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2CAN050403

May 19, 2004

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Request for Additional Information Responses for
License Renewal Application TAC No. MB8402
Arkansas Nuclear One – Unit 2
Docket No. 50-368
License No. NPF-6

Dear Sir or Madam:

By letter dated April 13, 2004 (2CNA040407), the NRC requested additional information on the Arkansas Nuclear One, Unit 2 (ANO-2) License Renewal Application (LRA) within 30 days of receipt. The requests for additional information (RAIs) are concerning the scoping and screening methodology. The responses to the RAIs are contained in Attachment 1.

New commitments contained in this submittal are summarized in Attachment 2. Should you have any questions concerning this submittal, please contact Ms. Natalie Mosher at (479) 858-4635.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 19, 2004.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy G. Mitchell".

Timothy G. Mitchell
Director, Nuclear Safety Assurance

TGM/nbm

Attachments

A100

cc: Dr. Bruce S. Mallett
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Attachment 1

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RAI Responses

Scoping and Screening Methodology RAI Responses

RAI 2.1-3: 10CFR54.4(a)(1)(iii) requires, in part, that the applicant consider within the scope of license renewal those systems, structures, and components that ensure the capability to prevent or mitigate the consequences of accidents which could result in potential off-site exposures comparable to those referred to in 10CFR50.34(a)(1), 10CFR50.67(b)(2), or 10CFR100.11. In Section 2.1.1.1, "Application of Safety-Related Scoping Criteria," of the LRA, the applicant stated that, because of plant-unique considerations or preferences, some components that do not perform any of the functions meeting the requirements of 10CFR54.4(a)(1) were designated as safety-related, such that certain items classified as safety-related in the facility database did not perform any of the safety-related intended functions of 10CFR54.4(a)(1). The staff requests a description of the process used during license renewal scoping activities to disposition components classified as safety-related that do not perform a safety-related intended function. In particular, the staff requests the following information:

- a. A description of any components or structures classified as safety-related in the facility safety-classification database that were not included within the scope of license renewal under the 10CFR54.4(a)(1) criteria. This description should include the basis for determining that these components do not perform a safety-related intended function. The response should also indicate if these components were included within the scope of license renewal under a different scoping criteria (e.g., 10CFR54.4(a)(2) or (a)(3)).
- b. Describe the process used to reconcile the facility database safety classification information with scoping intended function determinations. In particular, the staff requests a description of the process including the scope of the review used to re-evaluate the safety classification of systems, structures, or components (SSCs) to reconcile disparities with intended function determinations.

Response:

- a. For the majority of mechanical components, the safety classification in the ANO-2 component database was consistent with the determination that the components required aging management review for license renewal. The following individual mechanical components were listed in the component database as safety-related but did not support the safety functions identified under the 10CFR54.4(a)(1) criteria or meet the 10CFR54.4(a)(2) or (a)(3) criteria and, therefore, did not require aging management review.
 - Safety-related instrument air solenoid valves do not require aging management review since the passive pressure boundary function is not required for the system intended functions to be met. The components supplied by the instrument air solenoid valves fail to the safe position on loss of air pressure, so pressure boundary integrity of the solenoid valves that supply instrument air is not required to accomplish system intended functions.

- The emergency diesel generator air compressors and their relief valves are classified as safety-related in the database, but the compressors are not required to operate during the starting of the diesel. There is adequate air stored in tanks to ensure the diesel starts without the compressors. The compressors and relief valves are not part of the tank pressure boundary. These components are conservatively classified in the database, but are not required to accomplish system intended functions.
- Flexible stainless steel piping to reactor coolant pump seal pressure transmitters are shown as safety-related in the database, but are connected to nonsafety-related piping and transmitters and do not have a safety function. These components are conservatively classified in the database, but are not required to accomplish system intended functions.
- The review identified a few components identified as safety-related in the database where safety classification changes are pending that will change the classification to nonsafety-related.

There were no structures identified as safety-related in the component database that were not included in the structural aging management reviews.

- b. As described in LRA Section 2.1.1, the process used to determine the systems and structures in the scope of license renewal for ANO-2 followed the recommendations of Nuclear Energy Institute (NEI) 95-10. Functions for the structures and mechanical systems were identified based on reviews of applicable plant licensing and design documentation. The applicable sections of the safety analysis report, technical specifications, maintenance rule scoping documents, upper level documents, and ANO topical reports for the NRC regulations identified in 10CFR54.4(a)(3) were used to determine system and structure functions. During system aging management reviews, detailed component level evaluations were completed to identify components that are required to support system level functions.

After completion of the system aging management reviews, a database review was performed that identified safety-related components in the component database that had not been identified as subject to aging management review. These components or groups of components were evaluated to confirm that a suitable basis was used for their exclusion. See the response to part (a) for discussion of the basis for exclusion of components classified as safety-related.

RAI 2.1-4: By letters dated December 3, 2001 (ML013380013), and March 15, 2002 (ML020770026), the U. S. Nuclear Regulatory Commission (NRC) issued a staff position to NEI which described areas to be considered and options it expects licensees to use to determine what SSCs meet the 10CFR54.4(a)(2) criterion (i.e., all nonsafety-related SSCs whose failure could prevent satisfactory accomplishment of any safety-related functions identified in paragraphs (a)(1)(i),(ii),(iii) of this section).

The December 3rd letter provided specific examples of operating experience which identified pipe failure events (summarized in Information Notice (IN) 2001-09, "Main Feedwater System Degradation in safety related American Society of Mechanical Engineers (ASME) Code Class 2 Piping Inside the Containment of a Pressurized Water Reactor)" and the approaches that the NRC considers acceptable to determine which piping systems should be included in scope based on the 10CFR54.4(a)(2) criterion.

The March 15th letter further described the staff's expectations for the evaluation of non-piping SSCs to determine which additional nonsafety-related SSCs are within scope. The position states that applicants should not consider hypothetical failures, but rather should base their evaluation on the plant's current licensing basis, engineering judgment and analyses, and relevant operating experience. The letter further describes operating experience as all documented plant-specific and industry-wide experience which can be used to determine the plausibility of a failure. Operating experience documentation sources would include NRC generic communications and event reports, plant-specific condition reports, industry reports such as significant operating event reports, and engineering evaluations.

Based on a review of the LRA, the applicant's scoping and screening implementation procedures, and discussions with the applicant, the staff determined that additional information is required with respect to certain aspects of the applicant's evaluation of the 10CFR54.4(a)(2) scoping criteria. Please address the following issues:

- a. Section 2.1.1.2.2, "Spatial Failures of Nonsafety-Related SSCs," of the LRA states that the nonsafety-related piping and supports up to and including the first equivalent anchor beyond the safety/nonsafety interface were within the scope of license renewal and subject to aging management review. The staff requests additional information regarding the process used by the applicant to ensure that all nonsafety-related components and structures between the safety/nonsafety interface and the first equivalent anchor point were adequately considered during scoping. In particular, the applicant should describe the method used to ensure that all material/environment combinations between the safety/nonsafety interface and the first equivalent anchor were considered during aging management review.
- b. Section 2.1.1.2.2, "Spatial Failures of Nonsafety-Related SSCs," of the LRA states that nonsafety-related systems and nonsafety-related portions of safety-related systems containing steam or liquid that are in the proximity of safety-related equipment are considered within the scope of license renewal per 10CFR54.4(a)(2). However, this section of the LRA also states that long-term exposure to conditions resulting from a failed nonsafety-related SSC (such as leakage or spray) is not considered credible. The staff requests that the applicant clarify its position and methodology relative to the consideration of spray and wetting of safety-related SSCs due to the failure of nonsafety-related equipment. Specifically, the applicant should address the following:
 1. Provide clarification on how the determination was reached, that long-term exposure to conditions resulting from a failed nonsafety-related SSC was not considered credible. Also, address if nonsafety-related SSCs were excluded from the scope of license renewal based on this determination.

2. Describe how the effects of short-term wetting and spray on passive and active safety-related SSCs were considered during 10CFR54.4(a)(2) scoping. During the methodology audit, the applicant indicated that the methodology for evaluating spatial interactions assumed that safety-related SSCs were capable of withstanding short-term duration spray and wetting without loss of intended function. The applicant should clarify how the effects of short term spray and wetting were considered during scoping. Furthermore, if it was assumed that safety-related SSCs could withstand short-term spray or wetting without loss of intended function, the applicant should describe the basis for this assumption.
3. Identify if the walkdown aging management program described in Section B.1.28, "System Walkdown," of the LRA was used as the sole aging management program for any nonsafety-related structures or components that could potentially spatially interact with safety-related SSCs. If the effects of aging for any nonsafety-related SSC are managed solely by the system walkdown aging management program, the applicant should describe how the effects of short term spray and wetting were considered during scoping and aging management review evaluations.

In addressing each of the above issues, if your review indicates that use of the scoping methodology screened out potential nonsafety-related SSCs that could spatially interact with safety-related SSCs, describe any additional scoping evaluations performed to address the 10CFR54.4(a)(2) criteria. As part of your response, list any additional SSCs included within scope as a result of your efforts, and list those SCs for which aging management reviews were conducted, and for each SC describe the aging management programs, as applicable, to be credited for managing the identified aging effects.

Response:

- a. For ANO-2 the nonsafety-related piping connected to safety-related piping up to the first equivalent anchor beyond the safety/nonsafety interface is within the scope of license renewal and subject to aging management review. The safety/nonsafety interface is normally shown on the LRA drawings through the use of license renewal boundary flags. In addition, seismic class 1 evaluation boundaries are indicated on the LRA drawings through the uses of flags in most cases. However, the exact location of the equivalent anchor may not be indicated on these drawings. To assure that all material and environment combinations were included in the LRA aging management review summary tables, a review of systems in scope for license renewal that contained safety-related components was performed. Piping classifications beyond the license renewal boundary indicated on the drawings for these systems were reviewed to ensure that no new material and environment combinations exist. This was done in one of two ways: 1) Piping was traced from the license renewal boundary back to an obvious anchor point (i.e., a larger line, a larger component such as a pump, heat exchanger, etc.) or 2) when a seismic class 1 boundary flag was available, the piping was traced back to at least two major components beyond the flag to identify piping class changes.

This approach assured that the piping reviewed would include the equivalent anchor. If a piping material or environment change was identified, it was compared with the aging management review results for that system or a connected system to validate that the material and environment combination was addressed. The review of these systems confirmed that all applicable material and environment combinations up to and including the first equivalent anchor were included in LRA Section 3.0, Aging Management Review Results.

- b. In order to clarify our position and method for the consideration of spray and wetting of safety-related SSCs due to failure of nonsafety-related equipment, the following information is provided.
 1. LRA Section 2.1.1.2.2, under the heading of Leakage, Spray, or Flooding, states that "Long-term exposure to conditions resulting from a failed nonsafety-related SSC (such as leakage or spray) is not considered credible." This conclusion was not applied during scoping evaluations. If a steam or liquid-filled nonsafety-related system (or nonsafety-related portion of a safety-related system) was in a safety-related building, then that system was considered in scope for 10CFR54.4(a)(2) regardless of potential exposure duration. No nonsafety-related SSCs were excluded from the scope of license renewal based on the consideration that long-term exposure to conditions resulting from a failed nonsafety-related SSC was not credible.
 2. The potential for wetting or spray on passive and active safety-related components was considered in scoping evaluations. Nonsafety-related systems containing steam or liquid that are near safety-related equipment are considered in scope for 10CFR54.4(a)(2) regardless of potential exposure duration. An assumption that safety-related SSCs could withstand short-term spray or wetting without loss of intended function was not applied during scoping or screening.
 3. As indicated in Table 3.3.2-11 of the LRA, the System Walkdown Program is credited as the sole aging management program for some nonsafety-related components that could spatially interact with safety-related SSCs. As stated above, the duration of potential spray or wetting was not a consideration during scoping. The System Walkdown Program as described in Appendix B.1.28 of the LRA is considered adequate since it requires periodic walkdowns that will detect and correct failures caused by long-term exposure to spray or wetting. Short-term exposure is not a concern for passive components such as valve bodies and piping. Active safety-related component failures due to short-term exposure would be detected in the course of normal operation, or through monitoring required by the maintenance rule, and appropriate corrective actions would be taken. This is consistent with the Statements of Considerations for the license renewal rule which states, "On the basis of consideration of the effectiveness of existing programs which monitor the performance and condition of systems, structures, and components that perform active functions, the Commission concludes that structures and components associated only with active functions can be generically excluded from a license renewal aging management review. Functional degradation resulting from the effects of aging on active functions is more readily determinable, and existing programs and requirements are expected to directly detect the effects of aging."

RAI 2.1-5: 10CFR54.21(a)(1) requires that structures and components subject to an aging management review shall encompass those structures and components that:

- (a) Perform an intended function without moving parts or a change configuration or properties; and (2) that are not subject to replacement based on a qualified life or specified time period. NUREG-1800, Table 2.1-3, "Specific Staff Guidance on Screening," provides guidance for determining if consumable items should be subject to an aging management review. For consumables that are periodically replaced, Table 2.1-3 states that the applicant should identify the standards that are relied on for replacement as part of the methodology description. For consumable such as packing, gaskets, component seals, and o-rings, Table 2.1-3 states that these components may be excluded from an aging management review using a clear basis.
- (b) The team noted that Section 2.1.2., "Screening Methodology" of the LRA stated that the process for evaluating consumables is consistent with the NRC staff guidance on consumables provided in a letter from C. I. Grimes, NRC, to D. J. Walters, NEI, dated March 10, 2000. The staff requests that the applicant provide a more detailed description of the actual method used to demonstrate that the criteria were adequately evaluated and the basis for that determination.

Response:

For ANO-2, consumable subcomponents were reviewed based on criteria in the letter from C. I. Grimes, NRC, to D. J. Walters, NEI, dated March 10, 2000, which is consistent with NUREG-1800, Table 2.1-3 dated April 2001. Additional detail on the implementation for ANO-2 is provided in the following table.

<u>Structure, Component, or Commodity Group</u>	<u>Letter Criteria</u>	<u>ANO-2 Implementation</u>
Packing, gaskets, components seals, and O-rings	The applicant will be able to exclude these subcomponents utilizing a clear basis such as the example of ASME Section III not being relied upon for pressure boundary.	Excluded this commodity group based on components not being relied on for pressure boundary as stated in CE NPSD-1215 and ASME Section III.
Structural sealants	It is expected that the applicant's structural aging management program will address these items with respect to an aging management review program on a plant-specific basis.	Structural sealants (elastomers) were evaluated and aging effects and aging management programs were identified as applicable. Refer to LRA Section 2 and 3 tables.

Oil, grease, and component filters	For these commodities, the screening process would be expected to exclude these materials because they are short-lived and are periodically replaced.	These commodities are tested or inspected periodically and replaced under ANO-2 maintenance activities. They are excluded because they are considered short-lived.
System filters, fire extinguishers, fire hoses, and air packs	These components may be excluded, on a plant-specific basis, from an aging management review under 10CFR54.21(a)(1)(ii) in that they are replaced on condition.	System filters are inspected periodically and replaced as required under ANO-2 maintenance activities. Fire extinguishers and hoses are inspected per ANO-2 SAR Section 9.5.1 and Appendix 9D. Air packs are maintained under the Self-Contained Breathing Apparatus Program based on 42CFR84, 29CFR19.10, 29CFR19.26, NUREG-41, and ANSI-Z88.2. They are excluded because they are short-lived (i.e., periodically inspected and replaced based on their condition).

RAI 2.1-6: The audit team evaluated the quality attributes of the applicant's Aging Management Program activities described in Appendix B, "Aging Management Programs," of the LRA. Guidance for the staff review of this area is contained in NUREG-1800, Section A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)." As described in Branch Technical Position IQMB-1, the aging management program quality attributes for safety-related components and structures are adequately addressed by the Quality Assurance requirements of 10CFR50, Appendix B. For nonsafety-related structures and components subject to an aging management review, the applicant has the option to expand the scope of its 10CFR50 Appendix B program to include nonsafety-related structures and components to address corrective actions, the confirmation process, and administrative controls for aging management during the period of extended operation.

Based on the staff's evaluation, the quality attributes (corrective action, confirmation process, and administrative controls) described in Section B.0.3, "ANO-2 Corrective Actions, Confirmation Process, and Administrative Controls," are consistent with Branch Technical Position IQMB-1. However, the team determined that the applicant has not described the aging management program quality attributes in Appendix A, "Updated Final Safety Analysis Report Supplement." Consistent with Branch Technical Position IQMB-1, the applicant should either document a commitment to expand the scope of its 10CFR50 Appendix B program to include nonsafety-related structures and components subject to an aging management review to address the aging management program quality attributes

during the period of extended operation or propose an alternative means to address this issue. The staff requests that the applicant clarify their commitments related to addressing the quality attributes of aging management programs applicable to nonsafety-related structures and components subject to aging management. The description in Appendix A should provide sufficient information for the staff to determine if the quality attributes for the Appendix A.1 aging management programs are consistent with the review acceptance criteria contained in NUREG-1800, Section A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)."

Response:

The following paragraph will be added to Appendix A of the LRA. "The Quality Assurance Program implements the requirements of 10CFR50, Appendix B. The Quality Assurance Program includes the elements of corrective action, confirmation process, and administrative controls and is applicable to all aging management programs credited for license renewal including programs for safety-related and non-safety related structures, systems and components."

RAI 2.1-7: The audit team evaluated the discussions of corrective actions contained in Section B.0.3, "Corrective Actions, Confirmation Process and Administrative Controls," of Appendix B, "Aging Management Programs and Activities." The discussion stated that "in the case of significant conditions adverse to quality. . . corrective action is taken to lessen the likelihood of recurrence." This is not in agreement with the regulations contained in 10CFR50, Appendix B, Section XVI, "Corrective Actions," which states, in part, "in the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective actions taken to preclude repetition." The applicant is requested to address this discrepancy.

Response:

Appendix B, Section B.0.3 under the heading of "Corrective Actions" is being clarified as follows: "In the case of significant conditions adverse to quality, measures are implemented to ensure that the cause of the nonconformance is determined and that corrective action is taken to preclude repetition."

Attachment 2

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List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE- TIME ACTION	CONTINUING COMPLIANCE	
The following paragraph will be added to Appendix A of the LRA. "The Quality Assurance Program implements the requirements of 10CFR50, Appendix B. The Quality Assurance Program includes the elements of corrective action, confirmation process, and administrative controls and is applicable to all aging management programs credited for license renewal including programs for safety-related and non-safety related structures, systems and components."	X		Upon issuance of renewed license