combination of non-continuous loads that would likely be connected to the bus simultaneously during normal or accident plant operation, whichever is higher. Specifically, calculation APP-IDS-E0C-001, Class 1E 250 V DC Battery Sizing, Charger Sizing and Available Short Circuit Current, did not adequately address a system configuration under which the output power from the UPS Inverter had been switched to the backup alternating current source. The load analysis contained in APP-IDS-E0C-001 documented that Panel IDSA-EA-2 is rated for a maximum capacity of 100 A. However, the analysis also documented that the panel will be required to carry a load of 120 A when the UPS Inverter is switched to the backup alternating current source. The analyzed combined loads for this configuration would exceed the 100 A rating specified for Panel IDSA-EA-2.

Because the licensee's corrective action program had not yet been demonstrated to be effectively implemented, this violation is being cited in a NOV (VIO 5200025/2010001-02) consistent with the NRC Enforcement Policy.

3. Inspection of ITAAC-Related Design and Fabrication Requirements (IP 65001.F)

   a. ITAAC No./Family: 2.2.01.04a.ii/06F

   1) Inspection Scope

      The inspectors conducted document reviews and interviewed applicant personnel to evaluate the acceptability of certified material test reports in documenting the required fracture toughness testing of plate material in accordance with American Society of Mechanical Engineers (ASME) Section III, Subsection NE, for the containment vessel.

      Specifically, the inspectors examined the Westinghouse material specification for SA-738 Grade B plates, APP-MV50-Z0-037, Revision 2, and the certified material test reports provided by the material supplier to verify that the fracture toughness test data for the SA-738 Grade B plates were in compliance with material specification and the applicable requirements of ASME Section III, Subsection NE.

   2) Findings

      No findings of significance were identified.

4. Inspection of Design Reliability Assurance Program (D-RAP) (IP 65001.16)

a. ITAAC No./Family: 3.7.01/16F

1) Inspection Scope

The inspectors reviewed the licensee's analysis of design products issued for procurement and construction to verify that the initial design for all SSCs within the original scope of the reliability assurance program had been issued. The inspectors reviewed the process by which input to the analysis was collected and the methods used to arrive at the conclusion. The inspectors also sampled design products related to D-RAP activities to verify that design inputs were identified and documented and their selection was reviewed and approved by appropriately qualified members of the responsible design organization. These included three design specification packages and supporting calculations for procurement of safety-related components associated with steam generator isolation as well as construction details for installation of one of the normal decay heat removal pumps. The inspectors also reviewed these design documents to verify that they adequately supported facility design and construction.

2) Findings

No findings of significance were identified.

B. Exit Meeting Summary

On September 15, 2010, the inspectors presented the inspection results of the Vogtle site portion of the simulated inspection to Mr. J. Davis and other members of his staff, who acknowledged the findings. On September 23, 2010, the inspectors presented the Westinghouse facility portion of the inspection results to Mr. P. Albuquerque and other members of his staff, who acknowledged the findings. The inspectors stated that no proprietary information would be included in the inspection report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Applicant personnel

D. Hyde, NPP SOS, Preoperational Test Manager
R. Wessel, Principal Engineer, Westinghouse
C. Travers, Sr. Engineer, Westinghouse
J. Bloom, Engineer, Westinghouse
T. Ray, Project Manager, Westinghouse
M. Evans, Engineer, Westinghouse
P. Albuquerque, Licensing Engineer, Southern Nuclear Operating Company (SNOC)
J. Davis, Licensing Manager, SNOC

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

0520025/2010001-01	VIO	Failure to Adequately Substantiate the Basis for Environmental Qualification of Class 1E Equipment
0520025/2010001-02	VIO	Failure to Adequately Size the Class 1E 208V/120V I&C Distribution Panel, IDSA-EA-2, to carry Full Load Current

Opened and Closed
None

Closed
None

Discussed
None

LIST OF DOCUMENTS REVIEWED

Section A: ITAAC-Related Inspections

APP-RCS-ITH-012, "Standard Plant ITAAC 2.1.02.07a.i Performance and Documentation Plan," Rev. 0
APP-IDS-ITH-001, Standard Plant ITAAC 2.6.03.08 Performance and Documentation Plan, Rev. 0
APP-IDS-E0C-001, Class 1E 250 V DC Battery Sizing, Charger Sizing and Available Short Circuit Current, Rev. 0
APP-IDS-E3-001, Class 1E System Station One Line Diagram Divisions A & C, Rev. D
SV2-IDS-GQI-036, SV2 IDS Fault Current Interruption Device Inspection, Rev. 0
APP-PV01-EQPD-XXX, "AP1000 Equipment Qualification Data Package" (Draft), Dated September 2010
Test Specification, Accumulator Flow Testing ITAAC Table 2.2.3-4 Item 8.c, Dated Sept. 18, 2010, Draft
APP-PXS-M3-001, Passive Core Cooling System Specification Document, Revision 2
APP-PXS-M3C-04, CMT Seizing / Performance, Revision 0
APP-PXS-M3C-019, IRWST / Containment Sump Lines and ADS Line Resistances, Revision 2
APP-PXS-T1-501, AP1000 Passive Core Cooling System Preoperational Test Specification, Revision 0
APP-PXS-ITH-015, Standard Plant ITAAC 2.2.03.08c.i.01, Revision A
APP-PXS-ITH-015, Standard Plant ITAAC 2.2.03.08c.i.02, Revision A
APP-PXS-ITH-015, Standard Plant ITAAC 2.2.03.08c.i.03, Revision A
APP-PXS-ITH-015, Standard Plant ITAAC 2.2.03.08c.i.04, Revision A
AP1000 DCD Section 14.2.9.1.3, Passive Core Cooling System Testing, Revision 18
AP1000 DCD Section 14.3, Certified Design Materials, Revision 18
APP-DRAP-ITH-001, Standard Plant ITAAC 3.7 00.01, Revision A
APP-PV67-ZO-001, Design Specification for Feedwater Safety Isolation Valve
APP-MV50-Z0-037, Rev. 2 (Westinghouse Material Specification for AP1000 Containment Vessel: SA-738 Grade B Plates)
IHI Manufacturing Spec for Plates SA-738 Gr. B (02EA7547)
APP-CNS-ITH-001 (Westinghouse ITAAC 2.2.01.04a.ii Performance and Documentation Plan
JFE Steel Certified Material Test Reports (5971-2, 5888-1, 5914-1, 5914-2)
ITAAC 2.2.01.04a.ii Draft Closure Letter

LIST OF ACRONYMS

A	Amperes
ADS	Automatic Depressurization System
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
COL	Combined License
DC	Direct Current
DCD	Design Certification Document
D-RAP	Design Reliability Assurance Program
^{o}F	Degrees Fahrenheit
I&C	Instrumentation and Control
IEEE	Institute of Electrical and Electronics Engineers
IP	Inspection Procedure
ITAAC	Inspection, Test, Analysis, and Acceptance Criteria
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
QA	Quality Assurance
RCS	Reactor Coolant System
SL	Severity Level
SNOC	Southern Nuclear Operating Company
SSC	System, Structure, or Component
UPS	Uninterruptible Power Supply
V DC	Volts Direct Current
VEGP	Vogtle Electric Generating Plant