

Emergency Preparedness Program Frequently Asked Question (EPFAQ)

EPFAQ Number:	2019-01
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 Conditions (ICs) CU1 and CA1
Date Accepted for Review:	1/9/2019
Status:	Complete

QUESTION OR COMMENT:

Background

Initiating conditions CU1 and CA1, and the associated Operating Mode Applicability, EALs, and Notes, are shown below.

Initiating Condition CU1: UNPLANNED loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory for 15 minutes or longer.

Operating Mode Applicability: Cold Shutdown, Refueling

Example Emergency Action Levels: (1 or 2)

Note: The Emergency Director should declare the Unusual Event promptly upon determining that 15 minutes has been exceeded or will likely be exceeded.

(1) UNPLANNED loss of reactor coolant results in (reactor vessel/RCS [PWR] or RPV [BWR]) level less than a required lower limit for 15 minutes or longer.

(2) a. (Reactor vessel/RCS [PWR] or RPV [BWR]) level cannot be monitored. AND
b. UNPLANNED increase in (site-specific sump and/or tank) levels.

Initiating Condition CA1: Loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory.

Operating Mode Applicability: Cold Shutdown, Refueling

Example Emergency Action Levels: (1 or 2)

Note: The Emergency Director should declare the Alert promptly upon determining that 15 minutes has been exceeded or will likely be exceeded.

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- (1) Loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory as indicated by level less than (site-specific level).
- (2) a. (Reactor vessel/RCS [PWR] or RPV [BWR]) level cannot be monitored for 15 minutes or longer. AND
b. UNPLANNED increase in (site-specific sump and/or tank) levels due to a loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory.

Note that both IC statements use the phrase, “loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory,” with no distinction as to the size of the loss. The Bases and Developer Notes make clear that the inventory loss size referred to CA1 is larger than that in CU1. Some EAL scheme users believe the IC statements could be reworded to help decision-makers better differentiate between them and avoid potential confusion during an EAL assessment. In addition, the CU1 IC statement contains the phrase, “...for 15 minutes or longer;” however, this criterion is applicable to EAL #1 but not EAL #2. This could also be a source of confusion during an EAL assessment. To be consistent with the IC CA1 statement, which does not contain the 15-minute criterion from EAL #2, scheme users have suggested that the 15-minute criterion be removed from the IC CU1 statement (but NOT EAL #1).

Question

Can the CU1 and CA 1 IC statements be revised to make differentiation between the two conditions more explicit, and remove the 15-minute criterion from IC CU1 (but NOT EAL #1) to better align the IC statement with the EALs?

PROPOSED SOLUTION:

Yes. To make a clear distinction between IC CU1 and CA1, and the underlying inventory loss size difference, the following alternative IC statements may be used:

CU1: UNPLANNED loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory.

CA1: Significant loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory.

The change to IC CU1 also removes the 15-minute criterion; however, **this criterion is retained in EAL #1.**

In redline-strikeout format, the changes look like this:

CU1: UNPLANNED loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory.
~~for 15 minutes or longer.~~

CA1: Significant loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory.

Neither change above affects the Operating Mode Applicability, EALs, Notes, or Bases for ICs CU1 and CA1. For this reason, neither change impacts the emergency classification of events,

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i.e., events classified one way before the change would continue to be classified the same way after the change.

This EPFAQ is applicable only to EAL schemes based on NEI 99-01, Revision 6, and may be implemented at the discretion of a licensee. Since these wording changes do not affect the meaning or intent of the EALs, and the resulting emergency classifications, it is reasonable to conclude that this change would be considered as a “difference” in accordance 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.”

NRC RESPONSE:

Considering that the threshold value and technical basis discussion for CU1 continues to provide clear guidance relative to the applicable CU1 (1) 15-minute criteria, the NRC staff finds the elimination of “for 15 minutes or longer” from the initiating condition for CU1 reasonable.

Additionally, considering that the addition of the “Significant” to the initiating condition for EAL CA1 does not alter the threshold values, basis discussion, or otherwise impact the assessment of CA1, the NRC staff finds the change to the initiating condition for CA1 reasonable.

The proposed solution for EPFAQ 2019-01 does not modify the threshold values or basis discussion for EALs CU1 or CA1 which remain consistent with the guidance provided in NEI 9901, Revision 6. As such, the proposed changes would reasonably be considered a difference as provided by the guidance in RIS 2003-18.

The NRC staff finds the proposed solution to EPFAQ 2019-01 acceptable.

RECOMMENDED FUTURE ACTION(S):

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