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1CAN020901

February 16, 2009

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

SUBJECT: License Amendment Request
Technical Specification Change To Adopt Low Pressure Air Lock Seal Test
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment for Arkansas Nuclear One, Unit 1 (ANO-1). Currently, Technical Specification (TS) 5.5.16, Reactor Building Leakage Rate Testing Program, contains reactor building leak rate criteria for overall Type A, B, and C testing, but does not specify criteria for Type B air lock leakage testing. Entergy proposes to add criteria for overall air lock leakage testing and to adopt a low pressure test method relevant to the air lock door seals. The proposed change will modify TS 5.5.16, Reactor Building Leakage Rate Testing Program. This change is consistent with NUREG 1430, Rev. 3.1, Standard Technical Specifications (STS) for Babcock & Wilcox Plants.

Once every 30 months, the overall leakage across a reactor building air lock (personnel hatch or escape hatch) must be measured. This is performed by artificially pressurizing the "barrel," or space between the inside and outside reactor building doors of the air lock. Additionally, this test is performed at a pressure greater than or equal to reactor building peak accident pressure (P_a).

Air lock door seals must be tested within an allotted period of time whenever an air lock door is used for reactor building ingress/egress in order to establish reactor building integrity or in order to verify reactor building integrity is being maintained. While the overall air lock test requires measurement at P_a , Entergy desires to adopt an option to test door seals at a lower pressure. Again, this test is used only following reactor building ingress/egress and does not replace the required 30-month test at or above P_a described above.

A markup of the affected TS page is contained in Attachment 2 of this submittal.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c) and it has been determined that the changes involve no significant hazards consideration. The bases for these determinations are included in the attached submittal.

The proposed change does not include any new commitments.

Entergy requests approval of the proposed amendment by February 1, 2010. Once approved, the amendment shall be implemented within 90 days.

If you have any questions or require additional information, please contact Dale James at 479-858-4619.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 16, 2009.

Sincerely,



TGM/dbb

Attachments:

1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)

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Attachment 1

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Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License DPR-51 for Arkansas Nuclear One, Unit 1 (ANO-1).

Currently, Technical Specification (TS) 5.5.16 for ANO-1 contains reactor building leak rate criteria for overall Type A, B, and C testing, but does not specify criteria for Type B air lock leakage testing. Entergy Operations, Inc. (Entergy) proposes to add criteria for overall air lock leakage testing and to adopt a low pressure test method relevant to the air lock door seals. This change is consistent with NUREG 1430, Rev. 3.1, Standard Technical Specifications (STS) for Babcock & Wilcox Plants.

2.0 PROPOSED CHANGE

The proposed change will modify TS 5.5.16, Reactor Building Leakage Rate Testing Program, to adopt the overall leak rate criteria for the reactor building air locks and a low pressure test option/criteria for reactor building air lock door seals. Specifically, the current TS 5.5.16 requirement for Type A reactor building leak rate testing will be sub-bulleted as part "a." and a new part "b." will be added to described Type B air lock testing. The new part "b." will describe both the overall air lock leak test criteria and criteria for the air lock door seals, consistent with the STS:

- b. Air lock testing acceptance criteria are:
 - 1. Overall air lock leakage rate is $\leq 0.05 L_a$ when tested at $\geq P_a$.
 - 2. For each door, leakage rate is $\leq 0.01 L_a$ when pressurized to ≥ 10 psig.

A markup of the affected TS page is included in Attachment 2.

3.0 BACKGROUND

10 CFR 50.54(o) requires plants to comply with the requirements set forth in 10 CFR 50, Appendix J, Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors. Three major test-types are described in Appendix J. Type A tests refer to overall leak rate testing of the containment building structure. Type B and C tests are often referred to as "local" leak rate tests, where Type B applies to containment boundaries other than valves, such as doors and hatches with resilient seals or gaskets, and Type C applies to containment isolation valve leakage.

NRC Regulatory Guide (RG) 1.163, Performance-Based Containment Leak-Test Program (Reference 6), endorses the use of American National Standards Institute / American National Standard (ANSI/ANS) 56.8-1994, Containment System Leakage Testing Requirements (Reference 4), to meet the requirements of Appendix J. RG 1.163 also endorses Nuclear Energy Institute (NEI) 94-01, Rev. 0, Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J (Reference 5). ANO-1 has previously adopted the performance-based Option B, of Appendix J.

ANSI/ANS 56.8-1994 (Reference 4), Section 3.3.2, states:

Type B and C tests shall be conducted at a differential pressure not less than P_a , except on air lock door seals, which may have a lower pressure specified in the plant licensing basis.

NEI 94-01, Rev. 0 (Reference 5), Section 10.2.2, states:

Containment airlock(s) shall be tested at an internal pressure of not less than P_a prior to a preoperational Type A test. Subsequent periodic tests shall be performed at a frequency of at least once per 30 months. Containment airlock tests should be performed in accordance with ANSI/ANS-56.8-1994. In addition, equalizing valves, door seals, and penetrations with resilient seals (i.e., shaft seals, electrical penetrations, view port seals) and other similar penetrations that are testable, shall be tested at a frequency of once per 30 months.

Door seals are not required to be tested when containment integrity is not required, however they must be tested prior to reestablishing containment integrity. Door seals shall be tested at P_a , or at a pressure stated in the plant Technical Specifications.

Furthermore, NEI 94-01, Rev. 0 (Reference 5), Section 10.2.2.2, states:

Following maintenance on an airlock pressure-retaining boundary, one of the following tests shall be completed:

- *Airlock shall be tested at a pressure of not less than P_a ; or*
- *Leakage rate testing at P_a shall be performed on the affected area or component.*

Entergy maintains a reactor containment leakage test program that meets the requirements stated above. However, Entergy has not yet adopted the low pressure air lock door seal test method described in the STS as permitted by ANSI/ANS 56.8-1994 (Reference 4) and NEI 94-01, Rev. 0 (Reference 5). Therefore, the proposed change will revise the current Reactor Building Leakage Rate Testing Program of ANO-1 TS 5.5.16 to provide criteria for both the 30-month pressure test at P_a and the low pressure test for door seals.

4.0 TECHNICAL ANALYSIS

ANO, Unit 2 (ANO-2) adopted low pressure seal test criteria for containment air lock door seals in 1996. In letter dated April 4, 1995 (Reference 1), Entergy stated:

The current ANO-2 TS surveillance 4.6.1.3 requires performance of air lock door seal leakage testing after each door opening, except when the air lock is being used for multiple entries, during modes of operation when containment integrity is required. The door seal test is intended to be a gross test to verify that the door seals were not damaged during the opening and closing cycle(s). This test does not replace the required overall barrel leakage test. According to the air lock vendor (Trentec), full pressure testing is not required to perform this seal condition verification. The vendor suggests a test pressure of 3 psig as sufficient to meet this test requirement. The value

of 10 psig was selected for this amendment request to be consistent with RSTS. The current ANO-2 TS require this test to be performed at P_a (assumed peak containment design pressure, 54 psig). Performing the door seal test at a reduced pressure may allow the test to be performed without installing the mechanical dogs.

In response to an NRC Request for Additional Information (RAI), Entergy stated in letter dated April 25, 1996 (Reference 2):

TS 4.6.1.3.1.a is intended to detect degradation of the airlock door seals following the opening and closing of the airlock doors. The proposed air lock door seal leakage rate limit is 1% of the total containment leakage assumed in accident analysis. TS 4.6.1.3.1.b requires the performance of an overall airlock leakage test. This test has a limit of 5% of the total containment leakage assumed in the accident analysis. This test is a Type B test and the results are added to the total of all Type B and C tests. The total of the Type B and C tests must be less than 60% of the total allowed containment leakage. This ensures that the leakage through the airlock will not exceed the leakage assumed in the existing analyses for all evaluated accidents.

While the above discussion regarding the low pressure test and Type B testing of air locks is applicable to ANO-1, the ANO-1 TSs do not currently contain the criteria for the test at P_a . Therefore, Entergy proposes to include the P_a test in TS 5.5.16 in addition to the proposed low pressure test criteria, consistent with the STS.

In the NRC Safety Evaluation Report (SER) for Amendment 175 to the ANO-2 TSs, dated September 26, 1996 (Reference 3), the NRC stated:

ANO-2 TSs currently require air lock door seal leakage rate tests to be performed after each door opening, at P_a which is 54 psig. The door seal test is intended to be a gross test to verify that the door seals were not damaged during the opening and closing cycles. This test does not replace the required overall barrel leakage test. The licensee has requested to change this test pressure to 10 psig because performing the door seal test at a reduced pressure may allow the test to be performed without installing the mechanical dogs. As discussed in the licensee's April 4, 1995, submittal, the air lock vendor suggests a pressure of 3 psig as sufficient to meet this test requirement. The licensee has selected a test pressure of 10 psig to be consistent with NUREG-1432. The staff finds this acceptable.

ANO-1 is a Babcock & Wilcox (B&W) reactor design. ANO-2 is a Combustion Engineering (CE) reactor design. Nevertheless, the two reactor containment buildings are essentially of identical design and constructed within a few years of one another. As was the case for ANO-2, the proposed pressure acceptance criteria for the ANO-1 air lock door seals of 10 psig is sufficient to ensure containment integrity is maintained or verified to be acceptable when required. Based on the above, Entergy believes the proposed change to ANO-1 TS 5.5.16 is acceptable.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

General Design Criterion (GDC) 16, 50, 51, 52, and 53 govern the requirements for the reactor containment structure. These requirements include measures for leak rate testing of the structure as a whole, and for leak testing of components that penetrate the structure. Currently, Technical Specification (TS) 5.5.16 for Arkansas Nuclear One, Unit 1 (ANO-1) contains reactor building leak rate criteria for overall Type A, B, and C testing, but does not specify criteria for Type B air lock leakage testing. Entergy Operations, Inc. (Entergy) proposes to add criteria for overall air lock leakage testing and to adopt a low pressure test method relevant to the air lock door seals. The methods and criteria are consistent with NUREG 1430, Rev. 3.1, Standard Technical Specifications for Babcock & Wilcox Plants (STS). The low pressure test method is acceptable in accordance with American National Standards Institute / American National Standard (ANSI/ANS) 56.8-1994, Containment System Leakage Testing Requirements, and Nuclear Energy Institute (NEI) 94-01, Rev. 0, Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J, as endorsed by NRC Regulatory Guide 1.163, Performance-Based Containment Leak-Test Program. The proposed methods and criteria continue to provide assurance that leakage from the reactor containment structure will remain within acceptable limits during and following a postulated accident.

In conclusion, Entergy has determined that the proposed change does not require any exemptions or relief from regulatory requirements, other than the TS, and does not affect conformance with any GDC differently than described in the Safety Analysis Report (SAR).

5.2 No Significant Hazards Consideration

A change is proposed to the Arkansas Nuclear One, Unit 1 (ANO-1) Technical Specification (TS) 5.5.16, Reactor Building Leakage Rate Testing Program. Specifically, test criteria consistent with NUREG 1430, Rev. 3.1, Standard Technical Specifications for Babcock & Wilcox Plants (STS), is added for the overall reactor building air lock leakage rate testing and criteria for a low pressure air lock door seal test is adopted. The changes are consistent with the STS and are acceptable in accordance with American National Standards Institute / American National Standard (ANSI/ANS) 56.8-1994, Containment System Leakage Testing Requirements, and Nuclear Energy Institute (NEI) 94-01, Rev. 0, Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J, as endorsed by NRC Regulatory Guide 1.163, Performance-Based Containment Leak-Test Program.

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The reactor building air locks are passive components integral to the reactor building structure and are not associated with accident initiators. Each air lock door is rated for and tested to the maximum calculated post-accident pressure of the reactor building.

The air lock door seal pressure test is performed any time the air lock is used for reactor building access during modes of operation when reactor building integrity is required and prior to establishing reactor building integrity. The door seal test is intended to be a gross test to verify that the door seals were not damaged during the opening and closing cycle(s). This test does not replace the required overall barrel leakage test. Based on information provided by the air lock vendor, a test pressure of 10 psig is conservatively sufficient to perform this gross seal verification. This new acceptable leakage rate and test criteria are consistent with NUREG 1430, Rev. 3.1, Standard Technical Specifications for Babcock & Wilcox Plants (STS) and are applicable to ANO-1. While new to the TSs, the ANO-1 program for ensuring compliance with 10 CFR 50, Appendix J has verified leakage within the proposed limiting values.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

No physical changes to the facility are initiated by the proposed change. In addition, the proposed change has no effect on plant configuration, or method of operation of plant structures, systems, or components.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change does not increase the allowable overall air lock leakage rate, nor affect the acceptance criteria of the overall integrated containment leakage rate as currently tested to in accordance with the ANO-1 containment leakage rate test program. All of the changes are bounded by existing analyses for all evaluated accidents and do not create any situations that alter the assumptions used in these analyses.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.3 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 PRECEDENCE

Many U.S. commercial nuclear power plants contain both the criteria for the overall air lock leakage test and the low pressure test method associated with the door seals. This is especially true for plants that have converted their TSs to the STS versions. Because the list is significant, specific reference is not provided here.

7.0 REFERENCES

1. Entergy letter dated April 4, 1995, Technical Specification Change Request Concerning Containment Air Locks (2CAN049511)
2. Entergy letter dated April 25, 1996, Response to NRC Questions Regarding Containment Air Lock Technical Specification Change Request (2CAN049604)
3. NRC Safety Evaluation Report dated September 26, 1996, Issuance of Amendment No. 175 to Facility Operating License No. NPF-6 – Arkansas Nuclear One, Unit No. 2 (TAC No. M92068) (2CNA099603)
4. American National Standards Institute / American National Standard (ANSI/ANS) 56.8-1994, Containment System Leakage Testing Requirements
5. Nuclear Energy Institute (NEI) 94-01, Rev. 0, Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J
6. NRC Regulatory Guide 1.163, Performance-Based Containment Leak-Test Program
7. NRC NUREG-1493, Performance-Based Containment Leak-Test Program

Attachment 2

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Proposed Technical Specification Changes (mark-up)

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

5.5.16 Reactor Building Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the reactor building as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, except that the next Type A test performed after the April 16, 1992 Type A test shall be performed no later than April 15, 2007.

In addition, the reactor building purge supply and exhaust isolation valves shall be leakage rate tested once prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days.

The peak calculated reactor building internal pressure for the design basis loss of coolant accident, P_a , is 54 psig.

The maximum allowable reactor building leakage rate, L_a , shall be 0.20% of containment air weight per day at P_a .

Leakage rate acceptance criteria are:

a. Reactor Building leakage rate acceptance criteria is $\leq 1.0 L_a$. During the first unit startup following each test performed in accordance with this program, the leakage rate acceptance criteria are $< 0.60 L_a$ for the Type B and Type C tests and $< 0.75 L_a$ for Type A tests.

b. Air lock testing acceptance criteria are:

1. Overall air lock leakage rate is $\leq 0.05 L_a$ when tested at $\geq P_a$:

2. For each door, leakage rate is $\leq 0.01 L_a$ when tested at ≥ 10 psig.

The provisions of SR 3.0.2 do not apply to the test frequencies specified in the Reactor Building Leakage Rate Testing Program.

The provisions of SR 3.0.3 are applicable to the Reactor Building Leakage Rate Testing Program.