Entergy

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2CAN060402

June 21, 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 May 5, 2004 (2CNA050402), 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 from the LRA Section 3.3, Auxiliary Systems. The responses to the RAIs and the revised RAI 2.1-4(b)(3) 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 June 21, 2004.

Sincerely,

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

Section 3.3 RAI Responses

RAI 3.3-1: LRA Tables 3.3.2-5 and 3.3.2-11 identify cracking-fatigue as an aging effect requiring aging management, but LRA Section 4.3.2 states that, "Engineering evaluations identified no non-Class 1 pressure vessels, heat exchangers, storage tanks or pumps requiring evaluation for thermal fatigue." The applicant credits the Periodic Surveillance and Preventive Maintenance Program for managing this aging effect in the chemical volume control system (CVCS) pump casing and the system walkdown aging management program for various components in miscellaneous systems in scope for 10CFR54.4(a)(2). Clarify the type of fatigue managed by these inspections, the basis for these inspections in lieu of a time-limited aging analysis (TLAA) and explain how the inspections are effective in detecting internal cracks prior to loss of the intended function, including operating experience.

Response:

1. Type of fatigue: For the CVCS pump casing (charging pumps), as identified in LRA Table 3.3.2-5, cracking due to high-cycle fatigue (as a result of deflection of the plunger cap during a pump cycle) is the aging effect identified. For the components in miscellaneous systems in scope for 10CFR54.4(a)(2), as identified in LRA Table 3.3.2-11, the aging effect managed is cracking due to thermal fatigue.

2. Basis for inspections in lieu of a TLAA: In reference to Table 3.3.2-5, cracking of the charging pump plunger cap (pump casing) was discovered during plant operation and documented in the Corrective Action Program. Neither an analysis involving time-limited assumptions defined by the current operating term nor a requirement for such an analysis was found for this condition during the identification of TLAAs for license renewal. Components in LRA Table 3.3.2-11 are generally nonsafety-related components designed in accordance with American Society of Mechanical Engineers B.31.1 with an implicit analysis limit of 7000 thermal cycles. Cracking due to thermal fatigue was conservatively identified as an aging effect requiring management although it is not expected to occur. If cracking due to thermal fatigue were to occur, the System Walkdown Program would manage this aging effect as described in part 3 of this response.

3. Effectiveness of inspections: For the charging pump plunger cap, a preventive maintenance task exists to disassemble and inspect the charging pumps and plungers. Operating experience has shown this inspection to be effective in identifying the effects of aging prior to loss of system function. For components in LRA Table 3.3.2-11, system walkdowns detect leakage and spray from liquid-filled systems. Industry operating experience has shown that age-related failures of nonsafety-related structures, systems, and components, (SSCs) containing steam or liquid that could prevent safety-related components from accomplishing their safety function have only occurred as a result of loss of material due to flow-accelerated corrosion (FAC), which is managed by the FAC Program. Leakage from causes other than FAC has been limited in extent such that it has been identified and corrected through normal operational activities or system walkdowns prior to loss of system functions. For further information on how the System Walkdown Program is effective in managing this aging effect see response to RAI 3.3.2.4.11-1.

<u>RAI 3.3-2</u>: The LRA aging management evaluation credits the Water Chemistry Control Program for managing aging effects for various components in the auxiliary systems, but it is not clear which specific subprogram is used to manage each component. Clarify which subprogram manages each auxiliary system component. Also, identify any additional inspection programs such as one-time inspections that will be used to verify the effectiveness of the Chemistry Control Program. Provide a description of the elements of the inspection program as defined in Appendix A.1 of the Standard Review Plan – License Renewal including details such as inspection methods, how susceptible locations are determined, basis for inspection population and sample size, timing, acceptance criteria including codes and standards, and operating experience. LRA Table B-1 identifies that one-time inspections are not applicable. If periodic inspections are planned rather than one-time inspections, identify the frequency. If opportunistic inspections are planned rather than one-time inspections, how does the program assure that the inspections will be completed prior to the end of the existing operating license? Identify any specific operating experience (i.e., inspection results) relevant to inspections to verify effective chemistry control in auxiliary systems that demonstrate the effectiveness of the inspection program.

<u>Response</u>:

a) The water chemistry control programs manage aging effects for various components in the auxiliary systems.

   Components in Table 3.3.2-1, Spent Fuel Pool System, and Table 3.3.2-5, Chemical and Volume Control System, that list water chemistry control as the program are included in the Primary and Secondary Water Chemistry Control Program.

   Components in Table 3.3.2-3, Emergency Diesel Generator (EDG) System, and Table 3.3.2-4, Alternate AC (AAC) Diesel Generator System, that list water chemistry control as the program are included in the Auxiliary Systems Cooling Water Chemistry Control Program.

   Components in Table 3.3.2-11, Miscellaneous Systems in Scope for 10CFR54.4(a)(2), that list water chemistry control as the program are included in the program that applies to the system in which the component resides. Since all of the water chemistry control subprograms provide reasonable assurance that the aging effect loss of material will be managed such that the applicable components will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation, the particular subprogram for a specific component is beyond the level of detail necessary in the table.

b) The effectiveness of the water chemistry programs at ANO-2 has been confirmed through routine component inspections that are performed by chemistry, maintenance and engineering personnel. This includes the Primary and Secondary, Closed Cooling, and Auxiliary Systems Water Chemistry Programs. These inspections were performed when primary and secondary systems were opened for maintenance, when an adverse chemistry trend existed, or when requested by the chemistry or engineering departments. The areas inspected have included areas that are susceptible to the aging effects identified in the license renewal application. In addition, for many reactor coolant system components included in the Primary and Secondary Water Chemistry Control Program, inspection activities within other aging management programs provide additional confirmation of chemistry program effectiveness. These other programs include the Inservice Inspection, Alloy 600 Aging Management, Cast Austenitic Stainless Steel Evaluation, Pressurizer Examinations, Reactor Vessel Internals Inspection, and Steam Generator Integrity Programs. Some components, such as heat exchangers, have been inspected periodically providing repetitive evidence that the water chemistry programs are adequately managing aging effects. If, during these inspections significant abnormal conditions were noted, including those that were the result of aging effects such as loss of material and cracking, these conditions would have been documented under the Corrective Action Program. Actions to determine the cause of the condition and corrective actions to prevent recurrence would have then been taken. The Generic Aging Lessons Learned (GALL) One Time Inspection Program XI.M32 focuses on the most susceptible material and environment combinations in the most susceptible locations. Items such as heat exchangers, piping and valves normally in standby, and system low points or stagnant areas are representative of these susceptible locations. At ANO-2, inspections have been performed in systems such as emergency feedwater (EFW) and EDGs which are normally in standby, steam generators, condensate storage tanks, feedwater heaters, moisture separator reheaters, chillers, main steam safety valves, and blowdown heat exchangers. All of these components are made of susceptible materials (stainless and carbon steel) and are exposed to environments (treated water and steam) that would be conducive to aging effects managed by the water chemistry programs.

Many components in the steam generators are inspected under other aging management programs that provide additional assurance that significant degradation is not occurring and that the Primary and Secondary Water Chemistry Control Program is effective. These inspection activities include those contained in the Inservice Inspection and Steam Generator Integrity Programs. The inspection results of steam generator components are also applicable to the main steam, main feedwater and EFW components with the same material and environment combinations.

As additional confirmation of the effectiveness of water chemistry programs, the ANO-2 review of operating experience included a review of condition reports (CRs), CR trending data, and interviews with site personnel regarding water chemistry program operating experience. The operating experience review did not identify component failures or significant adverse conditions that were the result of an ineffective water chemistry program. Also, the CR trending data did not identify recurrent component degradation occurring in the systems covered under this aging management program. The review of CRs, CR trending data, and personnel interviews provided additional confirmation of chemistry program effectiveness.

The combination of inspections under the Inservice Inspection Program, the Steam Generator Integrity Program, and maintenance and routine chemistry inspections as a whole, constitute a more thorough confirmation of water chemistry aging management program effectiveness than could be obtained from one-time inspections of a sample of items.

<u>RAI 3.3-3</u>: LRA Tables 3.3.2-3 and 3.2.3-7 state that, "Flex hose exposed to an internal treated water and untreated air environments, and fuel oil environment, respectively, are managed by the Periodic Surveillance and Preventive Maintenance Program." The description of the Periodic Surveillance and Preventive Maintenance Program in LRA Section B.1.18 does not identify inspection criteria for the flex hose. Identify the method of maintenance inspections applied to the flex hose, the frequency of inspections and the technical basis for the inspections. If inspection is limited to the external surfaces, justify the basis considering manufacturer's recommendations, industry two practices and operating experience. Also clarify if elastomer hoses used in auxiliary systems are to be replaced at specified intervals according to manufacturer's recommendations and standard industry practice.

<u>Response</u>: The details on inspection criteria and frequency for the flex hoses that are included in the Periodic Surveillance and Preventive Maintenance Program will be determined prior to entering the period of extended operation. It is expected that a visual inspection of the internal and external surfaces will be performed. However, it may be determined that periodic replacement of the hoses is preferable and inspections will not be performed. None of these hoses are replaced on a specified interval since no replacement frequency was specified by the original manufacturer. If replaced at specific intervals, flex hoses would be considered short-lived and not subject to aging management review.

<u>RAI 3.3-4</u>: LRA Tables 3.3.2-3 and 3.3.2-4 for the EDG system and the AAC diesel generator system identify treated air and untreated air as an environment for various components in these systems. It is understood that the portions of these systems with treated and untreated air are the starting air subsystems normally containing compressed air. Compressed air systems are susceptible to loss of material due to internal condensation, unless effective measures are provided to remove moisture. Identify any specific operating practices used to remove moisture such as the continuous use of air driers or manually draining air receivers. Also provide justification that the loss of material in the starting air subsystems containing either treated air or untreated air is effectively managed. For example, identify specific operating experience including internal inspection results at susceptible locations.

<u>Response</u>: The starting air for the AAC diesel in table 3.3.2-4 is specified as treated air since the system contains air dryers. In Table 3.3.2-3 for the EDG, the air is identified as untreated air since there are no air dryers on the system. However, the starting air tanks on the EDGs are drained every month. Loss of material in the starting air system for the AAC diesel will be managed thru the use of periodic maintenance that ensures the proper operation of the air dryers such that significant moisture will not be entrained in the portion of the system that is subject to aging management review. In the starting air system for the EDGs, loss of material will be managed through periodic inspections of the internals of components of the starting air system. As indicated in Table 3.3.2-3, the air receiver tanks for the EDGs are included in the Wall Thinning Monitoring Program. The tanks are the most susceptible locations for loss of material caused by moisture in the system. The operating experience review performed as part of the aging management review did not identify instances of significant corrosion or degradation of components in the starting air systems for the AAC diesel and EDGs.

<u>RAI 3.3.2.4.1-1</u>: LRA Table 3.3.2-1 identifies that, for stainless steel spent fuel racks in a treated borated water environment, cracking is an applicable aging effect requiring aging management. The operating temperature for these environments is not identified. Clarify why cracking is not a similarly applicable aging effect requiring aging management for the stainless steel fuel transfer tubes in a treated borated water environment.

<u>Response</u>: Cracking is not an aging effect requiring management for the stainless steel fuel transfer tube because the treated borated water temperature is maintained less than the 140°F threshold for cracking from stress corrosion and intergranular attack. Since spent fuel pool temperature at the spent fuel racks may exceed this threshold, cracking is applicable for the spent fuel racks.

<u>RAI 3.3.2.4.3-1</u>: Loss of material due to wear is an applicable aging effect on elastomer expansion joints and flex hose. However, in Table 3.3.2-3 of the LRA, this aging effect/mechanism is not identified for the elastomer expansion joints and flex hose. The applicant is requested to provide justifications as to why this aging effect/mechanism is not identified as an applicable aging effect for the elastomer expansion joints.

<u>Response</u>: Wear results from relative motion between two surfaces, from the influences of hard, abrasive particles or fluid streams, and from small, vibratory or sliding motions (fretting). For the elastomer expansion joint on the EDG which is located between the air intake filter and suction of the turbocharger and the various flex hoses, there is no relative motion between these components and another surface. Both the internal and external surfaces of these components are exposed to environments which do not contain abrasive particles. As a result, loss of material due to wear is not an aging effect requiring management for these components.

<u>RAI 3.3.2.4.3-2</u>: LRA Table 3.3.2-3 states that carbon steel and stainless steel expansion joints exposed to an internal exhaust gas environment is managed by the TLAA-Metal Fatigue Program and the Periodic Surveillance and Preventive Maintenance Program. Explain why the Wall Thinning Program applied to the stainless steel expansion joints exposed to exhaust gas of the AAC diesel generator system is not applied to the carbon or stainless steel expansion joints in the EDG system. Identify and justify the method and frequency of inspection. Clarify if the inspections of the expansion joint bellows include internal inspections for cracking and loss of material as recommended in industry standards such as Electric Power Research Institute (EPRI) Report 1008035.

<u>Response</u>: Under the Periodic Surveillance and Preventive Maintenance Program, the expansion joints in the EDG are routinely inspected once every 18 months in accordance with vendor recommendations. Both visual and nondestructive examinations are performed. This includes internal and external inspections that can detect cracking and loss of material. AAC diesel periodic inspections do not include a visual internal inspection of the exhaust expansion joints. In lieu of disassembling these expansion joints, nondestructive examinations such as ultrasonic testing of the expansion joint will be performed as part of the Wall Thinning Monitoring Program to detect loss of material and cracking. Both the EDG and AAC diesels are operated for short periods of time on monthly and quarterly bases. Inspection of the EDG expansion joints every 18 months is more than sufficient to detect loss of material based on the short operating time between inspections. The Wall Thinning Monitoring Program is a new program which will be implemented prior to

the period of extended operation and the frequency of inspections will be determined based on operating experience and initial inspection results.

RAI 3.3.2.4.4-1: LRA Table 3.3.2-4 credits the Periodic Surveillance and Preventive Maintenance Program for managing fouling in heat exchanger tubes. A periodic diesel generator test alone may not be adequate verification that the required heat transfer is maintained under all applicable design conditions. Clarify how the inspections and testing are performed to ensure that fouling does not adversely affect heat transfer by using proven practices such as periodic heat balances to specific industry standards.

Response: The AAC diesel is operated on a quarterly basis for at least two hours at near full-rated load. Full-rated load significantly exceeds the required design loading of the diesel. During this testing, engine parameters such as inlet and outlet temperatures on heat exchangers are monitored and trended to assure the heat exchangers are capable of removing heat loads. Adverse trends or alarms noted during performance of the surveillance tests would be identified in accordance with the Corrective Action Program. Appropriate actions to determine the cause and correct the condition would be taken long before the intended function of the system is affected.

RAI 3.3.2.4.5-1: Clarify if any CVCS components located in a high temperature treated borated water environment are cast stainless steel materials susceptible to the aging effect of loss of fracture toughness/thermal aging embrittlement. Provide the technical basis if this aging effect is not applicable to CVCS components. Otherwise, specify the applicable aging management program.

Response: Loss of fracture toughness can occur in cast austenitic stainless steel components exposed to temperatures greater than 482°F. The components on the tube side inlet and shell side outlet of the regenerative heat exchanger are exposed to temperatures above this threshold, but none are constructed of cast austenitic stainless steel. Therefore, loss of fracture toughness is not an aging effect requiring management for CVCS components.

RAI 3.3.2.4.7-1: The LRA identifies cracking as an applicable aging effect for some stainless steel components in a fuel oil environment (such as filter and thermowell) but not others in the same environment (such as indicator housing and orifice). Clarify the environments, including temperatures, applicable to stainless steel components in the fuel oil system to justify the difference in the identified aging effects.

Response: Cracking is identified as an aging effect requiring management for stainless steel components in fuel oil when the fluid temperature can exceed 140°F and there is a potential for water in the oil. Portions of the fuel oil system for the AAC diesel, EDG, and fire pump diesel can exceed 140°F during engine operation. For these portions of the fuel oil system, cracking was identified as an aging effect for stainless steel components. Stainless steel components in the remainder of the fuel oil system are not exposed to temperatures in excess of 140°F.

<u>RAI 3.3.2.4.8-1</u>: The LRA does not identify biofouling as an aging effect/mechanism in the service water system. GALL identifies biofouling as an aging effect/mechanism for service water systems. Clarify what aging effect due to biofouling and/or silting is applicable to service water components. If this applicable aging effect is not loss of material, clarify which specific aging management program is applicable to manage biofouling in service water components.

<u>Response</u>: Biofouling and silting can create conditions that are conducive to the aging mechanisms of pitting, crevice corrosion, and microbiologically-influenced corrosion. Loss of material is the applicable aging effect due to these mechanisms for the service water system.

<u>RAI 3.3.2.4.8-2</u>: LRA Table 3.3.2-8 identifies loss of material as an aging effect requiring aging management for the stainless steel expansion joints, but cracking is not addressed. Industry documents such as EPRI report 1008035, Expansion Joint Maintenance Guide, Revision 1, dated May 2003, indicate that stainless steel expansion joints are susceptible to cracking when exposed to contaminants. Identify if cracking is considered to be an aging effect for these expansion joints and explain how the credited aging management programs effectively manage cracking, if applicable.

<u>Response</u>: Stainless steel is susceptible to cracking when exposed to contaminants and temperatures above 140°F. The service water system stainless steel expansion joints subject to aging management review are 2XJ-8, 2XJ-9, and 2XJ-10, located in the service water pump discharge lines. These expansion joints are exposed to temperatures well below the 140°F threshold for cracking. Also, these expansion joints are constructed of nickel-based alloy which is more resistant to stress corrosion cracking than 300-series stainless steels. Therefore, cracking is not an aging effect requiring management for the stainless steel expansion joints in the service water system.

<u>RAI 3.3.2.4.10-1</u>: The LRA identifies that all components in a carbon dioxide environment are not subject to any aging effect. Dry carbon dioxide is not a degrading environment for carbon steel, or brass or bronze components, but carbon steel components may be susceptible to corrosion in the presence of moisture in the carbon dioxide environment. Clarify the degree of dryness of the carbon dioxide environment. Identify the activities in place to verify and maintain the degree of dryness of the carbon dioxide environment necessary to minimize aging degradation of carbon steel components during the period of extended operation, including the effects resulting from operations to replenish or refill the carbon dioxide.

<u>Response</u>: Carbon dioxide is an environment only for the control room ventilation system. Carbon steel bottles contain anhydrous (dry) carbon dioxide with a low level of impurities that minimizes the effects of aging on components. The carbon dioxide bottles are normally isolated from the system. Since they are pressurized, moisture cannot be introduced into the bottles. When required, refilling is done by a vendor according to vendor recommendations. Periodic monitoring of bottle pressure detects the occurrence of leaks and identifies the need for refilling.

RAI 3.3.2.4.11-1: LRA Table 3.3.2-11 identifies filter housings and other components exposed internally to treated borated water and other environments with a pressure boundary intended function. The System Walkdown and Water Chemistry Control Programs are credited for managing loss of material and cracking of the internal surfaces in these components. LRA Section B.1.28 describes the system walkdown as a visual inspection of external surfaces. Clarify how a visual inspection of external surfaces assures that internal surfaces are effectively managed, when the internal and external environments are different. If evidence of leakage is necessary to determine that an aging effect has occurred, provide technical justification that a failure of the pressure boundary is acceptable.

Response: The concern for components included in Table 3.3.2-11 is the potential effect of spray or leakage from these components on safety-related equipment. As identified in LRA Section 3.3.2.1.11, there are five programs credited with managing aging effects for equipment that meets the 10CFR54.4(a)(2) criterion:

1. The Water Chemistry Control Program is credited for managing the aging effects for internal surfaces of systems that contain treated water.

2. The Boric Acid Corrosion Prevention Program manages corrosion from borated water leakage.

3. The Bolting and Torquing Activities Program prevents loss of mechanical closure integrity for bolted closures exposed to high temperatures.

4. The FAC Program manages loss of material due to FAC where FAC is a potential aging mechanism.

5. The System Walkdown Program manages the effects of aging by detecting leakage through visual inspections.

The combination of these programs is considered adequate to manage the aging effects for nonsafety-related equipment that meets the 10CFR54.4(a)(2) criterion.

The Water Chemistry Control Program does not rely on leakage to manage the aging effects. The Water Chemistry Control Program manages aging effects by maintaining an appropriate concentration of corrosion inhibitors, limiting oxygen concentration, and limiting contaminants that could cause cracking.

The Boric Acid Corrosion Prevention Program identifies even small amounts of borated water leakage prior to significant impact on adjacent safety-related equipment.

The Bolting and Torquing Activities Program manages loss of mechanical closure integrity and does not rely on leakage to manage the aging effects.

The FAC Program utilizes wall thinning monitoring and predictive programs to identify locations that are susceptible to FAC and does not rely on leakage to manage the aging effects.

The System Walkdown Program manages the effects of aging on components in scope for 10CFR54.4(a)(2) by detecting leakage through visual inspections. Long-term exposure to potential leakage or spray from a nonsafety-related SSC is not credible due to the frequency of walkdowns in conjunction with normal plant operational activities. Short-term exposure is not a concern for passive components such as valve bodies and piping since applicable aging effects are long-term. Short-term exposure is not a concern for active components since existing system walkdowns, maintenance rule equipment monitoring and routine operational activities result in corrective actions before short-term exposure could prevent satisfactory accomplishment of a required safety function. This is consistent with the Statements of Consideration that says "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." Likewise, existing programs and requirements are expected to directly detect the effects of exposure to fluids resulting from failure of nonsafety-related SSCs.

A review of operating experience at ANO-2 for the past five years did not identify indications of latent electrical equipment failures due to spray or leakage. In addition, industry operating experience has shown that age-related failures of nonsafety-related SSCs containing steam or liquid that could prevent safety-related components from accomplishing their safety function have occurred only as a result of FAC. This operating experience and routine operator rounds/system walkdowns, in conjunction with a FAC Program, Water Chemistry Program, Bolting and Torquing Activities, and Boric Acid Corrosion Prevention Program, provide reasonable assurance that leaks from nonsafety-related SSCs will not preclude the satisfactory accomplishment of required safety functions.

Also, based on conversations with the NRC Staff, Entergy is providing a revised portion of the response to RAI 2.1-4 as follows:

<u>RAI 2.1-4(b)(3)</u>: By letters dated December 3, 2001 (ML013380013), and March 15, 2002 (ML020770026), the NRC issued a Staff position to the Nuclear Energy Institute 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), and (iii) of this section).

The December 3rd letter provided specific examples of operating experience which identified pipe failure events (summarized in Information Notice 2001-09, "Main Feedwater System Degradation in Safety-Related American Society of Mechanical Engineers 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:

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:

    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.

<u>Response</u>: 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 leakage and prevent 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 since applicable aging effects are long-term. Short-term exposure is not a concern for active components since existing system walkdowns, maintenance rule equipment monitoring and routine operational activities result in corrective actions before short-term exposure could prevent satisfactory accomplishment of a required safety function. This is consistent with the Statements of Considerations for the license renewal rule that says "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."

Attachment 2

2CAN060402

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 details on inspection criteria and frequency for the flex hoses that are included in the Periodic Surveillance and Preventive Maintenance Program will be determined prior to entering the period of extended operation. It is expected that a visual inspection of the internal and external surfaces will be performed. However, it may be determined that periodic replacement of the hoses is preferable and inspections will not be performed.		X	July 17, 2018
Loss of material in the starting air system for the AAC diesel will be managed thru the use of periodic maintenance that ensures the proper operation of the air dryers such that significant moisture will not be entrained in the portion of the system that is subject to aging management review.		X	July 17, 2018
In the starting air system for the EDGs, loss of material will be managed through periodic inspections of the internals of components of the starting air system.		X	July 17, 2018
In lieu of disassembling these expansion joints, nondestructive examinations such as ultrasonic testing of the expansion joint will be performed as part of the Wall Thinning Monitoring Program to detect loss of material and cracking.		X	July 17, 2018