



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 14, 2015

Mr. Louis P. Cortopassi
Site Vice President and Chief Nuclear Officer
Omaha Public Power District
Fort Calhoun Station
9610 Power Lane, Mail Stop FC-2-4
Omaha, NE 68008

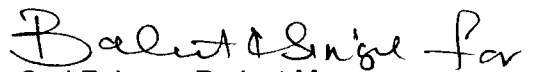
SUBJECT: FORT CALHOUN STATION, UNIT NO. 1 – REQUEST FOR ADDITIONAL
INFORMATION RE: LICENSE AMENDMENT REQUEST TO ADOPT
EMERGENCY ACTION LEVEL SCHEME PURSUANT TO NEI 99-01,
REVISION 6 (TAC NO. MF5466)

Dear Mr. Cortopassi:

By letter dated December 26, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14365A123), Omaha Public Power District submitted a license amendment request to adopt an emergency action level scheme pursuant to Nuclear Energy Institute (NEI) 99-01, "Development of Emergency Action Levels for Non-Passive Reactors," Revision 6, instead of Revision 5.

The U.S. Nuclear Regulatory Commission staff has reviewed the information provided in your application and determined that additional information is required in order to complete its formal review. The enclosed questions were provided to B. Hansher of your staff on June 29, 2015. Please provide a response to the enclosed questions within 45 days of the date of this letter. If you have any questions, please contact me at 301-415-2296 or via e-mail at Fred.Lyon@nrc.gov.

Sincerely,


Carl F. Lyon, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-285

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION
LICENSE AMENDMENT REQUEST TO ADOPT EMERGENCY ACTION LEVEL
SCHEME PURSUANT TO NEI 99-01, REVISION 6
OMAHA PUBLIC POWER DISTRICT
FORT CALHOUN STATION, UNIT NO. 1
DOCKET NO. 50-285

By letter dated December 26, 2014, Omaha Public Power District (OPPD, the licensee) requested approval for an emergency action level (EAL) scheme change for the Fort Calhoun Station, Unit 1 (FCS) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14365A123). OPPD proposes to revise its current 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," November 2012 (ADAMS Accession No. ML12326A805), instead of Revision 5.

The requests for additional information (RAIs) listed below, in regards to Attachment 2, Enclosure 2C, "Emergency Action Level Basis Document," of the submittal, are needed to support U.S. Nuclear Regulatory Commission (NRC) staff's continued technical review of the proposed EAL scheme change.

FC-RAI-01

Section 4.3, "Instrumentation Used for EALs," to NEI 99-01, Revision 6, states, in part, that: "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 FCS 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.

FC-RAI-02

Please provide supporting calculations for all Abnormal Rad Levels / Radiological Effluent threshold values or provide a reference to the ADAMS accession number of the document that contains this information.

FC-RAI-03

Section 4.6, "Basis Document," to NEI 99-01, Revision 6, states, in part, that: "Because the information in a basis document can affect emergency classification decision-making..." The NRC staff expects that changes to the basis document will be evaluated in accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.54(q), "Emergency plans." Please ensure that appropriate information is incorporated as related to how the technical basis document will be maintained in accordance with 10 CFR 50.54(q).

Enclosure

FC-RAI-04

Section 4.7, "EAL/Threshold References to AOP [Abnormal Operating Procedure] and EOP [Emergency Operating Procedure] Setpoints/Criteria," to NEI 99-01, Revision 6, states, in part, that: "As reflected in the generic guidance, the criteria/values used in several EALs and fission product barrier thresholds may be drawn from a plant's AOPs and EOPs." The NRC staff expects that changes to AOPs and EOPs will be evaluated in accordance with the provisions of 10 CFR 50.54(q). Please ensure that verify that appropriate information is incorporated that ensures changes to AOPs or EOPs are screened to determine if an evaluation pursuant to 10 CFR 50.54(q) is required.

FC-RAI-05

Section 4.6, "Basis Document," to NEI 99-01, Revision 6, states, in part, that: "A basis document is an integral part of an emergency classification scheme. The material in this document supports proper emergency classification decision-making by providing informing background and development information in a readily accessible format. It can be referred to in training situations and when making an actual emergency classification, if necessary." Emergency Planning Implementing Procedure EPIP-OSC-1, "Emergency Classification," was provided for the NRC staff's review as part of the previous NEI 99-01, Revision 5 conversion request dated August 15, 2008 (ADAMS Accession No. ML082320484). Please provide a similar document that includes the addresses the following information:

- A "Purpose" section that reflects the intent of the EAL Basis Document, as provided in NEI 99-01, Revision 6;
- A site-specific Definition/Acronyms section that provides information consistent with NEI 99-01, Revision 6, Appendices A and B;
- An Operating Mode Applicability section that provides information consistent with NEI 99-01, Revision 6, Section 3.5;
- An implementation guidance section that provides information consistent with NEI 99-01, Revision 6, Section 5; and
- A copy of the FCS classification aid used to facilitate event classifications, which is typically referred to as a "Wallboard."

FC-RAI-06

For Initiating Condition (IC) RG1, radiation monitor (RM)-064 was removed from Table R1. RM-064 is included in the currently approved AG1 EAL (ADAMS Accession No. ML13358A327). A justification for the removal of RM-064 was not provided in Attachment 2, Enclosure 2A, "EAL Comparison Matrix Document." Please provide justification for the removal of RM-064 from the RG1.

FC-RAI-07

For IC RS1, Table R1 has monitors RM-063, RM-052, and RM-043 listed. IC AS1, in Revision 2a of TBD-EPIP-OSC-1A dated December 11, 2013 (ADAMS Accession No. ML13358A327), and the Revision 5 conversion request dated August 15, 2008, has RM-064 listed in addition to RM-063, but does not include RM-052 and RM-043. These changes are not identified in the Attachment 2, Enclosure 2A, "EAL Comparison Matrix Document." Please provide justification for the removal of monitor RM-064 and the addition of RM-052 and RM-043 to the EAL.

FC-RAI-08

For ICs RA1 and RU1, the RM-057 value for an Alert classification is $1.79\text{E}+08$ counts per minute (cpm), while the RM-057 value for an Unusual Event classification is a higher value of $8.82\text{E}+08$ cpm. Additionally, a note for IC RU1 Table R3, "Effluent Monitor Thresholds," provides that " $1.45\text{E}+08$ [cpm] is the upper range of the instrument." Both of these values are above the upper range of the instrument. Please verify that the provided RM-057 values are within the calibrated range of the instrumentation or revise accordingly.

FC-RAI-09

For ICs RA1 and RU1, Table R1, "Effluent Monitor Thresholds for Alert Classification," provides values for RM-043, RM-052, and RM-062 that are not significantly higher than the values provided by Table R3, "Effluent Monitor Thresholds for Unusual Event Classification." Please validate all RA1 and RU1 threshold values and revise accordingly. This validation should include verification of appropriate separation between Unusual Event, Alert, Site Area Emergency, and General Emergency declarations.

FC-RAI-10

For IC RU1, the proposed EAL 1 uses Table 2, "Effluent Monitor Thresholds," which provides "2X High Alarm set point" as threshold values. Additionally, the proposed EAL 2 uses Table R3, "Effluent Monitor Thresholds," as threshold values. As provided, Table R2 is a subset of Table R3 with two exceptions. The exceptions are the thresholds for RM-052 and RM-062 on Table R3, which are significantly higher than the threshold values for RM-052 and RM-062 on Table R2.

- a. Please justify using two tables that use different values to perform classifications for RU1 or revise accordingly.
- b. Please explain the significant difference in the Table R2 and Table R3 threshold values for RM-052 and RM-062, or revise accordingly.

FC-RAI-11

For IC RU1, Table R3 is used to assess EAL #2, which includes both liquid and gaseous radioactivity radiation monitors. However, the RU1 basis discussion for EAL #2 only discusses

gaseous radioactivity releases. Please explain why EAL #2 Basis discussion excludes liquid radioactivity releases.

FC-RA-12

For IC RU1, Table R3 in Attachment 2, Enclosure 2C, "EAL Basis Document," is different than Table R3 in the Attachment 2, Enclosure 2A, "EAL Comparison Matrix Document"; specifically:

- RM-043, RM-052, RM-062, and RM-057 have different values between the two tables; and
- RM-063 is included in Table R3 in the Attachment 2, Enclosure 2A, "EAL Comparison Matrix Document," and Table R3 in Attachment 2, Enclosure 2B, "EAL Red-Line Basis Document," but is not included in Table R3 of EAL RU1 of Attachment 2, Enclosure 2C, "EAL Basis Document."

Please explain the apparent inconsistencies between Attachment 2, Enclosures 2A, 2B, and 2C, or revise accordingly.

FC-RAI-13

The deviation for the wording in IC RU1 EAL 3 was not justified in the submittal. The addition of "Confirmed" pertains to the timeliness of EAL classification. Please provide justification for this deviation, or revise accordingly consistent with NRC-endorsed guidance.

FC-RAI-14

For ICs RA2, RS2, and RG2, the proposed EALs do not reflect enhanced spent fuel pool level instrumentation. Please provide EALs reflecting the planned installation of enhanced spent fuel pool level instrumentation for NRC pre-approval, or provide justification for not including at this time.

FC-RAI-15

For IC RU2, the proposed EALs do not include site-specific refueling pathway level indications per NEI 99-01, Revision 6. Please provide site-specific level indications for RU2 that could be used to support timely and accurate assessments, including applicable mode availability for level instrumentation.

FC-RAI-16

For IC RA2, the proposed Basis discussion does not include the NEI 99-01, Revision 6, EAL AA2 guidance stating: "This IC 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 RA2 applicability, or revise accordingly.

FC-RAI-17

Please provide verification that the areas identified for IC RA3 reflect only those areas required for normal plant operations, cooldown or shutdown, or revise as necessary to support accurate and timely assessment. In addition, the note for the RA3 EAL references Table R4 versus Table R7. Please verify which table should be referenced, and revise accordingly.

FC-RAI-18

For IC RU3, please provide justification for including the statement: "... as determined by laboratory confirmation..." in the plant-specific basis for declaration of an Unusual Event with elevated coolant activity, or revise accordingly consistent with NRC-endorsed guidance, as this could impact the timeliness of the assessment.

FC-RAI-19

Address the following under IC RC1, Potential Loss:

- a. The proposed Fission Product Barrier (FPB) Threshold Potential Loss 2 does not reflect steam generator tube leakage, which could impact the ability to perform accurate and timely assessments. Please provide justification for this deviation, or revise accordingly consistent with NRC-endorsed guidance.
- b. The proposed FPB Threshold Potential Loss 2 deviates from NRC-endorsed guidance in that, "Operation of a standby charging (makeup) pump is required." The licensee proposes the following wording: "> the capacity of one charging pump in the normal mode (greater than 40 gpm [gallons per minute])." Please provide justification for this change, or revise accordingly, as it could imply that operators must determine an actual leak rate of 40 gpm or greater rather than determine that a second charging pump is required due to either an unisolable reactor coolant system (RCS) leak or steam generator tube leakage.
- c. The proposed FPB Threshold Potential Loss 3 is related to a heat removal challenge and not "UNISOLABLE RCS leakage." Please provide further justification for this deviation, or revise consistent with NRC-endorsed guidance.

FC-RAI-20

For CT1, the proposed FPB Threshold Loss 1 deviates from NRC-endorsed guidance that, "A leaking or RUPTURED SG [*steam generator*] is FAULTED outside of containment." The licensee proposes the following wording: "> the capacity of one charging pump in the normal mode (greater than 40 gpm)." Please provide justification for this deviation, or revise consistent with NRC-endorsed guidance, as it implies that operators must determine an actual leak rate of 40 gpm or greater rather than determine that a second charging pump is required for a steam generator tube leak.

FC-RAI-21

For CT2, FPB Threshold Potential Loss 1.a. threshold is provided as $T_{clad} \geq 1550$ degrees. Please verify that T_{clad} can be determined by the operators in a timely manner, or revise accordingly.

FC-RAI-22

For CT4, FPB Threshold Potential Loss 3 includes "and rising." This deviation could impact the timeliness and accuracy of classification. Provide justification for this deviation, or revise accordingly consistent with NRC-endorsed guidance.

FC-RAI-23

For CT4, FPB Threshold Potential Loss 5 does not include a 15 minute criteria for less than one train of containment spray. Provide additional justification for this deviation or revise accordingly consistent with NRC-endorsed guidance.

FC-RAI-24

For ICs MU3, MA3, and MS3, please justify why the words: "...as indicated by reactor power $\geq 2\%$," were added to the EALs, or revise accordingly. Relying solely on a reactor power level of 2 percent is not consistent with EOP criteria as provided by NEI 99-01, Revision 6.

FC-RAI-25

For IC MA3, please explain why "or manual" was not included in the third paragraph of the Basis discussion when the EAL includes both automatic and manual trips, or revise accordingly.

FC-RAI-26

For IC MA4, under Table M2, "Significant Transients," please explain the following or revise accordingly:

- a. Why the proposed Table M2 includes "ECCS [Emergency Core Cooling System] Actuationer oscillations > 10%" versus "ECCS Actuation," as provided by NEI 99-01, Revision 6 and Attachment 2, Enclosure 2A, "EAL Comparison Matrix Document"?
- b. Why the proposed Table M2 does not include a manual runback of greater than 25 percent?

FC-RAI-27

For IC CU4, please explain why EAL #2 Basis does not include a procedure number, or revise accordingly.

FC-RAI-28

For IC CU5, please explain how the addition of "...due to the loss of decay heat removal..." to EAL 1 would not result in potential misclassification for an event other than a loss of decay heat removal that leads to an unplanned RCS temperature and/or RCS/reactor pressure vessel (RPV) pressure to rise. Please provide justification, or revise accordingly consistent with NRC-endorsed guidance.

FC-RAI-29

For IC CA5, please explain how the addition of "...due to the loss of decay heat removal..." to EAL 1 and, "...as a result of temperature rise due to loss of heat removal..." to EAL 2, would not result in potential misclassification for an event other than a loss of decay heat removal that leads to an unplanned RCS temperature and/or RCS/RPV pressure to rise. Please provide justification, or revise accordingly consistent with NRC-endorsed guidance.

FC-RAI-30

For IC CG6, no justification is provided for the difference between the proposed EAL and the guidance of NEI 99-01 Revision 6. Specifically, the endorsed guidance has two EALs, whereas the licensee proposes three EALs. [Note: The major difference is the numbering scheme and not the actual content of the EALs.] This change introduces a potentially different logic methodology, which could impact timeliness and accuracy of assessments. Please provide justification that the proposed changes will not impact the timeliness or accuracy of assessment, or revise accordingly consistent with NRC-endorsed guidance.

FC-RAI-31

For ICs CU6, CA6, CS6, and CG6, please provide further justification as to why the EALs for Reactor Vessel/Reactor Pressure Vessel Level are not in accordance with the guidance in NEI 99-01, Revision 6, or revise accordingly. The RCS level criterion was changed from "cannot be monitored" to "unknown". This change could impact the start time from the moment when the indication is lost to a judgment as to when RCS level becomes "unknown," which could impact the timeliness of the assessment.

FC-RAI-32

For IC CS6, please provide verification that FCS has both a Reactor Vessel Level Measurement System (RVLMS), as indicated in EAL #1, and a Reactor Vessel Level Indicating System (RVLIS), as indicated in EAL #2, or revise accordingly.

FC-RAI-33

For IC CA6, the Basis for EAL #1 provides "water level below 0 inches on Draindown Level indicator" as an indication that operator actions have not been successful in restoring and maintaining RCS level. Please explain why the basis for EAL #1 refers to a Draindown level indicator, when EAL #1 refers to an RVLMS level, or revise accordingly.

FC-RAI-34

For IC HG1, the NRC staff is not clear of the intent of the last sentence in the Basis which states: "contained in non-public documents such as the Security Plan." Please revise accordingly to clarify.

FC-RAI-35

For IC HU3, the proposed EALs appear to cover a wider range than required by Appendix R. Please provide verification that the areas identified for this EAL are consistent with Appendix R guidance, or revise as necessary to support accurate and timely assessment.

FC-RAI-36

For IC HU3, please provide justification for deviation in excluding a fire within the independent spent fuel storage installation, or revise accordingly consistent with NRC-endorsed guidance.

FC-RAI-37

For IC HU4, please verify that the "Strong Motion Seismic Event in Progress" alarm and the event indicator (SMA Control Panel) of an Operating Basis Earthquake are indicated in the Control Room.

FC-RAI-38

For IC HA5, please verify the areas identified for this EAL were developed in accordance with the NRC-endorsed guidance and reflect only those areas required for normal plant operations, cooldown or shutdown.

FC-RAI-39

For IC HU6, the EAL #2 Basis discussion on "Manual isolation of power to..." appears to contradict the information in EAL #2 and is not in accordance with NRC-endorsed guidance. Please provide clarification, or revise accordingly.

July 14, 2015

Mr. Louis P. Cortopassi
Site Vice President and Chief Nuclear Officer
Omaha Public Power District
Fort Calhoun Station
9610 Power Lane, Mail Stop FC-2-4
Omaha, NE 68008

SUBJECT: FORT CALHOUN STATION, UNIT NO. 1 – REQUEST FOR ADDITIONAL
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Sincerely,

/RA Balwant Singal for/

Carl F. Lyon, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
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Docket No. 50-285

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Request for Additional Information

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