

NRR-PMDAPEm Resource

From: Lyon, Fred
Sent: Thursday, November 19, 2015 11:13 AM
To: timothy.hope@luminant.com
Cc: Singal, Balwant
Subject: FW: Comanche Peak RAIs (CAC Nos. MF6407-08)
Attachments: Comanche Peak R6 EAL RAIs Draft.docx

Enclosed are draft RAIs based on NSIR/DPR's technical review of the proposed EAL scheme change to NEI 99-01 (Revision 6) for Comanche Peak. Please review these with your staff and let me or Balwant know when you can support a phoncon to discuss them. In this case, we prefer to have a phoncon; a discussion helps minimize the chance of a second round of RAIs. Thanks, Fred

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REQUESTS FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST

EMERGENCY ACTION LEVEL SCHEME CHANGE

COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NUMBERS 50-445 AND 50-446

By letter dated June 30, 2015, Luminant Generation Company LLC (Luminant Power) requested approval for an emergency action level (EAL) scheme change for Comanche Peak Nuclear Power Plant (CPNPP), Units 1 and 2 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML15191A175 [package]). Luminant Power proposes to revise their current CPNPP EAL scheme to one based upon Revision 6 to the Nuclear Energy Institute (NEI) document NEI 99-01, "Development of Emergency Action Levels for Non-Passive Reactors" (ADAMS Accession Number ML12326A805).

The requests for additional information (RAIs) listed below, in regards to Attachment 3, "Emergency Action Level Basis Document," are needed to support NRC staff's continued technical review of the proposed EAL scheme change.

RAI-CPNPP-1

Section 2.5, "Technical Basis Information," includes a Plant-Specific (CPNPP) 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 (CPNPP) basis section.

Specific examples include the following:

- Escalation should refer to CPNPP EAL numbering vice generic NEI 99-01 EAL numbering to facilitate timely assessments by the Emergency Coordinator.
- The Plant-Specific (CPNPP) basis section information should be specific to each EAL provided by the licensee. The following are examples of apparent inconsistencies:
 - For the proposed RA1.3, the NEI 99-01 basis discussion includes reference to gaseous radioactivity while the proposed RA1.3 only applies to liquid effluent samples.
 - For the proposed RA1.3 and 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.
 - For the proposed SU8.1, the NEI 99-01 discussion includes reference to ice condenser fans which is not apparent in the EAL criteria for SU8.1.

RAI-CPNPP-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 CPNPP 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-CPNPP-3

Section 4.6, "Basis Document," to NEI 99-01, Revision 6, states "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." Please revise Section 1 of the proposed EAL Technical Basis to reflect the intent of the EAL Basis Document, as provided in NEI 99-01, Revision 6, and remove the proposed purpose discussion, "to facilitate a review of the CPNPP EALs," or provide justification for failure to align with NRC endorsed guidance.

RAI-CPNPP-4

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:
 - Confinement Boundary;
 - Emergency Action Level;
 - Emergency Classification Level;
 - Fission Product Barrier Threshold; and
 - Initiating Condition.
- b. For NEI 99-01, Revision 6, Section 5.1, "Definitions," the proposed Unusual Event, Alert, Site Area Emergency, and General Emergency definitions read "events are in **progress**" vice the proposed "events are in **process**." Provide justification for this difference or revise accordingly.

RAI-CPNPP-5

For EAL RU1.1, the site-specific basis states, "The noble gas detectors (IX-RE-5567A, B) can be used as backups to the wide range gas monitors (X-RE-5570A, B). The UE setpoints for these detectors are included on Table R-1, "Effluent Monitor Classification Thresholds" which is applicable at all times. It is not clear to the staff whether the noble gas detectors should only be used to assess are RU1.1 if the wide range gas monitors are not available or if the noble gas detectors should be used at all times to assess RU1.1. Please provide clarification as to when

the noble gas detectors (IX-RE-5567A, B) should be used to assess RU1.1 and, if appropriate, revise the basis document accordingly.

RAI-CPNPP-6

Concerning RU1.1, RA 1.1, RS1.1, and RG1.1

EAL Section R, "Table R-1 Effluent Monitor Classification Thresholds Review" includes the following:

- The assumption that the "[r]eactor has been shut down for one hour" for both the Plant Vent and the Main Steam radiation monitors.
 - The assumption that the main steam flow rate will be 120,000 lbm/hr.
 - Projected doses that are not based on 1 rem TEDE or 5 rem thyroid CDE at the CPNPP exclusion area boundary of 1 mile.
- a. For EAL RA1.1, NEI 99-01, Revision 6, guidance provides for setpoints that correspond to 10 mrem TEDE and 50 mrem thyroid CDE at the site-specific dose receptor point. EAL Section R, for the plant vent provides a dose of 13 mrem TEDE and a dose of 61 mrem thyroid CDE at the CPNPP dose receptor point of 1 mile. The main steam monitor setpoint corresponds to 4 mrem TEDE and 46 mrem thyroid CDE. Please explain why setpoints that correspond to 10 mrem TEDE or 50 mrem thyroid CDE were not used for the Plant Vent and Main Steam monitors or revise accordingly.
 - b. For EAL RS1.1, NEI 99-01, Revision 6, guidance provides for setpoints that correspond to 100 mrem TEDE and 500 mrem thyroid CDE at the site-specific dose receptor point. EAL Section R, "Table R-1 Effluent Monitor Classification Thresholds Review," for the plant vent provides a dose of 132 mrem TEDE and a dose of 577 mrem thyroid CDE at the CPNPP dose receptor point of 1 mile. The main steam monitor setpoints correspond to 41 mrem TEDE and 461 mrem thyroid CDE. Please explain why setpoints that correspond to 100 mrem TEDE or 500 mrem thyroid CDE were not used for the plant vent and main steam monitors or revise accordingly.
 - c. For EAL RG1.1, NEI 99-01, Revision 6, guidance provides a setpoint that corresponds to 1,000 mrem TEDE and 5,000 mrem thyroid CDE at the site-specific dose receptor point. EAL Section R, for the plant vent provides a dose of 1,320 mrem TEDE and a dose of 5,780 mrem thyroid CDE at the CPNPP dose receptor point of 1 mile. The main steam monitor setpoints correspond to 405 mrem TEDE and 4,610 mrem thyroid CDE. Please explain why setpoints that correspond to 1000 mrem TEDE or 5000 mrem thyroid CDE were not used for the Plant Vent and Main Steam monitors or revise accordingly.
 - d. For EALs RU1.1, RA1.1, RS1.1, and RG1.1, please explain how a release of radioactivity due to steam generator tube leakage could be accurately assessed with the reactor either in operation or shutdown from power operation for less than an hour. Note: in addition to the above assumption that the reactor was shutdown for 1 hour, Table R-1 contains the note' "with the reactor shutdown."

- e. For EALs RA1.1, RS1.1, and RG1.1, please explain how a release of radioactivity due to steam generator tube leakage could be accurately assessed with the assumption that flow rate will be 120,000 lbm/hr for 15 to 60 minutes following the initiation of a steam generator tube leak.

RAI-CPNPP-7

For EALs RA1.2, RS1.2, and RG1.2, Note 3 was included in the EAL. This note was intended to apply to EALs that solely rely on a radiation monitor reading. Please provide justification for including Note 3 for EALs that rely on dose assessment using actual meteorology or revise accordingly.

RAI-CPNPP-8

For EAL RU2.1, site-specific refueling pathway level indication is not provided in the EAL per NEI 99-01, Revision 6. Although the level indications are provided in the CPNPP basis, it is not provided as part of the actual EAL and is not provided on the EAL Wallcharts for CPNPP. Please provide additional information as to why omitting specific level instrumentation for the EAL and Wallchart would not affect timely and accurate assessment, or revise the EAL to provide applicable site specific level indications.

RAI-CPNPP-9

EAL RA 2.1 states, "Unusual Event," rather than an Alert as indicated in NEI 99-01, Revision 6, for this EAL. Provide justification for this difference or revise accordingly.

RAI-CPNPP-10

For EALs RA2.3, RS2.1 and RG2.1, where are the indications for the enhanced spent fuel pool level located at and what is the timeliness for obtaining this information for classification?

RAI-CPNPP-11

For EAL CS1.1, the CPNPP Basis refers to reactor coolant system (RCS) elevations illustrated in Figure C-3 which is not provided in the CPNPP Basis document. Additionally, the NEI Basis refers to EALs CS1.1 and CS2.2. There is no CS2.2 in the CPNPP proposed EAL scheme. Please provide clarification for the two discrepancies.

RAI-CPNPP-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. 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-CPNPP-13

For EAL CU3.1 and CU3.2, the proposed EAL CPNPP Basis states, “classification should be based on the RCS pressure increase criteria when the RCS is intact in Mode 5.” It was not clear to the staff what pressure increase criteria would be used to assess CU3.1 or CU3.2. Please provide clarification for the CU3.1 and CU3.2 comments related to classification based on RCS pressure increase.

RAI-CPNPP-14

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. 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-CPNPP-15

For EAL CA6.1 and SA9.1, the CPNPP Basis includes lake level as a hazardous event. No specific value is provided for either a high or low lake level as part of the EAL. It is not clear to the staff how a timely and accurate assessment could be performed for events related to lake level. Please provide justification for not including high/low lake levels in the appropriate Hazardous Event EAL tables or revise accordingly.

RAI-CPNPP-16

For EAL HU3.2, the proposed CPNPP Basis identifies the Safeguards Building and the Turbine Building as internal flooding areas of concern. Additionally, the CPNPP Basis for HU3.2, which is applicable for all modes, references CA6.1, which is applicable in modes 5 and 6, for internal flooding affecting one or more safety trains.

- a. Please explain how the statement in EAL HU3.2 that limits flooding areas of concern will not potentially be used to limit a flooding related EAL declaration to only equipment in the Safeguards Building and the Turbine Building or revise accordingly.
- b. Please explain why EAL HU3.2 references an EAL that is only applicable in lower modes.

RAI-CPNPP-17

For EAL HU4.1, the “Basis-Related Requirements from Appendix R” discussion provided in NEI 99-01 HU4 was not included in the CPNPP EAL HU4.1 Basis discussion. This discussion clarifies which rooms or areas 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-CPNPP-18

For EALs SS1.1, SG1.1, and SG1.2, Table S-1, "AC Power Sources" were included. These tables are limited to those power supplies that are capable of providing power to the safeguard buses. However, for a Site Area Emergency or a General Emergency, the licensee may establish the capability to power a safeguard bus from an alternate power supply during the additional time that may be potentially available. Please justify including Table S-1 for SS1.1, SG1.1, and SG1.2 or revise accordingly.

RAI-CPNPP-19

For IC Fuel Clad Fission Product Barrier (FC) C.2 Loss, the relevant developer note states:

Add this 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 justification for not including the above developer guidance in IC FC C.2 or revise accordingly.

RAI-CPNPP-20

For IC Reactor Coolant System Fission Product Barrier (RC) A.2, Potential Loss, the staff could not specifically determine which CSFST Integrity-RED Path was intended by this IC. Please provide clarification as to the specific RED path that should be used to assess this condition.