

Emergency Preparedness Program Frequently Asked Question (EPFAQ)

EPFAQ Number:	2018-04
Originator:	David Young
Organization:	NEI
Relevant Guidance:	This question concerns NEI 99-01, <i>Development of Emergency Action Levels for Non-Passive Reactors, Revision 6</i> <u>and</u> EPFAQ 2016-002.
Applicable Section(s):	Initiating Conditions (ICs) CA6 and SA9, and the associated Emergency Action Levels (EALs) and Bases
Date Accepted for Review:	5/31/2018
Status:	Completed

QUESTION OR COMMENT:

Background

EPFAQ 2016-002 [Clarification of Equipment Damage as a Result of a Hazardous Event (ADAMS Accession No. ML17195A299)] provided guidance intended to reduce the potential of declaring an Alert when events are in progress that do not involve an actual or potential substantial degradation of the level of safety of the plant, i.e., does not cause significant concern with shutting down or cooling down the plant. In responding to the EPFAQ, the staff determined that revising the EALs and the Basis sections of ICs CA6 and SA9 would be appropriate to ensure potential escalations from a [Notification of an Unusual Event] NOUE to an Alert, due to a hazardous event, occur when there is: (1) a hazardous event, and (2) one SAFETY SYSTEM train having performance issues as a result of the hazardous event, and (3) either the second SAFETY SYSTEM train is having performance issues or VISIBLE DAMAGE sufficient to be concerned that the second SAFETY SYSTEM train may have operability or reliability issues. The response to EPFAQ 2016-002 works well for situations involving a safety system with two trains (a typical configuration); however, industry operating experience indicates that additional clarification is needed for three other cases as described in the questions below.

Because this EPFAQ is based on material in EPFAQ 2016-002, the response to this EPFAQ may be considered only by sites that have implemented EPFAQ 2016-002 in a manner approved through the license amendment process.

Question

Concerning ICs CA6 and SA9, how should an event leading to indications of degraded performance and/or VISIBLE DAMAGE be classified when:

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1. The event affects equipment common to two or more safety systems or safety system trains? For example, a unit with a tank that is the water source for multiple safety injection systems or trains, such as a Refueling Water Storage Tank (RWST).
2. The event affects a safety system that has only one train. For example, a Boiling Water Reactor (BWR) unit with a single-train Reactor Core Isolation Cooling (RCIC) or High-Pressure Coolant Injection (HPCI) system.
3. The event affects two trains of a safety system having more than two trains. For example, a unit that has an Auxiliary/Emergency Feedwater system with three trains.

PROPOSED SOLUTION:

The following answers to the above questions are proposed:

1. An event affecting equipment common to two or more safety systems or safety system trains (i.e., there are indications of degraded performance and/or **VISIBLE DAMAGE** affecting the common equipment) should be classified as an Alert under CA6 or SA9, as appropriate to the plant mode. By affecting the operability or reliability of multiple system trains, the loss of the common equipment effectively meets the two-train impact criteria that underlie the EALs and Bases.
2. An event affecting a single-train safety system (i.e., there are indications of degraded performance and/or **VISIBLE DAMAGE** affecting the one train) would not be classified under CA6 or SA9 because the two-train impact criteria that underlie the EALs and Bases would not be met. If an event affects a single-train safety system, then the emergency classification should be made based on plant parameters/symptoms meeting the EALs for another IC. Depending upon the circumstances, classification may also occur based on Shift Manager/Emergency Director judgement.
3. An event that affects two trains of a safety system (e.g., one train has indications of degraded performance and the other **VISIBLE DAMAGE**) that also has one or more additional trains should be classified as an Alert under CA6 or SA9, as appropriate to the plant mode. This approach maintains consistency with the two-train impact criteria that underlie the EALs and Bases, and is warranted because the event was severe enough to affect the operability or reliability of two trains of a safety system despite plant design criteria associated with system and system train separation and protection. Such an event may have caused other plant impacts that are not immediately apparent.

As stated above, this EPFAQ may be considered only by sites that have implemented EPFAQ 2016-002 in a manner approved through an NRC Safety Evaluation Report (SER). With this proviso met, the response to EPFAQ 2018-004 would then provide clarification of expected emergency classifications for cases not explicitly addressed by ICs CA6 and SA9 (from NEI 99-01, Revision 6), and EPFAQ 2016-002; therefore, implementation of the guidance in this EPFAQ would improve the accuracy and timeliness of a classification following a hazardous event affecting a safety system. Moreover, the answers provided in EPFAQ 2018-004 would result in EAL interpretations that are consistent with the meaning and

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intent of NRC-approved EAL bases such that the classification of the event would not be different from that approved by the NRC in a site-specific application. For this reason, it is reasonable to conclude that incorporation of the guidance from this EPFAQ into an NRC-approved site-specific scheme reflecting the guidance in EPFAQ 2016-002 would be considered a “difference” in accordance with 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. This “difference” determination is contingent upon incorporating any or all of the three answer statements (as applicable to a facility) verbatim; any change to the scope or intent of the answers would make incorporation into a site-specific scheme a “deviation” per RIS 2003- 018, Supplement 2.

NRC RESPONSE:

EPFAQ 2016-02 is intended to ensure that an Alert should only be declared when actual or potential substantial performance issues with SAFETY SYSTEMS have occurred as a result of a hazardous event. Nuclear power plant SAFETY SYSTEMS are suitably redundant to assure that the safety system function can be accomplished, assuming a single failure. As such, a single failure of a SAFETY SYSTEM due to a hazardous event should not result in the declaration of an Alert.

The threshold values for EPFAQ 2016-02 meet this intention by requiring a hazardous event that causes degraded performance on one train of a SAFETY SYSTEM concurrent with either degraded performance or sufficient visible damage to a second train of a safety system to cause concern regarding the reliability or operability of the affected component. Requiring degraded performance in one SAFETY SYSTEM concurrent with either degraded performance or visible damage of a second SAFETY SYSTEM ensures that a declaration of an Alert will only be made when actual or potential substantial performance issues with SAFETY SYSTEMS have occurred as a result of a hazardous event.

The response to EPFAQ 2018-04 is limited to providing clarification for certain conditions and does not propose alteration of previous guidance. As such, licensees who use EPFAQ 2018-04 to provide clarification to EAL schemes that were developed consistent with EPFAQ 2016-02 could consider the change to the EAL scheme to be a difference as provided by RIS 2003-18, Supplement 2.

The NRC staff concludes that the proposed solution to EPFAQ 2018-04 is acceptable.

RECOMMENDED FUTURE ACTION(S):

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