

October 24, 2005

Mr. Karl W. Singer  
Chief Nuclear Officer and  
Executive Vice President  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, Tennessee 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT, UNITS 1 & 2 — SUMMARY OF THE NRC  
STAFF'S REVIEW ON PROPOSED EMERGENCY ACTION LEVELS  
(TAC NOS. MC7389 AND MC7390)

Dear Mr. Singer:

By application letter to the U.S. Nuclear Regulatory Commission (NRC) dated June 10, 2005, Tennessee Valley Authority (the licensee) requested changes to the emergency action levels (EALs) for the Sequoyah Nuclear Plant (SQN), Units 1 and 2.

The proposed changes would revise the following EALs:

- SQN EAL 1.2.3 - To incorporate guidance from the Westinghouse Owners Group (WOG) operating guidance,
- SQN EAL 1.3.4 - To incorporate improved human-factors wording,
- SQN EAL 7.3 - To account for a more realistic list of affected area radiation monitors.

The NRC staff has completed its review of the proposed EAL changes and supporting documentation. We have concluded that the proposed changes meet the standards of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, and therefore, are considered acceptable. The basis for our conclusion is contained in the enclosed safety evaluation input. If you have any questions please contact me at (301) 415-1364.

Sincerely,

**/RA/**

Douglas V. Pickett, Senior Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-327 and 50-328

Enclosure: Safety Evaluation

cc w/enclosure: See next page

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Mr. Karl W. Singer  
Tennessee Valley Authority

SEQUOYAH NUCLEAR PLANT

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO PROPOSED EMERGENCY ACTION LEVEL CHANGES

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 and 50-328

1.0 INTRODUCTION

By application letter dated June 10, 2005 (ADAMS Accession Number ML0051730715), Tennessee Valley Authority (the licensee), requested changes to the emergency action levels (EALs) for the Sequoyah Nuclear Plant (SQN), Units 1 and 2.

The proposed changes would revise the following EALs:

- SQN EAL 1.2.3 - To incorporate guidance from the Westinghouse Owners Group (WOG) operating guidance,
- SQN EAL 1.3.4 - To incorporate improved human-factors wording,
- SQN EAL 7.3 - To account for a more realistic list of affected area radiation monitors.

2.0 REGULATORY EVALUATION

The applicable regulations and guidance that the licensee must meet for the emergency plans, and changes to the EALs, is as follows:

2.1 Regulations

Paragraph (a)(1) to Section 50.47, "Emergency Plans," of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 states that no operating license for a nuclear power reactor will be issued unless a finding is made by the U.S. Nuclear Regulatory Commission (NRC) that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Section 50.47 also establishes standards that must be met by the onsite and offsite emergency response plans for NRC staff to make a positive finding that there is reasonable assurance that

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adequate protective measures can and will be taken in the event of a radiological emergency. One of these standards, 50.47(b)(4), stipulates that emergency plans include a standard emergency classification and action level scheme.

Section IV.B to Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," of 10 CFR Part 50 provides that emergency plans are to include EALs, which are to be used as criteria for determining the need for notification and participation of local and State agencies, and which are to be used for determining when and what type of protective measures should be considered both onsite and offsite to protect health and safety.

EALs are to be based on in-plant conditions and instrumentation, and also on onsite and offsite monitoring. Section IV.B of Appendix E provides that initial EALs shall be discussed and agreed on by the applicant and State and local authorities and be approved by the NRC, and reviewed annually thereafter with State and local authorities. In addition, Section IV.B of Appendix E states that an EAL revision must be approved by the NRC before implementation if it involves: (1) the changing from an EAL scheme based on NRC/Federal Emergency Management Agency Radiological Emergency Plan document, NUREG-0654/FEMA-REP-1, to a scheme based on Nuclear Management and Resources Council/Nuclear Environmental Studies Project document, NUMARC/NESP-007, or Nuclear Energy Institute document, NEI 99-01, (2) the licensee is proposing an alternate method for complying with the regulations, or (3) the EAL revision has been evaluated by the licensee as constituting a decrease in effectiveness.

## 2.2 Guidance

Revision 4 to Regulatory Guide (RG) 1.101, issued in July 2003, endorses the guidance contained in NEI 99-01, "Methodology for Development of Emergency Action Levels" (Revision 4, January 2003), as acceptable to the NRC staff as an alternative method to that described in the following guidance for developing EALs required in Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4):

1. Appendix 1 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980), and
2. NUMARC document, entitled NESP-007, "Methodology for Development of Emergency Action Levels" (Revision 2, January 1992).

Regulatory Issue Summary (RIS) 2003-18, "Use of NEI 99-01, Methodology for Development of Emergency Action Levels," dated October 8, 2003, provides guidance for developing or changing a standard emergency classification and action level scheme. In addition, this RIS provided recommendations to assist licensees, consistent with Section IV.B to Appendix E of 10 CFR Part 50, in determining whether to seek prior NRC approval for deviations from the new guidance.

### 3.0 TECHNICAL EVALUATION

Since the proposed revisions to the SQN EALs were evaluated by SQN to be a potential decrease in effectiveness, the proposed changes were submitted to the NRC for approval prior to implementation by the licensee, as required under Section IV.B to Appendix E of 10 CFR Part 50 and 10 CFR 50.54(q).

SQN utilizes an EAL scheme based on the NUMARC document, entitled NESP-007, "Methodology for Development of Emergency Action Levels" (Revision 2, January 1992). SQN EAL 1.2.3 is based upon the NESP-007 EAL "FISSION BARRIER-PWR [Pressurized-Water Reactor]-RCS [Reactor Coolant System] BARRIER-LOSS #3." SQN proposes to revise the EAL Basis Section for this EAL to incorporate newly approved WOG ARG-3 operating guidance; specifically, the licensee desires to remove reference to the Chemical Volume & Control System. This proposed revision is in alignment with the enhancements made to the EALs via NEI 99-01 Revision 4, as endorsed by RG 1.101 Revision 4, and is therefore acceptable.

SQN EAL 1.3.4 is based upon NESP-007 EAL "FISSION BARRIER-PWR-CONTAINMENT BARRIER-LOSS #4." SQN proposes to revise this EAL to improve the human factors element by clarifying the expectations for this EAL. The proposed revision is also in alignment with the wording in NEI 99-01 Revision. 4, as endorsed by RG 1.101 Revision 4, and is therefore acceptable.

SQN EAL 7.3 is based upon NESP-007 EAL "AA3." SQN proposes to revise Table 7-2 "Alert – Radiation Levels," to remove reference to two radiation monitors (0-RM-90-3 and 0-RM-90-4, "Waste Packaging Area Radiation Monitor" and "Decontamination Room Area Radiation Monitor" respectively). These monitors are located in areas that are not necessary to be included in this EAL in accordance with the requirements of NESP-007 Revision 2, and the proposed revision is therefore acceptable.

### 4.0 CONCLUSION

The NRC staff has performed a review of the proposed SQN EAL changes submitted via a letter dated June 10, 2005. Based upon a review of the submitted documentation, the NRC staff finds that the proposed EAL revisions are consistent with the guidance found in NESP-007 Revision 2 and is in alignment with the enhancements made to the EALs via NEI 99-01 Revision 4.

The NRC staff also finds that the EAL changes meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E of 10 CFR Part 50. Therefore, the staff concludes, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the approval of the proposed emergency plan changes will not be inimical to the common defense and security or to the health and safety of the public.

The proposed SQN Radiological Emergency Plan changes to reflect these EAL changes were provided by the licensee, including indicating controllers and associated EAL threshold values, and is contained in the original application (ML051730715).

The proposed SQN EAL revisions, as reflected in the submitted documentation, are acceptable.

Principal Contributor: Don Johnson

Dated: October 24, 2005