

October 2, 2014

ULNRC-06143

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

10 CFR 50.47  
10 CFR 50.54(q)  
10 CFR 50 Appendix E, IV.B.2  
10 CFR 50.90

Ladies and Gentlemen:

**DOCKET NUMBER 50-483  
CALLAWAY PLANT UNIT 1  
UNION ELECTRIC CO.  
FACILITY OPERATING LICENSE NPF-30  
LICENSE AMENDMENT REQUEST FOR  
EMERGENCY ACTION LEVEL (EAL) UPGRADE  
ADOPTING NRC-ENDORSED NEI 99-01, REVISION 6**

- References:
- 1) Letter from Mark Thaggard, NSIR, to Susan Perkins-Drew, NEI, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 99-01, Revision 6, Dated November, 2012 (TAC No. D92368)," dated March 28, 2013 (ADAMS Accession No. ML12346A463)
  - 2) "Regulatory and Technical Analysis to Accept the Generic Guidance In NEI 99-01, Revision 6, as an Acceptable Methodology for the Development of an Emergency Action Level Scheme for Non-Passive Reactors" (ADAMS Accession No. ML13008A736)
  - 3) NRC Regulatory Issue Summary 2005-02, Revision 1, "Clarifying the Process for Making Emergency Plan Changes"
  - 4) NEI 99-01, Revision 6 (ADAMS Accession No. ML12326A805)
  - 5) NRC Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation" (ADAMS Accession No. ML12054A679)
  - 6) NRC Letter "Callaway Plant, Unit 1 - Relaxation of the Schedule Requirements for Order EA-12-051, 'Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation'" (ADAMS Accession No. ML1415A400)

Per the guidance provided in References 1, 2 and 3, Union Electric Company (Ameren Missouri) herewith transmits a complete EAL upgrade submittal which adopts the NRC-endorsed NEI 99-01 Rev. 6 EAL scheme. This submittal is transmitted to the NRC for approval as a license amendment in accordance with 10 CFR 50.90 before implementation at Callaway Nuclear Power Plant.

The enclosed package contains Ameren Missouri's evaluation of the proposed change to the EAL scheme; marked-up and clean copies of the proposed EAL Technical Bases; a Comparison Matrix which provides a cross-reference relating the proposed EAL scheme to the "standard" NEI 99-01 Rev. 6, EAL numbering scheme; an explanation of any differences or deviations from the guidance, as appropriate for Callaway Plant, and the supporting calculation for radiological effluent monitor EAL threshold values. A copy of the proposed EALs (wall charts) is also provided for information.

The NEI 99-01 Rev. 6 EAL scheme has been identified in Reference 1 as a significant change to the EAL scheme prescribed in NEI 99-01 Rev. 5 (upon which Callaway Plant's present EAL scheme is based). Accordingly, Ameren Missouri requests approval of the proposed change for Callaway Plant, as required by 10 CFR Part 50 Appendix E, Section IV.B.2.

Use of the NEI 99-01 Rev. 6 EAL scheme should promote industry standardization of EALs. Standardization will help assure accurate and consistent classification of off-normal events. This revision incorporates independent spent fuel storage installation (ISFSI) EALs, as well as EALs that pertain to enhanced spent fuel pool instrumentation being installed in compliance with Reference 5.

It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92, "Issuance of amendment." Pursuant to 10 CFR 51.22, "Criterion for categorical exclusion or otherwise not requiring environmental review," Section (b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

The Callaway Onsite Review Committee and a subcommittee of the Nuclear Safety Review Board have reviewed and approved the proposed changes and have approved the submittal of this amendment application. In addition, in accordance with 10 CFR 50.91 "Notice for public comment; State consultation," Section (b)(1), a copy of this amendment application is being provided to the designated Missouri State official.

Ameren Missouri respectfully requests approval of this license amendment request for EAL Upgrade by October 5, 2015. Implementation of the new EAL scheme will be made within 90 days following NRC approval. As described in Reference 6, the NRC has approved a request to extend the due date for providing an alternate power source for the enhanced spent fuel pool instrumentation that will be used with the new EAL scheme until after the spring 2016 refueling outage.

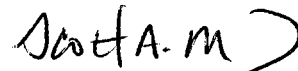
ULNRC-06143  
October 2, 2014  
Page 3

This submittal does not contain new commitments. For any questions concerning this letter, contact Gene Juricic at 573-676-4489 or Pat McKenna at 573-676-8504.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Executed on: October 2, 2014



Scott A. Maglio  
Manager, Regulatory Affairs

- Attachments:
- 1) Evaluation of Proposed Emergency Action Levels
  - 2) Callaway NEI 99-01 Revision 6 EAL Technical Bases (Marked-up Copy)
  - 3) Callaway NEI 99-01 Revision 6 EAL Technical Bases (Clean Copy)
  - 4) Callaway NEI 99-01 Revision 6 EAL Comparison Matrix and Explanations
  - 5) Calculation EPCI 1402, "EAL Table R-1 Calculation"
  - 6) Callaway NEI 99-01 Revision 6 EAL Wall Charts (Information Only)

ULNRC-06143

October 2, 2014

Page 4

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Attachment 1 to ULNRC-06143

Evaluation of Proposed Emergency Action Levels

## 1.0 DESCRIPTION

In accordance with the provisions of Section 50, Appendix E, section IV, item B, paragraph 2 and 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Union Electric Company (Ameren Missouri), is proposing a change to the emergency action level (EAL) scheme used at Callaway Plant.

Ameren Missouri 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.

The attached marked-up and clean copies of the EAL Technical Bases Document (Attachments 2 and 3) provide an explanation and rationale for each EAL included in the EAL Upgrade Project for Callaway Plant. The bases document includes the necessary plant information.

The attached Callaway Plant Unit 1 NEI 99-01 Revision 6 EAL Comparison Matrix (Attachment 4) provides a line-by-line comparison between the proposed Callaway Plant 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 Callaway Plant differences and deviations from the NRC-endorsed guidance given in NEI 99-01 Rev. 6.

Discussion of Callaway Plant EAL bases and lists of source document references are given in the EAL Technical Bases Document. It is therefore advisable to reference the EAL Technical Bases Document for background information while using the Callaway Plant 1 NEI 99-01 Revision 6 EAL Comparison Matrix.

## 3.0 BACKGROUND

EALs are the plant-specific indications, conditions or instrument readings that are utilized to classify emergency conditions defined in the Callaway Plant 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 frequently-asked questions (FAQs). Using NEI 99-01 Revision 6, Final, November 2012, Ameren Missouri, in coordination with other members of the STARS Alliance, conducted an EAL implementation upgrade project that produced the EALs discussed herein.

#### **4.0 TECHNICAL ANALYSIS**

The proposed change is to change the Callaway Plant EALs 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 Callaway Plant Radiological Emergency Response Plan (RERP) 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 limits. 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) requires the emergency response plan to meet the following standard:

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 [ML12346A463] 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."

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

## 5.2 No Significant Hazards Consideration

Ameren Missouri 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 Callaway Plant 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 Callaway Plant 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, Ameren Missouri 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 Callaway Plant 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 PRECEDENTS**

This request is similar in nature to requests for V. C. Summer Nuclear Station Unit 1 (ADAMS Accession No. ML14122A144); South Texas Project Units 1 and 2 (ADAMS Accession No. ML14164A341); Braidwood Station, Units 1 and 2, Byron Station, Units 1 and 2, Clinton Power Station, Unit 1, Dresden Nuclear Power Station, Units 1, 2 and 3, LaSalle County Station, Units 1 and 2, Limerick Generating Station, Units 1 and 2, Oyster Creek Nuclear Generating Station, Peach Bottom Atomic Power Station, Units 1, 2 and 3, Quad Cities Nuclear Power Station, Units 1 and 2, Three Mile Island Nuclear Station, Unit 1 and Three Mile Island Nuclear Station, Unit 2 (ADAMS Accession No. ML14164A053).

Since the requirement to submit a license amendment request (LAR) for EAL scheme changes was established in 10 CFR 50 Appendix E, Section IV, item B, paragraph 2, Ameren Missouri is not aware of any such LARs that have yet been approved by the NRC.