June 20, 2005

Mr. Joseph E. Venable
Vice President Operations
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 (WATERFORD 3) - ISSUANCE OF APPROVAL OF THE UPGRADED EMERGENCY ACTION LEVELS BASED ON REVISION 4 TO NUCLEAR ENERGY INSTITUTE (NEI) 99-01 (TAC NO. MC2241)

Dear Mr. Venable:

By letter dated February 5, 2004, as superseded by letter dated December 15, 2004, as supplemented by letter dated April 21, 2005, and e-mail dated May 12, 2005, Entergy Operations Inc. (Entergy, the licensee), requested the U. S. Nuclear Regulatory Commission (NRC) staff review and approval of the Upgraded Emergency Action Levels (EALs), as required by Title 10 of the *Code of Federal Regulations,* Part 50 (10 CFR Part 50), Section IV.B, Appendix E.

These new EALs were written using the methodology outlined in NEI 99-01, "Methodology for Development of Emergency Action Levels" (Revision 4, January 2003). NEI 99-01 has been endorsed by the NRC staff in Regulatory Guide 1.101, Revision 4, "Emergency Planning and Preparedness for Nuclear Power Reactors," dated July 2003 and in NRC Regulatory Issue Summary 2003-18, "Use of NEI 99-01," dated October 8, 2003.

The NRC staff has reviewed the new EALs, as documented in the enclosed Safety Evaluation. The NRC staff finds that the new EALs will continue to satisfy the criteria of Appendix E to 10 CFR Part 50 and is, therefore, acceptable.

Sincerely,

/RA/

David Terao, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO PROPOSED EMERGENCY ACTION LEVELS BASED ON

REVISION 4 TO NUCLEAR ENERGY INSTITUTE (NEI) 99-01, "METHODOLOGY FOR

DEVELOPMENT OF EMERGENCY ACTION LEVELS"

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated February 5, 2004 (Reference 1), as superseded by letter dated December 15, 2004 (Reference 2), as supplemented by letter dated April 21 (Reference 3), and e-mail dated May 12, 2005 (Reference 4), Entergy Operations, Inc. (Entergy, the licensee) requested changes to the emergency action levels (EALs) for Waterford Steam Electric Station, Unit 3 (Waterford 3). The supplements provided responses to U. S. Nuclear Regulatory Commission (NRC) staff's requests for additional information (RAIs), and thus clarified the application and did not expand the scope of the original application.

The proposed changes revise the Waterford 3 EALs to implement the guidance in Revision 4 to NEI 99-01, "Methodology for Development of Emergency Action Levels," which was endorsed under Revision 4 to Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors."

2.0 REGULATORY EVALUATION

Section 50.47(a)(1) of Title 10 of the *Code of Federal Regulations* (10 CFR), "Emergency plans," states that no operating license for a nuclear power reactor will be issued unless a finding is made by the 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. The regulation at 10 CFR 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 a reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Specifically, 10 CFR 50.47(b)(4), stipulates that emergency plans include a standard emergency classification and action level scheme.

The regulation at 10 CFR Part 50, Appendix E, Section IV.B, "Assessment Actions," 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 governmental authorities 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 in addition to onsite and offsite monitoring. Section IV.B of Appendix E to 10 CFR Part 50 requires that initial EALs shall be discussed and agreed on by the applicant, State and local governmental authorities and be approved by NRC, and reviewed annually thereafter with State and local governmental authorities. In addition, Section IV.B of Appendix E to 10 CFR Part 50 states that an EAL revision must be approved by the NRC before implementation if it involves:

(1) the changing from one EAL scheme to another EAL scheme (e.g., a change from an EAL scheme based on NUREG-0654/FEMA-REP-1 to a scheme based on Nuclear Utilities Management Council (NUMARC)/NESP-007 or 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 licensee as constituting a decrease in effectiveness of the emergency plan.

Revision 4 to Regulatory Guide 1.101, issued in July 2003, endorses the guidance contained in NEI 99-01, (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):

- 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

- 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 of deviations from the new guidance.

3.0 TECHNICAL EVALUATION

Since the proposed revision to the Waterford 3 EALs involves a scheme conversion from Appendix I of NUREG-0654/FEMA-REP-1 to the NEI 99-01 (Revision 4), the proposed changes were submitted to the NRC for approval prior to implementation by licensee, as required under Section IV.B to Appendix E of 10 CFR Part 50.

This evaluation is based on revisions to initiating conditions (ICs) and EAL threshold values provided in the application letter (Reference 2). The staff's review did not consider ICs and EAL threshold values proposed in (Reference 1), since Reference 2 superseded the licensee's initial application. Reference 2 contained the following attachments, which were reviewed as part of the staff's evaluation of proposed changes:

- Attachment 1, Response to NRC Questions
- Attachment 2, Proposed Emergency Plan Pages - Changes Incorporated
- Attachment 3, Proposed EALs - To Be Incorporated in Procedure
- Attachment 4, Proposed EAL Bases - To Be Incorporated in Procedure
- Attachment 5, NEI 99-01, Rev. 4 to Plant Specific Correlations, Differences, Deviations, and Justifications
- Attachment 6, Cross reference matrix from NEI EAL number to Entergy EAL Number (i.e. NEI number, previous Entergy number, new Entergy number)
- Attachment 7, Copies of documentation received from state agencies indicating discussions of and agreement with the proposed EAL changes
- Attachment 8, Schematic illustrating unit auxiliary and start-up transformers

ICs, entitled "Defueled Station Malfunctions," and listed under Category D in NEI 99-01, Revision 4, are not applicable since Waterford 3 has a current operating license and, therefore, were not considered during this technical evaluation. In addition, the licensee did not request approval of ICs, entitled "Events Related to Independent Spent Fuel Storage Installation (ISFSI)," as listed under Category E in NEI 99-01, Revision 4, and, therefore, they were not considered during this technical evaluation.

Proposed deviations or significant differences from the guidance in NEI 99-01, Revision 4, were identified in Attachment 5, which provided a specific evaluation for each. Minor differences, such as station-specific terminology, system and component names, or formatting were also not identified for further evaluation.

The staff also compared the proposed Waterford 3 EALs against those submitted by Grand Gulf Nuclear Station (Agencywide Documents and Access Management System (ADAMS) Accession No. ML043280559), River Bend Station (ADAMS Accession No. ML043230229), and Arkansas Nuclear One, Units 1 and 2 (ADAMS Accession No. ML043560265) to ensure consistency in NEI 99-01 EAL scheme submittals between Entergy South stations.

The staff's evaluation of the ICs and EAL threshold values provided in Reference 2, resulted in a RAI to the licensee, which consisted of 17 separate NRC comments. The licensee's subsequent responses to these comments in Reference 3, were consistent with or provided an acceptable alternative to the guidance in NEI-99 04, Revision 4 and are, therefore, considered acceptable with the exception of the following issues that were discussed with the licensee during a telephone conference call on May 5, 2005, and documented in an e-mail dated May 12, 2005 (Reference 4).

1. NRC Comment #3: Proposed Licensee AA3 / EAL 1.b (NEI 99-01, AA3 / EAL 2)

The licensee's response in Reference 3 indicated that a threshold value of 2.5 Rem/hour (R/hr) was selected for specific plant vital areas based on Entergy Nuclear South corporate procedure RP-105, "Radiation Work Permits" (Revision 6), to be implemented at Waterford 3 in September 2005, which will require Radiation Protection Manager approval to access areas with dose rates greater than 2.5 R/hr at the work site. However, the licensee's Bases document also referred to a threshold of 10 R/hr for those areas that already approach or exceed the 2.5 R/hr value in order to preclude unnecessary EAL entry for a normal plant condition. The licensee was requested to clarify this inconsistency between the dose rate value(s) listed in the EAL threshold and discussed in the EAL Bases.

Evaluation: In Reference 4, the licensee revised the EAL threshold to provide a threshold of 2.5 R/hr for areas requiring infrequent access, except for those areas that are normally controlled as high radiation areas where a threshold of 10 R/hr was identified. The proposed change is consistent with the intent of the guidance in NEI 99-01 and is, therefore, considered acceptable.

2. NRC Comment #14: Proposed Licensee SG3 / EAL 1 (NEI 99-01, SG2 / EAL 1)

Reference 3 did not address inconsistency between NEI 99-01 guidance, which indicates that an extreme challenge to cool the core is intended to mean that the core exit temperatures are at or approaching 1200E F, and licensee's EAL criterion, which indicates that core cooling is extremely challenged if core exit thermocouple (CET) temperatures are greater than 1200E F. The staff requested that the licensee provide a change to resolve this inconsistency, or identify it as a deviation and provide technical justification.

Evaluation: In Reference 4, the licensee revised EAL criterion to reflect CET temperatures at or approaching 1200E F. This change is consistent with the guidance in NEI 99-01, and is, therefore, considered acceptable.

ICs and EAL threshold values proposed by the licensee in Reference 2, and supplemented by References 3 and 4 were either evaluated as consistent with NEI 99-01, Revision 4, guidance, proposed alternatives or significant differences were found technically justified, or proposed changes were of minor significance.

4.0 STATE CONSULTATION

In Attachment 7 of Reference 2, the licensee provided documentation signifying agreement on implementation of the proposed EAL changes by the following offsite authorities following a January 7, 2004, meeting:

- Louisiana Department of Environmental Quality,
- Louisiana Office of Homeland Security and Emergency Preparedness,
- St. Charles Parish, and
- St. John the Baptist

The licensee also states in Reference 2 that prior to implementation, changes will be discussed with State authorities.

5.0 CONCLUSION

The NRC staff has performed a review of the proposed Waterford 3 EAL conversion from the NUREG-0654 based scheme to NEI 99-01, Revision 4, submitted in Reference 2. Based on the responses to RAIs and proposed changes provided in References 3 and 4, the NRC staff finds that the proposed Waterford 3 EAL revision is consistent with the guidance in NEI 99-01, Revision 4, or provides an acceptable alternative as evaluated in Section 3.0 of this safety evaluation.

A complete version of the EAL Bases document provided by the licensee, including ICs and associated EAL threshold values is available in ADAMS as Accession No. ML051370213. This EAL Bases document reflects the changes made to ICs, EAL threshold values, and bases provided in Reference 2, and RAI responses in References 3 and 4. Therefore, the proposed Waterford 3 EAL revision from the NUREG-0654 based scheme to the NEI 99-01, Revision 4, scheme, as reflected in EAL Bases document is acceptable.

6.0 REFERENCES

1. Correspondence dated February 5, 2004, from K. J. Peters, Entergy Nuclear South, to Document Control Desk, U.S. Nuclear Regulatory Commission. Subject: Proposed Upgraded Emergency Action Levels (EALs) Using NEI 99-01, Revision 4 Methodology. ADAMS Accession No. ML040480318.

2. Correspondence dated December 15, 2004, from R. J. Murillo, Entergy Operations, Inc. to Document Control Desk, U.S. Nuclear Regulatory Commission. Subject: Response to Request for Additional Information for Proposed Upgraded Emergency Action Levels (EALs) Using NEI 99-01 Revision 4 Methodology. ADAMS Accession No. ML043550283.

3. Correspondence dated December April 21, 2005, from R. J. Murillo, Entergy Operations, Inc. to Document Control Desk, U.S. Nuclear Regulatory Commission. Subject: Response to Request for Additional Information for Proposed Upgraded Emergency Action Levels (EALs) Using NEI 99-01 Revision 4 Methodology. ADAMS Accession No. ML051160055.

4. Correspondence dated May 12, 2005, from O.P. Pipkins, Entergy Operations, Inc. to U.S. Nuclear Regulatory Commission. Subject: Response to comments from May 5, 2005, conference between NRC and Waterford 3 SES on NRC 2nd Round RAIs on EAL Upgrade. ADAMS Accession No. ML051360453.

Principal Contributor: J. Anderson

Date: June 20, 2005

Waterford Steam Electric Station, Unit 3

cc:

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