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0CAN091501

September 3, 2015

U.S. Nuclear Regulatory Commission
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SUBJECT: Response to Non-cited Violation in NRC Integrated Inspection Report 05000313/2015002 and 05000368/2015002
Arkansas Nuclear One – Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6

REFERENCE: NRC letter to Entergy, *Arkansas Nuclear One – NRC Inspection Report 05000313/2015002 and 05000368/2015002,* dated August 5, 2015 (0CNA081501) (ML15218A371)

Dear Sir or Madam:

Reference 1 provided the results of the Arkansas Nuclear One (ANO) integrated inspection for the second quarter of 2015. Per 10 CFR 50.4 and in accordance with the guidance in the Enforcement Policy, Entergy Operations Inc. (Entergy) hereby contests one of the non-cited violations (NCVs) identified in the report.

A green NCV of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” was identified in the report for failure to establish and maintain an adequate testing program for the fuel oil transfer piping for ANO, Units 1 (ANO-1) and 2 (ANO-2). Specifically, the licensee did not establish inservice inspection (ISI) requirements to detect degradation of the fuel oil piping, above ground and buried, between the fuel oil storage tanks and the emergency diesel generator (EDG) day tanks.

Entergy agrees that examinations should be performed to provide reasonable assurance that the piping can perform its intended function, and therefore maintain the ability to supply fuel to the EDGs. In addition to extensive Technical Specification-required surveillance testing of the EDGs, Entergy has established programs and procedures for the purpose of maintaining the diesel fuel oil transfer piping system commensurate with its importance to safety. Entergy performs monthly testing to verify the quality of the diesel fuel oil is maintained according to the industry guidelines which include verifying that moisture, which could degrade the piping, is not present. The ANO Buried Piping Program verifies that the external coating of the buried

portions of the piping is maintained to prevent degradation of the piping outer diameter, and functional testing of the relevant valves and pumps of the EDG fuel oil system are included in the ANO Inservice Testing Program.

The ANO-1 and ANO-2 American Society of Mechanical Engineers (ASME) Section XI boundaries meet the requirements of ASME Section XI and 10 CFR 50.55a as described in the attachment. Extending the boundaries to include the diesel fuel oil piping is considered beyond the plant's licensing basis and exceeds the requirements of the regulations cited within this NCV.

The safety evaluation issued by the NRC for approval of the extended operating period for both units determined that adequate actions were taken by Entergy for aging management of the diesel fuel oil system. The aging management programs combined with the surveillance testing required by the plant's Technical Specifications provide adequate assurance that the fuel oil piping remains acceptable.

Entergy denies that a violation of NRC requirements occurred, in that, Entergy is in compliance with regulatory requirements. A detailed assessment of this NCV is presented in the attachment.

This letter contains no new regulatory commitments. Should you have any questions regarding this submittal, please contact Stephenie Pyle at 479.858.4704.

Sincerely,

ORIGINAL SIGNED BY JEREMY G. BROWNING

JGB/nbm

Attachment: ANO-1 and ANO-2 Response to Green Non-Cited Violation for EDG Fuel Oil Piping

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Attachment to

0CAN091501

ANO-1 and ANO-2 Response to Green Non-Cited Violation for EDG Fuel Oil Piping

ANO-1 and ANO-2 Response to Green Non-Cited Violation for EDG Fuel Oil Piping

1.0 Background and Clarifications

By letter dated August 5, 2015 (Reference 1), the NRC provided the results of the second quarter integrated inspection of Arkansas Nuclear One (ANO). In accordance with the provisions of the subject inspection report, Entergy Operations, Inc., (Entergy) is afforded the option of contesting any of the non-cited violations (NCVs). In review of the findings, Entergy believes the NCV documented in Section 1R08.b.2 lacks information of potential significance, inappropriately applies the same regulations to both ANO units (ANO-1 and ANO-2) without distinguishing the regulatory uniqueness of the units based on construction permit dates of issuance and the differing licensing basis, and incorrectly concludes that the requirements of ASME Section XI apply to the ANO-1 and ANO-2 fuel oil piping.

Within Section 1R08.b.2, Entergy understands the specific points of the violation to be:

1. ANO-1 and ANO-2 have not established and maintained an adequate testing program for the fuel oil transfer piping to meet the requirements of 10 CFR Part 50, Appendix B, Criterion XI, *Test Control*.

2. Specifically, failure to meet 10 CFR Part 50, Appendix B, Criterion XI, is caused by not including the subject piping in the American Society of Mechanical Engineers (ASME) Section XI boundaries and not performing the inspections of ASME Section XI as required by the regulations cited by the NRC in Section 1R08.b.2 of the subject inspection report.

The following provides clarifying information as related to the NCV, ASME Section XI, and the applicable regulations referenced by the NCV, on which Entergy's contest is based.

1.1 NCV Description

NCV, First Paragraph, states in part:

> *"The licensee stated that the fuel oil transfer systems for both units were designed and built under the construction permit for Unit 1 to ASME Code B31.1 requirements, and therefore ASME Section XI inspection requirements were not applicable. When the inspectors requested documentation to verify that the fuel oil systems for both units were designed and constructed under the Unit 1 construction permit, the licensee was unable to locate any documents that confirmed this statement."*

Entergy believes this to be a misunderstanding of information communicated during the inspection. When made aware of the subject NRC concern, ANO personnel could not find the requested information; however, information was provided to support the following:

> The diesel fuel oil systems for ANO-1 and ANO-2 were designed and constructed in accordance with the individual construction permits dated December 6, 1968, and December 6, 1972, respectively. The diesel fuel oil system for ANO-2 was not designed or constructed under the ANO-1 construction permit. For this reason, there is no documentation to indicate that the diesel fuel oil piping for ANO-2 was designed and constructed under the ANO-1 construction permit.

NCV, Third Paragraph, states in part:

> *"Specifically, for facilities with a construction permit issued prior to January 1, 1971, 10 CFR 50.55a(g)(1) states, in part, that "components (including supports) must meet the requirements of paragraphs (g)(4) and (g)(5) of this section to the extent practical. Components that are part of the reactor coolant pressure boundary and their supports must meet the requirements applicable to components that are classified as ASME Code Class 1. Other safety-related pressure vessels, piping, pumps and valves, and their supports must meet the requirements applicable to components that are classified as ASME Code Class 2 or Class 3."*

The NCV, as written, addresses ANO-1 and ANO-2 commonly and assesses compliance to the same regulations. However, because of the construction permit issuance dates, the applicable regulations and the associated licensing basis differ such that each unit should be assessed individually.

The discussion within the NCV that refers to 10 CFR 50.55a(g)(1) as the regulation for which compliance has not been met is not applicable to ANO-2 because 10 CFR 50.55a(g)(1), as stated, is only applicable to facilities holding a construction permit issued prior to January 1, 1971.

NCV, Third Paragraph, states in part:

> *"Further, 10 CFR 50.55a(g)(4) states, in part, that "components which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements set forth in Section XI of the ASME Code." Therefore, the inspectors concluded that the piping in question was required to meet the requirements applicable to ASME Code Class 2 or 3 components, including the applicable requirements of Section XI. Further, ASME Section XI defines an appropriate testing program as follows."*

As written, the second sentence implies that in addition to meeting the applicable requirements of ASME Section XI, that the piping in question was also required to meet other ASME Class 2 and 3 requirements. Other ASME Class 2 and 3 requirements could be interpreted to be ASME Section III, Class 2 and 3, but because this would be a change to the licensing basis of both units, Entergy believes that this is not the intent of this paragraph as worded.

Also, in the last sentence of this paragraph and the beginning of the fourth paragraph, the NCV implies that the fuel oil piping should meet the requirements of ASME Section XI, Table IWD-2500-1, which are requirements applicable to components that are Class 3. However, the NCV does not reference or cite the criteria used to make this determination. The regulations cited in the NCV only require that Class 2 and 3 components meet the requirements of ASME Section XI; however, the cited regulations do not specify the criteria for determining piping classification.

1.2 NCV Enforcement

NCV, Second paragraph states:

> *"For facilities with a construction permit issued prior to January 1, 1971, 10 CFR 50.55a(g)(1) states, in part, that components (including supports) must meet the requirements of paragraphs (g)(4) and (g)(5) of this section to the extent practical. Components that are part of the reactor coolant pressure boundary and their supports must meet the requirements applicable to components that are classified as ASME Code Class 1. Other safety-related pressure vessels, piping, pumps and valves, and their supports must meet the requirements applicable to components that are classified as ASME Code Class 2 or Class 3."*

This portion of the NCV is also written as if applicable to both units; however, due to the different construction permit issuance dates of ANO-1 and ANO-2, the reference to 10 CFR 50.55a(g)(1) is limited to ANO-1 only.

1.3 ASME Section XI and 10 CFR 50.55a Applicability

ASME Section XI, IWA-1320, states in part, with provisions and exceptions, that:

> "The rules of IWB shall be applied to those systems whose components are classified ASME Class 1."
>
> "The rules of IWC shall be applied to those systems whose components are classified ASME Class 2."
>
> "The rules of IWD shall be applied to those systems whose components are classified ASME Class 3."

ASME Section XI, IWA-1400(a) states in part that the Owner is responsible for determining the appropriate Code classes for each component of the plant and identification of the system boundaries for each class of components subject to examination. Footnote 1[1] to IWA-1400(a) indicates that the classification criteria are specified in 10 CFR 50.

Neither the ASME or the regulations of 10 CFR 50 provide for or contain criteria for classifying systems or portions of systems as ASME Section XI, Class 1, 2 or 3. Criteria published by the NRC or industry criteria approved by the NRC in individual plant licensing is specific to ASME Section III, Class 1, 2, or 3 classification for design and construction. Additionally, there are no regulations that require or imply that the ASME Section XI boundaries required by IWA-1400(a) are to extend or expand beyond the licensee's ASME Section III, Class 1, 2, and 3 boundaries

[1] It is noted that in the 2015 Edition of ASME Section XI, this note is revised to indicate that the classification criteria are specified in the facility's current licensing basis. This change was made because classification criteria for determining the ASME Section XI boundaries are not contained in 10 CFR 50. The classification criteria referenced in 10 CFR 50.55a applies to classification for ASME Section III for the construction code. Also, the criteria for Class 2 and 3 are only applicable to plants with a construction permit or combined operating license issued on or after May 14, 1984, which excludes all current operating plants.

as determined by each plant's licensing and design basis. Therefore, where the ASME and regulations refer to classification of ASME Class 1, 2, or 3 components, it is in reference to criteria used for ASME Section III Class 1, 2, or 3 classifications.

Given the above, Sections 2.0, 3.0, and 4.0 of this response provide the basis for Entergy's denial of the NCV described in Section 1R08.b.2 of the NRC Inspection Report (Reference 1). This response addresses the implication that the subject piping is required to be within the ASME Section XI boundaries (Sections 2.0 and 3.0) and the lack of compliance with 10 CFR 50, Appendix B, Criterion XI (Section 4.0). Because of the difference in the application of regulations to the individual units and significant differences in the licensing basis, the portion of the NCV addressing compliance with ASME Section XI is addressed for each unit individually, with the ANO-2 response included in Section 2.0 and the ANO-1 response included in Section 3.0.

2.0 ANO-2 Compliance with ASME Section XI

Within the NCV, there are three regulations cited as the basis for the violation, 10 CFR 50, Appendix B, Criterion XI, 10 CFR 50.55a(g)(1), and 10 CFR 50.55a(g)(4). Compliance with 10 CFR 50, Appendix B, is addressed in Section 4.0 of this response. As discussed in Section 1.1, 10 CFR 50.55a(g)(1) is only applicable to facilities holding construction permits issued prior to January 1, 1971. The ANO-2 construction permit was issued on December 6, 1972; therefore, 10 CFR 50.55a(g)(1) is not applicable to ANO-2. However, 10 CFR 50.55a(g)(4) is applicable to all nuclear plant facilities regardless of the construction permit issuance date and is, therefore, the subject of the response for ANO-2.

The NCV specifically states, in part:

> *"Further,10 CFR 50.55a(g)(4) states, in part, that "components which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements set forth in Section XI of the ASME Code." Therefore, the inspectors concluded that the piping in question was required to meet the requirements applicable to ASME Code Class 2 or 3 components, including the applicable requirements of Section XI. Further, ASME Section XI defines an appropriate testing program as follows."*

As clarified in Section 1.3, there are no ASME Section XI classification criteria to identify which systems or portions of systems are required to meet ASME Section XI, Class 1, 2, or 3 requirements. The reference by 10 CFR 50.55a(g)(4) to ASME Class 1, 2, or 3 is applicable to ASME Section III, Class 1, 2, or 3 classification considering:

1. A plant that obtained a construction permit prior to January 1, 1971, has met the requirements of 10 CFR 50.55a(g)(1) and has established ASME Section XI Class 1, 2, and 3 boundaries equivalent to ASME Section III, Class 1, 2, or 3 boundaries as if the plant had received a construction permit on or after January 1, 1971 (compliance with 10 CFR 50.55a(g)(1) is discussed in Section 3.0), or

2. The plant received a construction permit on or after January 1, 1971, therefore the original plant licensing basis and design basis includes ASME Section III, Class 1, 2, and 3 boundaries based on the regulations in affect during the application of the construction permit and the classification criteria described in the plant's licensing basis.

The following is applicable to ANO-2, having a construction permit issued after January 1, 1971.

10 CFR 50.55a(g)(4) does not require or imply that the boundaries of the ASME Section XI program be expanded to include components that were not classified as ASME Section III, Class 1, 2, or 3. Except for the provisions of IWA-1300, the boundaries of ASME Section XI are aligned with the ASME Section III, Class 1, 2, and 3 boundaries.

10 CFR 50.55a, Codes and Standards, was first issued on June 12, 1971 (36FR11423) and therefore was in effect during the ANO-2 construction permitting process. The regulation contains requirements applicable to operating plants and applicants for a manufacturing license, standard design approval, a design certification, and a combined operating license.

10 CFR 50.55a(c) was part of the initial issuance of 10 CFR 50.55a and identifies which portions of the reactor coolant system (RCS) pressure boundary (as defined in 10 CFR 50.2) is required to meet the requirements for Class 1 components of ASME Section III.

Because the construction permit issue date for ANO-2 was after the issuance of 10 CFR 50.55a, the requirements of 10 CFR 50.55a(c) did apply to the initial licensing of ANO-2. For ANO-2, the applicable portions of the RCS is designed and constructed to ASME Section III, Class 1 requirements. Those portions of the RCS that are required to be ASME Section III, Class 1 are included in the ASME Section XI boundaries as Class 1.

Code requirements for Quality Group B and C components are described in 10 CFR 50.55a(d) and (e), respectively. For construction permits docketed after May 14, 1984, Quality Group B and C components must meet the Class 2 and Class 3 requirements, respectively, of ASME Section III. However, because 10 CFR 50.55a(d) and (e) are not applicable to construction permits that predate May 14, 1984, ASME Section III, Class 2 or 3 requirements are not applicable to ANO-2 systems.

The term “Quality Group” as used in 10 CFR 50.55a is defined by endnote 7 which refers to Regulatory Guide (RG) 1.26, “Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants”. RG 1.26 was first issued as Safety Guide 26 in 1972 and later issued as RG 1.26 in 1974. This endnote is referenced by paragraphs (d) and (e) which are only applicable to applicants for construction permits docketed after May 14, 1984, and therefore, is not applicable to ANO-2.

Based on the above, the ANO-2 ASME Section III, Class 1 boundary is determined by meeting the requirements of 10 CFR 50.55a(c). The ASME Section III, Class 2 and 3 boundaries are determined by criteria originally contained in the Preliminary Safety Analysis Report and now contained in the updated Safety Analysis Report (SAR). These criteria were accepted by the NRC as part of the plant’s licensing basis.

2.1 ANO-2 Licensing Basis (SAR)

SAR Section 3.1 – Conformance with Atomic Energy Commission (AEC) General Design Criteria (GDC):

ANO-2 was originally designed to comply with the 70 "Proposed GDC for Nuclear Power Plant Construction Permits", published in July 1967. Sections 3.1.1 through 3.1.6 of the FSAR provide a comparison with the AEC GDC published as Appendix A to 10 CFR 50 in 1971.

SAR Section 3.1.1 – Overall Requirements:

CRITERION 1 - QUALITY STANDARDS AND RECORDS

In summary, the ANO-2 SAR indicates that GDC 1 is met by applying various RGs including RG 1.26, with reference to various SAR locations for quality group classifications.

SAR Section 3.2 – Classification of Structures, Components, and Systems

In summary, this section of the SAR discusses quality group classification using the guidance of RG 1.26 with the results of this classification provided in various SAR tables. There are no exceptions to RG 1.26 noted in the SAR. The ANO-2 implementation of RG 1.26 is defined by various sections of the SAR as part of the licensing basis and was accepted by the NRC when the construction permit was granted. Those systems or portions of systems that were determined to be ASME Section III, Class 2 or 3 by applying the guidance of RG 1.26 are also included in the ASME Section XI Boundaries as Class 2 or 3. Systems or portions of systems determined to be ASME Section III, Class 2 or 3 are identified and discussed in the SAR. In addition, other safety-related systems and portions of safety-related systems that were not required by RG 1.26 to be ASME Section III, Class 2 or 3 are also discussed including applicable construction codes. It is these classifications and assignments of construction codes as described in the SAR and as accepted by the NRC that determines the boundaries of ASME Section XI.

2.2 Safety Guide 26 and RG 1.26

Safety Guide 26 was first published in 1972 and later issued as RG 1.26 in 1974. SAR Section 1.3.3 identifies the extent of conformance with the RGs listed. Those listed were in effect at the date of issuance of the construction permit. In some cases, later revisions of the original guides are addressed where conformance is appropriate for ANO-2. Section 1.3.3 further states that the remaining Division 1 RGs are not addressed as these were not included in the design basis of the unit at issuance of the construction permit. According to SAR Section 1.3.3, RG 1.26 (dated March 23, 1972) is the basis for quality group classification described in Section 3.2 of the SAR. Even though the SAR uses the term RG 1.26, by the referenced date it is actually referencing Safety Guide 26.

Safety Guide 26 indicated that by following this guidance, applicants for construction permits and operating licenses will meet GDC 1 by using the codes and standards that are specified based on the system's or component's safety function. Safety Guide 26 further indicated that industry standards for the RCS pressure boundary are those specified by 10 CFR 50.55a and that the assignment of industry standards for remaining water- and steam-containing components important to safety are described in Regulatory Position C.

Regulatory Position C begins by specifying that the quality standards should be applied to water- and steam-containing pressure vessels, (other than turbines and condensers) storage tanks, piping, pumps, and valves, that fulfill certain safety functions described within the regulatory position. Those components fulfilling a function described in Regulatory Position C.1 are equated to Quality Group B, ASME Section III, Class 2. Those components fulfilling a function described in Regulatory Position C.2 are equated to Quality Group C, ASME Section III, Class 3.

Because Safety Guide 26 was limited to components that contain water or steam, its application to systems containing fuel oil was outside the scope of the safety guide. Safety Guide 26 was replaced by RG 1.26. Although not applicable to ANO-2, RG 1.26, Revision 4 (March 2007), provides additional clarification for classification of components and is consistent with Safety Guide 26. By title and discussion contained in Section B, the RG applies to systems that contain water, steam, and radioactive waste. Section B also provides an example of systems that are not within the scope of the RG:

- Instrument and service air
- Diesel engines and its generators and auxiliary support systems
- Diesel fuel
- Emergency and normal ventilation
- Fuel handling
- Radioactive waste management systems

RG 1.26, Revision 4, clarifies that, even though the examples are not within the scope of the RG 1.26, the systems should be designed, fabricated, erected, and tested to quality standards commensurate with the safety function to be performed. RG 1.26 does not require these systems to be designed, fabricated, erected, and tested to the requirements of ASME Section III, Class 2 or 3. Section C further identifies turbines and condensers that are not within the scope of RG 1.26.

Based on the above and because there are no ANO-2 regulatory commitments requiring the diesel fuel oil system to be classified as ASME Section III, Class 2 or 3, current regulatory commitments specific to Safety Guide 26 or RG 1.26 do not result in an ASME Section III classification of the fuel oil system.

2.3 ANO-2 EDG Fuel Oil Licensing Basis

- SAR Table 3.2-1, *Structures, Systems, and Component Classification*, provides definitions of the four quality groups and mostly repeats the descriptions of Safety Guide 26.

- SAR Table 3.2-2, *Seismic Categories of Systems, Components and Structures*, identifies the Emergency Fuel Tanks, Diesel Fuel Oil Transfer Pumps and Motors, and the Fuel Oil Day Tanks as Q (quality) and Seismic Category I components.

- SAR Table 3.2-3, *Equipment Code Group Classification*, identifies the Emergency Fuel Oil Tanks and the Emergency Diesel Generator (EDG) package as ASME Section VIII, Division 1, and the Emergency Diesel Fuel Transfer Pump as ASME Section III, Class 3.

  This table addresses most plant systems and contains an endnote that states:

  > *"For this Table, the Code Group applies to the process piping and components, not to the instrument sensing lines. Instrument sensing lines are in accordance with note (f) to Table 3.2-4."*

During the inspection, the NRC interpreted this note to require all piping to be of the same construction code as the listed equipment. This is a misinterpretation of the note. The note is provided as an exclusionary note to indicate that the codes assigned to the piping and equipment listed in the table do not apply to the instrument sensing lines. Codes for instrument sensing lines are addressed in Table 3.2-4. For example, the table includes piping and valves for the main steam system and correlates these to a construction code. The note clarifies that the stated construction code does not apply to the associated instrument sensing lines.

With respect to the EDG system, piping is not included in the list of equipment; therefore, the associated construction codes do not apply to the piping. The construction code for fuel oil piping is discussed in Section 9.5.4 of the SAR.

- SAR Table 3.2-4, *Summary of Codes and Standards for Nuclear Components*, provides a general correlation between quality group classifications and construction codes with no specificity for systems or components.

- SAR Table 3.2-5, *Components Built to Codes Other than those Specified in RG 1.26*, indicates that the Emergency Fuel Oil Tanks and the EDGs were built to ASME Section VIII, Division 1.

- SAR Section - 3.9.3, *Components Not Covered by the ASME Code*, indicates that safety-related mechanical components not covered by the ASME Code may be divided into two categories: Reactor Vessel Related and Other. The second category includes ventilation and air conditioning equipment, and the EDGs.

- SAR Section 3.9.3.2, *Ventilation, Air Conditioning, and the EDGs*, states that the ventilation and air conditioning equipment and the EDGs are not covered by the ASME Code. The applicable codes are identified in Table 3.9-4. The manufacturer's supplying this equipment performed stress and dynamic calculations or performed tests to demonstrate that all design loading combinations will be sustained without impairment of structural integrity or functional capability. Seismic loading calculations are performed in accordance with the criteria presented in Section 3.7.

- SAR Table 3.9-4, *Safety-Related Equipment Not Covered by ASME Code Section III*, lists various codes that are other than ASME Section III for the EDGs.

- SAR Section 9.5.4, *Diesel Generator Fuel Oil Storage and Transfer System*, states:

  "…Each emergency storage tank is gravity connected to a transfer pump located in the underground vault. Strainers are provided at the pump inlet to prevent particulate matter from entering the pump. The transfer pumps discharge to the diesel "day tanks" through buried pipelines. The diesel fuel oil transfer piping from the emergency storage tanks to the day tanks is designed to American National Standards Institute (ANSI) B31.1.0 and is in accordance with the additional requirements of Seismic Category 1 and the Quality Assurance Program Manual…"

2.4 ANO-2 EDG Fuel Oil Design

Consistent with the SAR, Piping and Instrument Diagram (P&ID) M-2217 identifies the piping from the fuel oil storage tank to the fuel transfer pump and from the transfer pump to the fuel oil day tank with a line designation of "HBD". The Architectural Engineer (AE) (Bechtel) uses the three letter code to identify the pressure/temperature rating of the pipe (first letter), the material of construction (second letter), and the design and construction code (third letter). The third letter of the line designation is "D" and by Bechtel mechanical standards and now ANO-2 standards, "D" represents ANSI B31.1. The SAR, however, places additional requirements on the diesel fuel oil piping for meeting the ANO-2 10 CFR 50, Appendix B, Entergy's QA program, and seismic qualification.

2.5 Other Regulatory Guidance

NUREG 1482, *Guidelines for Inservice Testing (IST) at Nuclear Power Plants: IST of Pumps and Valves and Inservice Examination and Testing of Dynamic Restraints (Snubbers) at Nuclear Power Plants* – Final Report, Revision 2, Section 2.2.3, Testing of Non-Code Components states:

"As discussed above, licensees are required to test safety-related components to demonstrate that they will perform satisfactorily in service in accordance with 10 CFR Part 50, Appendices A and B. The IST program for components within the scope of the ASME Code is addressed in 10 CFR 50.55a. An IST program is also a reasonable vehicle to periodically demonstrate the operational readiness of pumps and valves that are not covered by the Code, but are within the scope of 10 CFR Part 50, Appendices A and B. Thus, if a licensee voluntarily chooses to include non-Code components in its ASME Code IST program (or some other licensee-developed testing program) and, as a result, is unable to meet certain Code provisions, the regulations (10 CFR 50.55a) do not require the licensee to submit a relief request to the NRC. Nonetheless, the licensee should maintain documentation that provides assurance of the continued operational readiness, or as required the continued functionality of the non-Code components through the performed tests. Such documentation should be available for staff inspection at the plant site. For example, the EDG air start system is typically not within the scope of the Code. However, EDG air start, cooling water, and fuel oil transfer systems are considered safety-related and, as such, Appendices A and B to 10 CFR Part 50 require that they must be included in the scope of a component testing program and must undergo the required testing. Licensees

may implement deviations from the Code for non-Code components without NRC review and approval. A notation in the licensee's IST program document would help to identify the deviations and clarify that they relate to non-Code components."

Understanding that this NUREG is applicable to the IST of pumps and valves, the IST program does not have a unique or different set of boundaries. The IST program was initially developed as a requirement of ASME Section XI and later moved to the Operation and Maintenance (OM) Code. However, the Code boundaries developed to identify the applicability of ASME Section XI are also the same boundaries that identify the applicability of the OM Code. As stated in the NUREG, the NRC recognizes that there are safety-related pumps and valves that are outside the scope of these boundaries but still require testing that is commensurate with their safety function. In Section 2.2.3 of the NUREG, the NRC guidance indicates that these components are not required to be included in the formal OM Code IST program (but can be included for convenience), and that the regulations of 10 CFR 50.55a do not apply to these non-Code pumps and valves.

Section 2.2.4, Commitments to Include Components in IST Programs

"The licensee is responsible for determining whether a component is required to be included within the IST program, or whether that classification is optional under Subsection ISTA-1320. Specifically, Subsection ISTA-1320 states that optional construction of a component within a system boundary to a classification higher than the minimum class established in the component design specification shall not affect the overall system classification by which applicable rules are determined. Thus, if a licensee changes the code classification pursuant to 10 CFR 50.59, the pumps and valves may remain as "augmented components" (denoted as non-Code) in the IST program. (Note that NRC approval of a licensee amendment may be necessary, as determined by the evaluation conducted in accordance with 10 CFR 50.59.) RG 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," (ADAMS Accession No. ML003759710) provides guidance for 10 CFR 50.59."

The position established by NRC in the subject NCV appears inconsistent with the regulatory guidance provided in NUREG 1482, Revision 2.

2.6 ANO-2 Conclusion

The ANO-2 ASME Section XI Inservice Inspection (ISI) program correctly excludes the diesel fuel oil piping based on the requirements of 10 CFR 50.55a and the ANO-2 licensing basis. There are no requirements of ASME Section XI or 10 CFR 50.55a that require plants that received a construction permit after January 1, 1971, to include piping in the Section XI boundaries not required by regulation or the licensing basis to be designed and constructed to ASME Section III, Class 1, 2, or 3 requirements. For ANO-2 Entergy's implementation of Safety Guide 26 (RG 1.26) and the classification of the fuel oil piping as ANSI B31.1 were described in the licensing basis and accepted by the NRC. Also, the position taken by the NRC in the subject NCV appears inconsistent with the regulatory guidance provided in NUREG 1482, Revision 2.

3.0 ANO-1 Compliance with ASME Section XI

The NCV cites three regulations as the basis for the violation: 10 CFR 50, Appendix B, Criterion XI; 10 CFR 50.55a(g)(1); and 10 CFR 50.55a(g)(4). Compliance with 10 CFR 50, Appendix B, is addressed in Section 4.0 of this response. As discussed in Section 1.1 above, 10 CFR 50.55a(g)(1) is applicable to ANO-1 because the respective construction permit was issued prior to January 1, 1971. Also, as explained in Section 2.0 above, 10 CFR 50.55a(g)(4) applies to ANO-1.

3.1 Compliance with 10 CFR 50.55a(g)(1)

Nuclear power plants with construction permits that predate the issuance of 10 CFR 50.55a, Safety Guide 26 (RG 1.26), and in some instances before the publication of ASME Section III, typically do not have ASME Section III, Class 1, 2, or 3 boundaries identified as part of the plant's licensing basis or design basis. For this reason, 10 CFR 50.55a(g)(1) is only applicable to plants that received a construction permit prior to January 1, 1971, and states in part:

> *"…components (including supports) must meet the requirements of paragraphs (g)(4) and (g)(5) of this section to the extent practical. Components that are part of the reactor coolant pressure boundary and their supports must meet the requirements applicable to components that are classified as ASME Code Class 1. Other safety-related pressure vessels, piping, pumps and valves, and their supports must meet the requirements applicable to components that are classified as ASME Code Class 2 or Class 3*."

Entergy understands that the NRC's interpretation of 10 CFR 50.55a(g)(1) is to require all safety-related pressure vessels, piping, pumps and valves, and their supports to be ASME Class 2 or 3 and be included in the ASME Section XI program as Class 2 or 3. However, such is not required by regulation. The portion of the regulation applicable to items relevant to Class 2 or 3 designation states:

> *"Other safety-related pressure vessels, piping, pumps and valves, and their supports must meet the requirements applicable to components that are classified as ASME Code Class 2 or Class 3."*

This is understood to require safety-related pressure vessel, piping, pumps, and valves, and their supports that are classified by the licensee or owner as Class 2 or 3 to meet the Class 2 or 3 requirements of ASME Section XI. The fact that the regulation uses the term "classified" implies that there is a classification criteria to be used, but does not include any specific criteria. For some units, the licensing basis may include classification criteria such as ANSI/ANS-51.1, "Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants". If this or similar criteria is included in the plant's licensing basis, then such is the criteria used to meet 10 CFR 50.55a(g)(1), which may exclude certain safety-related systems or portions of safety-related systems from being equivalent to ASME Section III, Class 1, 2, or 3.

If the licensing basis does not include sufficient criteria to identify which portions of the RCS is equivalent to ASME Section III, Class 1 (even though not applicable), the licensee uses the definition of 10 CFR 50.2 and the criteria of 10 CFR 50.55a(c). For the remainder of the safety-related pressure boundary and its supports, the licensee uses RG 1.26, to the extent that it does not contradict the plant's licensing basis, to establish equivalent ASME Class 2 and 3 boundaries. With this evolution, the ASME Section XI boundaries are based on classification

criteria that determine which systems or portions of systems that would be required to be ASME Section III, Class 1, 2, or 3, for plants holding a construction permit after January 1, 1971. These boundaries become the ASME Section XI boundaries and do not change the licensing basis or the design basis of the plant systems.

Through this process, plants with construction permits that predate January 1, 1971, maintain ASME Section XI boundaries that are similar, within the limits of the licensing basis, to plants that received a construction permit after January 1, 1971.

If 10 CFR 50.55a(g)(1) were applied as consistent with the NCV, plants with construction permits that predate January 1, 1971, could have larger and more encompassing ASME Section XI boundaries than plants that received the construction permit on or after January 1, 1971.

Entergy's understanding of 10 CFR 50.55a(g)(1), as explained above, is supported by NRC response to commenters in Federal Register/Volume 64, No. 183 / September 22, 1999 / Rules and Regulations 51375. The NRC proposed changes to 50.55a(f)(1) and 50.55a(g)(1) to clarify the intent of the regulation by explaining that the scope of IST and assumed ISI programs for plants with construction permits that predate January 1, 1971, is intended to be similar to plants with construction permits after January 1, 1971. The proposed changes were not implemented due to additional confusion caused by the proposed change, but the intent of 10 CFR 50.55a(f)(1) and 10 CFR 50.55a(g)(1) as explained in response to the commenters is unchanged. This is also supported by the guidance of NUREG 1482 (see Section 2.5 of this response).

3.2 Compliance with 10 CFR 50.55a(g)(4)

Also applicable to ANO-1 are the requirements of 10 CFR 50.55a(g)(4), which as cited in the NCV:

> *"Title 10 CFR 50.55a(g)(4) states, in part, that components which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements set forth in Section XI of the ASME Code."*

When 10 CFR 50.55a(g)(4) is applied to a plant that received a construction permit prior to January 1, 1971, it is understood that a classification criteria has been applied to meet 10 CFR 50.55a(g)(1) in order to identify equivalent ASME Section III, Class 1, 2, or 3 boundaries. The classification criteria may be part of the plant's licensing basis or may be criteria known acceptable to the NRC (RG 1.26). The classification is the equivalent ASME Section III, Class 1, 2, and 3 boundaries that are required by 10 CFR 50.55a(g)(4) to meet the requirements set forth in Section XI of the ASME Code, although not directly stated by the regulations. This understanding is based on the fact that there are no published classification criteria for ASME Section XI Class 1, 2, or 3 boundaries. By using the individual plant licensing basis or RG 1.26, there are safety-related systems or portions of systems that are excluded from being designated as ASME Section III, Class 2 or 3, and thus excluded from the ASME Section XI boundaries. This is also confirmed by the regulatory guidance of NUREG 1482 discussed in Section 2.5 of this response.

3.3 ANO-1 EDG Fuel Oil Licensing Basis

SAR Section 8.3.1.1.7.2, *Diesel Fuel Transfer and Storage*, states that the diesel fuel oil transfer piping from the emergency storage tanks is designed to ANSI B31.1.0 and in accordance with the additional requirements of Seismic Class 1 and the Quality Assurance Program discussed in Chapter 1.

SAR Appendix A, Piping and Equipment Design, combined with its text, tables and notes, provides for correlation between Nuclear 1, Nuclear 2, Nuclear 3, and Non-Nuclear Power, and the applicable construction codes. For Nuclear 1, 2, and 3 piping, the corresponding construction code is ANSI B31.7, Class 1, 2, and 3, respectively. For Non-Nuclear Power piping the corresponding construction code is ANSI B31.1.0.

To comply with 10 CFR 50.55a(g)(1), the Nuclear Class 1, 2, and 3 (B31.7 Class I, II, and III) boundaries are the original bases for the ASME Section XI boundaries. Piping designed and constructed to ANSI B31.1 is not ASME Section III, Class 1, 2 or 3, and therefore, is not required by 10 CFR 50.55a(g)(4) to meet the requirements of ASME Section XI unless classified as such by the owner/applicant.

According to SAR Section 8.3.1.1.7.2, the diesel fuel oil transfer piping is designed and constructed to ANSI B31.1.0. This is confirmed by P&ID M-217 where, like ANO-2, the AE designated the piping that forms the diesel fuel oil transfer system as “HBD”. The discussion in Section 2.4 also applies to ANO-1.

3.4 Classification of Diesel Fuel Oil Transfer Piping

Even if Safety Guide 26 or RG 1.26 (any revision) were applied to ANO-1, the diesel fuel oil piping would not be classified as equivalent to ASME Section III, Class 2 or 3 (discussion on using RG 1.26 in Section 2.2 applies). Therefore, this piping remains excluded from the ASME Section XI boundaries.

3.5 ANO-1 Conclusion

The ANO-1 ASME Section XI ISI program correctly excludes the diesel fuel oil transfer piping based on the requirements of 10 CFR 50.55a and the ANO-1 licensing basis. Further, if criteria beyond the licensing basis are applied, such as RG 1.26, the piping remains excluded. Neither ASME Section XI nor 10 CFR 50.55a require plants that received a construction permit prior to January 1, 1971, to include piping in the ASME Section XI boundaries that is not required by regulation or the licensing basis to be designed and constructed to ASME Section III, Class 1, 2, or 3 requirements. This is also supported by the regulatory guidance provided in NUREG 1482, Revision 2.

4.0 Compliance with 10 CFR 50, Appendix B, Criterion XI

The NCV states in part:

> *"The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the licensee's failure to establish and maintain an adequate testing program for the fuel oil transfer piping for Units 1 and 2. Specifically, the licensee did not establish ISI requirements to detect degradation of the fuel oil piping, above ground and buried, between the fuel oil storage tanks and the EDG day tanks."*

In the closing of the third paragraph and the fourth paragraph of the Description Section of the NCV, it elaborates on the requirements to include the subject piping in the ASME Section XI program and states in part:

> "*Further, ASME Section XI defines an appropriate testing program as follows.*
>
> *ASME Code, Section XI, Table IWD-2500-1, Examination Category D-B, Item No D2.10 requires a system leakage test and a VT-2 visual examination for Class 3 pressure retaining components. For buried components where a VT-2 visual examination cannot be performed, IWA-5244(b)(1) requires that, "The system pressure test for buried components that are isolable by means of valves shall consist of a test that determines the rate of pressure loss. Alternatively, the test may determine the change in flow between the ends of the buried components."*

It is unclear what criteria were used during the inspection to determine that the subject piping is required to meet the requirements of ASME Section XI, Subsection IWD (Class 3). The NCV refers to 10 CFR 50.55a(g)(1) and 10 CFR 50.55a(g)(4), neither of which contain or reference criteria for classification of safety-related piping. These regulations only require piping that has been classified as Class 1, 2, or 3 to meet the requirements of ASME Section XI.

4.1 ASME Section XI Testing Requirements for Class 3 Systems

If the subject piping were tested in accordance with ASME Section XI, Subsection IWD, the test would consist of the following:

- A system leakage test conducted while the system is in operation, during a system operability test, or while the system is at test conditions using an external pressurization source (Ref. IWA-5211(a)).

- The system leakage test would be performed once each inspection period (approximately once every three years or three times in 10 years) (Ref Table IWD-2500-1, Examination Category D-B, Item No. D2.10).

- The system leakage test would be conducted at the system pressure obtained while the system, or portion of the system is in service performing its normal operating function or at the system pressure developed during a test conducted to verify system operability (e.g., to demonstrate system safety function or satisfy technical specification surveillance requirements) (Ref. IWD-5221).

- For portions of piping above ground, VT-2 inspections would be performed to detect evidence of leakage. For portions below ground:
    - For portions of the system that are isolable, a test that determines rate of pressure loss or a change in flow between the ends of the buried components, with acceptance criteria developed by the Owner (Ref IWA-5244(b)(1)).
    - For non-isolable buried piping, the test shall confirm that the flow during operation is not impaired (Ref IWA-5244(b)(2)).
    - For all tests of the buried pipe, personnel are not required to be VT-2 qualified (Ref. IWA-5244(b)(3)).

4.2 EDG Surveillance Tests

The EDGs are subjected to extensive surveillance testing as required by each unit's Technical Specifications (TSs).

4.2.1 Summary of ANO-1 Surveillance Requirements (SRs) that verify operability of the fuel oil system:

TS SR 3.8.1.2: Once every 31 days, verify each DG starts from standby conditions and, in < 15 seconds achieves "ready-to-load" conditions.

TS SR 3.8.1.3: Once every 31 days, verify each DG is synchronized and loaded and operates for > 60 minutes at a load > 2475 kW and < 2750 kW.

TS SR 3.8.1.4: Once every 31 days, verify each day tank contains >160 gallons of fuel oil.

TS SR 3.8.1.6: Once every 31 days, verify the fuel oil transfer system operates to transfer fuel oil from storage tanks to the day tank.

TS SR 3.8.3.1: Once every 31 days, verify each fuel oil storage tank contains > 20,000 gallons of fuel.

TS SR 3.8.3.2: In accordance with diesel fuel oil testing program, verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of the Diesel Fuel Oil Testing Program.

TS SR Bases

SR 3.8.1.6 This surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, and the fuel delivery piping is not obstructed.

The design of the fuel transfer systems is such that pumps operate automatically or must be started manually in order to maintain an adequate volume of fuel oil in the day tanks during DG monthly testing. Therefore, a 31-day frequency is specified to correspond to the interval for DG testing.

4.2.2 Summary of ANO-2 SRs that verify operability of the fuel oil system:

TS SR 4.8.1.1.2: Requires the EDGs to be operated every 31 days and the listed surveillances include:

- Verifying the fuel level in the day fuel tank.
- Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.

Requires the EDGs to be operated every 18 months for a 24 hour period and the listed surveillances include:

- Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross connection lines.

4.3 Test Summaries and Other Programs

4.3.1 Test Summaries

The pressure test required by ASME Section XI would result in three tests every ten years conducted while the EDGs are in service. Because of the system configuration and portions being underground, all test methods described in Section 4.1 above would be employed to satisfy ASME Section XI requirements. For all of the underground piping, the test specified by ASME Section XI would be very similar to the EDG surveillances described in the plant TSs and the individual EDG operating procedures. For the above ground piping, the ASME Section XI test conditions would be satisfied by the surveillance conditions. Personnel inspecting for leaks are members of the operations or engineering staff with adequate training and experience to detect leaks. Although staff members may not be fully VT-2 qualified, the individuals are generally the same personnel that inspect the engine and engine-mounted fuel oil system for leaks. The ANO-1 and ANO-2 EDG operating procedures contain specific instructions with require identification and disposition of leaks detected during or after surveillance tests. Whereas the ASME Section XI test is performed three times in ten years, the TS surveillance tests occur approximately 36 times in the same ten-year period. As noted in the ANO-1 TS Bases, the surveillances for fuel oil transfer pump operability also verify that the piping is intact and with unobstructed flow. While this is not noted in the ANO-2 TS Bases, the ANO-2 surveillance of the transfer pump also accomplishes the same verification.

Entergy believes that the testing required by ASME Section XI would not add significant additional assurance of quality or integrity of the diesel fuel oil piping than that obtained by the EDG TS SRs and the EDG operating procedures.

4.3.2 Other Programs

Entergy has established programs and procedures for the purpose of maintaining the diesel fuel oil transfer piping system commensurate with its importance to safety. ANO Chemistry performs monthly testing (OP-1000.113, Diesel Fuel Monitoring Program) to verify the quality of the diesel fuel oil is maintained according to the industry guidelines established by RG 1.137,

"Fuel-Oil Systems for Standby Diesel Generators" (ANO-1 TS SR 3.8.1.5 and ANO-2 TS 3/4.8). This includes verifying that moisture, which could degrade the piping, is not present. The ANO Buried Piping Program (EN-DC-343) verifies that the external coating of the buried portions of the piping is maintained to prevent degradation of the piping outer diameter. Functional testing of the relevant valves and pumps of the diesel fuel oil system are included in the ANO IST Program (SEP-ANO-1-IST and SEP-ANO-2-IST).

4.3.3 Programs for the Period of Extended Operation

Chapter 16 of the ANO-1 SAR, Aging Management Programs and Activities, is a result of the integrated plant assessment for license renewal which identified several new programs to address aging management. Two such programs are "Buried Pipe Inspection" (SAR Section 16.1.1) which states:

"Buried Pipe Inspections will be performed to ensure that a loss of material due to external surface corrosion of buried piping is adequately managed. This inspection program is based on random excavations associated with required maintenance activities, usually to facilitate repairs. The safety-related portions of underground carbon steel piping on the service water and fuel oil systems are within the scope of this inspection. The aging effect addressed by the Buried Pipe Inspection is a loss of material due to corrosion of the external surfaces of pipe caused by loss of the protective coating. This inspection will be initiated prior to the end of the initial 40-year license term."

and, "Diesel Fuel Monitoring" (SAR Section 16.2.6.4) which states:

"The Diesel Fuel Monitoring Program ensures that adequate diesel fuel quality is maintained to prevent plugging of filters, fouling of injectors, and corrosion of the fuel systems. The scope of the Diesel Fuel Monitoring Program is limited to sampling activities and analysis on the following tanks: bulk fuel oil storage tank, EDG fuel tanks, EDG day tanks, fire pump diesel day tank, and the AAC diesel generator day tank. The aging management reviews credit the sampling and monitoring as providing an adequate control of the fuel oil to ensure water and contamination (including microbiological) are not present in the system. The Diesel Fuel Monitoring Program is credited with minimizing fouling, cracking, and loss of material."

Chapter 18 of the ANO-2 SAR, Aging Management Programs and Activities, is a result of the integrated plant assessment for license renewal which identified several new programs to address aging management. Two such programs are "Buried Pipe Inspection" (SAR Section 18.1.4) which states:

"The Buried Piping Inspection Program will include preventive measures to mitigate corrosion and periodic inspection to manage the effects of corrosion on buried carbon steel piping. Preventive measures will be in accordance with standard industry practice for maintaining external coatings and wrappings. Buried pipes will be inspected when they are excavated during maintenance. The Buried Piping Inspection Program will be initiated prior to the period of extended operation."

and, the “Diesel Fuel Monitoring Program” (SAR Section 18.1.7) which states:

> *“The Diesel Fuel Monitoring Program ensures that adequate diesel fuel quality is maintained to prevent plugging of filters, fouling of injectors, and corrosion of fuel systems. This program manages aging effects on the internal surfaces of diesel fuel tanks and piping within the scope of license renewal. The program monitors fuel oil quality and the levels of water and microbiological organisms in the fuel oil. Visual inspections of tanks drained for cleaning ensures that significant degradation is not occurring. This program manages the loss of material and cracking for fuel oil system components.”*

The aging management programs were described in detail as part of the License Renewal Application and subsequently accepted by the NRC as documented in the associated Safety Evaluations. The programs are credited for adequately addressing loss of material due to general, pitting, crevice, and microbiologically influenced corrosion for the extended operating period. The aging management programs as described in the SAR for both units provide assurances that are in addition to those provided by the plant TSs that the diesel fuel oil piping remains acceptable.

4.4 Compliance with 10 CFR, Appendix B, Criterion XI

As written, the NCV implies that if the inspections of ASME Section XI, Subsection IWD, Table IWD-2500-1 for Examination Category D-B, Item No. D2.10, were performed, that compliance with 10 CFR 50, Appendix B, Criterion XI, would be obtained. However, as described in this response, the EDG fuel oil piping is not required to be included in the ASME Section XI boundaries, and is tested and monitored effectively, commensurate with the importance to safety.

Also, as described above, the inspections of IWD-2500-1 are significantly less frequent than those inspections and verifications of operability obtained by the EDG TS surveillances and other plant programs. Additionally, the NRC’s evaluation of Entergy’s actions to ensure the integrity of the fuel oil transfer system for the period of extended operation found that adequate inspections, testing, and maintenance is performed without the implementation of any ASME Section XI requirements. For the reasons stated in this response, Entergy believes compliance with 10 CFR 50, Appendix B, Criterion XI, is maintained.

5.0 Overall Conclusion

The ANO-1 and ANO-2 ASME Section XI boundaries meet the requirements of ASME Section XI and 10 CFR 50.55a as described in this response. Extending the boundaries to include the diesel fuel oil piping is considered beyond the plant’s licensing basis and exceeds the requirements of the regulations cited within this NCV.

There are no criteria contained in the cited regulations that define ASME Section XI Class 1, 2, or 3 boundaries. All reference to “classification” or “classified” is in reference to defining ASME Section III, Class 1, 2, and 3 boundaries for construction. For plants that received a construction permit after January 1, 1971 (ANO-2), the ASME Section III, Class 1, 2, and 3 boundaries as established in the plant’s licensing basis determines the ASME Section XI, Class 1, 2, and 3 boundaries. For plants that received a construction permit before January 1, 1971 (ANO-1), the plant’s licensing basis (when such contains Class 1, 2, and 3

criteria) or the guidance of Regulatory Guide 1.26, to the extent that it does not conflict with the licensing basis, is used to develop equivalent ASME Section III, Class 1, 2, and 3 boundaries. The equivalent ASME Section III, Class 1, 2, and 3 boundaries then become ASME Section XI Class 1, 2, and 3 boundaries with respect to ISI. For both units the diesel fuel oil piping, as described in the plant's licensing basis and accepted by the NRC, is designed and constructed to American National Standards Institute B31.1.

The safety evaluation issued by the NRC for approval of the extended operating period for both units determined that adequate actions were taken by Entergy for aging management of the diesel fuel oil system. The aging management programs combined with the surveillance testing required by the plant's Technical Specifications provide adequate assurance that the fuel oil piping remains acceptable.

REFERENCE

1. NRC letter to Entergy, *Arkansas Nuclear One – NRC Inspection Report 05000313/2015002 and 05000368/2015002,* dated August 5, 2015 (0CNA081501) (ML15218A371)