NEI 99-01 Revision 7

Change Summary

September 2024

NOTICE

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This document summarizes the changes made in NEI 99-01, Revision 7.

NEI 99-01 Section	NEI 99-01 Rev. 7 Change Summary
Executive Summary	Made editorial changes to improve clarity and readability. There were no intent changes.
1. Regulatory Background	● Deleted the "Permanently Defueled Station" section since the generic defueled ICs/EALs were removed from NEI 99-01. The new location for this EAL guidance will be DG-1346, "Emergency Planning for Decommissioning Nuclear Power Reactors" [*proposed new Regulatory Guide 1.235*]. In the meantime, licensees can continue to use the NRC-endorsed guidance in NEI 99-01, Revision 6, to develop EALs for a permanently defueled station. ● Updated the information in the "Spent Fuel Pool Monitoring Instrumentation" section (e.g., Order EA-12-051 was replaced with 10 CFR 50.155). There were no intent changes. ● Added section on "Decommissioning Facility." The information reflects comments from both the NRC staff and the NEI Decommissioning Working Group. The guidance is aligned with NRC-approved License Amendment Requests related to EAL changes at decommissioning facilities. ● Updated references to documents (e.g., added new ones, removed old ones, etc.). ● Made editorial changes to improve clarity and readability.
2. Key Terminology Used in NEI 99-01	• Added guidance to section 2.4, "Fission Product Barrier Threshold," to better explain the relationship between the FPB thresholds and the radiological release EALs in Recognition Category A. ● Updated references to documents (e.g., added new ones, removed old ones, etc.). ● Made editorial changes to improve clarity and readability.

NEI 99-01 Section	NEI 99-01 Rev. 7 Change Summary
3. Design of the NEI 99-01 Emergency Classification Scheme	• In section 3.1, removed the discussion on 10 CFR 50.72 because this information does not support EAL scheme development. • Removed the ECL attributes (Section 3.1.1 through 3.1.4) as this information is no longer needed by the industry. • Removed discussion of a Station Blackout based on the change to IC SG1 (i.e., the SBO coping time is no longer considered in the EAL). • Deleted reference to Permanently Defueled Station EALs since the generic defueled ICs/EALs were removed from NEI 99-01. The new location will be DG-1346, "Emergency Planning for Decommissioning Nuclear Power Reactors" [*proposed new Regulatory Guide 1.235*]. In the meantime, licensees can continue to use the NRC-endorsed guidance in NEI 99-01, Revision 6, to develop EALs for a permanently defueled station. • Added several statements to help licensees better understand NRC staff expectations concerning the content of a scheme conversion LAR. • Updated references to documents (e.g., added new ones, removed old ones, etc.). • Made editorial changes to improve clarity and readability.
4. Site-Specific Scheme Development Guidance	• Added several statements to help licensees better understand NRC staff expectations concerning the content of a scheme conversion LAR. • Revised section 4.3, "Instrumentation Used in EALs," to provide more detail and incorporate operating experience (e.g., from EP findings). The changes also incorporated information from EPFAQ 2015-12. • Added section 4.4 to ensure that scheme developers are aware of past issues associated with instrumentation supporting dose projection capabilities, and the need to verify that the instrumentation is properly calibrated and maintained. • Updated references to documents (e.g., added new ones, removed old ones, etc.). • Made editorial changes to improve clarity and readability.
5. Guidance on Making Emergency Classifications	• Replaced a reference to NRC NSIR/DPR-ISG-01 with text from the document. • Deleted a paragraph with guidance on "not waiting to declare" since this information appears in the Notes of the

NEI 99-01 Section	NEI 99-01 Rev. 7 Change Summary
	appropriate EALs (i.e., it was duplicative information). • Deleted table in section 5.5, "Emergency Classification Level Downgrading and Termination," based on a feedback that the information was not useful. • Deleted section 5.7, "Classification of Short-Lived Events," based on feedback that the information was potentially confusing. The salient points are addressed in section 5.6, "Classification of Transient Conditions." • Revised section 5.8, "Retraction of the Notification of an Emergency Declaration," to provide better guidance and address operating experience (e.g., ROP FAQ 21-02). • Made editorial changes to improve clarity and readability.

The table below summarizes the changes made to the Initiating Conditions and Emergency Action Levels in all Recognition Categories. As a general statement, the changes also included updating references to supporting documents (e.g., added new ones, removed old ones, etc.) where needed, and making editorial changes to improve clarity and readability. Also, conforming changes supporting the addition, revision or deletion of an IC or EAL were made where necessary (e.g., references in one IC to another IC that was relocated or deleted were changed as appropriate).

Due to the width of the table columns and table formatting constraints, the appearance of an EAL (e.g., indentation) in this document may differ slightly from the appearance of the corresponding EAL in Revision 6 or Revision 7.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
IC AU1 EAL #1 EAL #2 EAL #3	Release of gaseous or liquid radioactivity greater than 2 times the (site-specific effluent release controlling document) limits for 60 minutes or longer.	N/A	None – deleted.	The IC and EALs were removed because the associated event represents a very minor loss of control of radioactive materials, and thus poses a safety risk low enough as to not reasonably require an emergency declaration. Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to the event. A site would have sufficient procedures and capabilities to respond without declaring an emergency (e.g., use of Radiation Protection and Chemistry resources for locating and assessing radiological releases). Depending on event-specific conditions, some plant response actions may be required by Technical Specifications or the ODCM, and the site may also make a report to the NRC in accordance with the requirements in 10 CFR Part 20. This event would not create any impediments to activation of the ERO or performance of security plan-related functions. The appropriate lower bound for declaring an emergency due to a radiological release is IC AA1, which is set at 1% of the lower value of the "early phase" EPA PAG (the range is 1 to 5 rem) or 10 mrem.

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IC AU2 EAL #1	(1) a. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by ANY of the following: (site-specific level indications). AND b. UNPLANNED rise in area radiation levels as indicated by ANY of the following radiation monitors. (site-specific list of area radiation monitors)	IC AU2 EAL #1	(1) a. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by ANY of the following: (site-specific level indications). AND b. UNPLANNED rise in area radiation levels as indicated by ANY of the following radiation monitors. (site-specific list of area radiation monitors)	No change.
N/A	N/A	IC AU3 EAL #1 EAL #2	Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown	New IC. See discussion below on NEI 99-01, Rev. 6, IC AA3 for change description and basis.
IC AA1 EAL #1	(1) Reading on ANY of the following radiation monitors greater than the reading shown for 15 minutes or longer:	IC AA1 EAL #1	(1) Reading on ANY of the following radiation monitors greater than the reading shown for 15 minutes or longer:	No change to the EAL wording. Added a paragraph to the basis to explain a note that applies to the precalculated radiation monitor thresholds in EAL #1. These are determined (back calculated) using the dose value specified in the IC, and an assumed source term and meteorology. For this reason, the doses projected at the

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	(site-specific monitor list and threshold values)		(site-specific monitor list and threshold values)	time of an event, which will be based on a source term determined from plant indications and actual metrological data, may be above or below the dose specified in the IC. Due to these expected differences, the radiation monitor readings in EAL #1 should not be used for emergency classification assessments if dose assessment results based on actual plant and meteorological conditions are available.
IC AA1 EAL #2	(2) Dose assessment using actual meteorology indicates doses greater than 10 mrem TEDE or 50 mrem thyroid CDE at or beyond (site-specific dose receptor point).	IC AA1 EAL #2	(2) Dose assessment using actual meteorology indicates doses greater than 10 mrem TEDE or 50 mrem thyroid CDE at or beyond (site-specific dose receptor point).	No change to the EAL wording. Included discussion in Developer Notes concerning guidance in the 2017 EPA PAG Manual (EPA-400/R-17/001, *PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents*) per EPFAQ 2017-01.
IC AA1 EAL #3	(3) Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses greater than 10 mrem TEDE or 50 mrem thyroid CDE at or beyond (site-specific dose receptor point) for one hour of exposure.	N/A	None – deleted.	This EAL was removed because of challenges associated with making a timely assessment (*a legacy issue from insufficient vetting during the development of R6*) and bounding by other EALs. An accurate assessment of this EAL will likely require that samples be taken in the field, returned to a lab, and analyzed. This evolution cannot be completed within the 15-minute assessment period required by regulations and may take up to several hours to complete. Moreover, a liquid release will be diluted and dispersed as it moves from its source (e.g., a holding tank) to the site boundary and the environs beyond. It is extremely unlikely that downstream liquid concentrations could reach the levels needed to result in the specified EAL threshold doses without a starting point source term

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				much greater than that available during normal operations (e.g., need some level of fuel cladding failure). If a sufficiently high source term were present, then another EAL would already be met. Focusing on just the site response to the event, the necessary actions could be taken without activating the emergency plan (similar to that discussed above for AU1) and the event would not create any impediments to activation of the ERO or performance of security plan-related functions. It is also noted that State and local public safety and environmental officials, upon being notified of the release, would mobilize and take actions to address the event without the necessity of an emergency declaration. In summary, the removal of this EAL has minimal impact on a classification scheme.
IC AA1 EAL #4	(4) Field survey results indicate EITHER of the following at or beyond (site-specific dose receptor point): • Closed window dose rates greater than 10 mR/hr expected to continue for 60 minutes or longer. • Analyses of field survey samples indicate thyroid CDE greater than 50 mrem for one hour	IC AA1 EAL #3	(3) Field survey results indicate EITHER of the following at or beyond (site-specific dose receptor point): • Closed window dose rates greater than 10 mR/hr are expected to continue for 60 minutes or longer. • Analyses of field survey samples indicate thyroid CDE greater than 50 mrem for one hour	Renumbered EAL based on the change discussed above. No change to the EAL wording. Included discussion in Developer Notes concerning guidance in the 2017 EPA PAG Manual (EPA-400/R-17/001, *PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents*) per EPFAQ 2017-01.

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	of inhalation.		of inhalation.	
IC AA2 EAL #1 EAL #2 EAL #3	Significant lowering of water level above, or damage to, irradiated fuel.	IC AA2 EAL #1 EAL #2 EAL #3	Significant lowering of water level above, or damage to, irradiated fuel.	No change to IC or EALs, but expanded the guidance in the Developer Notes pertaining to instrumentation that requires manual actions to place in service.
IC AA3 EAL #1 EAL #2	Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown.	IC AU3 EAL #1 EAL #2	Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown.	This IC and the EALs were relocated from an Alert level to an Unusual Event level; no changes were made to the IC or EAL wording. The change was made based on a reassessment of the potential impact of the event and associated operating experience. Sites have plans and resources for responding to off-normal radiological conditions (e.g., those needed to meet NRC requirements). A response to off-normal radiological conditions does not require a full activation of the site ERO, which would occur following an Alert declaration. The declaration of an Unusual Event will ensure that key ERO managers are made aware of the event and available to support the response if needed. Should the event have operational consequences, or lead to more significant radiological consequences, enough to warrant an Alert or higher classification, then the emergency declaration would be based on another IC.
IC AS1 EAL #1	(1) Reading on ANY of the following radiation monitors greater than the reading shown for 15 minutes or longer: (site-specific monitor	IC AS1 EAL #1	(1) Reading on ANY of the following radiation monitors greater than the reading shown for 15 minutes or longer: (site-specific monitor	No change to the EAL wording. Added a paragraph to the basis to explain a note that applies to the precalculated radiation monitor thresholds in EAL #1. These are determined (back calculated) using the dose value specified in the IC, and an assumed source term and meteorology. For this reason, the doses projected at the time of an event, which will be based on a source term

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	list and threshold values)		list and threshold values)	determined from plant indications and actual metrological data, may be above or below the dose specified in the IC. Due to these expected differences, the radiation monitor readings in EAL #1 should not be used for emergency classification assessments if dose assessment results based on actual plant and meteorological conditions are available.
IC AS1 EAL #2 EAL #3	(2) Dose assessment using actual meteorology indicates doses greater than 100 mrem TEDE or 500 mrem thyroid CDE at or beyond (site-specific dose receptor point). (3) Field survey results indicate EITHER of the following at or beyond (site-specific dose receptor point): • Closed window dose rates greater than 100 mR/hr expected to continue for 60 minutes or longer. • Analyses of field survey samples indicate thyroid CDE greater than 500 mrem for one	IC AS1 EAL #2 EAL #3	(2) Dose assessment using actual meteorology indicates doses greater than 100 mrem TEDE or 500 mrem thyroid CDE at or beyond (site-specific dose receptor point). (3) Field survey results indicate EITHER of the following at or beyond (site-specific dose receptor point): • Closed window dose rates greater than 100 mR/hr are expected to continue for 60 minutes or longer. • Analyses of field survey samples indicate thyroid CDE greater than 500 mrem for one hour of	No change to the EALs. Included discussion in Developer Notes concerning guidance in the 2017 EPA PAG Manual (EPA-400/R-17/001, *PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents*) per EPFAQ 2017-01.

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	hour of inhalation.		inhalation.	
IC AS2 EAL #1	Spent fuel pool level at (site-specific Level 3 description).	IC AS2 EAL #1	Spent fuel pool level at (site-specific Level 3 description).	No change to IC or EAL, but expanded the guidance in the Developer Notes pertaining to instrumentation that requires manual actions to place in service.
IC AG1 EAL #1	(1) Reading on ANY of the following radiation monitors greater than the reading shown for 15 minutes or longer: (site-specific monitor list and threshold values)	IC AG1 EAL #1	(1) Reading on ANY of the following radiation monitors greater than the reading shown for 15 minutes or longer: (site-specific monitor list and threshold values)	No change to the EAL wording. Added a paragraph to the basis to explain a note that applies to the precalculated radiation monitor thresholds in EAL #1. These are determined (back calculated) using the dose value specified in the IC, and an assumed source term and meteorology. For this reason, the doses projected at the time of an event, which will be based on a source term determined from plant indications and actual metrological data, may be above or below the dose specified in the IC. Due to these expected differences, the radiation monitor readings in EAL #1 should not be used for emergency classification assessments if dose assessment results based on actual plant and meteorological conditions are available.
IC AG1 EAL #2 EAL #3	(2) Dose assessment using actual meteorology indicates doses greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE at or beyond (site-specific dose receptor point). (3) Field survey results indicate EITHER of the following at or beyond	IC AG1 EAL #2 EAL #3	(2) Dose assessment using actual meteorology indicates doses greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE at or beyond (site-specific dose receptor point). (3) Field survey results indicate EITHER of the following at or beyond	No change to the EALs. Added text to the Basis to better explain the relationship between IC AG1 and IC FG1. Included discussion in Developer Notes concerning guidance in the 2017 EPA PAG Manual (EPA-400/R-17/001, *PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents*) per EPFAQ 2017-01.

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	(site-specific dose receptor point): • Closed window dose rates greater than 1,000 mR/hr expected to continue for 60 minutes or longer. • Analyses of field survey samples indicate thyroid CDE greater than 5,000 mrem for one hour of inhalation.		(site-specific dose receptor point): • Closed window dose rates greater than 1,000 mR/hr are expected to continue for 60 minutes or longer. • Analyses of field survey samples indicate thyroid CDE greater than 5,000 mrem for one hour of inhalation.	
IC AG2 EAL #1	Spent fuel pool level cannot be restored to at least (site-specific Level 3 description) for 60 minutes or longer.	IC AG2 EAL #1	Spent fuel pool level cannot be restored to at least (site-specific Level 3 description) for 60 minutes or longer.	No change to IC or EAL, but expanded the guidance in the Developer Notes pertaining to instrumentation that requires manual actions to place in service.
IC CU1 EAL #1 EAL #2	UNPLANNED loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory for 15 minutes or longer.	N/A	None – deleted.	The IC and EALs were removed because the associated events represent a minor loss of inventory control or monitoring, and thus pose a safety risk low enough as to not reasonably require an emergency declaration. The plant is in a cold condition (RCS ≤ 200°F) with significant water volumes in the RCS/RPV and available for addition. Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to an event. During Cold Shutdown and Refueling modes, stations typically have a large contingent of operations and technical staff onsite 24/7 to work the outage. This means the staff needed to respond to an event are available to

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				take prompt actions. An event would not create any impediments to activation of the ERO or performance of security plan-related functions. An appropriate lower bound for declaring an emergency would be if an event resulted in a significant level drop or protracted loss of level indication. In these cases, an event would be classified as an Alert under IC CA1, "Loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory."
IC CU2 EAL #1	Loss of all but one AC power source to emergency buses for 15 minutes or longer.	N/A	None – deleted.	The IC and EAL were removed because the impact from the event poses a safety risk low enough as to not reasonably require an emergency declaration. The plant is in a cold condition (RCS ≤ 200°F) with significant water volumes in the RCS/RPV and available for addition (in many cases, through gravity feed). The event would be addressed by the requirements in plant Technical Specifications (e.g., immediately restore another required power source to OPERABLE status). Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to the event. During Cold Shutdown and Refueling modes, stations typically have a large contingent of operations and technical staff onsite 24/7 to work the outage. This means the staff needed to respond to an event are available to take prompt actions. An appropriate lower bound for declaring an emergency would be if all AC power were lost. In this case, the event would be classified as an Alert under IC CA2, "Loss of all offsite and all onsite AC power to emergency buses for 15 minutes or longer."
IC CU3	(1) UNPLANNED increase in RCS temperature to	N/A	None – deleted.	The EAL was removed because the associated event represent a minor temperature excursion and thus poses a

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EAL #1	greater than (site-specific Technical Specification cold shutdown temperature limit).			safety risk low enough as to not reasonably require an emergency declaration. Although the cold shutdown temperature limit may have been exceeded, bulk boiling of the RCS is not imminent. Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to an event. During Cold Shutdown and Refueling modes, stations typically have a large contingent of operations and technical staff onsite 24/7 to work the outage. This means the staff needed to respond to an event are available to take prompt actions. The event would not create any impediments to activation of the ERO or performance of security plan-related functions. An appropriate lower bound for declaring an emergency would be if the event persisted for a time greater than that specified in Table CA3-1; in that case, it would be classified as an Alert under IC CA3, "Inability to maintain the plant in cold shutdown."
IC CU3 EAL #2	(2) Loss of **ALL** RCS temperature and (reactor vessel/RCS [P*WR*] or RPV [*BWR*]) level indications for 15 minutes or longer.	IC CU3 EAL #1	(1) Loss of **ALL** RCS temperature and (reactor vessel/RCS [P*WR*] or RPV [*BWR*]) level indications for 15 minutes or longer.	Renumbered EAL based on the change discussed above.
IC CU4 EAL #1	Loss of Vital DC power for 15 minutes or longer.	IC CU4 EAL #1	Loss of Vital DC power for 15 minutes or longer.	No change to IC or EAL. Deleted Developer Note on battery voltage – information was judged to be unnecessary since site-specific values should be considered.
IC CU5 EAL #1	Loss of all onsite or offsite communications	IC CU5 EAL #1	Loss of all onsite or offsite communications	No change to IC or EAL. Added Developer Note guidance to address operating experience with

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EAL #2 EAL #3	capabilities.	EAL #2 EAL #3	capabilities.	electronic/internet-based notification methods (e.g., ROP FAQ 20-04).
IC CA1 EAL #1 EAL #2	(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.	IC CA1 EAL #1 EAL #2	(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 [*PWR*] or determined [*BWR*]) for 30 minutes or longer. AND b. EITHER of the following: 1. UNPLANNED increase in (site-specific sump and/or tank) levels due to a loss of (reactor vessel/RCS [*PWR*] or RPV [*BWR*]) inventory. OR 2. Visual observation of UNISOLABLE RCS leakage.	Added a note and basis information to clarify classification expectations if the point of the leakage is above the vessel flange. In EAL #2.a, added a provision for BWRs to use the term "determined" per EPFAQ 2019-04. Changed the 15 minutes criterion in EAL #2.a to 30 minutes to align the EAL more closely with the definition of an Alert (i.e., it was determined that 15 minutes was not long enough to say there was a potential substantial reduction in the level of plant safety). This is appropriate given the RCS conditions during shutdown, available large water volumes, large on-site staff during outages, and bounding for escalation provided by IC CS1. Added EAL statement (2).b.2 since visual observation could also identify unisolable leakage.
IC CA2 EAL #1	Loss of all offsite and all onsite AC power to	CA2 EAL #1	Loss of all offsite and all onsite AC power to	No change to IC or EAL. Added a note and basis information on credit for non-safety-related power

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	emergency buses for 15 minutes or longer.		emergency buses for 15 minutes or longer.	sources; this addition addressed EPFAQ 2015-15. Added information to Developer Note section on the basis for the 15 minutes used in the EAL.
IC CA3 EAL #1	(1) UNPLANNED increase in RCS temperature to greater than (site-specific Technical Specification cold shutdown temperature limit) for greater than the duration specified in the following table.	IC CA3 EAL #1	(1) UNPLANNED increase in RCS temperature to greater than (site-specific Technical Specification cold shutdown temperature limit) for greater than the duration specified in the Table CA3-1, "RCS Heatup Duration Thresholds."	To address operating experience, added two notes and basis information on: 1) How to assess a temperature excursion if the decay heat removal function is available, and 2) Sources to use for RCS temperature information if reliable RCS indications are not available. Also added the table number into the EAL wording.
IC CA3 EAL #2	(2) UNPLANNED RCS pressure increase greater than (site-specific pressure reading). (This EAL does not apply during water-solid plant conditions. [PWR])	N/A	None – deleted.	This EAL was removed because the associated event represents a minor loss of pressure control, and thus poses a safety risk low enough as to not reasonably require an emergency declaration. In addition, the assessment of the EAL is problematic during the specified modes because there may be periods where 1) the instrumentation needed to measure RCS pressure is not available and 2) the RCS is not intact. Further, many plants are challenged to accurately read small changes in RCS pressure during shutdown conditions with available instrumentation. RCS temperature indications are diverse and highly reliable, and sufficient to identify and assess an RCS temperature increase (which is the focus of IC CA3). Should an issue occur with temperature indications during the Cold Shutdown and Refueling mode, it would be resolved promptly since stations typically have a large contingent

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				of operations and technical staff onsite 24/7 to work the outage.
IC CA6 EAL #1	Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode. (1) a. The occurrence of ANY of the following hazardous events: • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager AND b. EITHER of the	IC CA6 EAL #1	Hazardous event affecting two or more SAFETY SYSTEM trains. (1) a. The occurrence of ANY of the following hazardous events: • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager AND b. The event has resulted in BOTH of the following:	The IC and EAL were revised to incorporate lessons learned from operating experience and feedback from the NRC staff. The IC is focused on an event impacting two or more safety system trains, whether they be on the same system or different systems, and regardless of whether their operation is required in the current operating mode. The logic requires degraded performance on one system train and either degraded performance or VISIBLE DAMAGE on another system train. The qualifiers concerning indications of degraded performance and VISIBLE DAMAGE are built into the EAL and explicated in the Basis. If an event causes indications of degraded performance on an operating train of a safety system, then the assessment of the second train is independent of its operability status.

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	following: 1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode. OR 2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.		1. Indications of degraded performance on a SAFETY SYSTEM train. AND 2. EITHER of the following: a) VISIBLE DAMAGE to a second SAFETY SYSTEM train. OR b) Indications of degraded performance to a second SAFETY SYSTEM train.	
N/A	N/A	IC CA7 EAL #1	Control Room evacuation resulting in transfer of plant control to alternate locations.	This IC and EAL were relocated from the H Recognition Category to the C and S Recognition Categories.
IC CS1 EAL #1 EAL #2 EAL #3	(1) a. CONTAINMENT CLOSURE not established. AND b. (Reactor vessel/RCS [PWR] or RPV [BWR]) level less	IC CS1 EAL #1 EAL #2 EAL #3	(1) a. CONTAINMENT CLOSURE not established. AND b. (A decrease in reactor vessel/RCS inventory has caused a loss of	For the PWR portion of EAL #1.b, replaced "Reactor vessel/RCS level less than (site-specific level)" with "A decrease in reactor vessel/RCS inventory has caused a loss of RHR flow for greater than 30 minutes." EAL 1.b is concerned with a loss of RHR flow due to reduced water inventory. The R6 EAL used a loss of level in a loop leg as the threshold indication since the water in a loop is the pump suction source when RHR is in recirculation mode.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
	than (site-specific level). (2) a. CONTAINMENT CLOSURE established. AND b. (Reactor vessel/RCS [PWR] or RPV [BWR]) level less than (site-specific level). (3) a. (Reactor vessel/RCS [PWR] or RPV [BWR]) level cannot be monitored for 30 minutes or longer. AND b. Core uncovery is indicated by ANY of the following: • (Site-specific radiation monitor) reading greater than (site-specific value) • Erratic source range monitor indication [PWR] • UNPLANNED increase in (site-		RHR flow for greater than 30 minutes [PWR] or RPV level less than (site-specific level) [BWR]). (2) a. CONTAINMENT CLOSURE established. AND b. (Reactor vessel/RCS level less than (site-specific level) [PWR] or Adequate core cooling cannot be assured [BWR]]). (3) a. (Reactor vessel/RCS [PWR] or RPV [BWR]) level cannot be (monitored [PWR] or determined [BWR]) for 30 minutes or longer. AND b. Core uncovery is indicated by ANY of the following: • (Site-specific radiation monitor)	The R6 EAL has been problematic for many sites because the temporary instrumentation used to measure loop level, installed to support an outage, either does not have the necessary range to indicate the level called-out in the R6 developer note or becomes unreliable in the lower end of the range. In addition, the IC is applicable in Modes 5 and 6, but the level instrumentation may be available only in certain plant configurations during these Modes. Recognizing these challenges, the R6 developer notes instructs sites encountering one or more of the problems to "not include EAL #1 (classification will be accomplished in accordance with EAL #3)." Since the time between losing pump suction due to low loop level and a loss of RHR flow is very short, a decision was made to focus the EAL on the loss of RHR flow instead of the precursor indication (i.e., replaced the cause [*low loop level leading to RHR suction loss*] with the effect [*lost RHR flow*]). Indications of a loss of RHR flow are available in the Control Room and would be readily recognized by operators. As noted in the IC basis, 30 minutes was selected as a reasonable amount of time for plant operators to recognize the problem, verify that the affected train cannot be restored (i.e., not a transient condition) and secure it, and place another train into service, if available. In summary, this change replaces an EAL that some plants cannot assess with one that all plants can use, thus enhancing the effectiveness of a classification scheme. For EAL 2.b, replaced RPV level criterion with "Adequate core cooling cannot be assured." This change incorporates

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
	specific sump and/or tank) levels of sufficient magnitude to indicate core uncovery • (Other site-specific indications)		reading greater than (site-specific value) • Erratic source range monitor indication [PWR] • UNPLANNED increase in (site-specific sump and/or tank) levels of sufficient magnitude to indicate core uncovery • Visual observation of UNISOLABLE RCS leakage of sufficient magnitude to make core uncovery likely • (Other site-specific indications)	concepts first captured in EPFAQ 2019-04. Although the EPFAQ was a starting point, the information was evolved during the development of Revision 7. The key point is that operators would use whatever core cooling methods are specified in EOPs (which are developed appropriate to the plant design) and would make the declaration if it was determined that "adequate core cooling cannot be assured." This approach is consistent with BWROG guidance for the development of EOPs. In EAL #3.a, added a provision for BWRs to use the term "determined" per EPFAQ 2019-04. Added a bullet to EAL (3).b since visual observation could also identify unisolable leakage.
N/A	N/A	IC CS7 EAL #1	Challenge to core cooling safety function with Control Room evacuated.	This is the relocated IC and EAL from IC HS6. See discussion below for IC HS6.
IC CG1 EAL #1 EAL #2	Loss of (reactor vessel/RCS [*PWR*] or RPV [*BWR*]) inventory affecting fuel clad integrity with containment challenged.	IC CG1 EAL #1	Extended loss of core decay heat removal capability.	This IC and the associated EALs were revised to address issues with the current wording. The goal was to reduce challenges posed by the existing wording associated with assessing core and containment conditions while shut down. For example:

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
				• Some Containment Closure measures may be temporary and may not have remote indications • Instrumentation may be out-of-service for maintenance or repair • Reliance on judgment calls concerning the magnitude of changes to tank or sump levels • Radiation monitor readings were calculated based on assumed conditions and these may be different than actual conditions The revised wording should promote more timely and accurate emergency classifications. Additional supporting information is contained in the Basis and Developer Notes of the revised IC.
IC E-HU1 EAL #1	Damage to a loaded cask CONFINEMENT BOUNDARY. (1) Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading greater than (2 times the site-specific cask specific technical specification allowable radiation level) on the surface of the spent fuel	IC E-HU1 EAL #1	Damage to a loaded spent fuel cask. (1) A closed window survey indicates EITHER of the following: a. For a loaded spent fuel cask on the ISFSI pad - A general area dose rate greater than 10x normal radiation levels at any point along the pad boundary. OR b. For a loaded spent	This IC and EAL were revised to address operating experience. For many sites, the EAL described in Rev. 6 was challenging to assess and to maintain as different cask technologies were placed into service. The revised wording eliminates the "technical specification" criterion (the source of the issues with the Rev. 6 EAL) and focuses instead on a measured dose rate. This approach is used in other EALs (e.g., IC AU3), and should promote more timely and accurate emergency classifications. Additional supporting information in contained in the Basis and Developer Notes.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
	cask.		fuel cask in transit to the ISFSI pad – A cask dose rate greater than 10x the dose rate measured at the time the cask was sealed, at approximately the same distance.	
FPB Table 9-F-1, 9-F-2 and 9-F-3	N/A	FPB Table F-1, F-2 and F-3	N/A	Editorial change – removed the "9" from all instances of "9-F-x" to make consistent with how other tables in NEI 99-01 are identified (i.e., only the Recognition Category letter is used).
FPB Table 9-F-2 Fuel Clad Barrier Loss 1.A	(Site-specific indications that reactor coolant activity is greater than 300 µCi/gm dose equivalent I-131).	FPB Table F-2 Fuel Clad Barrier Loss 1.A	(Site-specific indications of reactor coolant activity corresponding to greater than 2% fuel clad failure)	Changed the basis for the threshold from 300 uCi/cc Dose Equivalent Iodine (DEI) to 2% cladding failure, which is the lower end of the clad failure range that corresponds to 300 uCi/cc DEI. The revised basis will promote a more standardized approach to the calculation of a monitor reading because most licensee core damage assessment tools deal in percents of fuel cladding damage, not DEI concentrations. The legacy 300 uCi/cc DEI threshold basis was kept as an option for sites that want to use it.
FPB Table 9-F-2 Fuel Clad Barrier Loss 2.A	Primary containment flooding required.	FPB Table F-2 Fuel Clad Barrier Loss 2.A	SAG entry required.	This threshold was changed to align with the decision-making guidance in the Emergency Procedure and Severe Accident Guidelines (EPG/SAGs), issued by the BWROG. The EPG/SAGs are used by BWR licensees to create their site-specific EOPs and SAGs. Changes made in EPG/SAGs Revision 3 necessitated this threshold change – refer to EPFAQ 2015-04. The threshold remains appropriate for the guidance in EPG/SAGs Revision 4.
FPB Table	RPV water level cannot be	FPB Table	RPV water level cannot be	No change to the threshold.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
9-F-2 Fuel Clad Barrier Potential Loss 2.A	restored and maintained above (site-specific RPV water level corresponding to the top of active fuel) or cannot be determined.	F-2 Fuel Clad Barrier Potential Loss 2.A	restored and maintained above (site-specific RPV water level corresponding to the top of active fuel) or cannot be determined.	
FPB Table 9-F-2 Fuel Clad Barrier Loss 4.A	Primary containment radiation monitor reading greater than (site-specific value).	FPB Table F-2 Fuel Clad Barrier Loss 4.A	Primary containment radiation monitor reading greater than (site-specific value).	Changed the basis for the threshold from 300 uCi/cc Dose Equivalent Iodine (DEI) to 2% cladding failure, which is the lower end of the clad failure range that corresponds to 300 uCi/cc DEI. The revised basis will promote a more standardized approach to the calculation of a monitor reading because most licensee core damage assessment tools deal in percents of fuel cladding damage, not DEI concentrations. The legacy 300 uCi/cc DEI threshold basis was kept as an option for sites that want to use it. Added a paragraph to the basis to alert classification decision-makers that due to differences between the assumed conditions used to calculate the reading and the actual conditions at the time of the event, the actual percentage of fuel clad damage during an event could be higher or lower than that used to calculate the monitor reading.
FPB Table 9-F-2 Row 5, "Other Indications," and Row 6, "Emergency Director	See wording in Rev. 6.	FPB Table F-2 Row 5, "Emergency Director Judgment"	See wording in Rev. 7.	The "Other Indications" row was deleted because experience has indicated that this row is seldom used. If a site has an indicator that is readily available to assess the status of a fission product barrier, then it is included in one of the thresholds in rows 1 through 4. The deletion of the "Other Indications" row moved up the "Emergency Director Judgment" row (from 6 to 5), so the associated thresholds were renumbered as 5.A and 5.B.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
Judgment"				**** This change affects all 6 columns in Table F-2. ****
FPB Table 9-F-2 RCS Barrier Loss 1.A	Primary containment pressure greater than (site-specific value) due to RCS leakage.	FPB Table F-2 RCS Barrier Loss 1.A	Primary containment pressure greater than (site-specific value) due to RCS leakage.	No change to the threshold.
FPB Table 9-F-2 RCS Barrier Loss 2.A	RPV water level cannot be restored and maintained above (site-specific RPV water level corresponding to the top of active fuel) or cannot be determined.	FPB Table F-2 RCS Barrier Loss 2.A	RPV water level cannot be restored and maintained above (site-specific RPV water level corresponding to the top of active fuel) or cannot be determined.	No change to the threshold.
FPB Table 9-F-2 RCS Barrier Loss 3.A	UNISOLABLE break in ANY of the following: (site-specific systems with potential for high-energy line breaks).	FPB Table F-2 RCS Barrier Loss 3.A	UNISOLABLE break in ANY of the following: (site-specific systems with potential for high-energy line breaks).	No change to the threshold. The Basis section was revised to incorporate information from EPFAQ 2018-02.
FPB Table 9-F-2 RCS Barrier Loss 3.B	Emergency RPV Depressurization.	FPB Table F-2 RCS Barrier Loss 3.B	Emergency RPV Depressurization.	No change to the threshold. The Basis section was revised to incorporate information from EPFAQ 2015-03.
FPB Table 9-F-2 RCS Barrier Potential Loss 3.A	UNISOLABLE primary system leakage that results in exceeding **EITHER** of the following: 1. Max Normal Operating	FPB Table F-2 RCS Barrier Potential Loss 3.A	UNISOLABLE primary system leakage that results in exceeding **EITHER** of the following: 1. Max Normal Operating	No change to the threshold.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
	Temperature **OR** 2. Max Normal Operating Area Radiation Level.		Temperature **OR** 2. Max Normal Operating Area Radiation Level.	
FPB Table 9-F-2 RCS Barrier Loss 4.A	Primary containment radiation monitor reading greater than (site-specific value).	FPB Table F-2 RCS Barrier Loss 4.A	A. 1. Containment radiation monitor reading greater than (site-specific value). **AND** 2. Increase in primary containment sump level.	No change to the first threshold condition. A second threshold condition was added because the primary containment monitors can "see" radioactive shine from RCS piping sources and therefore display elevated readings in the absence of any RCS leakage. Threshold 4.A.2 is intended to prevent an unwarranted emergency declaration when the radiation monitor threshold is met, but there is no containment sump level increase indicative of RCS leakage beyond normally expected amounts. Added a paragraph to the basis to alert classification decision-makers that due to differences between the assumed conditions used to calculate the reading and the actual conditions at the time of the event, the actual percentage of fuel clad damage during an event could be higher or lower than that used to calculate the monitor reading.
FPB Table 9-F-2 CNMT Barrier Loss 1.A	UNPLANNED rapid drop in primary containment pressure following primary containment pressure rise.	FPB Table F-2 CNMT Barrier Loss 1.A	UNPLANNED rapid drop in primary containment pressure following primary containment pressure rise.	No change to the threshold.
FPB Table 9-F-2 CNMT	Primary containment pressure response not consistent with LOCA	FPB Table F-2 CNMT	Primary containment pressure response not consistent with LOCA	No change to the threshold.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
Barrier Loss 1.B	conditions.	Barrier Loss 1.B	conditions.	
FPB Table 9-F-2 CNMT Barrier Potential Loss 1.A	Primary containment pressure greater than (site-specific value).	FPB Table F-2 CNMT Barrier Potential Loss 1.A	Primary containment pressure greater than (site-specific value).	No change to the threshold.
FPB Table 9-F-2 CNMT Barrier Potential Loss 1.B	(site-specific explosive mixture) exists inside primary containment.	FPB Table F-2 CNMT Barrier Potential Loss 1.B	(site-specific deflagration mixture) exists inside primary containment.	Changed "explosive" to "deflagration" to incorporate information from EPFAQ 2019-04. Deflagration is the concentration of concern in BWR EOPs/SAGs. Revised the Basis accordingly.
FPB Table 9-F-2 CNMT Barrier Potential Loss 1.C	HCTL exceeded.	FPB Table F-2 CNMT Barrier Potential Loss 1.C	HCTL exceeded.	No change to the threshold but revised the Basis to remove a reference to "Primary Containment Pressure Limit A" to reflect information in EPFAQ 2019-04. Limit A is no longer used in BWR EPG/SAGs. Also revised the Developer Note to incorporate information from EPFAQ 2019-04; again the goal was to maintain alignment with BWR EPG/SAGs.
FPB Table 9-F-2 CNMT	Primary containment flooding required.	FPB Table F-2 CNMT	It cannot be determined that core debris will be retained in the RPV.	Changed the threshold to incorporate the wording discussed in EPFAQ 2019-04. The change aligns the threshold with the appropriate diagnostic decision point

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
Barrier Potential Loss 2.A		Barrier Potential Loss 2.A		described in the BWROG EPG/SAGs Revision 4. The Basis was revised accordingly.
FPB Table 9-F-2 CNMT Barrier Loss 3.A	UNISOLABLE direct downstream pathway to the environment exists after primary containment isolation signal.	FPB Table F-2 CNMT Barrier Loss 3.A	UNISOLABLE direct downstream pathway to the environment exists after primary containment isolation signal.	No change to the threshold but revised the Basis to incorporate information from EPFAQ 2015-06. The new information provides clarity on the term "direct path."
FPB Table 9-F-2 CNMT Barrier Loss 3.B	Intentional primary containment venting per EOPs.	FPB Table F-2 CNMT Barrier Loss 3.B	Intentional primary containment venting per EOPs/SAGs.	Added the term "SAGs" per EPFAQ 2019-04 since venting could be directed in SAG steps as well. Also revised the Basis to add information from EPFAQ 2019-04 dealing with releases due to intentional containment venting.
FPB Table 9-F-2 CNMT Barrier Loss 3.C	UNISOLABLE primary system leakage that results in exceeding EITHER of the following: 1. Max Safe Operating Temperature. OR 2. Max Safe Operating Area Radiation Level.	FPB Table F-2 CNMT Barrier Loss 3.C	UNISOLABLE primary system leakage that results in exceeding EITHER of the following: 1. Max Safe Operating Temperature. OR 2. Max Safe Operating Area Radiation Level.	No change to the threshold.
FPB Table 9-F-2 CNMT Barrier	Primary containment radiation monitor reading greater than (site-specific value).	FPB Table F-2 CNMT Barrier	Primary containment radiation monitor reading greater than (site-specific value).	No change to the threshold. Added a paragraph to the basis to alert classification decision-makers that due to differences between the assumed conditions used to calculate the reading and the actual conditions at the time of the event, the actual percentage of fuel clad damage

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
Potential Loss 4.A		Potential Loss 4.A		during an event could be higher or lower than that used to calculate the monitor reading.
N/A	N/A	FPB Table F-3 Fuel Clad Barrier Loss 1.A and 1.B	A. RCS/reactor vessel level less than or equal to (site-specific level) for greater than (site-specific minutes) with no injection flow. **OR** B. Hot leg level less than or equal to (site-specific level) for greater than 60 minutes with no injection flow. [*B&W plants only*]	These new thresholds were included to provide a diverse method for assessing a loss of the Fuel Clad Barrier, i.e., separate from assessments based on core exit thermocouple readings. The condition indicates a reactor vessel water level low enough to potentially allow significant superheating of reactor coolant. See the Developer Notes for additional basis information.
FPB Table 9-F-3 Fuel Clad Barrier Potential Loss 1.A	A. RCS/reactor vessel level less than (site-specific level).	FPB Table F-3 Fuel Clad Barrier Potential Loss 1.A and 1.B	A. RCS/reactor vessel level less than or equal to (site-specific level) for greater than 15 minutes with no injection flow. **OR** B. Hot leg level less than or equal to (site-specific level) for greater than 15 minutes with no injection flow. [*B&W plants only*]	The existing threshold was revised to support the addition of the new Fuel Clad Barrier Loss thresholds 1.A and 1.B (see above). The revised thresholds will also better accommodate the RVLIS systems developed by CE and B&W, neither of which have full core height coverage. The condition indicates a reactor vessel water level low enough to potentially allow the onset of localized damage to fuel cladding. See the Developer Notes for additional basis information.
FPB Table	A. Core exit thermocouple	FPB Table	A. Core exit thermocouple	No change to the threshold.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
9-F-3 Fuel Clad Barrier Loss 2.A	readings greater than (site-specific temperature value).	F-3 Fuel Clad Barrier Loss 2.A	readings greater than (site-specific temperature value).	
FPB Table 9-F-3 Fuel Clad Barrier Potential Loss 2.A	A. Core exit thermocouple readings greater than (site-specific temperature value).	FPB Table F-3 Fuel Clad Barrier Potential Loss 2.A	A. Core exit thermocouple readings greater than (site-specific temperature value).	No change to the threshold.
FPB Table 9-F-3 Fuel Clad Barrier Potential Loss 2.B	B. Inadequate RCS heat removal capability via steam generators as indicated by (site-specific indications).	FPB Table F-3 Fuel Clad Barrier Potential Loss 2.B	B. Inadequate RCS heat removal capability via steam generators as indicated by (site-specific indications).	No change to the threshold. Based on operating experience, added a developer note to assist developers at sites using EOP guidance for Combustion Engineering NSSSs.
FPB Table 9-F-3 Fuel Clad Barrier Loss 3.A	A. Containment radiation monitor reading greater than (site-specific value).	FPB Table F-3 Fuel Clad Barrier Loss 3.A	Containment radiation monitor reading greater than (site-specific value).	Changed the basis for the threshold from 300 uCi/cc Dose Equivalent Iodine (DEI) to 2% cladding failure, which is the lower end of the clad failure range that corresponds to 300 uCi/cc DEI. The revised basis will promote a more standardized approach to the calculation of a monitor reading because most licensee core damage assessment tools deal in percents of fuel cladding damage, not DEI concentrations. The legacy 300 uCi/cc DEI threshold basis was kept as an option for sites that want to use it. Added a paragraph to the basis to alert classification decision-makers that due to differences between the

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
				assumed conditions used to calculate the reading and the actual conditions at the time of the event, the actual percentage of fuel clad damage during an event could be higher or lower than that used to calculate the monitor reading.
FPB Table 9-F-3 Fuel Clad Barrier Loss 3.B	B. (Site-specific indications that reactor coolant activity is greater than 300 µCi/gm dose equivalent I-131).	FPB Table F-3 Fuel Clad Barrier Loss 3.B	B. (Site-specific indications of reactor coolant activity corresponding to greater than 2% fuel clad failure)	Changed the basis for the threshold from 300 uCi/cc Dose Equivalent Iodine (DEI) to 2% cladding failure, which is the lower end of the clad failure range that corresponds to 300 uCi/cc DEI. The revised basis will promote a more standardized approach to the calculation of a monitor reading because most licensee core damage assessment tools deal in percents of fuel cladding damage, not DEI concentrations. The legacy 300 uCi/cc DEI threshold basis was kept as an option for sites that want to use it.
FPB Table 9-F-3 Row 5, "Other Indications," and Row 6, "Emergency Director Judgment"	See wording in Rev. 6.	FPB Table F-3 Row 5, "Emergency Director Judgment"	See wording in Rev. 7.	The "Other Indications" row was deleted because experience has indicated that this row is seldom used. If a site has an indicator that is readily available to assess the status of a fission product barrier, then it is included in one of the thresholds in rows 1 through 4. The deletion of the "Other Indications" row moved up the "Emergency Director Judgment" row (from 6 to 5), so the associated thresholds were renumbered as 5.A and 5.B. **** This change affects all 6 columns in Table F-3. ****
FPB Table 9-F-3 RCS Barrier Loss 1.A	A. An automatic or manual ECCS (SI) actuation is required by EITHER of the following: 1. UNISOLABLE RCS	FPB Table F-3 RCS Barrier Loss 1.A	A. RCS subcooling has been lost.	This threshold was revised based on operating experience. A loss of subcooling is the fundamental indication that the available inventory control/makeup systems cannot adequately maintain RCS pressure and inventory against the mass loss through the leak. This condition represents a

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
	leakage OR 2. SG tube RUPTURE.			loss of the RCS Barrier.
FPB Table 9-F-3 RCS Barrier Potential Loss 1.A	A. Operation of a standby charging (makeup) pump is required by EITHER of the following: 1. UNISOLABLE RCS leakage OR 2. SG tube leakage.	FPB Table F-3 RCS Barrier Potential Loss 1.A	A. An automatic or manual ECCS (SI) actuation is required by EITHER of the following: 1. UNISOLABLE RCS leakage OR 2. SG tube RUPTURE.	This threshold was revised based on operating experience. Given the change above, it was determined that the ECCS (SI) actuation threshold would more appropriately define a potential loss of the RCS Barrier. The change also provides a threshold with better alignment to the definition and risk level of an Alert (because a potential loss of the RCS will lead to an Alert declaration).
FPB Table 9-F-3 RCS Barrier Potential Loss 1.B	B. RCS cooldown rate greater than (site-specific pressurized thermal shock criteria/limits defined by site-specific indications).	FPB Table F-3 RCS Barrier Potential Loss 1.B	B. RCS cooldown rate greater than (site-specific pressurized thermal shock criteria/limits defined by site-specific indications).	No change to the threshold.
FPB Table 9-F-3 RCS Barrier Potential Loss 2.A	A. Inadequate RCS heat removal capability via steam generators as indicated by (site-specific indications).	FPB Table F-3 RCS Barrier Potential Loss 2.A	A. Inadequate RCS heat removal capability via steam generators as indicated by (site-specific indications).	No change to the threshold. Based on operating experience, added a developer note to assist developers at sites using EOP guidance for Combustion Engineering NSSSs.
FPB Table 9-F-3	A. Containment radiation monitor reading greater	FPB Table F-3	A. 1. Containment radiation monitor reading greater	No change to the first threshold condition. A second threshold condition was added because the containment

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
RCS Barrier Loss 3.A	than (site-specific value).	RCS Barrier Loss 3.A	than (site-specific value). **AND** 2. Uncontrolled decrease in Pressurizer level.	monitors can "see" radioactive shine from RCS piping sources and therefore display elevated readings in the absence of any RCS leakage. Threshold 3.A.2 is intended to prevent an unwarranted emergency declaration when the radiation monitor threshold is met, but there is no uncontrolled decrease in pressurizer level indicative of RCS leakage beyond normally expected amounts. Added a paragraph to the basis to alert classification decision-makers that due to differences between the assumed conditions used to calculate the reading and the actual conditions at the time of the event, the actual percentage of fuel clad damage during an event could be higher or lower than that used to calculate the monitor reading.
FPB Table 9-F-3 CNMT Barrier Loss 1.A	A. A leaking or RUPTURED SG is FAULTED outside of containment.	FPB Table F-3 CNMT Barrier Loss 1.A	A 1. There is a Potential Loss or Loss of the RCS Barrier due to a leaking or RUPTURED SG. AND 2. The leaking or RUPTURED SG is FAULTED outside of containment.	Revised the threshold to clearly state that the SG leakage or RUPTURE condition must be associated with RCS leakage meeting the threshold for either RCS Barrier Loss 1.A or RCS Barrier Potential Loss 1.A. It was always the intent that the RCS leakage must be to a leaking or RUPTURED SG before an SAE is warranted, but now the expectation is explicit.
FPB Table 9-F-3 CNMT Barrier Potential	A. 1. (Site-specific criteria for entry into core cooling restoration procedure) AND	FPB Table F-3 CNMT Barrier Potential	A. 1. (Site-specific criteria for entry into core cooling restoration procedure) AND	No change to the threshold.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
Loss 2.A	2. Restoration procedure not effective within 15 minutes.	Loss 2.A	2. Restoration procedure not effective within 15 minutes.	
FPB Table 9-F-3 CNMT Barrier Potential Loss 3.A	A. Containment radiation monitor reading greater than (site-specific value).	FPB Table F-3 CNMT Barrier Potential Loss 3.A	A. Containment radiation monitor reading greater than (site-specific value).	No change to the threshold. Added a paragraph to the basis to alert classification decision-makers that due to differences between the assumed conditions used to calculate the reading and the actual conditions at the time of the event, the actual percentage of fuel clad damage during an event could be higher or lower than that used to calculate the monitor reading.
FPB Table 9-F-3 CNMT Barrier Loss 4.A	A. Containment isolation is required AND EITHER of the following: 1. Containment integrity has been lost based on Emergency Director judgment. OR 2. UNISOLABLE pathway from the containment to the environment exists.	FPB Table F-3 CNMT Barrier Loss 4.A	A. Containment isolation is required AND EITHER of the following: 1. Containment integrity has been lost based on Emergency Director judgment. OR 2. UNISOLABLE pathway from the containment atmosphere to the environment exists.	Added the word “atmosphere” to improve clarity; this was a non-intent change. The releases of interest are sourced from gaseous radioactivity in the containment atmosphere.
FPB Table 9-F-3 CNMT	B. Indications of RCS leakage outside of containment.	FPB Table F-3 CNMT	B. 1. There is a Potential Loss or Loss of the RCS Barrier due to	Revised the threshold to clearly state that the leakage outside containment condition must be associated with RCS leakage meeting the threshold for either RCS Barrier

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
Barrier Loss 4.B		Barrier Loss 4.B	UNISOLABLE RCS leakage. AND 2. The leakage is to a location outside of containment.	Loss 1.A or RCS Barrier Potential Loss 1.A. It was always the intent that the leak path must be from the RCS to a location outside containment before an SAE is warranted, but now the expectation is explicit.
FPB Table 9-F-3 CNMT Barrier Potential Loss 4.A	A. Containment pressure greater than (site-specific value)	FPB Table F-3 CNMT Barrier Potential Loss 4.A	A. Containment pressure greater than (site-specific value)	No change to the threshold.
FPB Table 9-F-3 CNMT Barrier Potential Loss 4.B	B. Explosive mixture exists inside containment	FPB Table F-3 CNMT Barrier Potential Loss 4.B	B. Flammable mixture in containment atmosphere	Changed "explosive" to "flammable" as this is the term used for the mixture of concern in PWR EOPs/SAMGs. Revised the Basis accordingly.
FPB Table 9-F-3 CNMT Barrier Potential Loss 4.C	C. 1. Containment pressure greater than (site-specific pressure setpoint) **AND** 2. Less than one full train of (site-specific system or equipment) is operating per design for 15 minutes	FPB Table F-3 CNMT Barrier Potential Loss 4.C	C. 1. Containment pressure greater than (site-specific pressure setpoint) **AND** 2. Less than one full train of (site-specific system or equipment) is operating per design for 15 minutes or	Containments are designed to accommodate the pressures associated with a loss of coolant accident by having either large volumes, as in a large dry or subatmospheric containment, or by utilizing a pressure suppression system to reduce the volume, like an ice-condenser containment. The latter type has a containment design pressure typically in the range of 12 to 15 psig, compared to pressures ≥ 45 psig for large volume designs. Because of their reliance on pressure suppression (heat removal) systems to prevent early failure of the containment, this

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	or longer.		longer. [*Ice condenser plants only*]	threshold was revised to apply only to plants with an ice condenser containment. For large volume containments, pressure-related challenges to containment are appropriately bounded by Containment Barrier Potential Loss threshold 4.A (i.e., would yield more appropriate timing of a General Emergency declaration). For additional information, refer to NUREG/CR-5589, "Assessment of Ice-Condenser Containment Performance Issues," and NUREG/CR-6906, "Containment Integrity Research at Sandia National Laboratories" (as well as numerous other NRC documents on this topic).
IC HU1 EAL #1 EAL #2 EAL #3	Confirmed SECURITY CONDITION or threat.	IC HU1 EAL #1 EAL #2 EAL #3	Confirmed SECURITY CONDITION or threat.	No change to the IC or EALs. Added a basis statement to clarify that a site ISFSI is also within the scope of the IC. Updated basis references to address new NRC notification requirements in 10 CFR Part 73. Deleted a paragraph in the Basis section because it duplicated a paragraph in the Developer Notes section; the information is actually for developer usage.
IC HU2 EAL #1	Seismic event greater than OBE levels. (1) Seismic event greater than Operating Basis Earthquake (OBE) as indicated by: (site-specific indication that a seismic event met or exceeded OBE limits)	IC HU2 EAL #1 EAL #2	Seismic event greater than OBE levels. (1) Seismic event greater than Operating Basis Earthquake (OBE) as indicated by: (site-specific indication that a seismic event met or exceeded OBE limits) OR (2) a.Seismic monitoring	The IC was revised to add a second EAL (#2). This EAL is used when the site's seismic monitoring instrumentation is out-of-service (i.e., a backup EAL). Use of a backup seismic event EAL was discussed in NEI 99-01, Revision 6, but a decision was made to take the information from the Developer Notes and turn it into a separate EAL. EAL #2 will allow operators to make timely and accurate emergency classifications during periods when EAL #1 cannot be assessed.

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			instrumentation is unavailable to the extent that an OBE cannot be determined (e.g., out-of-service for testing or maintenance). AND b. Control Room personnel feel an actual or potential seismic event. AND c. The occurrence of a seismic event is confirmed in a manner deemed appropriate by the Shift Manager or Emergency Director.	
IC HU3 EAL #1 EAL #2 EAL #3 EAL #4 EAL #5	Hazardous Event (1) A tornado strike within the PROTECTED AREA. (2) Internal room or area flooding of a magnitude sufficient to require manual or automatic electrical isolation of a	IC HU5 EAL #1 EAL #2 EAL #3	Hazardous Event (1) Internal room or area flooding of a magnitude sufficient to require manual or automatic electrical isolation of a SAFETY SYSTEM component needed for the current operating	EALs #1 and #3 were removed because the associated events, by themselves, present a safety risk low enough as to not reasonably require an emergency declaration. Should either event result in significant consequences, then the appropriate ECL will be declared based on another IC/EAL (e.g., if a tornado strike caused a loss of offsite power, then an Unusual Event would be declared per IC SU1). Absent a consequence, there is no potential degradation of plant safety. Activation of a site

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	SAFETY SYSTEM component needed for the current operating mode. (3) Movement of personnel within the PROTECTED AREA is impeded due to an offsite event involving hazardous materials (e.g., an offsite chemical spill or toxic gas release). (4) A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles. (5) (Site-specific list of natural or technological hazard events)		mode. (2) A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles. (3) (Site-specific list of natural or technological hazard events)	emergency plan and partial ERO mobilization would not be necessary to respond to an event. A site would have sufficient protocols and capabilities to respond without declaring an emergency (e.g., use of procedures and resources for responding to severe weather or a hazardous material release). This includes performance of post-event assessments and implementation of corrective/ compensatory measures (e.g., by staffing an outage control center). Depending on the circumstances of the event, some plant response actions may also be required by Technical Specifications. A Note was added to the example EALs – "EAL #2 does not apply if the ERO members needed to staff emergency response facilities are prepositioned onsite prior to the event." This note precludes a declaration during events anticipated in advance and for which the site has prepositioned ERO responders (e.g., prior to the arrival of a hurricane, significant rain event or winter storm, wildfire, etc.).
N/A	N/A	IC HU3 EAL #1	Gaseous release impeding access to equipment necessary for normal plant operations, cooldown, or shutdown.	This IC is a relocation of IC HA5. See discussion below for IC HA5.
IC HU4 EAL #1	FIRE potentially degrading the level of safety of the	IC HU4 EAL #1	FIRE potentially degrading the level of safety of the	Rev. 6 EALs #1 & #2 were removed because the associated events represent conditions that pose a safety

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EAL #2 EAL #3 EAL #4	plant.	EAL #2	plant. EAL #1 (previous EAL #3) EAL #2 (previous EAL #4)	risk low enough as to not reasonably require an emergency declaration. Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to the event. A site would have sufficient procedures and capabilities to respond to these events without declaring an emergency (e.g., use of procedures and equipment described in the site Fire Protection Program). This includes performance of firefighting and post-event damage assessments, and identification and implementation of corrective/compensatory measures. Depending on the circumstances of the event, some plant response actions may also be required by Technical Specifications. Should the event have a more than minor impact, the resulting indications and reports would be assessed, and an emergency declared under another IC. EALs #3 and #4 were retained and renumbered as EAL #1 and EAL #2. In response to operating experience, the basis for EAL #2 was revised to make the condition requiring declaration clearer – the intent of the EAL and basis was not changed.
IC HU7 EAL #1	Other conditions exist which in the judgment of the Emergency Director warrant declaration of a (NO)UE.	IC HU6 EAL #1	Other conditions exist which in the judgment of the Shift Manager/ Emergency Director warrant declaration of a (NO)UE.	Renumbered the IC based on other changes. Added “Shift Manager” for clarity.
IC HA1 EAL #1	HOSTILE ACTION within the OWNER	IC HA1 EAL #1	HOSTILE ACTION within the OWNER	No change to the IC or EALs. Pulled the definition of Owner Controlled Area into the Developer Notes (from

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
EAL #2 EAL #3	CONTROLLED AREA or airborne attack threat within 30 minutes.	EAL #2 EAL #3	CONTROLLED AREA or airborne attack threat within 30 minutes.	Appendix B) based on user feedback. Updated basis references to address new NRC notification requirements in 10 CFR Part 73 Deleted a paragraph in the Basis section because it duplicated a paragraph in the Developer Notes section; the information is actually for developer usage.
IC HA5 EAL #1	Gaseous release impeding access to equipment necessary for normal plant operations, cooldown or shutdown.	IC HU3 EAL #1	Gaseous release impeding access to equipment necessary for normal plant operations, cooldown or shutdown.	This IC and EAL were relocated from the Alert level to the Unusual Event level; no changes were made to the IC or EAL wording. The change was made based on a reassessment of the potential impact of the event and associated operating experience. Sites have plans and resources for responding to a hazardous materials event (e.g., those needed to meet OSHA or State requirements). A hazardous materials response does not require a full activation of the site ERO, which would occur following an Alert declaration. The declaration of an Unusual Event would ensure that key ERO managers are made aware of the event and available to support the response if needed. Should the event have significant operational or radiological consequences, enough to warrant an Alert or higher classification, then the emergency declaration would be based on another IC.
IC HA6 EAL #1	Control Room evacuation resulting in transfer of plant control to alternate locations. (1) An event has resulted in plant control being transferred from the	IC CA7 EAL #1 IC SA3 EAL #1	Control Room evacuation resulting in transfer of plant control to alternate locations. (1) An event has resulted in plant control being transferred from the Control	No change to the IC or EAL; however, the IC and EAL were relocated from the H Recognition Category to the C and S Recognition Categories. The new locations were determined to be a more logical fit.

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	Control Room to (site-specific remote shutdown panels and local control stations).		Room to (site-specific remote shutdown panels and local control stations).	
IC HA7 EAL #1	Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert.	IC HA6 EAL #1	Other conditions exist which in the judgment of the Shift Manager/ Emergency Director warrant declaration of an Alert.	Renumbered the IC based on other changes. Added "Shift Manager" for clarity.
IC HS1 EAL #1	HOSTILE ACTION within the PROTECTED AREA. (1) A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site-specific security shift supervision).	IC HS1 EAL #1	HOSTILE ACTION within the PROTECTED AREA. (1) A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site-specific security shift supervision).	No change to the IC or EAL. Updated basis references to address new NRC notification requirements in 10 CFR Part 73 Deleted a paragraph in the Basis section because it duplicated a paragraph in the Developer Notes section; the information is actually for developer usage.
IC HS6 EAL #1	Inability to control a key safety function from outside the Control Room. (1) a. An event has resulted in plant control being transferred from the Control Room to (site-specific remote shutdown panels and local control stations).	IC CS7 EAL #1	Challenge to core cooling safety function with Control Room evacuated. (1) a. Plant control has been transferred to locations outside the Control Room. AND b. EITHER of the	This IC and EAL were relocated from the H Recognition Category to the C and S Recognition Categories. The new locations were determined to be a more logical fit. Simplified the wording in EAL 1.a; there was no change to the intent. Changed EAL 1.b to provide escalation criteria that reflects the intent of the previous criteria but is more

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	AND b. Control of ANY of the following key safety functions is not reestablished within (site-specific number of minutes). • Reactivity control • Core cooling [PWR] / RPV water level [BWR] • RCS heat removal		following Initiating Conditions is met. • IC CA1, Loss of (reactor vessel/RCS [PWR] or RPV [BWR]) inventory • IC CA3, Inability to maintain the plant in cold shutdown	appropriate for shutdown conditions. If IC CA1 or CA3 are met, then there is a challenge to removing heat from the RCS, and an Alert would be declared. Should this condition exist with the Control Room evacuated, then there may be additional challenges to controlling plant safety functions/equipment and escalation to a Site Area Emergency is appropriate.
IC HS6 EAL #1	Inability to control a key safety function from outside the Control Room. (1) a. An event has resulted in plant control being transferred from the Control Room to (site-specific remote shutdown panels and local control stations). AND b. Control of ANY of the following key safety functions is not reestablished within (site-specific number of	IC SS3 EAL #1	Challenge to a fission product barrier with Control Room evacuated. (1) a. Plant control has been transferred to locations outside the Control Room. AND b. ANY of the following conditions exist: • The reactor is not shutdown with adequate shutdown margin verified. • A loss or potential	This IC and EAL were relocated from the H Recognition Category to the C and S Recognition Categories. The new locations were determined to be a more logical fit. Simplified the wording in EAL 1.a; there was no change to the intent. Changed EAL 1.b to provide escalation criteria that reflects the intent of the previous criteria but is more clearly defined. The new wording also promotes timely and accurate emergency declarations since operators will already be monitoring the status of the fission product barrier table thresholds and associated indications. First bullet – a "reactivity control" problem is indicated if the "The reactor is not shutdown with adequate shutdown margin verified."

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	minutes). • Reactivity control • Core cooling [PWR] / RPV water level [BWR] • RCS heat removal		loss of Fuel Clad Barrier (*per the Fission Product Barrier Table*). • A loss or potential loss of RCS Barrier (*per the Fission Product Barrier Table*).	Second bullet - if the Fuel Clad Barrier is potentially lost or lost, then there is a challenge to core cooling. Third bullet – if the RCS Barrier is potentially lost or lost, then there is a challenge to RCS heat removal. If either the Fuel Clad or RCS Barrier is lost, then an Alert would be declared. Should this condition exist with the Control Room evacuated, then there may be additional challenges to controlling plant safety functions/equipment and escalation to a Site Area Emergency is appropriate.
IC HS7 EAL #1	Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency.	IC HS6 EAL #1	Other conditions exist which in the judgment of the Shift Manager/ Emergency Director warrant declaration of a Site Area Emergency.	Renumbered the IC based on other changes. Added "Shift Manager" for clarity.
IC HG1 EAL #1	HOSTILE ACTION resulting in loss of physical control of the facility.	N/A	N/A	The IC and EAL were deleted based on the resolution of EPFAQ 2015-13 (ML16166A366). This EPFAQ addressed the application of lessons learned from the first cycle of Hostile Action-Based (HAB) drills and exercises to IC HG1. NEI and the industry had an opportunity to comment on the EPFAQ, and a public meeting was held to discuss and agree upon the resolution. The key point from the EPFAQ resolution is: "Based on these considerations and given the confusion these redundant EALs had on EAL decision-making at the GE level, consideration can be given to not include EAL HG1 in a site-specific EAL scheme. However, EALs AA2, AS2, AG2, AS1, AG1, HS1, HS6, HS7, and HG7 shall be

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				as provided in NEI 99-01, Revision 6 (ADAMS Accession No. ML 12326A805) to ensure the intended event is appropriately bound at the correct ECL." Although some were renumbered, all the cited EALs have been retained in Revision 7.
IC HG7 EAL #1	Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency.	IC HG6 EAL #1	Other conditions exist which in the judgment of the Shift Manager/ Emergency Director warrant declaration of a General Emergency.	Renumbered the IC based on other changes. Added "Shift Manager" for clarity.
IC SU1 EAL #1	Loss of all offsite AC power capability to emergency buses for 15 minutes or longer. (1) Loss of ALL offsite AC power capability to (site-specific emergency buses) for 15 minutes or longer.	IC SU1 EAL #1	Loss of all offsite AC power capability to emergency buses for 15 minutes or longer. (1) Loss of ALL offsite AC power capability to (site-specific emergency buses) for 15 minutes or longer.	No change to the IC or EAL.
IC SU2 EAL #1	UNPLANNED loss of Control Room indications for 15 minutes or longer.	N/A	None – deleted.	The IC and EAL were removed because the associated event poses a safety risk low enough as to not reasonably require an emergency declaration. Sites have sufficient procedures and capabilities to respond to this condition without the need to activate an emergency plan (e.g., use of protocols and resources for responding to a loss of operationally significant indications). In particular, a site can assess the equipment failure(s) and identify and implement any necessary corrective/compensatory

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				measures without needing to activate the emergency plan. The appropriate lower bound for declaring an emergency due to a loss of indication condition is if it occurs during an event causing significant parameter changes affecting multiple safety systems. That condition is addressed by IC SA2, i.e., if a loss of indication condition occurs in conjunction with a reactor trip or ECCS (SI) actuation, then an Alert would be declared in accordance with IC SA2. More broadly, if activation of the emergency plan is warranted (e.g., an escalation in conditions), there are other ICs/EALs that would be considered for declaring an emergency.
IC SU3 EAL #1 EAL #2	Reactor coolant activity greater than Technical Specification allowable limits.	N/A	None – deleted.	The IC and EALs were removed because the associated event poses a safety risk low enough as to not reasonably require an emergency declaration. Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to the event. A site would have sufficient capabilities to respond to this condition without declaring an emergency (e.g., procedures and resources described in Operations, Radiation Protection and Chemistry Programs). Actions to lower RCS activity and/or shut down the plant would be driven by requirements in the site's Technical Specifications and AOPs/EOPs. This event would not create any impediments to activation of the ERO or performance of security plan-related functions. The appropriate lower bound for declaring an emergency due to RCS radioactivity levels are the thresholds presented in the fission product barrier tables.

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IC SU4 EAL #1 EAL #2 EAL #3	RCS leakage for 15 minutes or longer.	N/A	None – deleted.	The IC and EALs were removed because the associated event poses a safety risk low enough as to not reasonably require an emergency declaration. Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to the event. A site would have sufficient capabilities to respond to this condition without declaring an emergency (e.g., procedures and resources described in Operations, Radiation Protection and Chemistry Programs). Actions to isolate the RCS leakage and/or shut down the plant would be driven by requirements in the site's Technical Specifications and AOPs/EOPs. This event would not create any impediments to activation of the ERO or performance of security plan-related functions. The appropriate lower bounds for declaring an emergency due to RCS leakage are the thresholds presented in the fission product barrier tables.
IC SU5 EAL #1 EAL #2	Automatic or manual (trip [PWR] / scram [BWR]) fails to shutdown the reactor.	N/A	None – deleted.	The IC and EALs were removed because the associated event poses a safety risk low enough as to not reasonably require an emergency declaration. Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to the event. A site would have sufficient procedures and capabilities to respond to an unsuccessful reactor trip/scram without declaring an emergency (e.g., following instructions in EOPs). It is worth noting that light water power reactor facilities are required to have ATWS mitigation equipment and strategies per 10 CFR 50.62 (which helps maintain very low safety risk), and that the associated mitigation equipment is subject to the maintenance requirements in

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				10 CFR 50.65 (thus ensuring high reliability). For this IC, although there was an issue with the RPS, the reactor was promptly shutdown following the initial trip/scram failure (through an alternative method) and no fission product barrier was challenged. The RPS issue would be addressed by the station's corrective action program. In addition, some plant response actions would be required by Technical Specifications. Finally, this condition would not create any impediments to activation of the ERO or performance of security plan-related functions.
IC SU6 EAL #1 EAL #2 EAL #3	Loss of all onsite or offsite communications capabilities.	IC SU4 EAL #1 EAL #2 EAL #3	Loss of all onsite or offsite communications capabilities.	No change to IC or EALs. Renumbered the IC based on other changes. Added Developer Note guidance to address operating experience with electronic/internet-based notification methods (e.g., ROP FAQ 20-04).
IC SU7 EAL #1 EAL #2	Failure to isolate containment or loss of containment pressure control. [*PWR*] (1) a. Failure of containment to isolate when required by an actuation signal. **AND** b. **ALL** required penetrations are not closed within 15	IC SU5 EAL #1 EAL #2	Failure to isolate containment [*PWR*] or loss of containment pressure control. [*Ice Condenser PWR*] (1) a. Failure of containment to isolate when required by an actuation signal. **AND** b. **ALL** required penetrations are not closed within 15	Renumbered the IC based on other changes. No change to EAL #1. Revised IC statement and EAL #2 so that a loss of containment heat removal systems applies only to PWRs with ice condenser containments. This change maintains consistency with the revised threshold for PWR FPB Containment Potential Loss 4.C (see the change basis above for the potential loss threshold).

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	minutes of the actuation signal. (2) a. Containment pressure greater than (site-specific pressure). **AND** b. Less than one full train of (site-specific system or equipment) is operating per design for 15 minutes or longer.		minutes of the actuation signal. (2) a. Containment pressure greater than (site-specific pressure). [*Ice condenser plants only*] **AND** b. Less than one full train of (site-specific system or equipment) is operating per design for 15 minutes or longer. [*Ice condenser plants only*]	
N/A	N/A	IC SU8 EAL #1	Automatic or manual (trip [*PWR*] / scram [*BWR*]) fails to shut down the reactor, and subsequent manual actions taken at the reactor control consoles are not successful in shutting down the reactor. (1) a. An automatic or manual (trip [PWR] / scram [BWR]) fails to shut down the	This is the relocated IC and EAL #1 from IC SA5; see change description below for IC SA5.

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			reactor. AND b. Subsequent manual actions taken at the reactor control consoles are not successful in shutting down the reactor.	
IC SA1 EAL #1	Loss of all but one AC power source to emergency buses for 15 minutes or longer. (1) a. AC power capability to (site-specific emergency buses) is reduced to a single power source for 15 minutes or longer. AND b. Any additional single power source failure will result in a loss of all AC power to SAFETY SYSTEMS.	IC SA1 EAL #1	Loss of all but one AC power source to emergency buses for 15 minutes or longer. (1) Only one power source listed in Table SA1-1 is available to supply power to (site-specific emergency buses) for 15 minutes or longer. Table SA1-1: AC Power Sources Offsite • Source #1 • Source #2, etc. Onsite • Source #1 • Source #2, etc.	No change to IC statement. Revised EAL #1 to simplify the wording; no change to the intent (i.e., the EALs are functionally equivalent). Also added a provision to list credited power sources in the EAL (in Table SA1-1) per EPFAQ 2015-15.

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IC SA2 EAL #1	UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress. (1) a. An UNPLANNED event results in the inability to monitor one or more of the following parameters from within the Control Room for 15 minutes or longer. ANY of the following transient events in progress. • Automatic or manual runback greater than 25% thermal reactor power • Electrical load rejection greater than 25% full electrical load • Reactor scram [BWR] / trip [PWR] • ECCS (SI) actuation • Thermal power oscillations greater than 10% [BWR]	IC SA2 EAL #1	UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress. (1) a. An UNPLANNED event results in the inability to monitor one or more of the following parameters from within the Control Room for 15 minutes or longer. [*PWR*] a. One or more of the following parameters cannot be determined from within the Control Room for 15 minutes or longer due to an UNPLANNED event. [*BWR*] ANY of the following transient events in progress. • Reactor scram [BWR] / trip [PWR] • ECCS (SI) actuation	Added alternative EAL 1.a with a provision for BWRs to use the term “determined” per EPFAQ 2019-04. Added provision for developers to specify the number of steam generators for which auxiliary or emergency feed water flow must be available. This allows the EAL to be more closely aligned with plant EOP requirements. Deleted three of the listed transient events because their occurrence is not risk-significant enough to warrant an Alert declaration. These events would become sufficiently risk-significant if they lead to a reactor scram [BWR] / trip [PWR] or an ECCS (SI) actuation – these are the two transient events that have been retained. In addition, the three deleted events can challenge a Control Room staff’s ability to determine the start time of the event. In many cases, a detailed review of computer logs or analog recorders would be required; these reviews could likely not be completed in time to support a required emergency declaration and notification.

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N/A	N/A	IC SA3 EAL #1	Control Room evacuation resulting in transfer of plant control to alternate locations. (1) An event has resulted in plant control being transferred from the Control Room to (site-specific remote shutdown panels and local control stations).	This IC and EAL were relocated from IC HA6. No change to IC or EAL.
IC SA5 EAL #1	Automatic or manual (trip [PWR] / scram [BWR]) fails to shutdown the reactor, and subsequent manual actions taken at the reactor control consoles are not successful in shutting down the reactor. (1) a. An automatic or manual (trip [PWR] / scram [BWR]) did not shutdown the reactor. **AND** b. Manual actions taken at the reactor control consoles are not	IC SU8 EAL #1	Automatic or manual (trip [PWR] / scram [BWR]) fails to shut down the reactor, and subsequent manual actions taken at the reactor control consoles are not successful in shutting down the reactor. 1) a. An automatic or manual (trip [*PWR*] / scram [*BWR*]) fails to shut down the reactor. **AND** b. Subsequent manual actions taken at the reactor control consoles are not successful in shutting	This IC and EAL were relocated from the Alert level to the Unusual Event level. Also made minor wording changes to the IC and EAL – no changes to the intent. The relocation change was made based on a reassessment of the potential event risk and consequences, and associated operating experience. Activation of a site emergency plan and partial ERO mobilization would not be necessary to respond to the event. A site would have procedures and capabilities to respond to an unsuccessful reactor trip/scram (e.g., strategies and equipment to meet 10 CFR 50.62), including the use of alternative measures to shut down the reactor before a fission product barrier is challenged (e.g., prompt local opening of reactor trip breakers). In addition, some plant response actions would be required by Technical Specifications. If the failure to shut down the reactor is prolonged enough to challenge to the core cooling [*PWR*] / RPV water level [*BWR*] or RCS heat removal safety functions, the emergency classification level will escalate to an Alert (or higher) via the thresholds in the Fission Product Barrier (FPB) Matrix,

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	successful in shutting down the reactor.		down the reactor.	or to a Site Area Emergency via IC SS8. Absent plant conditions that exceed an Alert or higher threshold/EAL, an Unusual Event declaration is appropriate for this event.
IC SA9 EAL #1	Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode. (1) a. The occurrence of ANY of the following hazardous events: • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager AND b. EITHER of the	IC SA7 EAL #1	Hazardous event affecting two or more SAFETY SYSTEM trains. (1) a. The occurrence of ANY of the following hazardous events: • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • (site-specific hazards) • Other events with similar hazard characteristics as determined by the Shift Manager AND b. The event has resulted in BOTH of the	The IC and EAL were revised to incorporate lessons learned from operating experience and feedback from the NRC staff. The IC is focused on an event impacting two or more safety system trains, whether they be on the same system or different systems, and regardless of whether their operation is required in the current operating mode. The logic requires degraded performance on one system train and either degraded performance or VISIBLE DAMAGE on another system train. The qualifiers concerning indications of degraded performance and VISIBLE DAMAGE are built into the EAL and explicated in the Basis. If an event causes indications of degraded performance on an operating train of a safety system, then the assessment of the second train is independent of its operability status.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
	following: 1. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM needed for the current operating mode. OR 2. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure needed for the current operating mode.		following: 1. Indications of degraded performance on a SAFETY SYSTEM train. AND 2. EITHER of the following: a) VISIBLE DAMAGE to a second SAFETY SYSTEM train. OR b) Indications of degraded performance to a second SAFETY SYSTEM train.	
IC SS1 EAL #1	Loss of all offsite and all onsite AC power to emergency buses for 15 minutes or longer.	IC SS1 EAL #1	Loss of all offsite and all onsite AC power to emergency buses for 15 minutes or longer.	No change to IC or EAL. Added a note and basis information to allow credit for non-safety-related power sources; this addition addressed EPFAQ 2015-15.
N/A	N/A	IC SS3	Challenge to a fission product barrier with Control Room evacuated.	This IC and EAL were relocated from IC HS6. See discussion above for HS6.
IC SS5	Inability to shutdown the reactor causing a challenge to (core cooling [*PWR*] /	IC SS8	Inability to shut down the reactor causing a challenge to (core cooling [*PWR*] /	Renumbered the IC in support of other changes. Minor wording changes to IC and EALs – no changes in intent.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
	RPV water level [*BWR*]) or RCS heat removal. (1) a. An automatic or manual (trip [PWR] / scram [BWR]) did not shutdown the reactor. **AND** b. All manual actions to shutdown the reactor have been unsuccessful. **AND** c. **EITHER** of the following conditions exist: • (Site-specific indication of an inability to adequately remove heat from the core) • (Site-specific indication of an inability to adequately remove heat from the RCS)		RPV water level [*BWR*]) or RCS heat removal. (1) a. An automatic or manual (trip [PWR] / scram [BWR]) fails to shut down the reactor. **AND** b. All subsequent manual actions to shut down the reactor have been unsuccessful. **AND** c. **EITHER** of the following conditions exist: • (Site-specific indication of an inadequate core cooling) • Site-specific indication of inadequate RCS heat removal [*PWR*] or a challenge to the Heat Capacity Temperature Limit [*BWR*].	

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
IC SS8	Loss of all Vital DC power for 15 minutes or longer. (1) Indicated voltage is less than (site-specific bus voltage value) on ALL (site-specific Vital DC busses) for 15 minutes or longer.	IC SS6	Loss of all Vital DC power for 15 minutes or longer. (1) Indicated voltage is less than (site-specific bus voltage value) on ALL (site-specific Vital DC busses) for 15 minutes or longer.	Renumbered the IC based on other changes. No change to IC or EAL. Deleted Developer Note on battery voltage – information was judged to be unnecessary since site-specific values should be considered.
IC SG1 EAL #1	Prolonged loss of all offsite and all onsite AC power to emergency buses. (1) a. Loss of ALL offsite and ALL onsite AC power to (site-specific emergency buses). AND b. EITHER of the following: • Restoration of at least one AC emergency bus in less than (site-specific hours) is not likely. • (Site-specific indication of an inability to adequately remove heat from the core)	IC SG1 EAL #1	Extended loss of all AC power to emergency buses. (1) a. Loss of ALL offsite and ALL onsite AC power to (site-specific emergency buses). AND b. (Site-specific indication of inadequate core cooling)	This IC and EAL were revised to remove to the loss of AC power coping time assessment as it is no longer relevant given the requirements in 10 CFR 50.155 (and the associated capabilities at each site). The new wording places the focus on indications of potential or actual core damage (i.e., “inadequate core cooling”). This condition challenges the RCS and Fuel Clad Barriers and, if further mitigation actions are unsuccessful, the Containment Barrier.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
IC SG8	Loss of all AC and Vital DC power sources for 15 minutes or longer. (1) a. Loss of ALL offsite and ALL onsite AC power to (site-specific emergency buses) for 15 minutes or longer. AND b. Indicated voltage is less than (site-specific bus voltage value) on ALL (site-specific Vital DC busses) for 15 minutes or longer.	IC SG6	Loss of all AC and Vital DC power sources for 15 minutes or longer. (1) a. Loss of ALL offsite and ALL onsite AC power to (site-specific emergency buses) for 15 minutes or longer. AND b. Indicated voltage is less than (site-specific bus voltage value) on ALL (site-specific Vital DC busses) for 15 minutes or longer.	Renumbered the IC based on other changes. No change to IC or EAL. Added a note and basis information to address credit for non-safety-related power sources; this addition addressed EPFAQ 2015-15. Deleted Developer Note on battery voltage – information was judged to be unnecessary since site-specific values should be considered.
Appendix A	Acronyms and Abbreviations	Appendix A	Acronyms and Abbreviations	Added a few new abbreviations.
Appendix B	Definitions	Appendix B	Definitions	• Deleted the term CONFINEMENT BOUNDARY since it is no longer used in the scheme. • Deleted the term IMMINENT since it is no longer used in the scheme; determined there is no case where a definition beyond that commonly used and understood is necessary. • Deleted the term NORMAL LEVELS since it is no longer used in the scheme. • Moved the term OWNER CONTROLLED AREA to the Developer Notes of IC HA1 where it is used and can be more easily referenced.

Rev. 6 IC and EAL#	Rev. 6 Wording	Rev. 7 IC and EAL#	Rev. 7 Wording	Change Summary/Basis
				• Revised the term PROJECTILE to incorporate the NRC's definition. • Updated the term UNISOLABLE to incorporate EPFAQ 2018-01. • Revised the term VISIBLE DAMAGE to better align with changes made to IC CA6 or SA7. • Added a provision for BWR licensees to include definitions of "cannot be maintained above/below" and "cannot be restored above/below," from EPG/SAG, Revision 4, to their emergency classification scheme, if those definitions appear in the site-specific EOPs and/or controlling development procedures. This change addressed information in EPFAQ 2019-04.
Appendix C	All ICs and EAL in Recognition Category PD, Permanently Defueled	N/A	None – deleted.	This Recognition Category was deleted. Licensees can continue to follow the decommissioning scheme guidance in NEI 99-01, Revision 6, which is endorsed in Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 6. Future changes to decommissioning schemes will be addressed in guidance issued with the "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning" rule. E.g., DG-1346, "Emergency Planning for Decommissioning Nuclear Power Reactors" [*proposed new Regulatory Guide 1.235*].