

October 18, 2005

Mr. Mark A. Peifer  
Site Vice President  
Duane Arnold Energy Center  
Nuclear Management Company, LLC  
3277 DAEC Road  
Palo, IA 52324-0351

SUBJECT: DUANE ARNOLD ENERGY CENTER - ISSUANCE OF APPROVAL OF THE  
UPGRADED EMERGENCY ACTION LEVEL PLANS BASED ON REVISION 4  
TO NUCLEAR ENERGY INSTITUTE (NEI) 99-01 (TAC NO. MC4956)

Dear Mr. Peifer:

By letter to the Nuclear Regulatory Commission (NRC) dated October 22, 2004, as supplemented by letter dated June 24, 2005, Nuclear Management Company, LLC, requested the NRC staff review and approve changes to the emergency action levels (EALs) for the Duane Arnold Energy Center (DAEC) as required by Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR), Appendix E, Section IV.B and 10 CFR 50.47(b).

The proposed changes revise the DAEC EALs to implement the guidance 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 under Revision 4 of Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors" (July 2003) and in NRC Regulatory Issue Summary 2003-18, "Use of NEI 99-01, Methodology for Development of Emergency Action Levels," dated October 8, 2003.

The NRC staff has reviewed the revised EALs, as documented in the enclosed Safety Evaluation. The NRC staff finds that the proposed DAEC EAL revisions are consistent with the guidance in NEI 99-01, Revision 4, or provide an acceptable alternative. As a result, the revised EALs will continue to satisfy the criteria of Appendix E to 10 CFR Part 50 as well as 10 CFR 50.47(b) and are, therefore, acceptable.

Sincerely,

**/RA/**

L. Raghavan, Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-331

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 99-01, "METHODOLOGY FOR DEVELOPMENT OF  
EMERGENCY ACTION LEVELS"  
NUCLEAR MANAGEMENT COMPANY, LLC  
DUANE ARNOLD ENERGY CENTER  
DOCKET NO. 50-331

## 1.0 INTRODUCTION

By application to the Nuclear Regulatory Commission (NRC) dated October 22, 2004 (Reference 1), Nuclear Management Company, LLC, (NMC or the licensee) requested changes to the emergency action levels (EALs) for the Duane Arnold Energy Center (DAEC). The licensee responded to the NRC staff's June 3, 2005 (Reference 2), request for additional information on June 24, 2005 (Reference 3), and provided a complete revision to the proposed DAEC EAL scheme. The additional information in Reference 3 provided application clarification, but did not expand the scope of the application as originally submitted. The proposed changes will revise the DAEC EALs to implement the guidance in Revision 4 to Nuclear Energy Institute (NEI) 99-01, "Methodology for Development of Emergency Action Levels," issued in January 2003, which was endorsed by the NRC in Revision 4 to Regulatory Guide (RG) 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," issued in July 2003.

## 2.0 REGULATORY EVALUATION

The applicable regulations and guidance that the licensee must meet for the Emergency Plans, and changes to EALs, are described below:

### 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 NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Section 50.47 establishes standards onsite and offsite emergency response plans must meet for the NRC staff to make a positive finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. One of these standards, 10 CFR 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 include EALs, which are to be used as criteria for determining the need for notification and participation of local and State agencies, and for determining when and what type of protective measures should be considered to protect the health and safety of individuals both onsite and offsite. EALs are to be based on plant conditions and instrumentation, as well as onsite and offsite radiological 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, be approved by the NRC, and reviewed annually thereafter with State and local authorities. Therefore, a revision will require NRC approval prior to implementation if it involves: (1) changing from one EAL scheme to another, such as from an EAL scheme based on NUREG-0654/FEMA-REP-1 to one based on NUMARC/NESP-007 or NEI 99-01; (2) the licensee proposing an alternate method for complying with the regulations; or (3) the EAL revision proposed by the licensee decreases the effectiveness of the Emergency Plan.

## 2.2 Guidance

Revision 4 to RG 1.101 endorses the guidance contained in NEI 99-01, Revision 4, and is acceptable to the NRC staff as an alternative method to that described in the following guidance for developing EALs required in Section IV.B to Appendix E of 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)
- Nuclear Utilities Management Council (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, RIS 2003-18 provides recommendations to assist licensees, consistent with Section IV.B to Appendix E of Part 50, in determining whether to seek prior NRC approval of deviations from the new guidance. Supplement 1 to RIS 2003-18, dated July 13, 2004, was issued to clarify various technical positions regarding EAL revisions.

## 3.0 TECHNICAL EVALUATION

### 3.1 Scope

The proposed revision updates the existing DAEC NUMARC/NESP-007-based EALs to implement the shutdown EALs and includes lessons-learned from NEI 99-01.

The NRC staff's evaluation of the proposed revisions to initiating conditions (ICs) and EAL threshold values is based on information provided in Reference 1, as supplemented by Reference 3. The NRC staff did not review EALs, including equipment and setpoints, previously approved under the licensee's existing NUMARC/NESP-007 EAL scheme which

were not revised under References 1 and 3. In addition, ICs entitled "Defueled Station Malfunctions," and listed under Category D in NEI 99-01, are not applicable since DAEC has a current operating license, and therefore, were not considered during this technical evaluation.

Proposed deviations or differences, other than minor differences such as station-specific terminology, system and component names, or formatting, from the guidance in NEI 99-01 were identified in the justification matrix provided in Enclosure 5 to Reference 3, which provided a specific evaluation for each.

A complete revised version of the EAL Bases document, including EAL Matrix, ICs, and associated EAL threshold values, was provided in Enclosure 4 to Reference 3. This EAL Bases document reflected changes made to the EAL Matrix, ICs, EAL threshold values, and Bases provided by Reference 1, and as supplemented by Reference 3.

### 3.2 Approval by State and Local Authorities

As stated in Section 2.1, Section IV.B of Appendix E to 10 CFR Part 50 states that initial EALs shall be discussed and agreed on by the applicant and State and local authorities, be approved by the NRC, and reviewed annually thereafter with State and local authorities.

The licensee states in Reference 3 that the proposed EALs had been discussed and agreed to by the applicable State and local government officials. Enclosure 3 to Reference 3 contains documentation of these discussions with the following offsite agencies:

- Iowa Department of Public Health
- Iowa Homeland Security & Emergency Preparedness Division
- Linn County Emergency Management Agency
- Benton County Emergency Management Agency

### 3.3 List of Commitments

Reference 3 contains no new commitments, and withdraws the commitment made in Reference 1 to provide the NRC a supplemental submittal for the DAEC security EALs. The licensee states in Reference 3 that NMC will not provide a supplement to reflect updated security EALs for DAEC. Instead, NMC will evaluate revised DAEC security EALs in accordance with 10 CFR 50.54(q) and will provide an additional submittal only if required.

### 3.4 Evaluation

Based on the review of the information provided in the licensee's application submittal (Reference 1), as supplemented by Reference 3, the NRC staff finds that the proposed changes to DAEC ICs, EAL threshold values, and EAL Bases are consistent with the guidance of NEI 99-01 or provide an acceptable alternative.

The proposed changes to the DAEC EALs, as reflected in Reference 3, are acceptable.

Changes to the DAEC security EALs, based on the guidance provided in Attachment 1 to

NRC Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," dated July 18, 2005, were not evaluated as part of this review. As indicated in Section 3.3 above, the licensee intends to implement changes to its security EALs under 10 CFR 50.54(q), which is acceptable under the guidance provided in Bulletin 2005-02.

#### 4.0 CONCLUSIONS

The NRC staff has performed a review of the proposed changes to the DAEC EALs and EAL Bases, as submitted in Reference 1, and as supplemented by Reference 3, using the guidance in NEI 99-01, Revision 4. The NRC staff finds that the proposed DAEC EAL revisions are consistent with the guidance in NEI 99-01 or provide an acceptable alternative as discussed in this safety evaluation.

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. The NRC 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.

#### 5.0 REFERENCES

1. Peifer, M. A., Nuclear Management Company, LLC, to Document Control Desk, U.S. Nuclear Regulatory Commission, "Revision to Emergency Action Levels for the Duane Arnold Energy Center Based on NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 4," October 22, 2004. ADAMS Accession No. ML043240346.
2. Padovan, L. M., U.S. Nuclear Regulatory Commission, to Edward J. Weinkam, Nuclear Management Company, LLC, "Duane Arnold Energy Center, Kewaunee Nuclear Power Plant, Monticello Nuclear Generating Plant, Palisades Nuclear Plant, Prairie Island Nuclear Generating Plant, Units 1 and 2 - Request for Additional Information Regarding Revisions to Emergency Action Levels," June 3, 2005. ADAMS Accession No. ML051530468.
3. Van Middlesworth, G. D., Nuclear Management Company, LLC, to Document Control Desk, U.S. Nuclear Regulatory Commission, "Proposed Emergency Plan Changes Related to Duane Arnold Energy Center Emergency Action Levels and Response to Request for Additional Information," June 24, 2005. ADAMS Accession No. ML052020302.

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Date: October 18, 2005

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