

NRR-PMDAPem Resource

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Sent: Wednesday, February 15, 2017 2:58 PM
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Subject: Wolf Creek Generating Station - Official EAL RAIs (CAC No. MF8450)

REQUESTS FOR ADDITIONAL INFORMATION
LICENSE AMENDMENT REQUEST
EMERGENCY ACTION LEVEL SCHEME CHANGE
WOLF CREEK GENERATING STATION
DOCKET NO. 50-482 (CAC NO. MF8450)

By letter dated September 30, 2016, Wolf Creek Nuclear Operating Corporation (the licensee) requested approval for an emergency action level (EAL) scheme change for Wolf Creek Generating Station (WCGS), (Agencywide Documents Access and Management System (ADAMS) Accession Number ML16279A377).

The requirements of Section 50.47(b)(4) to Title 10 of the *Code of Federal Regulations* (10 CFR) state, in part, that:

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

The most recent industry EAL scheme development guidance is provided in the Nuclear Energy Institute (NEI) document NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors" (ADAMS Accession No. ML12326A805). By letter dated March 28, 2013, the U.S. Nuclear Regulatory Commission (NRC) endorsed NEI 99-01, Revision 6, as acceptable generic (i.e., non-plant-specific) EAL scheme development guidance (ADAMS Accession No. ML12346A463).

WCGS proposes to revise their current EAL scheme to one based upon NEI 99-01, Revision 6 (hereafter referred to as "endorsed guidance").

The requests for additional information (RAI) listed below are necessary to facilitate the technical review being conducted by the NRC staff. Please provide your responses to these **official** RAIs within 30 days from the date of this e-mail. A timely and thorough response to these RAIs is requested in order to meet the proposed deadline requested by the licensee. Please note that we transmitted the draft RAIs to you by e-mail on February 9, 2017, requesting a clarification conference call. Per your telephone call today, you mentioned that no clarification call is required. You also agreed to provide the RAI responses within 30 days from the date of this e-mail.

RAI-WCGS-1

The definitions contained in NEI 99-01, Revision 6, for a General Emergency, Site Area Emergency, Alert and Notification of Unusual Event classification levels begin with "Events are in progress..." The WCGS definitions in Section 5.0 of Alert, General Emergency, Site Area Emergency and Unusual Event begin with "Events are in process." [*emphasis added*]

Please revise these definitions to reflect the definitions in the endorsed guidance or provide a justification for the difference.

RAI-WCGS-2

Section 4.3, "Instrumentation Used for EALs," to NEI 99-01, Revision 6, states: "Scheme developers should ensure that specific values used as EAL setpoints are within the calibrated range of the referenced instrumentation."

Please confirm that all setpoints and indications used in the proposed WCGS EAL scheme are within the calibrated range(s) of the stated instrumentation and that the resolution of the instrumentation is appropriate for the setpoint/indication.

RAI-WCGS-3

WCGS EAL RA2.1 Basis states:

This IC [Initiating Condition] applies to irradiated fuel that is licensed for dry storage up to the point that the loaded storage cask is sealed. Once sealed, damage to a loaded cask causing loss of the Confinement Boundary is classified in accordance with IC EU1.

WCGS is not currently licensed for an independent spent fuel storage installation and the proposed EAL scheme does not include IC EU1. As such, this paragraph is not applicable to WCGS. Please remove this statement from the basis or provide justification including statement.

RAI-WCGS-4

WCGS EALs CA2.1, SS1.1, SG1.1 and SG1.2 state:

Loss of all offsite and all onsite AC [alternating current] power **capability**....

Additionally, the WCGS Basis for EALs CA2.1, SS1.1, SG1.1 and SG1.2 state:

For emergency classification purposes, "capability" means that an AC power source is available to the emergency buses, whether or not the buses are powered from it.

The term "capability" is used in the EALs listed above and a clarification for the meaning of "capability" in their respective bases is not consistent with the endorsed guidance; nor is it identified as a "difference" in Enclosure III, "EAL Comparison Matrix."

The intent of these EALs is to ensure that an EAL is declared upon a total loss of AC power that compromises the performance of all systems requiring electric power for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal, and the ultimate heat sink. This additional criteria could prevent the EAL from being declared in a condition where the AC power sources are available, but not able to be connected to the emergency buses. The NRC staff considers the addition of this criteria to the EALs, and the definition in the basis, to be a deviation from endorsed guidance.

Please remove the term "capability" in the EALs listed above and the clarification for the meaning of "capability" in the respective bases, or explain how the addition of this condition could not potentially delay or prevent classification of a loss of AC power to emergency buses.

RAI-WCGS-5

WCGS Basis for EALs CU2.1 and SA1.1 state:

For emergency classification purposes, "capability" means that an AC power source is available to the emergency buses, whether or not the buses are powered from it.

The clarification for the meaning of “capability” in their respective bases is not consistent with the endorsed guidance; nor is it identified as a “difference” in Enclosure III, “EAL Comparison Matrix.”

Please remove the clarification for the meaning of “capability” in the respective bases, or explain how the addition of this condition could not potentially delay or prevent classification of a loss of AC power to emergency buses.

RAI-WCGS-6

WCGS EALs CU2.1, SU1.1 and SA1.1 bases state, in part, that:

An additional source of power are the SBO [Station Blackout] diesel generators [DGs] SBO DGs (ref. 3, 4). Credit can be taken for this source only if they are already aligned because they cannot be aligned within 15 minutes.

Please consider adding a statement or note to Tables C-3, “AC Power Sources,” and S-1, “AC Power Sources,” that the SBO DGs may be credited if they are already aligned. This will ensure that the decision maker has this information available on a wall board and not just in the basis document.

RAI-WCGS-7

Table C-2, “Containment Challenge Indication,” to the WCGS EAL CG1.1 references a “Note 6;” however, there is no Note 6 in the EAL. It should be noted that the WCGS CG1.2 does provide this information in a Note 6 in its EAL.

EAL CG1 of the endorsed guidance provides the following clarifying information:

If CONTAINMENT CLOSURE is re-established prior to exceeding the 30-minute time limit, declaration of a General Emergency is not required.

Please revise CG1.1 to include the information as provided in the endorsed guidance, or provide justification for its omission.

RAI-WCGS-8

The 2nd bullet in WCGS EAL HU4.1 includes the phrase: “in the same fire area.” This is inconsistent with the endorsed guidance and could result in inconsistent emergency declarations. More than one indication or alarm may be indicative of a higher likelihood of fire, whether it is one area or not (e.g. a single alarm with a lowering of fire main pressure, as described in endorsed guidance).

Please revise this EAL and basis to be consistent with the endorsed guidance, or provide further justification for the difference.

RAI-WCGS-9

The 2nd threshold in the WCGS EAL HA1.1 Basis states:

This EAL is met when the threat-related information has been validated in accordance with ***site-specific procedures***.

The endorse guidance provides: “...information has been validated in accordance with **(site-specific procedures)**.” It is expected that during the development of the site-specific EAL scheme using the generic endorsed guidance, the licensee would identify the site-specific procedure.

Please revise the EAL to reflect the site-specific procedure to be used to validate the security threat (e.g., WCGS EAL HU1.1 Basis states that validation of the threat is performed in accordance with the “Wolf Creek Generating Station Security Plan”).

RAI-WCGS-10

For WCGS EALs SU6.1, SU6.2, SA6.1 and SS6.1, a power level (greater than or equal to 5%) was added to the EALs. The intent of the endorsed guidance is to align the above EAL classifications with site-specific emergency operating procedure (EOP) criteria for a successful reactor shutdown, which would benefit the decision makers by providing consistent criteria. The power level provided in the developer notes in the endorsed guidance is an example that represents a typical EOP indication for a generic power plant.

Please revise to reflect the EOP reactor shutdown criteria in the EOPs, or using wording similar to endorsed guidance.

RAI-WCGS-11

Table S-3, “Significant Transients,” under WCGS EAL SA3.1, lists (3rd bullet): “Electrical load rejection \geq 25% electrical load.” This is inconsistent with the endorsed guidance that states: “Electrical load rejection \geq 25% **full** electrical load.” [*emphasis added*] Additionally, the WCGS basis for this EAL lists load rejections of greater than 25% full electrical load as a significant transient.

Please revise per endorsed guidance, or justify this difference.

RAI-WCGS-12

WCGS EAL SA9.1 Basis states:

With respect to hazards caused by an equipment failure (e.g., an electrical breaker failure leading to an explosion), no emergency declaration is warranted if the hazard did not cause any damage to another safety system, or another train of the affected safety system. If the hazard resulting from an equipment failure causes damage to another safety system, or another train of the affected safety system (i.e., a system or train that was not the source of the initiating equipment failure), then an emergency declaration is required per this EAL.

This information is not consistent with the endorsed guidance as it provides additional information that may affect the classification of this type of event. Please revise the basis to reflect the endorsed guidance, or consider the following additional guidance.

RAI-WCGS-13

Table 9-F-3 (Pressurized Water Reactor EAL Fission Product Barrier Table) in NEI 99-01, Revision 6, list the following criteria for a potential loss of the Reactor Coolant System (RCS) Barrier based on the following RCS or Steam Generator Tube Leakage criteria:

A. Operation of a standby charging (makeup) pump is required by EITHER of the following:

1. UNISOLABLE RCS leakage
- OR
2. SG tube leakage.

However, the WCGS EAL scheme does not include a similar potential loss. Given the capacity of the charging pumps and procedural direction to isolate letdown, WCGS has a condition that is similar to the leak conditions referenced in guidance.

Please revise to address endorsed guidance, or provide additional justification for the deviation.

RAI-WCGS-14

The CMT [Primary Containment] Radiation/RCS Activity, Loss 2, in the WCGS Fuel Clad Fission Barrier, contains a sample analysis component. However, it does not address the RCS Activity/Containment Radiation, Loss 3.B Basis, under the Fuel Clad Fission Barrier in the endorsed guidance, which includes the statement to add the following paragraph (or similar wording) to the basis if the threshold includes a sample analysis component:

It is recognized that sample collection and analysis of reactor coolant with highly elevated activity levels could require several hours to complete. Nonetheless, a sample-related threshold is included as a backup to other indications.

Please provide the associated paragraph from endorsed guidance, or justify this difference.

RAI-WCGS-15

The RCS or SG Tube Leakage, Potential Loss Threshold 1, in the WCGS Fuel Clad Fission Barrier, states: "CFST [Critical Safety Function Tree] Integrity-Red Path conditions met," under the WCGS RCS Barrier. This is not consistent with the WCGS bases, which states: "CSFT **RCS** Integrity-Red Path." *[emphasis added]*

Please add "RCS" to the RCS or SG Tube Leakage, Potential Loss Threshold 1, or provide a justification for the difference.

RAI-WCGS-16

The Fission Product Barrier Potential Loss bases for Emergency Director Judgement in the endorsed guidance states:

The Emergency Director should also consider whether or not to declare the barrier potentially lost in the event that barrier status cannot be monitored.

All WCGS Fission Product Barriers Loss bases for Emergency Director Judgement include the following bulleted statement:

Barrier monitoring capability is decreased if there is a loss or lack of reliable indicators. This assessment should include instrumentation operability concerns, readings from portable instrumentation and consideration of offsite monitoring results.

The statement in the WCGS fission product barrier loss bases may cause a delay in classification due to confusion as to application of the loss or potential loss of the barrier in question. In addition, the three bulleted items appearing in the WCGS bases for the loss or potential loss are identical and may confuse the decision maker in differentiating between a loss and a potential loss.

Please revise the proposed *Fission Product Barrier Emergency Director Judgement, Loss and/or Potential Loss* bases to remove any wording that could either bound and/or modify the judgement of the Emergency Director concerning a loss, or potential loss, of a fission product barrier, or explain how this wording will not potentially inhibit the judgement of the Emergency Director.

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