



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 29, 2014

Mr. Thomas D. Gatlin
Vice President, Nuclear Operations
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Post Office Box 88, Mail Code 800
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1 – REQUEST FOR
ADDITIONAL INFORMATION (TAC NO. MF3927)

Dear Mr. Gatlin:

By letter dated April 7, 2014, the South Carolina Electric & Gas Company (SCE&G, the licensee) submitted a license amendment request (LAR) to revise Facility Operating License Number NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1. The licensee requested approval of a revision to 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."

The NRC staff has determined that additional information is needed to continue the review as discussed in the Enclosure. We request that SCE&G respond to these RAIs within 30 days of the date of this letter. Please note that the NRC staff's review is continuing and further requests for information may be developed.

Sincerely,

A handwritten signature in black ink, reading "Shawn Williams", is positioned above the typed name.

Shawn Williams, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-395

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUESTS FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST

EMERGENCY ACTION LEVEL SCHEME CHANGE

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-395

By letter dated April 7, 2014, South Carolina Electric & Gas Company (SCE&G), requested approval for an emergency action level (EAL) scheme change for the Virgil C. Summer Nuclear Station (VCSNS), Unit 1 (Agencywide Documents Access and Management System (ADAMS) Package Accession No. ML14122A144). SCE&G proposes to revise their current EAL scheme from one based upon NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels," to one based upon NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors."

The following requests for additional information (RAIs) are needed for NRC staff to continue the review.

Enclosure 1, Emergency Action Level Technical Bases, Draft E

1. Section 4.3, "Instrumentation Used for EALs, to NEI 99-01, Revision 6, states that: Scheme developers should ensure that specific values used as EAL setpoints are within the calibrated range of the referenced instrumentation...EAL setpoint values should not use terms such as "off-scale low" or "off-scale high" since that type of reading may not be readily differentiated from an instrument failure." Please confirm that all setpoints and indications used in the VCSNS EAL scheme are within the calibrated range(s) of the stated instrumentation and that the resolution of the instrumentation is appropriate for the setpoint/indication.
2. Section 4.6, "Basis Document," to NEI 99-01, Revision 6, states that "Because the information in a basis document can affect emergency classification decision-making..., the NRC staff expects that changes to the basis document will be evaluated in accordance with the provisions of 10 CFR 50.54(q). For Section 1.0, "Purpose," please incorporate information related to maintaining this document in accordance with 10 CFR 50.54(q) or provide justification for failure to align with NRC-endorsed guidance
3. Appendix B, "Definitions," to NEI 99-01, Revision 6, provides definitions for key terms necessary for overall understanding of the NEI 99-01 emergency classification scheme. For Section 5.1, "Definitions," please address the following:

Enclosure

- a. Please add the definition for INDEPENDENT SPENT FUEL STORAGE INSTALLATION.
 - b. Appendix B to NEI 99-01, Revision 6, defines the OWNER CONTROLLED AREA as "typically taken to mean the site property owned by or otherwise under the control of, the licensee." VCSNS defines this term as the "Area between the vehicle barrier system and the protected area." Please confirm that the definition of "Owner Controlled Area" is correct in accordance with site-specific plans/procedures, or revise accordingly to be consistent with NRC-endorsed guidance. In addition, please ensure this definition aligns with the VCSNS definition for the SITE BOUNDARY.
 - c. The VCSNS definition of "Plant Operator" states, "The plant operator has the authority to declare the appropriate EAL and activate the Radiation Emergency Plan." Please confirm that this is accurate as NRC guidance states that the authority to declare an EAL rests with the Emergency Director (site-specific position title may change) which is a collateral responsibility of the Shift Manager until relieved.
 - d. Please add the definitions of NOTIFICATION OF UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY, and GENERAL EMERGENCY, either to this section or to some other section of the EAL Technical Basis to ensure consistency with Appendix B to NEI 99-01, Revision 6, and as defined in the VCSNS Radiation Emergency Plan.
4. For EALs RU1, RA1.1, RS1.1, and RG1.1, please provide justification for the statement contained in the plant-specific basis for RM-A3/RM-A13, as it pertains to the timeliness of EAL classification when "...laboratory measurements of filter media are required to quantify the release."
 5. For EAL RA1.2, the plant-specific Basis states, "Dose Assessment may be performed by either manual computer based methods." This sentence appears to be missing something an "or" between "manual" and "computer." Please confirm that this sentence is correct, and explain its use, or revise accordingly.
 6. For EAL RA1.3, does not reflect the EAL threshold for Initiating Condition (IC) AA1 / EAL #3 from NEI 99-01, Revision 6. The justification provided by VCSNS that "...VCSNS does not have the capability to perform real-time offsite dose assessment for liquid releases," is not applicable as this EAL is intended to provide a redundant means of quantifying possible offsite radioactivity concerns by using liquid effluent samples. Please provide more justification to support this deviation from NEI 99-01 R6, or revise accordingly.
 7. For EALs RU2.2, RA2.2, CS1.2, and CG1.2, the basis information states that monitors RM-G17A and RM-G17B are only installed in Mode 6. Please confirm, and if accurate, reflect this in the actual EAL, in addition to the basis information, to aid in ensuring accurate event classification.
 8. For EAL RU2.1, please explain if the "and" between the stated level instrumentation (LI) for the 2nd bullet is intended to be a logic "and" (i.e., both level annunciators need to be alarming to meet this condition). If it is either, please change to "or" to aid in ensuring accurate event classification.

9. For EAL RS1.3, the deviation related to rewording the IC has not been justified in the submittal. Please justify why the staff should consider this deviation, particularly when it may violate 10 CFR 50.47(b)(4), which requires "a standard emergency classification and action level scheme," that is consistent with NRC-endorsed guidance.
10. For EAL CA1.1, CS1.1, and CG1.1, it appears that the level instrumentation cannot be used in all of the possible applicable conditions. Please provide further information related to the availability of the instrumentation to indicate at the stated values during the stated operating modes.
11. For EAL CS1.1, please confirm that a difference of 6-inches between the level needed to classify CA1.1 and the level needed to classify CS1.1 is sufficient to preclude erroneous classifications.
12. For EALs CS1.3 & CG1.2, the use of "offscale-high" as an EAL threshold is not consistent with Section 4.3 of NEI 99-01, Revision 6, as it is difficult to readily recognize an actual offscale-high condition versus instrumentation loop failure. Please provide justification on how/why this would not occur, and the timing aspects of determining this to be a valid indication, or revise accordingly.
13. For EAL CU3.1, please explain why the basis contains information related to why 15-minutes is selected as a threshold, when this EAL does not have a timing component.
14. For EAL CU4.1, please explain how the VCSNS addition of "... (Train A or Train B vital 125 VDC system)..." will not create a potential misclassification. This EAL may be somewhat flexible based upon plant electrical lineups controlled in accordance with site-specific Technical Specifications. As discussed in the guidance, Train A could be out of service for maintenance and thus be considered not applicable for this EAL. However, without the benefit of understanding the basis information, an EAL decision-maker could reasonably interpret the EAL wording as requiring EAL classification. This addition does not provide clarity and could create possible errors in classification. Please provide more justification or revise accordingly.
15. For EALs CU5.1 and SU7.1, please provide further detail as to why EAL#3 for CU5 was not developed per the guidance in NEI 99-01, Revision 6. Incorporating the Federal Telephone System (ENS) into one list applicable for the NRC and for Offsite Response Organizations (OROs) means that as long as the ENS phone is available (i.e., all other communication methods are unavailable), then this EAL would not be classified even though no communication method is available to communicate with OROs (assuming that once NRC communication is established with the NRC via the ENS line that this link would be maintained). Per NEI 99-01, Revision 6, any of the following would lead to EAL classification: (1) losing all onsite communication methods, (2) losing all ORO communication methods, or (3) losing all NRC communication methods. Please justify or revise accordingly.

16. For EALs CG1.1 and CG1.2, please explain the following statement from the VCSNS basis, and how this statement affects the timing of the EAL:

"Use of the verb "...can breach..." instead of "breaches," provides the Emergency Director with the latitude to assess the magnitude and rate of the containment pressure rise with respect to the barrier status (for the existing operating mode) and determine that the containment challenge exists due to elevated pressure either before or at the time that the actual breach of the barrier occurs."

17. For EAL CU1.2, information was added to the generic basis section of this EAL, which is not consistent with the endorsed guidance. In addition, this information was not justified. Please explain the following statement from the VCSNS generic basis, and how this statement affects the timing of the EAL.

"An unplanned event the results in water level decreasing below a procedurally required limit concurrent with indications of coolant leakage warrants the declaration of an Unusual Event due to the reduced water inventory that is available to keep the core covered."

In addition, please restore the generic basis information to what was endorsed, for this EAL and any others where the endorsed guidance was revised in the generic basis section(s). If necessary, revise the plant-specific basis information and support with information justifying the change(s).

18. For EALs HA2.1, HA3.1, and HA4.1, the justification provided for this deviation from endorsed guidance is based upon the initiating event being the natural hazard, when the actual initiating event for this revision of NEI 99-01 is the safety system performance and/or damage as a result of the natural hazard, regardless of the hazard type. In order to allow for limited safety system analysis, this EAL set was revised with the latest endorsed guidance to apply limited analysis with operating mode applicability in the form of EAL CA6 and SA9 (from NEI 99-01, Revision 6). Please provide further justification for why or revise accordingly consistent with NRC-endorsed guidance. [Note that the stated escalation paths for the related natural hazard EALs for a Notification of Unusual Event (NOUE) correctly describes CA6 and SA9.]
19. For EAL HU4.2, please justify why the guidance related to Appendix R was not incorporated into the basis information for this EAL, revise accordingly.
20. For EAL SU1.1, please explain why the basis wording implies at least one 7.2 KV ESF bus being energized, when the EAL states that both (i.e., 'and' logic) must be energized, or revise accordingly.
21. For EAL SG1.1, please return the IC wording to that of the endorsed guidance (NEI 99-01, Revision 6) or provide further justification why the staff should consider this deviation, particularly when it may violate 10 CFR 50.47(b)(4), which requires a "standard emergency classification and action level scheme," which includes the expectation that all ICs are consistent with site-specific EAL thresholds as necessary.

22. For EAL SG1.2, as discussed above (RAI #16), please develop IC SG8 per NEI 99-01, Revision 6, as endorsed, or provide further justification for deviation.
23. For EAL SU4.1, please explain if the stated value is readily recognizable by the plant operators (i.e., is it operationally significant?). If not, please consider using a value close to the calculated value yet more readily observable by the plant operators, such as an alarm or trip.
24. For EAL SU4.2, the basis information excludes Mode 4. If this is accurate, please reflect that in the EAL, or revise accordingly.
25. For EALs SU6.2, SA6.1, & SS6.1, please justify why the words: "...after any manual trip..." [SU6.2 only], and "...as indicated by reactor power < 5%..." were added to the EALs. The addition of the qualifier, "...after any manual trip," is unnecessary and requires more justification for staff consideration to determine acceptability. The addition of one, of several possible, means for determining if the reactor is shutdown is also unnecessary as plant operators should know when the reactor is shutdown without needing an EAL to provide the information. Please list all the methods for determining that the reactor is shutdown into the EAL itself, or revise accordingly consistent with endorsed guidance.
26. For EAL IU1, please revise to the standard E-HU1 wording, as the use of IU1 may be inadequate from a human-factors perspective, and it is not in accordance with the endorsed guidance, which is consistent with the expectation for a "standard emergency classification and action level scheme" as stated in 10 CFR 50.47(b)(4). Also, please provide further justification for why the following was added to the category description, which is not consistent with endorsed guidance, or revise accordingly per NEI 99-01, Revision 6: "Formal offsite planning is not required because the postulated worst-case accident involving an ISFSI has insignificant consequences to the public health and safety."
27. For Fission Barrier Matrix criteria under Fuel Clad-Potential Loss 1, no justification was provided as to why the endorsed criteria were not incorporated into the VCSNS EAL scheme. Please provide justification to support the technical review of the VCSNS EAL scheme change, or revise accordingly.
28. The proposed Loss of Fuel Clad, Category 2 (Inadequate Heat Removal), Thresholds A and B; and proposed Potential Loss of Fuel Clad, Category 2 (Inadequate Heat Removal), contains a plant-specific basis where adverse containment conditions may result in a condition that requests engineering to evaluate instrumentation inaccuracies. Please provide justification that these inaccuracies, and the resultant engineering analysis, would not impact the ability for the VCSNS to make an accurate and timely assessment for core cooling.

August 29, 2014

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/RA/

Shawn Williams, Senior Project Manager
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Division of Operating Reactor Licensing
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