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NND-12-0635

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

Subject: Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3
Docket Numbers 52-027 and 52-028
Reply to a Notice of Violation

The U.S. Nuclear Regulatory Commission (NRC) issued Integrated Inspection Report Nos. 05200027/2012-004, 05200028/2012-004 and Notice of Violation (NOV) on November 14, 2012. The report documented NRC inspections conducted during the Third Quarter of 2012 (July 1, 2012 – September 30, 2012).

The inspection report identified three findings of very low safety significance that were determined to involve violations of NRC requirements. The enclosure to this letter provides the required South Carolina Electric & Gas reply to these findings.

If you have any questions regarding this letter, please contact Mr. Alfred M. Paglia, Manager – Nuclear Licensing, at 803-941-9876.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 13th day of December 2012.

Sincerely,

Ronald A Jones
Vice President
New Nuclear Operations

GS/RAJ/gs

Enclosures: (1) Reply to NOV 05200027/2012-004-001
(2) Reply to NOV 05200027/2012-004-003 and 05200028/2012-004-003
(3) Reply to NOV 05200027/2012-004-004
(4) List of Regulatory Commitments

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South Carolina Electric & Gas

Enclosure 1 to Letter NND-12-0635

Reply to Notice of Violation

05200027/2012-004-001

Reply to a Notice of Violation
05200027/2012-004-001

This enclosure provides the South Carolina Electric & Gas Company (SCE&G) reply to a Notice of Violation (NOV) issued to SCE&G by the Nuclear Regulatory Commission (NRC) for the V.C. Summer Nuclear Station Units 2 and 3 in a letter dated November 14, 2012. The NOV was identified during NRC inspections conducted in the Third Quarter of 2012 (July 1, 2012 – September 30, 2012).

Violation 05200027/2012-004-001 states:

Criterion III, "Design Control," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," requires, in part, that "Measures shall be established to assure that applicable regulatory requirements and the design basis for safety-related structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions."

Section 3.8.4.4.1, "Seismic Category I Structures," of the V.C. Summer Units 2 and 3 Updated Final Safety Analysis Report (UFSAR) required that Seismic Category I Structural Submodules CA20-29 and CA01-24 be designed in accordance with American Concrete Institute (ACI) 349-01, "Code requirements for Nuclear Safety Related Concrete Structures," and American Institute of Steel Construction (AISC) N690-94, "Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities."

Contrary to the above, on and before May 10, 2012, the licensee failed to assure that applicable regulatory requirements and the design basis for safety-related systems, structures, and components were correctly translated into specifications, drawings, and instructions. As evidenced by the following examples, the licensee failed to translate the regulatory and design basis requirements established, in part, by ACI 349-01, and AISC N690-94 into specifications, drawings, and instructions for the design and fabrication of Seismic Category I Structural Submodules CA20-29 and CA01-24:

- a. The licensee failed to properly translate design requirements into design specifications, which resulted in Seismic Category I Structural Submodule CA01-24 containing shear studs that exceeded the maximum design spacing as specified by UFSAR Figure 3.8.3.8, Sheet 1 of 3. Specifically, the inspectors identified 5/8 inch shear studs located approximately 8 inches away from the plate edge for the CA01-24 sub-module. Once the adjacent sub-module would be joined to CA01-24, the distance between stud rows adjacent to the seam would

exceed the maximum spacing requirements as specified by the UFSAR. As a result, the as-built configuration of Submodule CA01-24 failed to meet UFSAR maximum shear stud spacing requirements due to the spacing of shear studs near the plate edge.

- b. The licensee failed to properly translate design requirements into design specifications which resulted in Seismic Category I Structural Submodule CA20-29 containing shear studs which did not meet the minimum allowable spacing as required by AISC N690-94. Specifically, AISC N690-94 states that the transverse spacing for the 5/8 inch shear studs on submodule CA20-29 should have been no closer than 2.5 inches center to center. However, the as-built configuration of CA20-29 contained two rows of 5/8 inch shear studs that were located approximately 1.75 inches center-to-center.

Reason(s) for Violation 05200027/2012-004-001:

SCE&G accepts the NOV. The deficiency described in the NOV was evaluated using the Westinghouse and SCE&G Corrective Action Programs in Westinghouse Issue Report (IR) 12-124-M001 and SCE&G Condition Report 12-0296.

The IR 12-124-M001 investigation determined that, for reasons described below, the sub-module shear stud arrangement during fabrication was not being maintained within the maximum/minimum stud spacing criteria when confronted with interferences and was not in accordance with the licensing basis and/or design requirements.

Modular construction techniques are used extensively in the containment internal structures and for portions of the auxiliary building. Sub-modules are fabricated offsite with some work performed onsite. The sub-modules have an internal structure consisting of trusses, studs, back-up structures, and leak chases. In addition, there are piping and conduit embedded within the modules that are not considered part of the structural system of the module. While the studs and trusses are spaced at regular design intervals, the backup structures, leak chases, piping, and conduit appear irregularly based on the needs of the other plant systems they will be serving.

Design finalization and fabrication of the sub-modules has identified issues related to interferences between the internal structures of the modules and placement of the studs. These interferences resulted in the need to revise the spacing of the studs and/or revise the design and spacing of the trusses in the local areas of the interferences. In some cases, this revised spacing did not meet the specified design or licensing basis spacing.

The AP 1000 Design Control Document (DCD) and V.C. Summer Units 2 and 3 Updated Final Safety Analysis Report (UFSAR) notes that the stud spacing is Tier 2* information. Subsection 3.8.3.1.3 further states this is the maximum spacing of the studs, trusses, and channels in the trusses in the structural modules “in locations away from openings and penetrations in the walls.” This statement had been understood to mean that the design spacing of studs may be revised near wall openings and penetrations. However, the DCD/UFSAR does not specifically address other interferences.

Corrective Steps Taken and Results Achieved:

As part of the IR 12-124-M001 investigation, an extent of condition is being performed on the fabricated sub-module stud spacing to identify areas not meeting existing licensing basis and/or design requirements. This extent of condition includes the specific deficiencies identified in the violation. Where sub-modules do not meet existing stud spacing requirements, the condition is formally documented via Non-Conformance Reports or Engineering and Design Coordination Reports and assessed. Based on the individual assessments, determinations are made to either accept the existing stud spacing as fabricated or to modify the stud arrangement. The intent of this assessment is to conform stud spacing to the DCD/UFSAR maximum stud spacing requirements and the minimum stud spacing requirements as specified in AISC-N690-94. This effort is ongoing and will be complete when all sub-modules have been fabricated and evaluated. For those cases where stud spacing requirements cannot be met as fabricated or through modification, a License Amendment Request is being developed as described in the “Corrective Steps to be Taken” section below.

In addition to the above, Westinghouse has reviewed the sub-module stud spacing design criteria and revised existing calculations to clarify allowable sub-module stud spacing design requirements.

Corrective Steps to be Taken:

As noted above, an extent of condition is being performed on the fabricated sub-modules to identify and correct areas not meeting existing licensing basis and/or design requirements. The extent of condition includes the examples described in the NOV, which are at the Shaw Modular Solutions fabrication facility. This effort is ongoing and will be complete when all sub-modules have been fabricated and assessed.

Design Change Proposal APP-GW-GEE-3510 has been authored and approved by Westinghouse to provide the engineering basis to SCE&G for a License Amendment Request (LAR). This LAR, which is under development, will reconcile existing sub-

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NOV Response
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module stud spacing conditions that, due to interferences or other structural considerations, are unable to be modified or fabricated to meet the existing licensing basis.

Date When Full Compliance Will Be Achieved:

The extent of condition and assessments/modifications of fabricated sub-modules are expected to be completed by May 31, 2013. Full compliance will be achieved upon NRC approval of above mentioned LAR. This LAR is planned to be submitted to the NRC by February 28, 2013.

South Carolina Electric & Gas

Enclosure 2 to Letter NND-12-0635

Reply to Notice of Violation

05200027/2012-004-003 and 05200028/2012-004-003

Reply to a Notice of Violation
05200027/2012-004-003 and 05200028/2012-004-003

This enclosure provides the South Carolina Electric & Gas Company (SCE&G) reply to a Notice of Violation (NOV) issued to SCE&G by the Nuclear Regulatory Commission (NRC) for the V.C. Summer Nuclear Station Units 2 and 3 in a letter dated November 14, 2012. The NOV was identified during NRC inspections conducted in the Third Quarter of 2012 (July 1, 2012 – September 30, 2012).

Violation 05200027/2012-004-003 and 05200028/2012-004-003 states:

Criterion III, "Design Control," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," requires, in part, that "Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 10CFR50.2 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."

Section 6.1.2.1.6 of the UFSAR states "The inorganic zinc coating used on the inside surface (Service Level I coatings) and outside surface (Service Level III coatings) of the containment shell is inspected using a non-destructive dry film thickness test and a MEK rub test."

Contrary to the above, on or before July 20, 2012, the licensee failed to ensure that the testing described in the license application was correctly translated into specifications. Specifically, WEC Specification APP-GW-Z0-604 REV 6, Application of Protective Coatings to Systems, Structures, and Components for the AP1000 Reactor Plant, did not include provisions to perform the MEK rub test for either Unit 2 or 3.

Reason(s) for Violation 05200027/2012-004-003 and 05200028/2012-004-003:

SCE&G accepts the NOV. The deficiency described in the NOV was evaluated using the Westinghouse and SCE&G Corrective Action Programs in Westinghouse Issue Report (IR) 12-216-M010 and SCE&G Condition Report 12-0499.

The IR 12-216-M010 evaluation determined that the MEK rub test had been in the AP1000 Design Control Document (DCD) since Revision 15. Due to human error, this requirement was not captured in coating specification APP-GW-Z0-604.

Corrective Steps Taken and Results Achieved:

Westinghouse has added the MEK rub test into coating specification APP-GWZ0-604 via Engineering and Design Change Report (E&DCR) APP-MV50-GEF-100.

Corrective Steps to be Taken:

The purchase order that will be used to perform the MEK rub test is being changed to add the MEK rub test via E&DCR APP-MV50-GEF-100. This change is expected to be completed by January 31, 2013. Once the purchase order is changed, the MEK rub test will be performed.

Date When Full Compliance Will Be Achieved:

Full compliance was achieved when the MEK rub test was incorporated in coating specification APP-GW-Z0-604 on December 5, 2012, via E&DCR APPMV50-GEF-100.

South Carolina Electric & Gas
Enclosure 3 to Letter NND-12-0635
Reply to Notice of Violation
05200027/2012-004-004

Reply to a Notice of Violation
05200027/2012-004-004

This enclosure provides the South Carolina Electric & Gas Company (SCE&G) reply to a Notice of Violation (NOV) issued to SCE&G by the Nuclear Regulatory Commission (NRC) for the V.C. Summer Nuclear Station Units 2 and 3 in a letter dated November 14, 2012. The NOV was identified during NRC inspections conducted in the Third Quarter of 2012 (July 1, 2012 – September 30, 2012).

Violation 05200027/2012-004-004 states:

Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," states, in part, that "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery."

Contrary to the above, as of August 7, 2012, the licensee, through its contractor Shaw, failed to perform adequate examinations of products upon delivery to assure that purchased materials conformed to the procurement documents. Specifically, during source and receipt inspections, Shaw failed to identify that embed plates did not conform to the following procurement documents for embed plates: purchase order 132177-D220.00 and APP-SS01-Z0-003, "Embedded and Miscellaneous Steel, Westinghouse Safety Class C," Revision 2.

Reason(s) for Violation 05200027/2012-004-004:

SCE&G accepts the NOV. The deficiency described in the NOV was evaluated using the Shaw and SCE&G Corrective Action Programs in Corrective Action Report (CAR) 2012-0874 and SCE&G Condition Report 12-0583.

Evaluation of this circumstance in Shaw CAR 2012-0874, together with examples from a similar violation issued to Vogtle Electric Generating Plants, Units 3 and 4, allowed Shaw to determine the commonalities of the circumstances associated with these two

violations. In accordance with the Shaw corrective action program requirements, this CAR has been designated as a significant condition adverse to quality and a root cause analysis has been conducted.

Based on the causal analysis conducted by Shaw, the reason for the violation has been determined to be that the existing Shaw quality oversight and inspection program requires a more strategic, integrated, and graded approach to assure the required quality of material, equipment and services.

Corrective Steps Taken and Results Achieved:

Shaw initiated a nonconformance and disposition (N&D) report that identifies and documents non-conforming conditions that some embed plates had weld repairs to the studs that were not bent in accordance with the applicable code requirements. Inspections were completed for embed plates that had been released from the site warehouse, which resulted in the identification of seven affected embed plates. The affected embed plates were shipped to the vendor to be reworked to assure conformance to design drawings, applicable standards, and specifications.

Additional actions associated with oversight of the vendor (CIVES) include:

- Shaw performed receipt inspection of the supplied embedments to identify any deficiencies.
- Shaw added source inspection resources at CIVES.
- Shaw completed two QA surveillances of selected criteria in the CIVES QA program which included follow-up to previous open Shaw Nuclear Solutions audit findings. One of the surveillances included a review of Shaw source inspection activities, which identified three recommendations.
- Shaw directed CIVES to obtain an independent audit their Quality Assurance Program. This was completed and documented in a report dated September 19, 2012.

Additionally, Shaw has taken actions that address the cause of this violation. These actions include the following:

- Shaw increased the frequency and sampling method of source inspection activities.
- Shaw conducted source inspection refresher training with procurement source inspectors.
- Shaw revised purchasing procedures to capture operating experience and lessons learned (OE/LL) at the bidder pre-qualification phase.

The actions taken by Shaw to address the embedment issue and the cause for this violation have provided assurance that purchased material, equipment, and services conform to the procurement documents and that nonconforming items will be identified and corrected. These actions are considered sufficient for continuation of procurement. Additional actions are planned that will provide further assurance that the cause for this violation has been corrected.

Corrective Steps to be Taken:

To address the deficiencies identified in CAR 2012-0874, Shaw will modify the Shaw quality oversight and inspection program to develop and implement:

1. A graded approach to quality oversight and inspection; and
2. An integrated approach to affect quality oversight and inspection.

The above actions are expected to be completed by March 1, 2013.

In addition, SCE&G will perform an audit of actions taken by Shaw to address this NOV. This audit is expected to be completed by July 31, 2013.

Date When Full Compliance Will Be Achieved:

Full compliance will be achieved by March 1, 2013, with completion of the corrective actions to the Shaw quality oversight and inspection program described above.

South Carolina Electric & Gas
Enclosure 4 to Letter NND-12-0635
List of Regulatory Commitments

The following table identifies those actions committed to by the South Carolina Electric and Gas Company in this submittal. Any other statements are provided for information purposes and are not considered regulatory commitments.

Please direct questions regarding these commitments to Mr. Alfred M. Paglia, Manager – Nuclear Licensing, at 803-941-9876.

Regulatory Commitment	Expected Completion Date
Complete extent of condition and assessments/modifications of fabricated sub-modules to identify and correct areas not meeting existing licensing basis and/or design requirements.	May 31, 2013
Submit a License Amendment Request (LAR) to reconcile existing sub-module stud spacing conditions that are unable to be modified or fabricated to meet the existing licensing basis.	February 28, 2013
Change the appropriate purchase order to add the MEK rub test.	January 31, 2013
Modify the Shaw quality oversight and inspection program to develop and implement: (1) a graded approach to quality oversight and inspection and (2) an integrated approach to affect quality oversight and inspection.	March 1, 2013
SCE&G will perform an audit of actions taken by Shaw to address this NOV.	July 31, 2013