



February 27, 2016  
10 CFR 50.90  
Docket No. 50-443  
SBK-L-15120

United States Nuclear Regulatory Commission  
Attn.: Document Control Desk  
Washington, D.C. 20555-0001

Seabrook Station

License Amendment Request 15-02, Adoption of Emergency Action Level Schemes  
Pursuant to NEI 99-01, Revision 6  
*"Development of Emergency Action Levels for Non-Passive Reactors"*

Reference: NRC letter "U.S. Nuclear Regulatory Commission Review and  
Endorsement of NEI 99-01, Revision 6, Dated November, 2012 (TAC No.  
D92368)," March 28, 2013 (ML12346A463)

In accordance with 10 CFR 50.90, *Application for amendment of license, construction permit, or early site permit*, NextEra Energy Seabrook, LLC (NextEra) requests an amendment to the license for Seabrook Station. Specifically, the proposed change involves revising the emergency plan for Seabrook Station to adopt the Nuclear Energy Institute's (NEI's) revised emergency action level (EAL) scheme described in NEI 99-01, Revision 6, *Development of Emergency Action Levels for Non-Passive Reactors*, which has been endorsed by the Nuclear Regulatory Commission (NRC) as documented in the referenced letter. Seabrook currently uses an EAL scheme based on NEI 99-01, Revision 4.

10 CFR Part 50, Appendix E, Section IV.B.2, stipulates that 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. In its endorsement of the guidance, the NRC notes that NEI 99-01, Revision 6, 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. Therefore, pursuant to 10 CFR 50.90, NextEra requests NRC review and approval of a revision to the emergency plan EALs for Seabrook Station.

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This letter contains the following attachments:

- Attachment 1 – Evaluation of Proposed Changes
- Attachment 2 – Markup of Seabrook Station Emergency Action Levels – Initiating Conditions, Threshold Values and Basis
- Attachment 3 – Clean Copy of Seabrook Station Emergency Action Levels - Initiating Conditions, Threshold Values and Basis
- Attachment 4 – NEI 99-01, Rev. 6, Deviations and Differences, Seabrook Station Nuclear Power Plant – Unit 1
- Attachment 5 – Technical Information for Proposed Initiating Conditions and Emergency Action Levels

The proposed initiating conditions (ICs) and EALs have been reviewed by the Station Operation Review Committee and with state government representatives from New Hampshire and Massachusetts. In accordance with 10 CFR 50.91, NextEra is notifying the State of New Hampshire of this LAR by transmitting a copy of this letter and enclosure to the designated State Official. As discussed Attachment 1, the proposed changes do not involve a significant hazards consideration pursuant to 10 CFR 50.92, and no significant environmental impacts are associated with the changes.

This letter contains no new or revised commitments.

NextEra requests NRC review and approval of the requested amendment by March 1, 2017 and implementation within 180 days. This duration will allow implementation of the amendment following the spring 2017 refueling outage.

Should you have any questions regarding this letter, please contact Mr. Michael Ossing, Licensing Manager, at (603) 773-7512.

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

Executed on February 27, 2016.

Sincerely,



Dean Curtland

Site Vice President  
NextEra Energy Seabrook, LLC

Attachments (5)

cc: NRC Region I Administrator (Without Enclosures)  
NRC Project Manager, Project Directorate 1-2  
D. Johnson, NRC NSIR, Division of Preparedness and Response  
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## ATTACHMENT 1

### EVALUATION OF PROPOSED CHANGES

Subject: License Amendment Request 15-02, Adoption of Emergency Action Level Schemes Pursuant to NEI 99-01, Revision 6, *"Development of Emergency Action Levels for Non-Passive Reactors"*

- 1.0 SUMMARY DESCRIPTION
- 2.0 DETAILED DESCRIPTION
- 3.0 TECHNICAL EVALUATION
- 4.0 REGULATORY EVALUATION
  - 4.1 Applicable Regulatory Requirements
  - 4.2 No Significant Hazards Consideration
  - 4.3 Conclusion
- 5.0 ENVIRONMENTAL CONSIDERATION
- 6.0 REFERENCES

## 1.0 SUMMARY DESCRIPTION

NextEra Energy Seabrook, LLC (NextEra) proposes to revise Seabrook Station's currently approved Emergency Plan (EP) Emergency Action Level (EAL) scheme, which is based on the Nuclear Energy Institute's (NEI's) guidance established in NEI 99-01, Revision 4, "*Methodology for Development of Emergency Action Levels*" [Reference 1]. NextEra is proposing to adopt the EAL schemes based on the guidance provided in NEI 99-01, Revision 6, "*Development of Emergency Action Levels for Non-Passive Reactors*," which has been endorsed by the NRC [Reference 2].

## 2.0 DETAILED DESCRIPTION

The proposed changes involve revising Seabrook's EAL scheme, which is currently based on NEI 99-01, Revision 4, to a scheme based on NEI 99-01, Revision 6. Enhancements provided by revision 6 of the guidance include:

1. Clarification of numerous EALs that have been typically misinterpreted by the industry in the development of their site-specific EAL scheme,
2. Clarification of the intent of EALs that have been historically misclassified,
3. Providing additional guidance for the development of EALs for current non-passive reactor designs as well as possible future reactor designs that are non-passive,
4. Incorporating lessons learned from industry events (i.e., Fukushima and others) and NUREG/CR-7154, *Risk Informing Emergency Preparedness Oversight: Evaluation of Emergency Action Levels – A Pilot Study of Peach Bottom, Surry and Sequoyah*, and
5. A detailed review of the guidance to re-validate that the EALs are appropriate and are at the necessary emergency classification level based upon 32 years of industry and NRC experience with EAL scheme development and implementation.

### 2.1 Proposed Initiating Conditions (ICs) and EALs

Attachment 2, Seabrook Station Emergency Action Levels – Initiating Conditions, Threshold Values and Basis, provides a markup of NEI 99-01, Revision 6. The markup shows the Seabrook-specific proposed changes to NEI 99-01. Attachment 3 provides a clean copy of Seabrook Station Emergency Action Levels – Initiating Conditions, Threshold Values and Basis.

### 2.2 Deviations and Differences

Attachment 4 contains a matrix that provides in tabular format a comparison of the initiating conditions (ICs) and EALs in NEI 99-01 to the ICs and EALs proposed for Seabrook Station. The comparison evaluates differences and deviations in accordance with the guidance in Regulatory Issue Summary (RIS) RIS 2003-18, *Use of NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, Dated January 2003, Supplements 1 and 2* [References 3, 4] and provides the basis for each difference and deviation.

As discussed in RIS 2003-18, Supplement 1, differences and deviations are defined as:

- A difference is an EAL change where the basis scheme guidance differs in wording but agrees in meaning and intent, such that classification of an event would be the same, whether using the basis scheme guidance or the site-specific proposed EAL. Examples of differences include the use of site-specific terminology or administrative re-formatting of site-specific EALs.
- A deviation is an EAL change where the basis scheme guidance differs in wording and is altered in meaning or intent, such that classification of the event could be different between the basis scheme guidance and the site-specific proposed EAL. Examples of deviations include the use of altered mode applicability, altering key words or time limits, or changing words of physical reference (protected area, safety-related equipment, etc.).

A number of differences are the result of adding plant-specific information to the EALs. In these cases, Attachment 4 may refer the reader to an associated document in Attachment 5, Technical Information for Proposed Initiating Conditions and Emergency Action Levels, which provides the technical basis for the plant-specific information. (The technical basis documents in Attachment 5 are designated by a V followed by a number.)

### 2.3 Generic Differences

The differences below apply throughout the set of EALs and are not specifically identified in each instance in the comparison matrix as a difference.

NEI 99-01, Rev 6 EALs	Seabrook Station EALs
References BWRs	Deleted BWR references as appropriate
Uses A for radiological effluent/radiation level ICs	Uses R for radiological effluent/radiation level ICs
Uses E-HU for ISFSI ICs	Uses EU for ISFSI ICs
Uses S for System Malfunction ICs	Uses M for System Malfunction ICs
Emergency Classification ICs are presented in ascending order (NOUE – GE)	Emergency Classification ICs are presented in descending order (GE – NOUE)

### 2.4 Operational Modes

Mode applicability of the proposed ICs and EALs is consistent with the NEI 99-01, Rev. 6. The following table provides the operating modes for Seabrook Station defined by the Technical Specifications (TS).

MODE	REACTIVITY CONDITION, keff	% RATED THERMAL POWER*	AVERAGE COOLANT TEMPERATURE
1. POWER OPERATION	$\geq 0.99$	>5%	$\geq 350^{\circ}\text{F}$
2. STARTUP	$\geq 0.99$	$\leq 5\%$	$\geq 350^{\circ}\text{F}$
3. HOT STANDBY	<0.99	0%	$\geq 350^{\circ}\text{F}$
4. HOT SHUTDOWN	<0.99	0%	$350^{\circ}\text{F} >$ $\text{TAVG} > 200^{\circ}\text{F}$
5. COLD SHUTDOWN	<0.99	0%	$\leq 200^{\circ}\text{F}$
6. REFUELING**	$\leq .95$	0%	$\leq 140^{\circ}\text{F}$

\*Excluding decay heat

\*\*Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed

In addition to the TS defined operational modes, NEI 99-01, Revision 6, defines the following additional mode:

Defueled: All reactor fuel removed from the reactor vessel (i.e., full core off load during refueling or extended outage).

Seabrook Station procedures recognize and are consistent with the definition of a defueled condition.

## 2.5 Instrumentation Used for EALs

NextEra reviewed the specified values used as EAL setpoints and verified they are within the calibrated range of the referenced instrumentation.

## 2.6 Background Technical Information

Attachment 5 contains technical information, such as plant drawings, calculations etc., that support the proposed EALs. Attachment 2, Markup of Seabrook Station Emergency Action Levels – Initiating Conditions, Threshold Values and Basis; and Attachment 4, Deviations and Differences, provide a reference to the specific document in Attachment 5 containing technical information for each EAL as applicable.

## 3.0 TECHNICAL EVALUATION

NextEra has evaluated the proposed changes to determine whether applicable regulations and requirements have been met. NEI 99-01 guidance methodology includes many years of development along with use and implementation. The guidance has been subject to NRC reviews and approval. The Seabrook EAL scheme currently in place is based on the methodology in NEI 99-01, Revision 4. NEI 99-01, Revision 6, is the latest guidance endorsed

by the NRC and provides guidance to nuclear power plant operators for the development of a site-specific emergency action level scheme.

10 CFR 50.47(b)(4) requires that emergency plans include a standard emergency classification and action level scheme. This scheme is a fundamental component of an emergency plan in that it provides the defined thresholds that will allow site personnel to rapidly implement a range of pre-planned emergency response measures. An emergency classification scheme also facilitates timely decision-making by an offsite response organization concerning the implementation of precautionary or protective actions for the public.

NEI 99-01, Revision 6, contains a generic set of ICs, EALs, and fission product barrier status thresholds. It also includes supporting technical basis information, developer notes, and recommended classification instructions for users. The methodology described in this document is consistent with NRC requirements and guidance. In particular, this methodology was specifically endorsed by the NRC in a March 28, 2013, letter from NRC to NEI [Reference 5] and determined to provide an acceptable approach in meeting requirements of 10 CFR 50.47(b)(4), applicable requirements of 10 CFR 50, Appendix E, and the associated planning standard evaluation elements contained in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

10 CFR 50, Appendix E, Section IV.B.2 requires that a licensee desiring to change its entire EAL scheme shall submit an application for an amendment to its license and receive NRC approval before implementing the change. The proposed change to the Seabrook EAL scheme from NEI 99-01 Revision 4 to NEI 99-01 Revision 6 guidance does not reduce the capability to meet the applicable emergency planning standards and requirements in 10 CFR 50.47(b) and 10 CFR 50, Appendix E. Accordingly, pursuant to the requirements of 10 CFR 50, Appendix E, Section IV.B.2, NextEra requests NRC review and approval of the proposed changes to the EAL scheme as a license amendment request in accordance with 10 CFR 50.90.

## **4.0 REGULATORY EVALUATION**

### **4.1 Applicable Regulatory Requirements / Criteria**

The regulations in 10 CFR 50.54(q) provide direction to licensees seeking to revise their emergency plan. The requirements related to nuclear power plant emergency plans are contained in the standards in 10 CFR 50.47, "Emergency Plans," and the requirements of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

Paragraph 10 CFR 50.47(a)(1) says 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(b) contains standards that 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), requires that emergency plans include a standard emergency classification and action level scheme.



10 CFR 50, Appendix E, Section IV.B, "Assessment Actions," requires that emergency plans include emergency action levels (EALs) that 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 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 to EALs will require NRC approval prior to implementation if it involves (1) changing from one EAL scheme to another (e.g., NEI 99-01 Rev. 4 to NEI 99-01 Rev. 6), (2) proposing an alternate method to comply with the regulations, or (3) the EAL revision proposed by the licensee decreases the effectiveness of the emergency plan.

NRC Regulatory Issue Summary (RIS) 2005-02, Revision 1, "Clarifying the Process for Making Emergency Plan Changes", issued April 19, 2011, says that a change in an EAL scheme to incorporate the improvements provided in NUMARC/NESP-007 or NEI 99-01 would not decrease the overall effectiveness of the emergency plan, but due to the potential safety significance of the change, the change needs prior NRC review and approval.

The proposed changes meet the above regulatory requirements.

#### **4.2 No Significant Hazards Consideration**

NextEra Energy Seabrook, LLC (NextEra) proposes to revise Seabrook Station's currently approved Emergency Plan (EP) Emergency Action Level (EAL) scheme, which is based on the Nuclear Energy Institute's (NEI's) guidance established in NEI 99-01, Revision 4, "*Methodology for Development of Emergency Action Levels.*" NextEra is proposing to adopt the EAL schemes based on the guidance provided in NEI 99-01, Revision 6, "*Development of Emergency Action Levels for Non-Passive Reactors,*" which has been endorsed by the NRC.

NextEra has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10CFR50.92, "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?*

The proposed changes to the Seabrook emergency action levels neither involve any physical changes to plant equipment or systems nor do they alter the assumptions of any accident analyses. The proposed changes do not adversely affect accident initiators or precursors, and they do not alter design assumptions, plant configuration, or the manner in which the plant is operated and maintained. The proposed change does not adversely affect the ability of structures, systems or components (SSCs) to perform their intended safety functions in mitigating the consequences of an initiating event within the assumed acceptance limits.

Therefore, the proposed change does 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?*

No new accident scenarios, failure mechanisms, or limiting single failures are introduced as a result of the proposed changes. The changes do not challenge the integrity or performance of any safety-related systems. No plant equipment is installed or removed, and the changes do not alter the design, physical configuration, or method of operation of any plant SSC. No physical changes are made to the plant, and emergency action levels are not accident initiators; so no new causal mechanisms are introduced.

Therefore, the proposed changes do 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?*

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 and no accident analyses are affected by the proposed changes. The changes do not affect the Technical Specifications or the method of operating the plant. 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.

Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

#### **4.3 Conclusion**

In conclusion, based on the considerations above, (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 issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the general public.

#### **5.0 ENVIRONMENTAL CONSIDERATION**

The proposed change is applicable to emergency planning requirements involving the proposed adoption of the NRC-endorsed EAL guidance as described in NEI 99-01, Revision 6, and does not reduce the capability to meet the emergency planning standards of 10 CFR 50.47(b) and the requirements of 10 CFR 50, Appendix E. 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 the individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is required in connection with the proposed change.

## 6.0 REFERENCES

1. Nuclear Energy Institute, NEI 99-01 Revision 4, "Methodology for Development of Emergency Action Levels," January 2003 (ADAMS Accession No. ML041470143)
2. Nuclear Energy Institute (NEI) 99-01, Revision 6, "Methodology for Development of Emergency Action Levels for Non Passive Reactors," November 2012 (ADAMS Accession No. ML12326A805)
3. NRC Regulatory Issue Summary 2003-18, Supplement 1: Use of Nuclear Energy Institute (NEI) 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, Dated January 2003, July 13, 2004
4. NRC Regulatory Issue Summary 2003-18, Supplement 2: Use of Nuclear Energy Institute (NEI) 99-01, "Methodology for Development of Emergency Action Levels," Revision 4, Dated January 2003, December 12, 2005
5. NRC letter "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI 99-01, Revision 6, Dated November, 2012 (TAC No. D92368)," March 28, 2013 (ADAMS Accession No. ML12346A463)