EMERGENCY PREPAREDNESS FREQUENTLY ASKED QUESTION (EPFAQ)

EPFAQ Number: 2015-009 **DATE ACCEPTED** 09-Oct-15

ORIGINATOR KEN EVANS **EMAIL**

ORGANIZATION Illinois Emergency Management Ag **PHONE #**

STATUS:
PUBLIC COMMENT PERIOD OPEN

RELEVANT GUIDANCE: NEI 99-01 R6

APPLICABLE SECTION(S EALS AG1 AND AS1

QUESTION OR COMMENT

The implementation guidance provided in NEI [Nuclear Energy Institute] 99-01, Revision 6, ["Development of Emergency Action Levels for Non-Passive Reactors"], for EALs [emergency action levels] AG1 and AS1 is vague in reference to the selection of the source term. The developer notes provided on pages 42 and 46 (for AS1 and AG1, respectively) do not specify an actual source term. The only guidance provided is the fourth bullet, which states, "Acceptable sources of this information include, but are not limited to, the RETS [Radiological Effluent Technical Specifications]/ODCM [Offsite Dose Calculation Manual], and values used in the site's emergency dose assessment methodology." While developers are cautioned to ensure that the method used results in a logical escalation in the ECL [emergency classification level], they are not provided guidance for the selection of an appropriate source term. As a result, some licensees have used an ODCM source term that contains only noble gases. This is not considered to be a realistic source term for a General Emergency or Site Area Emergency Classification, in that at this accident level severity, the source term would be expected to include non-noble components. For example, the EALs for AS1 and AG1 include dose set points of 500 and 5000 mrem thyroid CDE [committed dose equivalent], respectively. Because it is recognized that the iodine fraction of the source term could be limiting in these EALs, the thyroid CDE PAG [protective action guide] was also included in AS1 and AG1. Excluding non-noble components in calculations of effluent set points for these two EALs results in values that are extremely large and non-conservative. Based on the above, is it acceptable to use a noble gas only source term for the threshold calculation of effluent monitor readings for EALs AG1 and AS1?

PROPOSED SOLUTION

The guidance in NEI 99-01, Revision 6, is flexible with respect to the selection of a source term for use in calculating effluent monitor readings for EAL thresholds. In previous versions of NEI 99-01, the preferred source term was that associated with the ODCM. In NEI 99-01, Revision 6, Developer Note wording was added to explicitly allow consideration of "values used in the site's emergency dose assessment methodology" as well as other appropriate source terms. This was done to address issues with insufficient spacing between EAL threshold values for different emergency classification levels and limitations on the range of some effluent monitors (e.g., a calculated threshold value could be higher than the range of a monitor).

It should be kept in mind that the effluent monitor reading EALs are used prior to the establishment of a dose assessment capability using real-time meteorological data; once the dose assessment capability is established, the effluent monitor reading EALs are no longer used. As required by their emergency plans, each licensee has an on-shift dose assessment capability that can be established shortly after the initiating event (typically within 15 minutes and no later than 30 minutes). A release occurring this early in an event would most likely be composed primarily of noble gases. The ODCM source term is therefore an appropriate basis for calculating effluent monitor readings used in EALs because it is typically composed mostly of noble gases.

Finally, the Developer Notes for Initiating Condition AG1 state, in part, "The effluent monitor readings should correspond to a dose of 1,000 mrem TEDE [total effective dose equivalent] or 5,000 mrem thyroid CDE at the 'site-specific dose receptor point' (consistent with the calculation methodology employed) for one hour of exposure." [*A similar Developer Note is included with Initiating Conditions AA1 and AS1.*] Nuclear power plant effluent release points typically have one radiation monitor. Given that the effluent monitor reading EALs are calculated using an assumed source term, the EAL threshold value will necessarily be determined by identifying the controlling Protective Action Guide dose limit – either the 1 rem TEDE dose or the 5 rem thyroid CDE dose. In other words, a licensee would calculate the effluent monitor readings that correspond to 1 rem TEDE and 5 rem thyroid CDE, and then select the lower value as the EAL threshold. It is expected that the TEDE dose would govern in cases where the assumed source term is dominated by noble gases (e.g., very little iodine), and the associated effluent monitor reading would be selected as the EAL threshold value.

NRC RESPONSE:

The NRC generally agrees with the proposed solution. Establishing the reading of a radiation monitor corresponding to an EAL threshold relies on the assumption of parameters that are not known at the time the threshold is being determined. This is a known situation, which is compensated for by performing timely dose assessments. The two unknowns are (1) the release stream source term, and (2) the meteorological conditions at the time of the release. The difference between the assumed values and those that actually exist at the time of the release creates uncertainty in the EAL threshold. The release source term is used to (1) establish the isotopic mix of the release stream that the monitor is detecting and measuring, and (2) normalize the dose conversion factors (DCFs) for the assumed isotopic mix. The response of a radiation monitor is dependent of the energy of the emissions that enter the detector. 1 µCi/cc of Xe-133 (0.067 MeV) will not yield the same reading as 1 µCi/cc of I-131 (0.365 MeV). Typical radiation detectors are designed to achieve a flat response with energy, but typically only achieve 15-20% variation with energy. The NRC notes that newer digital radiation monitoring systems have an imbedded engineering unit conversion factor in the channel database that converts the detector count rate to µCi/cc before displaying it. These factors are typically established by the architect-engineer based on the vendor's isotopic efficiencies of the detector and an isotopic source term established by the architect-engineer. The differences between the projected accident source term and the source term used in establishing the monitor engineering unit conversion factor needs to be considered.

The NRC emphasizes that the EAL threshold calculations should not summarily dismiss radionuclides other than noble gases. The typical core inventory after a long-term run at 100% power has comparable magnitudes of noble gases and iodine. The projected core release fraction to the containment for halogens (gap & early in-vessel) is 40% for a pressurized water reactor (PWR) loss-of-coolant accident (LOCA) and 30% for a boiling water reactor (BWR) LOCA. While there are natural phenomena and engineered design features that can mitigate a release of radioiodines, the release of radioiodines is still a significant concern, especially considering their greater dose contribution than that for noble gases. A thyroid CDE EAL threshold can be more limiting than a TEDE threshold.

EMERGENCY PREPAREDNESS FREQUENTLY ASKED QUESTION (EPFAQ)

EPFAQ Number: 2015-010

DATE ACCEPTED 09-Oct-15

STATUS: PUBLIC COMMENT PERIOD OPEN

ORIGINATOR KEN EVANS

EMAIL

ORGANIZATION Illinois Emergency Management Ag

PHONE #

RELEVANT GUIDANCE: NEI 99-01 R6, RTM-96

APPLICABLE SECTION(S FISSION BARRIER MATRIX

QUESTION OR COMMENT

The guidance provided for determination of loss or potential loss of the three fission product barriers in NEI 99-01, Revision 6, is based on several plant variables. The plant high-range containment radiation monitor is one of the variables used in the calculation. Initiating conditions are shown for BWRs on page 83 (example 4) and PWRs on page 98 (example 3.A). These conditions reference the determination of a site-specific value that is calculated based on a percentage of fuel clad damage. Many licensees have referenced the graphs in RTM-96 [NUREG/BR-0150 Vol. 1, Rev. 4, “RTM-96 Response Technical Manual”], as listed in Figures A.5-A.12. In an attempt to clarify the values, these figures were reproduced in RTM-2002 [a training manual version of RTM-96 with updates] with percent fuel melt/clad damage values added to relate with the dose rates on the ordinate axis. Despite this clarification, some licensees continued to use a logarithmic relationship between percent clad damage and containment radiation reading in their core damage procedure. This was contrary to the fact that the percentage of fuel clad failure is understood to be directly proportional to containment radiation reading. This relationship is demonstrated by the equations in the following guidance documents:

1. Westinghouse Owners Group Core Damage Assessment Guidance (WCAP-14696-A, Revision 1, 1999), p. 3

$$\textbf{\% Clad Damage(CRM)} = \frac{\textbf{Current Containment Radiation Level}}{\textbf{Predicted Containment Radiation Level at 100\% Power}}$$

2. BWR Owners’ Group Guidance Methods of Estimating Core Damage in BWRs (NEDC-33045P, Revision 0, July 2001), p. B-11

% Cladding Damage= Indicated Radiation Level 100%/ Clad Damage Radiation Level *X 100*

Does the NRC agree that there is a direct proportionality in the amount of fuel clad damage and the containment radiation monitor reading? Does the NRC also agree that the figures for clad damage in the RTM should be read that way?

PROPOSED SOLUTION

The industry agrees that a definitive answer to this question would be beneficial to all stakeholders. To assist the staff with their deliberations, the following points are noted.

1. The question refers to Westinghouse Owners Group Core Damage Assessment Guidance (WCAP-14696-A, Revision 1, 1999), and specifically to a formula found on page 1 of 2 in Section A, Fuel Rod Clad Damage. The question asserts that this formula implies a “directly proportional” relationship between the predicted damage and the damage that would be expected for 100% damage as derived from Figure 3. Figure 3 is a graph entitled, “Containment Radiation Level vs. Time for 100% Clad Damage Release,” which plots the Containment Dose Rate (Rad/hr) as a function of Time Since Shutdown (hrs). The graph indicates that the containment dose rates decrease in an exponential manner (reflecting the expected rate of radioactive decay); the graph’s y-axis plots these values using a logarithmic scale. Therefore, while a direct proportionality does exist for purposes of estimating damage at any particular time after shutdown, the containment dose rates decrease in a time-dependent exponential manner.

2. In a letter dated August 20, 2001, the NRC staff approved a request by the BWROG [BWR Owners Group] to withhold NEDC-33045P, “Methods of Estimating Core Damage in BWRs,” from public disclosure pursuant to 10 CFR 2.790 since the document contains trade secrets or proprietary commercial information (reference ML012320276). Although the document is not available for public viewing, the core damage assessment

methodologies of several BWR sites that reference NEDC-33045P as a source document are publicly available, and these were reviewed. Similar to the Westinghouse approach cited above, the BWR core damage assessment methodology relies partly on the comparison on an actual containment dose reading to a time-dependent reading determined from a graph. And like the observation above, the applicable graph indicates that the containment (drywell) dose rates decrease in a time-dependent exponential manner with the y-axis plotting these values on a logarithmic scale.

NRC RESPONSE:

The objective of the RTM was to provide the NRC Operations Center personnel with a method to perform a rapid independent evaluation of the event at any U.S. plant to assess the appropriateness of licensees' emergency classification levels and, as applicable, protective action recommendations. The RTM methods do not represent any particular plant configuration. Before using the RTM graphs, a licensee should confirm their representativeness for its facility.

The question appears to imply a greater accuracy for the containment monitor versus core damage estimate than can generally be realized. The relationship between the amount of core damage within the reactor pressure vessel and a containment dome monitor is subject to several independent variables, some of which are plant, site, or accident-specific and cannot be accurately reduced to a direct proportionality between two variables, regardless of whether they are plotted on a logarithmic scale or linear scale. Some of these variables include the:

- power history of the core,
- release fraction from the fuel to the reactor coolant system (RCS),
- rate of the RCS leakage to the containment,
- plant-specific homogeneity of the distribution of the radioactive material through the containment,
- plant-specific impact of containment sprays on that distribution,
- plant-specific stratification within the containment,
- decay time since the reactor tripped, the time since the leak started, and,
- plant-specific exposure geometry for the containment dome monitor(s).

In developing the graphs presented in the RTM and the owner groups' core damage estimation, the analysts assumed certain fixed values for the various variables. The developed graphs are accurate only to the extent that the assumed values are representative of the plant, site, or accident for which they are being used. As an example, consider the NEI 99-01 Rev. 6 developer note for BWR Fuel Barrier:

The [radiation monitor] reading should be determined assuming the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory with RCS radioactivity concentration equal to 300 µCi/gm dose equivalent I-131, into the primary containment atmosphere.

EMERGENCY PREPAREDNESS FREQUENTLY ASKED QUESTION (EPFAQ)

EPFAQ Number: 2015-012

DATE ACCEPTED 09-Oct-15

ORIGINATOR DAVID YOUNG

EMAIL dly@nei.org

ORGANIZATION Nuclear Energy Institute (NEI)

PHONE # 202.739.8127

STATUS:
PUBLIC COMMENT PERIOD OPEN

RELEVANT GUIDANCE: SOME PLANT PARAMETER INFORMATION AND DATA MAY NOT BE AVAILABLE IN THE CONTROL ROOM AND MUST BE OBTAINED FROM OTHER REMOTE OR LOCALLY READ SOURCES. CAN THIS TYPE OF INFORMATION AND DATA SOURCE BE USED IN AN EMERGENCY ACTION LEVEL (EAL)?

APPLICABLE SECTION(S NEI 99-01 (ALL REVISIONS)

QUESTION OR COMMENT

Some plant parameter information and data may not be available in the Control Room and must be obtained from other remote or locally read sources. Can this type of information and data source be used in an Emergency Action Level (EAL)?

PROPOSED SOLUTION

The overriding consideration is to develop EALs that can support the "capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded," as required by 10 CFR 50, Appendix E, Section IV.C.2. In support of this requirement, emergency classification scheme developers should specify EAL parameter information and data that can be read in the Control Room, or readily determined at another remote location or locally and made available to the Control Room. To illustrate this expectation, it would normally be acceptable to specify the following information and data sources in an EAL.

- An indication located anywhere inside the Control Room;
- An indication located outside the Control Room but within close proximity such that operators could obtain the data themselves. For example, a fire alarm zone panel that is located just outside the Control Room doors;
- An indication located outside the Control Room and not within close proximity but that can be determined and provided to the Control Room staff within a time frame sufficient to support an emergency declaration within 15 minutes of other indications or reports of an off-normal condition. For example, a reading from a Continuous Air Monitor located on the refueling deck.

Emergency classification scheme developers should confirm that personnel can assess all EAL parameters under the environmental conditions that would likely prevail at the time of the emergency assessment and response. For example, the use of water level markings available on a building wall to support a flooding assessment may be used as a flooding EAL threshold provided that the ability of personnel to safely and reliably obtain the readings during potential flood-related conditions is verified.

With respect to the last bullet above, NEI 99-01, Revision 6, contains three generic EALs that make use of wide-range spent fuel level instrumentation installed to meet the requirements of NRC Order EA-12-051. The guidance documents associated with this Order allow licensees latitude in the design and operation of the instrumentation. For example, the instrumentation may be operable only during an event involving an extended loss of AC [alternating current] power (i.e., actions are taken at the time of the emergency to place the instrumentation in service). In addition, the level indications may be available in the Control Room or at an in-plant location, and determined in accordance with procedures and guidelines used only under certain circumstances. As a result, there may be cases where the acquisition of wide-range spent fuel pool level readings will require more than 15 minutes from an indication or report of an off-normal condition; however, these EALs should still be included as they provide a redundant path for escalating an emergency classification during a beyond design basis event. The Developer Notes for these EALs encourage developers to ensure that their EALs and Bases reflect any site-specific constraints or limitations associated with the design or operation of the instrumentation. This will allow the NRC staff reviewer of an EAL scheme conversion submittal to understand how the site-specific instrumentation will be used.

NRC RESPONSE:

This question has been addressed in NRC Interim Staff Guidance (ISG) NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," (ADAMS Accession No. ML113010523). No further action to be taken with this EPFAQ.

EPFAQ Number: 2015-013

DATE ACCEPTED 09-Oct-15

STATUS: PUBLIC COMMENT PERIOD OPEN

ORIGINATOR DON JOHNSON

EMAIL don.johnson@nrc.gov

ORGANIZATION USNRC

PHONE # 301.287.9230

RELEVANT GUIDANCE: NEI 99-01 R6

APPLICABLE SECTION(S HG1

QUESTION OR COMMENT

This EAL has two components, each predicated upon Hostile Action occurring at the facility. Should consideration be given to split this EAL into two parts; one for a Hostile Action resulting in a loss of the ability to cool the reactor such that fuel damage is likely within 4-hours, and one for a Hostile Action resulting in a loss of physical control of spent fuel?

PROPOSED SOLUTION

The premise of the question is not quite clear – there is one HOSTILE ACTION General Emergency Initiating Condition (IC); this is IC HG1. In NEI 99-01 R5, IC HG1 has 2 Emergency Action Levels (EALs) and in NEI 99-01 R6, 1 EAL. In both cases, the EALs deal with threats to reactor key safety functions and spent fuel cooling. It is assumed that what is being proposed here is to retain the one IC, HG1, and under it would be the 2 EALs described in the question.

The industry desires EALs that are as objective and measurable as reasonably achievable. These attributes help to drive correct, timely and consistent emergency declarations. Evaluating the proposed 4-hour criterion would be somewhat subjective in that a decision-maker would need to consider several factors, some of which may be imperfectly known or require estimates, and the overall probability of successful and timely implementation of mitigating actions. This subjectivity may lead to inconsistent emergency declarations (i.e., presented with a given set of conditions, one Emergency Director may believe that fuel damage is likely within 4-hours while another may not).

With respect to spent fuel, the industry suggests using a different term/phrase than “loss of physical control.” The primary threat of a HOSTILE ACTION directed at spent fuel is a loss of cooling resulting from a reduction in spent fuel pool water inventory. Although water inventory could be reduced through a loss of spent fuel pool cooling (i.e., loss of cooling systems leading to pool heatup and boiloff), an immediate threat to the spent fuel under such circumstances would not materialize for many hours (typically greater than 24 hours). The event presenting the greater risk is a HOSTILE ACTION during which adversaries’ actions are successful in penetrating the spent fuel pool liner to a degree sufficient to allow a rapid drain-down of the spent fuel pool. Neither of these loss-of-cooling scenarios involves a “loss of physical control of spent fuel.”

Given the above points, the industry proposes the following IC and EALs for staff consideration.

Revise IC HG1 to read:

> HOSTILE ACTION affecting the capability to cool irradiated fuel EAL for fuel in the reactor:

The industry believes that the symptom-based thresholds found in the BWR and PWR fission product barrier tables would also be useful in identifying plant conditions warranting a General Emergency declaration in response to a hostile action. These thresholds are both objective and measurable, and well understood by emergency classification decision-makers. The following EAL is provided for consideration.

> A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site-specific security shift supervision).
>
> AND
>
> A Potential Loss of the Fuel Clad Barrier as determined by the Fission Product Barrier Table.

EAL for water-cooled spent fuel (i.e., in the pool):

A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (site-specific security shift supervision).

AND

With spent fuel present, water level in the spent fuel pool CANNOT be:

- Maintained above (site-specific Level 3 value), **OR**
- Monitored for 2-hours or longer **AND** Emergency Director judgment that the HOSTILE ACTION has resulted in leakage from the spent fuel pool.

-
- Another solution to consider is deleting:
-
  - the reactor fuel aspect of IC HG1 and rely upon the bounding aspects of other ICs and EALs to drive the General Emergency declaration (e.g., AG1, FG1, SG1 or SG 8), and/or
  - the spent fuel pool aspect of IC HG1 and rely upon the bounding aspects of other ICs and EALs to drive the General Emergency declaration (e.g., AG1, AG2, SG1 or SG 8).

Following the selection of a solution by the staff, the industry would like to have an opportunity to provide input on recommended Basis and Developer Note information to be included in the final EP FAQ as these are important for consistent implementation. We anticipate providing this input during the public comment period.

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

NRC RESPONSE:

This particular EAL, HG1 (from NEI 99-01 Revision 6), was developed as a result of the direction provided in NRC Bulletin 2005-02, "Emergency Preparedness and Response for Security-Based Events," (ADAMS Accession No. ML051740058). This EAL was part of a set of recommended EALs to highlight security-related events and the recommended emergency classification level (ECL) each type of event warranted (i.e., Unusual Event (UE), Alert (A), Site Area Emergency (SAE), or General Emergency (GE)). Since the publication of this Bulletin (July 2005) there has been a significant number of drills and exercises observed and evaluated by the staff, and many of them have had NRC participation (Headquarters and Regions). Many of these were Hostile Action Based (HAB). The overlap and redundancy of EALs, while typically not an issue and, in fact, somewhat expected, has (for security-based events) led to some confusion, particularly when evaluating the impact on public health and safety.

The intent of the Bulletin, for this EAL, was to declare a GE when a Hostile Action led to a loss of control of plant equipment needed to maintain safety functions (reactivity control, core cooling (pressurized water reactor (PWR)/reactor pressure vessel (RPV) water level (BWR), and RCS heat removal). The basis section also stated that this EAL should address a loss of physical control of spent fuel pool cooling systems if imminent fuel damage is likely. There are several EALs that are redundant with this EAL, and are better suited to ensure timely and effective emergency declarations. In addition, the development of new spent fuel pool level EALs, as a result of NRC Order EA-12-051, clarified the intended ECL for spent fuel pool level events.

Since the current EAL HG1 has two distinct parts, they will be addressed separately as follows:

1. Hostile Action in the Protected Area is bounded by EALs HS1 and HS7. Hostile Action resulting in a loss of physical control is bound by EAL HG7, as well as any event that may lead to radiological releases to the public in excess of Environmental Protection Agency (EPA) Protective Action Guides (EPA PAGs).
   - If, for whatever reason, the Control Room (CR) must be evacuated, and control of safety functions

(reactivity control, core cooling (PWR)/RPV water level (BWR), and RCS heat removal) cannot be reestablished, then EAL HS6 would apply, as well as EAL HS7 if desired by the EAL decision-maker.

- Also, as stated above, any event (including Hostile Action) that could reasonably be expected to have a release exceeding EPA PAGs would be bound by EAL HG7.
- From a Hostile Action perspective, EALs HS1, HS7, and HG7 are appropriate and therefore makes this part of HG1 redundant and unnecessary.
- From a loss of physical control perspective, EALs HS6, HS7, and HG7 are appropriate and therefore makes this part of EAL HG1 redundant and unnecessary.

1. Any event which causes a loss of spent fuel pool level will be bounded by EALs AA2, AS2, and AG2 regardless of whether it was based upon a Hostile Action or not, thus making this part of HG1 redundant and unnecessary.

- An event that leads to a radiological release will be bounded by EALs AU1, AA1, AS1, and AG1. Events that lead to radiological releases in excess of EPA PAGs will be bound by EALs AG1 and HG7, thus making this part of EAL HG1 redundant and unnecessary.

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 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. For licensees considering a change to their EAL scheme, 10 CFR 50 Appendix E requires prior approval by the NRC staff. For licensees considering a change to individual EALs, 10 CFR 50.54(q) would apply. This EPFAQ does not relieve the responsibility of licensees to control their emergency plans in accordance with the regulations. This EPFAQ is only to capture this position for future revisions of NEI 99-01, and to allow for consistent consideration for those licensees seeking to obtain NRC prior approval for an EAL scheme change.

This is considered a “deviation” in accordance with Regulatory Issue Summary (RIS) 2003-18, Supplement 2, *“Use of Nuclear Energy Institute (NEI) 99-01, Methodology for Development of Emergency Action Levels, Revision 4,”* dated January 2003.

EMERGENCY PREPAREDNESS FREQUENTLY ASKED QUESTION (EPFAQ)

EPFAQ Number: 2015-014

DATE ACCEPTED 09-Oct-15

STATUS: PUBLIC COMMENT PERIOD OPEN

ORIGINATOR DON JOHNSON

EMAIL don.johnson@nrc.gov

ORGANIZATION USNRC

PHONE # 301.287.9230

RELEVANT GUIDANCE: NEI 99-01 R6

APPLICABLE SECTION(S HS6

QUESTION OR COMMENT

Should consideration be given to allow for specifying relevant operating modes for the key safety functions listed in this EAL (reactivity control, core cooling, or reactor coolant system (RCS) heat removal)?

PROPOSED SOLUTION

The industry agrees that consideration be given to allow for specifying relevant operating modes for the key safety functions listed in Initiating Condition HS6 (reactivity control, core cooling, or reactor coolant system (RCS) heat removal). The following recommended approach is provided for staff consideration.

Key Safety Function	BWR Operating Mode	PWR Operating Mode
Reactivity Control	1 and 2	1, 2, and 3
Core Cooling (PWR)/RPV Water Level (BWR)	All except defueled	All except defueled
RCS Heat Removal	All except defueled	All except defueled

Following the selection of a solution by the staff, the industry would like to have an opportunity to provide input on recommended Basis and Developer Note information to be included in the final EP FAQ as these are important for consistent implementation. We anticipate providing this input during the public comment period.

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

NRC RESPONSE:

The staff agrees with this proposed solution.

This is considered a "deviation" in accordance with Regulatory Issue Summary (RIS) 2003-18, Supplement 2, *"Use of Nuclear Energy Institute (NEI) 99-01, Methodology for Development of Emergency Action Levels, Revision 4,"* dated January 2003.

EMERGENCY PREPAREDNESS FREQUENTLY ASKED QUESTION (EPFAQ)

EPFAQ Number: 2015-015

DATE ACCEPTED 09-Oct-15

STATUS: PUBLIC COMMENT PERIOD OPEN

ORIGINATOR DON JOHNSON

EMAIL don.johnson@nrc.gov

ORGANIZATION USNRC

PHONE # 301.287.9230

RELEVANT GUIDANCE: NEI 99-01 R6

APPLICABLE SECTION(S SA1, SS1, SG1, CU2, CA2

QUESTION OR COMMENT

Should EALs SA1 and CU2 contain a list of power sources applicable for consideration and describe the criteria for what sources may be credited? In addition, should guidance be included to explain why a list of sources is not necessary for EALs SS1 (CA2) and SG1 as these EALs are for a loss of ALL sources?

PROPOSED SOLUTION

The industry has no objection to including a list of applicable power sources in Initiating Conditions SA1 and CU2, and not including a similar list in Initiating Conditions SS1, CA2 and SG1. It appears that the proposed approach would also apply to Initiating Condition SG8.

Following the selection of a solution by the staff, the industry would like to have an opportunity to provide input on recommended Basis and Developer Note information to be included in the final EP FAQ as these are important for consistent implementation. We anticipate providing this input during the public comment period.

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

NRC RESPONSE:

The staff agrees that a table listing available power sources is acceptable and expected for EALs CU2 and SA1 (from NEI 99-01 Revision 6) as long as these power sources are:

- Adequately maintained in an appropriate maintenance program;
- Are able to assume the full load of the (applicable) emergency buss(s) within approximately 15-minutes.

The staff understands that the primary point of emphasis for EALs CA2, SS1, SG1, and SG8 is a complete loss of power (for the applicable time duration) and that a list of readily available power sources may lead to event declarations when Mitigative strategies are effective in reestablishing emergency power to these busses. In other words, if a list of power sources is provided for these EALs, and those sources are unavailable, then an EAL decision-maker would be compelled to declare events even if mitigative strategies using other power sources are effective. It is not necessary to document these power sources for these EALs as the EAL is not concerned with the power source as much as the power loss to the emergency buss.

In summary, the staff only considers EALs SA1 and CU2, as numbered in NEI 99-01 Revision 6, as needing a table of readily available onsite AC power sources. EAL SU1 may list the offsite AC power sources if desired. EALs CA2, SS1, SG1, and SG8 do not need to list the sources.

This is considered a "deviation" in accordance with Regulatory Issue Summary (RIS) 2003-18, Supplement 2, *"Use of Nuclear Energy Institute (NEI) 99-01, Methodology for Development of Emergency Action Levels, Revision 4,"* dated January 2003.