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April 7, 2014  
RC-14-0032

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

Dear Sir/Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) Unit 1  
DOCKET NO. 50-395  
OPERATING LICENSE NO. NPF-12  
LICENSE AMENDMENT REQUEST LAR-14-02392  
REQUEST FOR NRC APPROVAL OF PROPOSED CHANGES TO  
EMERGENCY ACTION LEVELS

References:

1. Eric J. Leeds letter to Jeffery B. Archie: Virgil C. Summer Nuclear Station Unit No.1, Safety Evaluation for Emergency Action Levels (TAC NO. MD6874) dated December 15, 2008 [ML082970276]
2. Nuclear Energy Institute (NEI) 99-01, Revision 6, "Methodology for Development of Emergency Action Levels for Non Passive Reactors," November 2012 [ML12326A805]
3. U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 99-01, Revision 6, dated November 2012 [ML12346A463]

Dear Sir or Madam:

In accordance with the provisions of Section 50, Appendix E, Section IV item B and 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), South Carolina Electric & Gas (SCE&G) Company, acting for itself and as agent for South Carolina Public Service Authority, hereby submits a proposed change to the emergency action levels (EALs) used at the Virgil C. Summer Nuclear Station (VCSNS) for review and approval.

SCE&G proposes to change the emergency action levels from a scheme based on NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels" to a scheme based on NEI 99-01, Revision 6, "Methodology for Development of Emergency Action Levels." Such a change in scheme requires NRC approval prior to implementation.

Attachment I provides the Analysis of Proposed Emergency Action Levels. Attachment II provides the Technical Bases Document for the proposed VCSNS EALs. The bases document provides an explanation and rationale for each EAL included in the EAL Upgrade Project for VCSNS. Attachment IV provides a comparison matrix for the proposed VCSNS EAL scheme under NEI 99-01, Revision 6. This matrix identifies and provides justification for any differences or deviations from the NEI 99-01 EALs. The revised EALs will be implemented as three charts. Each chart will be based on normal operating conditions, hot operating conditions, and cold operating conditions. Initiating conditions that are applicable in either hot or cold conditions are provided on all charts. The proposed EAL charts are provided for information only in Attachment V.

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In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated South Carolina Official.

This letter contains a new regulatory commitment.

SCE&G requests approval of the proposed changes by April 3, 2015, with an implementation date of 180 days after issuance of amendment, to permit program changes and training.

This proposed change has been reviewed and approved by both the VCSNS Plant Safety Review Committee and the VCSNS Nuclear Safety Review Committee.

If you have any questions about this submittal, please contact Mr. Bruce L. Thompson at (803) 931-5042.

I certify under penalty of perjury that the information contained herein is true and correct.

4/7/2014  
Executed on

  
Thomas D. Gatlin

BJD/TDG/rp

Attachments: VI

- I. Analysis of Proposed Emergency Action Levels
- II. Technical Bases Document for the Proposed VCSNS EALs (Marked-Up Copy)
- III. Technical Bases Document for the Proposed VCSNS EALs (Clean Copy)
- IV. V. C. Summer Unit 1 NEI 99-01 Revision 6 EAL Comparison Matrix
- V. V.C. Summer Unit 1 NEI 99-01 Revision 6 EAL Wallcharts (Information Only)
- VI. List of Regulatory Commitments

Enclosure:

- I. Disc containing Attachments II -V

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PRSF (RC-14-0032)

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**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) Unit 1  
DOCKET NO. 50-395  
OPERATING LICENSE NO. NPF-12**

**ATTACHMENT I**

**Analysis of Proposed Emergency Action Levels**

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**1.0 DESCRIPTION**

In accordance with the provisions of Section 50, Appendix E, Section IV section B and 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), South Carolina Electric & Gas (SCE&G) Company, is proposing a change to the emergency action levels (EALs) used at the Virgil C. Summer Nuclear Station (VCSNS).

SCE&G proposes to change the emergency action levels from a scheme based on NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels" to a scheme based on NEI 99-01, Revision 6, "Methodology for Development of Emergency Action Levels." Such a change in scheme requires NRC approval prior to implementation. The proposed change would continue to meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR 50.

**2.0 PROPOSED CHANGE**

A brief description of the associated proposed EAL changes is provided below along with a discussion of the justification for each change.

EAL Technical Bases Document (Attachment II) provides an explanation and rationale for each EAL included in the EAL Upgrade Project for VCSNS. The bases document includes the necessary plant information.

V. C. Summer Unit 1 NEI 99-01 Revision 6 EAL Comparison Matrix (Attachment IV) provides a line-by-line comparison between the proposed VCSNS Initiating Conditions and Mode Applicability and EAL wording with the Initiating Conditions and Mode Applicability and example EAL wording in NEI 99-01 Rev. 6 Final, Development of Emergency Action Levels for Non-Passive Reactors. This document provides a means of assessing VCSNS differences and deviations from the NRC endorsed guidance given in NEI 99-01 Rev. 6.

Discussion of VCSNS EAL bases and lists of source document references are given in the EAL Technical Bases Document (Attachment II). It is, therefore, advisable to reference the EAL Technical Bases Document (Attachment II) for background information while using the V. C. Summer Unit 1 NEI 99-01 Revision 6 EAL Comparison Matrix (Attachment IV).

### **3.0 BACKGROUND**

EALs are the plant-specific indications, conditions or instrument readings that are utilized to classify emergency conditions defined in the VCSNS Emergency Plan.

In 1992, the NRC endorsed NUMARC/NESP-007 "Methodology for Development of Emergency Action Levels" as an alternative to NUREG-0654 EAL guidance.

NEI 99-01 (NUMARC/NESP-007) Revisions 4 and 5 were subsequently issued for industry implementation. Enhancements over earlier revisions included:

- Consolidating the system malfunction initiating conditions and example emergency action levels which address conditions that may be postulated to occur during plant shutdown conditions.
- Initiating conditions and example emergency action levels that fully address conditions that may be postulated to occur at permanently Defueled Stations and Independent Spent Fuel Storage Installations (ISFSIs).
- Simplifying the fission product barrier EAL threshold for a Site Area Emergency.

Subsequently, Revision 6 of NEI 99-01 has been issued which incorporates resolutions to numerous implementation issues including the NRC EAL FAQs. Using NEI 99-01 Revision 6 Final, November 2012, VCSNS conducted an EAL implementation upgrade project that produced the EALs discussed herein.

### **4.0 TECHNICAL ANALYSIS**

The proposed change is to change the VCSNS emergency action levels from a scheme based on NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels" to a scheme based on NEI 99-01, Revision 6, "Methodology for Development of Emergency Action Levels." These changes affect the VCSNS Emergency Plan and otherwise do not alter requirements of the Operating License or the Technical Specifications. These changes do not alter any of the assumptions used in the safety analyses, nor do they cause any safety system parameters to exceed their acceptance limit. Therefore, the proposed changes have no adverse effect on plant safety.

### **5.0 REGULATORY ANALYSIS**

#### **5.1 Applicable Regulatory Requirements / Criteria**

10 CFR 50.47(b)(4) states: "A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures."

10 CFR 50 Appendix E, section IV "Content of Emergency Plans" item B "Assessment Actions" states:

“1. The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring. By June 20, 2012, for nuclear power reactor licensees, these action levels must include hostile action that may adversely affect the nuclear power plant. The initial emergency action levels shall be discussed and agreed on by the applicant or licensee and state and local governmental authorities, and approved by the NRC. Thereafter, emergency action levels shall be reviewed with the State and local governmental authorities on an annual basis.

2. A licensee desiring to change its entire emergency action level scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change. Licensees shall follow the change process in § 50.54(q) for all other emergency action level changes.”

The NRC endorsement letter of NEI 99-01 Revision 6 states, “Please note that this is considered a significant change to the EAL scheme development methodology and licensees seeking to use this guidance in the development of their EAL scheme must adhere to the requirements of 10 CFR Part 50, Appendix E, Section IV.B.2.” [ML12346A463]

A licensee shall submit each request for NRC approval of the proposed emergency action level change as specified in § 50.4.

## 5.2 No Significant Hazards Consideration

VCSNS has evaluated whether or not a significant hazards consideration is involved with the proposed changes by focusing on the three standards set forth in 10 CFR 50.92, “Issuance of amendment,” as discussed below:

*1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?*

Response: No. The proposed changes to the VCSNS emergency action levels do not impact the physical function of plant structures, systems, or components (SSC) or the manner in which SSCs perform their design function. The proposed changes neither adversely affect accident initiators or precursors, nor alter design assumptions. The proposed changes do not alter or prevent the ability of SSCs to perform their intended function to mitigate the consequences of an initiating event within assumed acceptance limits. No operating procedures or administrative controls that function to prevent or mitigate accidents are affected by the proposed changes. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

*2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?*

Response: No. The proposed changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed or removed) or a change in the method of plant operation. The proposed changes will not introduce failure modes that could result in a new accident, and the change does not alter assumptions made in the safety analysis. The proposed changes to the VCSNS emergency action levels are not initiators of any accidents. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

*3. Does the proposed amendment involve a significant reduction in a margin of safety?*

Response: No. Margin of safety is associated with the ability of the fission product barriers (i.e., fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. The proposed changes do not impact operation of the plant or its response to transients or accidents. The changes do not affect the Technical Specifications or the operating license. The proposed changes do not involve a change in the method of plant operation, and no accident analyses will be affected by the proposed changes. Additionally, the proposed changes will not relax any criteria used to establish safety limits and will not relax any safety system settings. The safety analysis acceptance criteria are not affected by these changes. The proposed changes will not result in plant operation in a configuration outside the design basis. The proposed changes do not adversely affect systems that respond to safely shut down the plant and to maintain the plant in a safe shutdown condition. The emergency plan will continue to activate an emergency response commensurate with the extent of degradation of plant safety.

Based on the above, SCE&G concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92, and accordingly, a finding of "no significant hazards consideration" is justified.

## **6.0 ENVIRONMENTAL CONSIDERATIONS**

The proposed changes to the emergency action levels maintain the environmental bounds of the current environmental assessment associated with the VCSNS Unit 1. The proposed changes will not affect plant safety and will not have an adverse effect on the probability of an accident occurring. The proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure.

Therefore, no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

## **7.0 PRECEDENCE**

This request is similar in nature to requests from Prairie Island Nuclear Generating Plant Units 1 and 2 (ADAMS Accession No. ML12349A362), Donald C. Cook Nuclear Plant Units 1 and 2 (ADAMS Accession No. ML12359A060), Omaha Public Power District, Unit 1 (ADAMS Accession No. ML12121A565), and NextEra Energy Seabrook Station, Unit 1 (ADAMS Accession No. ML12124A341). Since the requirement to request EAL changes as an LAR was established, VCSNS is not aware of any such LARs that have been reviewed and approved by the NRC.