

November 6, 2015

Mr. Richard Michael Glover  
Site Vice President  
H. B. Robinson Steam Electric Plant  
Duke Energy  
3581 West Entrance Road, RNPA01  
Hartsville, SC 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2 – REQUEST FOR  
ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT  
REQUEST TO CHANGE EMERGENCY ACTION LEVEL SCHEME  
(CAC NO. MF6222)

Dear Mr. Glover:

By letter dated May 13, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15133A452), Duke Energy Progress, Inc. (Duke Energy), the licensee, for H. B. Robinson Steam Electric Plant, Unit 2 (or Robinson Nuclear Plant (RNP)), submitted a license amendment request to change the Emergency Action Levels (EALs). Duke Energy proposes to revise the current RNP EAL scheme to one based upon Revision 6 to Nuclear Energy Institute (NEI) document NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors" (ADAMS Accession No. ML12326A805).

The Nuclear Regulatory Commission (NRC) staff has determined that additional information is needed to complete its review. The enclosed Request for Additional Information (RAI) was e-mailed to the licensee in draft form on October 7, 2015 (ADAMS Accession No. ML15281A013). An RAI clarification call was held on November 3, 2015. On the call, the licensee agreed to provide the RAI responses by November 20, 2015. The licensee also agreed to provide a complete clean version of the EAL Technical Bases Document with the RAI responses. The NRC staff agreed with the date.

R. Glover

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If you have any questions, please contact Dennis J. Galvin at 301-415-6256 or [Dennis.Galvin@nrc.gov](mailto:Dennis.Galvin@nrc.gov).

Sincerely,

*/RA/*

Martha Barillas, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure:  
Request for Additional Information

cc w/enclosure: Distribution via Listserv

R. Glover

- 2 -

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Martha Barillas, Project Manager  
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**ADAMS Accession No.: ML15308A170**

**\*by e-mail**

**NRR-088**

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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST

EMERGENCY ACTION LEVEL SCHEME CHANGE

DUKE ENERGY PROGRESS, INC.

H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2

DOCKET NO. 50-261

By letter dated May 13, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15133A452), Duke Energy Progress, Inc. (Duke Energy), the licensee, for H. B. Robinson Steam Electric Plant, Unit 2 (or Robinson Nuclear Plant (RNP)), submitted a license amendment request (LAR) to change the Emergency Action Levels (EALs). Duke Energy proposes to revise the current RNP EAL scheme to one based upon Revision 6 to Nuclear Energy Institute (NEI) document NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors" (ADAMS Accession No. ML12326A805).

The requests for additional information (RAIs) listed below are needed to support the Nuclear Regulatory Commission (NRC) staff's continued technical review of the proposed EAL scheme change. The RAIs below refer to Enclosure 3, "Emergency Action Level Basis Document," of the LAR unless otherwise noted.

RAI-RNP-1:

Section 2.5, "Technical Basis Information," includes a Plant-Specific RNP basis section, in addition to a Generic (NEI 99-01) basis section. One of the enhancements provided in Revision 6 to NEI 99-01 is a separation of the developer's notes from the bases information. This change was made to facilitate the use of bases information for the two distinct purposes, development and classification. Considering that the EAL Technical Basis is provided to support proper emergency classification decision making, please explain why a Generic (NEI 99-01) basis section is provided rather than incorporated into Plant-Specific RNP basis section.

Specific examples include the following:

- Escalation should refer to RNP EAL numbering vice generic NEI 99-01 EAL numbering to facilitate timely assessments by the Emergency Coordinator.
- The Plant-Specific RNP basis section information should be specific to each EAL provided by the licensee. The following are two examples of apparent inconsistencies:
  - For the proposed EAL RA1.3, the NEI 99-01 Basis discussion includes reference to gaseous radioactivity while the proposed EAL RA1.3 only applies to liquid effluent samples.
  - For the proposed EAL RA1.4, the last paragraph of the NEI 99-01 Basis discussion includes reference to effluent radiation monitors while the EAL only applies to field survey results.

Enclosure

RAI-RNP-2:

Section 4.3, "Instrumentation Used for EALs," to NEI 99-01, Revision 6, states in part: "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 RNP 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-RNP-3:

Appendix B, "Definitions," to NEI 99-01, Revision 6, provides definitions for key terms necessary for overall understanding of the NEI 99-01 emergency classification scheme.

a. For Section 5.1, "Definitions," please justify the omission of the following definitions, or revise accordingly to include:

- Site Area Emergency,
- Unusual Event,
- Emergency Action Level,
- Emergency Classification Level,
- Fission Product Barrier Threshold, and
- Initiating Condition.

b. In NEI 99-01, Revision 6, Alert and General Emergency definitions read "events are in **progress**," while Section 5.1, "Definitions," the proposed definitions read as "events are in **process**." Please correct apparent spelling error, or provide justification for this difference.

RAI-RNP-4:

EAL AU1(2) of NEI 99-01, Revision 6, states: "Reading on ANY effluent radiation monitor greater than 2 times the alarm setpoint established by a **current radioactivity discharge permit** for 60 minutes or longer." The difference justification for EAL RU1.1 on the EAL Comparison Matrix in Enclosure 2 of the LAR states that the UE column values in Table R-1 represent 2 times the ODCM [Offsite Dose Calculation Manual] release limits; however, the RNP Basis for EAL RU1.1 states that the values in Table R-1 for the UE column represent 2 times the alarm setpoint of the specified monitors. R-18 setpoint is listed as "variable" in EPRAD-03. As written, EAL RU1.1 is not consistent with the basis for NEI 99-01, Revision 6, in that 2 times the discharge permit limit and 2 times the ODCM limit are two separate indications that a loss of plant control could be occurring (RNP is only using one indication). Please provide additional justification as to why this deviation is acceptable, or revise EAL RU1.1 accordingly to comply with guidance.

RAI-RNP-5:

For EALs RA1.1, RS1.1 and RG1.1, there was a significant change from the currently approved EAL scheme to the proposed Table R-1 values. The calculations provided in Enclosure 5 of the

LAR did not contain information that could be used by the staff to verify the basis for this change. Please provide justification that supports the changes in the Table R-1 values from the previous values to the current values.

RAI-RNP-6:

NEI 99-01, Revision 6, EAL AU2, which corresponds to EAL RU2.1, specifies that site-specific refueling pathway level indication should be provided in the EAL. Please provide additional information as to why omitting specific level instrumentation for the EAL would not affect timely and accurate assessment, or revise the EAL to provide applicable site specific level indications, including the applicable mode availability for this level instrumentation.

RAI-RNP-7:

EAL RA2.1 states, "Unusual Event," rather than an Alert as indicated in NEI 99-01, Revision 6 (EAL AA2). Please correct apparent spelling error, or provide justification for this difference.

RAI-RNP-8:

For EAL RA2.2, address the following:

- a. The logic was changed from NEI 99-01, Revision 6, which uses an increase in radiation monitor readings to determine that irradiated fuel has been damaged to a proposed logic that requires the operator to know that damage has occurred to irradiated fuel **and** there is an increase in radiation monitor indications. Please provide further justification for this deviation, or revise accordingly based on NEI 99-01, Revision 6 (EAL AA2).
- b. The proposed Basis discussion does not include the NEI 99-01, Revision 6, EAL AA2 guidance stating: "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 E-HU1." Please justify excluding the NEI 99-01, Revision 6, EAL AA2 guidance that relates to EAL RA2.2 applicability, or revise accordingly consistent with NRC endorsed guidance.

RAI-RNP-9:

Concerning Table R-2/H-2, "Safe Operation & Shutdown Rooms/Areas," under EALs RA3.2 and HA5.1, address the following:

- a. The Table indicates that Containment Building access is required in Mode 3. Please explain why Containment Building access is required for Mode 3 operations. This explanation should include what equipment is required to be operated and the specific area of the containment that requires access.
- b. The Table indicates that access is required to the Turbine Building 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Floors. Attachment 3, "Safe Operation & Shutdown Rooms/Areas Table R-2/H-2 Bases," appears to include activities that, although desired, are not required for operation in the

modes provided on Table R-2/H-2. Please verify that Table R-2/H-2 include areas access is required to support normal plant operations, cooldown or shutdown.

RAI-RNP-10:

Concerning EALs CS1.3 and CG1.2, address the following:

- a. RNP did not include the qualifier from NEI 99-01, Revision 6 (CS1/CG1), "of sufficient magnitude to indicate core uncover," to the unplanned increase in any sump/tank level in the EAL wording. As proposed, EALs CS1.3 and CG1.2 could result in unnecessary Site Area Emergency and General Emergency declarations. Please provide further justification, or revise EALs CS1.3 and CG1.2 accordingly consistent with NEI 99-01, Revision 6.
- b. RNP added, "Visual observation of UNISOLABLE RCS [Reactor Coolant System] leakage," to the EAL wording. The indication of visual observation of UNISOLABLE RCS leakage does not provide an indication of core uncover. As proposed, EALs CS1.3 and CG1.2 could result in unnecessary Site Area Emergency and General Emergency declarations. Please provide further justification, or revise accordingly consistent with NEI 99-01, Revision 6.

RAI-RNP-11:

For EALs CU2.1, SU1.1 and SA1.1, no list/table was provided with the proposed EALs that shows off-site and on-site alternating current (AC) power sources. This could impact the timeliness and accuracy of assessment. Please provide justification as to why list/table of AC power supplies was not provided or revise accordingly.

NOTE: The list/table should only include power supplies that can supply the required power within 15 minutes. Considering that the Loss of Emergency AC Power EALs for CA2.1, SS1.1, SG1.1, and SG1.2 consist of a loss of **all** AC Power, a list/table would not be appropriate for those EALs.

RAI-RNP-12:

For EAL CU3.1, the proposed EAL contains the condition, "...due to the loss of decay heat removal capability," which is not consistent with NEI 99-01, Revision 6 (EAL CU3). This deviation could result in potential misclassification for an event other than a loss of decay heat removal capability that leads to an unplanned RCS temperature to rise. Please provide justification for this deviation, or revise accordingly consistent with NEI 99-01, Revision 6.

RAI-RNP-13:

For EAL CA3.1, the proposed EAL contains the condition, "...due to the loss of RCS cooling," which is not consistent with NEI 99-01, Revision 6 (EAL CA3). This deviation could result in potential misclassification for an event other than a loss of RCS cooling that leads to an unplanned RCS pressure increase. Please provide justification for this deviation, or revise accordingly consistent with NEI 99-01, Revision 6.

RAI-RNP-14:

Concerning EALs CU5.1 and SU7.1, address the following:

- a. The DEMNET and the Dedicated Telephone System to the Load Dispatcher are provided as communication methods to offsite response organizations (OROs). Please provide evidence that these communication methods could function as a means of timely notification to OROs for a spectrum of potential event responses, or revise accordingly.

RAI-RNP-15:

For EALs CA6.1 and SA9.1, the RNP Basis discussion for seismic events refers to a discussion under EAL HU2.1. Please provide justification for not including the discussion as this could impact the timeliness of event assessment, or revise accordingly to include the discussion on seismic events in the EAL CA6.1 and SA9.1 RNP Basis.

RAI-RNP-16:

For EALs HU1.1, HA1.1, HS1.1 and HG1.1, the proposed RNP Basis includes, "Reports from Security Shift Supervision may be made via non-supervisory security personnel such as the CAS [central alarm station] operator." The use of non-supervisory personnel is not consistent with the proposed EALs proper, which includes the statement, "as reported by the Security Shift Supervision," or with the NEI 99-01, Revision 6 Basis, which states, "Timely and accurate communication between Security Shift Supervision and the Control Room is essential for proper classification of a security related event." Please provide justification for this deviation, or revise accordingly consistent with NEI 99-01, Revision 6.

RAI-RNP-17:

For EALs HU4.1 and HU4.2, the proposed EALs appear to cover a wider range of areas than that provided by NEI 99-01, Revision 6 (EAL HU4). Please provide justification that all areas identified for this EAL contain equipment needed for safe operation, safe shutdown and safe cool-down, or revise as necessary to support accurate and timely assessment.

RAI-RNP-18:

The "Basis-Related Requirements from Appendix R" discussion provided in the NEI 99-01, Revision 6, EAL HU4 Basis, was not included in RNP EAL HU4.1. This discussion clarifies which systems to consider when determining rooms or areas that should be included in the respective EALs. As such, this discussion supports timely and accurate assessments either during training activities or actual event conditions. Please provide further justification for exclusion of this Appendix R basis information, or revise accordingly.

RAI-RNP-19:

Under Category E – Independent Spent Fuel Storage Installation (ISFSI) guidance, address the following:

- a. The statement, “Formal offsite planning is not required because the postulated worst-case accident involving an ISFSI has insignificant consequences to the public health and safety,” is not applicable to this proposed EAL scheme. Please provide further justification for inclusion, or revise accordingly to remove.
- b. Please incorporate the NEI 99-01, Revision 6, Section 1.3 guidance that ICs HU1 and HA1 are also considered for events that occur at the ISFSI, or provide justification for not including this guidance.

RAI-RNP-20:

In Attachment 2 of Enclosure 3 of the LAR, for Fission Product Barrier (FPB) Reactor Coolant System Threshold Potential Loss 1, address the following:

- a. The Potential Loss 1 proposes the following wording: “> the capacity of one charging pump in the normal mode (greater than 77 gpm [gallons per minute]).” This is not consistent with NEI 99-01, Revision 6, Table 9-F-3, “PWR [Pressurized-Water Reactor] EAL Fission Product Barrier Table,” which states, “Operation of a standby charging (makeup) pump is required.” As proposed, the wording could imply that operators must determine an actual leak rate of 77 gpm or greater rather than determine that a second charging pump is required due to either an unisolable RCS leak or steam generator tube leakage. Please provide justification for this deviation, or revise accordingly.
- b. The proposed Generic basis provides that the threshold is met when RCS leakage is determined to be in excess of normal makeup capacity with letdown isolated. This is not consistent with NEI 99-01, Revision 6, Table 9-F-3, which states, “Operation of a standby charging (makeup) pump is required.” As proposed, this could imply that this threshold condition is not applicable until letdown is isolated. Furthermore, this basis discussion implies that the threshold is RCS leakage of approximately 77 gpm vice the need to start a second charging pump. Please provide justification for this change, or revise accordingly.