

Emergency Preparedness Program Frequently Asked Question (EPFAQ)

EPFAQ Number:	2018-03
Originator:	David Young
Organization:	NEI
Relevant Guidance:	This question concerns NEI 99-01, <i>Development of Emergency Action Levels for Non-Passive Reactors</i> , Revision 6.
Applicable Section(s):	Initiating Condition (IC) HU4, Emergency Action Level #2
Date Accepted for Review:	4/4/2018
Status:	Completed

QUESTION OR COMMENT:

Background

IC HU4, "FIRE potentially degrading the level of safety of the plant."

Emergency Action Level (EAL) #2:

- a. Receipt of a single fire alarm (i.e., no other indications of a FIRE).

AND

- b. The FIRE is located within ANY of the following plant rooms or areas:
(Site-specific list of plant rooms or areas)

AND

- c. The existence of a FIRE is not verified within 30-minutes of alarm receipt.

Question

Concerning the above IC and EAL, operating experience has shown that Unusual Event declarations have occurred at pressurized water reactor (PWR) units for events that did not involve a fire. These events were caused by the spurious actuation of a single Containment fire alarm. Since operators were unable to enter the building and perform an inspection within the allotted 30-minute time period, an emergency was declared even though no actual fire was present. Some of these declarations are driven by inclusion of the Containment building in the "site-specific list of plant rooms or areas" without consideration of plant design features other than the fire detection system, i.e., there may be other plant design features that would allow operators to determine that a single fire alarm is likely spurious. In light of this experience, can a site-specific EAL be informed by plant design features that would allow operators to determine whether the receipt of a single fire alarm is likely due to a spurious actuation?

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PROPOSED SOLUTION:

Yes; a site-specific EAL based on the generic guidance in NEI 99-01, Revision 6, should be informed by the plant design features that would allow operators to determine whether the receipt of a single fire alarm is likely due to a spurious actuation. For example, a Containment building has multiple fire detectors and the design of the containment ventilation system will provide air mixing sufficient to expose two or more of these detectors to smoke emanating from one location. In this case, the receipt of only one fire alarm (i.e., no other alarm is received within 15 minutes of the initial alarm) could confidently be assumed as a spurious actuation. The licensee should also provide the NRC staff with the information necessary to understand how the relevant plant design features are tested and maintained.

An EAL incorporating the guidance above would be applicable in Modes 1 and 2 only.

Examples of how licensees have proposed using plant design-specific information to inform development of IC HU4, EAL #2, may be found in the following documents:

- Letter from NextEra Energy Seabrook, LLC, to U.S. Nuclear Regulatory Commission, "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'," dated February 27, 2016 (ADAMS Accession No. [ML16068A130](#)).
- Letter from NextEra Energy Seabrook, LLC, to U.S. Nuclear Regulatory Commission, "Seabrook Station - Response to Request for Additional Information Regarding 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'," dated October 27, 2016 (ADAMS Accession No. [ML16302A414](#)).
- Letter from NextEra Energy Point Beach, LLC, to U.S. Nuclear Regulatory Commission, "License Amendment Request 286, Adoption of Emergency Action Level Scheme Pursuant to NEI 99-01, Revision 6, 'Development of Emergency Action Levels for Non-Passive Reactors'," dated June 23, 2017 (ADAMS Accession No. [ML17174A458](#)).

An example of how the NRC staff has considered this type of information is provided in the Safety Evaluation attached to NRC letter, "Seabrook Station, Unit No. 1 – Issuance of Amendment RE: Adoption of Emergency Action Level Scheme Pursuant to NEI 99-01, Revision 6 (CAC NO. MF7439)" (ADAMS Accession No. [ML16358A411](#)).

Consistent with the guidance in Regulatory Issue Summary (RIS) 2003-18, Supplement 2, *Use of Nuclear Energy Institute (NEI) 99-01, "Methodology for Development of Emergency Action Levels," Revision 4*, dated January 2003, it is reasonable to conclude that this change would be considered as a "deviation."

NRC RESPONSE:

As provided in the below discussion, EAL HU4 was not intended to result in a declaration of a Notification of Unusual Event (NOUE) for an instrument failure. The above proposed solution to EPFAQ 2018-03 provides a clarification to NEI 99-01, Revision 6, that is consistent with Section 2.6.4, "EAL HU4," of the "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" which states, in part, that:

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This initiating condition [EAL HU4] addresses the magnitude and extent of fires that may be indicative of a potential degradation of the level of safety of the plant. Significant changes were made to this EAL to remove ambiguity and to help alleviate the issue some licensees had with not having enough time to confirm a single-alarm event before EAL declaration was required. Additional guidance was provided for a single fire alarm with no other indications of a fire. A single point fire alarm, with no other indications of a fire, may be more indicative of an instrumentation issue rather than a fire in the plant. However, this validation effort must occur within 30-minutes of the fire alarm.

Although the question portion of EPFAQ 2018-03 refers to a PWR, the proposed solution does not specifically refer to a PWR. The staff finds that the proposed solution could be considered when developing either a PWR or a BWR [boiling water reactor] EAL scheme. Additionally, licensees who developed EAL HU4 to include the containment as an area that would require validation within of 30 minutes and are considering the proposed solution of EPFAQ 2018-03 to modify their site-specific EAL scheme should consider that the removal of the containment from EAL HU4, during certain modes of operation, could be considered a deviation as provided by the guidance of RIS 2003-18, Supplement 2.

The NRC Staff finds the proposed solution to EPFAQ 2018-03 acceptable.

RECOMMENDED FUTURE ACTION(S):

- INFORMATION ONLY, MAINTAIN EPFAQ
- UPDATE GUIDANCE DURING NEXT REVISION