



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 11, 2014

Vice President, Operations  
Arkansas Nuclear One  
Entergy Operations, Inc.  
1448 S.R. 333  
Russellville, AR 72802

**SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 - REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT AND EXEMPTION REQUESTS FOR CHANGES TO EMERGENCY ESCAPE AIR LOCK TESTING (TAC NOS. MF3382 AND MF3383)**

Dear Sir or Madam:

By letter dated January 21, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14021A085), supplemented by letter dated March 17, 2014 (ADAMS Accession No. ML14077A139), Entergy Operations, Inc. (Entergy, the licensee), submitted a license amendment request and an exemption request regarding proposed changes to emergency escape air lock testing for Arkansas Nuclear One, Unit 2.

The Nuclear Regulatory Commission staff has been reviewing the submittal and has determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information (RAI). The questions were sent via electronic transmission on August 6, 2014, to Mr. David Bice, of your staff. The draft questions were sent to ensure that they were understandable, the regulatory basis was clear, and to determine if the information was previously docketed. Mr. Bice indicated that a clarification teleconference was not necessary for the questions, and it was agreed that a response would be submitted within 45 days of the date of this letter.

If you have any questions, please contact me at (301) 415-1081 or by e-mail at [Andrea.George@nrc.gov](mailto:Andrea.George@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "A. George", with a long horizontal flourish extending to the right.

Andrea E. George, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosure:  
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION  
LICENSE AMENDMENT AND EXEMPTION REQUESTS  
REGARDING CONTAINMENT BUILDING EMERGENCY ESCAPE AIR LOCK TESTING  
ENTERGY OPERATIONS, INC.  
ARKANSAS NUCLEAR ONE, UNIT 2  
DOCKET NO. 50-368

By letter dated January 21, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14021A085), supplemented by letter dated March 17, 2014 (ADAMS Accession No. ML14077A139), Entergy Operations, Inc. (Entergy, the licensee), submitted a license amendment request (LAR) proposing changes to the Technical Specifications (TSs) for Arkansas Nuclear One, Unit 2. The amendment would modify TS 6.5.16, "Containment Leakage Rate Testing Program," to require a seal contact verification in lieu of a seal pressure test with respect to the emergency escape air lock doors. The request also included a proposed exemption from certain requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors," associated with the proposed testing protocol. Specifically, the proposed exemption applies to the emergency escape air lock doors for which 10 CFR 50, Appendix J, Option B, Section III.B requires, in part, "Type B pneumatic tests to detect and measure local leakage rates across pressure retaining, leakage-limiting boundaries...be conducted..." In order for the Nuclear Regulatory Commission (NRC) staff to complete its review of the application, a response to the following request for additional information (RAI) is requested.

RAI-1: Overall Air Lock Test

In the submittal dated March 17, 2014, the licensee stated that the overall air lock leak rate tests had been shown to be effective (e.g., third paragraph on page 7 of the attachment). Regarding these successful tests, please provide the following information:

- (a) The typical test configuration in terms of whether the strongback is used with the air lock barrel or not.
- (b) The directions of the forces applied to the seals by the air lock barrel pressure and/or the strongback. In addition, specify if the direction is the same as the one that would occur during a postulated loss of coolant accident.
- (c) The pressures applied during the air lock pressure test.

Enclosure

RAI-2: Between-the-Seals-Test

Regarding the between-the-seals tests:

- (a) Please provide details about the test protocol that describe how the test pressure was supplied/applied.
- (b) Please justify why the test pressure was applied in the opposite direction of accident pressure (see fourth paragraph on page 5 of the attachment to the letter dated March 17, 2014).
- (c) Please explain whether the applied pressure in the between-the-seals-test would “lift” the door open or off its sealing surface leading to leakage.
- (d) Please summarize the efforts (investigations, modifications, maintenance) in terms of seal design, seal material, seal shape, seal operation conditions, door modifications, test methods etc. that have been considered or conducted to resolve the failure of between-the-seals pressure test cases. Also, please include a description of other gasket materials/profiles that may have been considered that could be qualified for the application that might form a better sealing joint (and more set resistant) without the need for strongbacks.

RAI-3: Seal Contact Check

In Section 2.2 of the attachment to the letter dated March 17, 2014, the licensee stated that the seal contact check method had been incorporated into and practiced through maintenance procedures. Please provide the information or historical records (if available) that can show the effectiveness of seal contact check on the overall air lock full pressure leak test (i.e. provide information that shows how performance of seal contact check led to a successful full pressure leak test).

RAI-4: Strongback

According to the licensee (attachment to the letter dated March 17, 2014, Section 3.0), NRC violations have been cited relating to the use of a strongback during air lock door testing as potential test pre-conditioning. Also, according to the licensee (Attachment to letter dated March 17, 2014, Section 2.1), pressure testing without the strongback is beyond the approved vendor technical manual instructions. Please clarify whether the strongback will be used in future door leak testing.

RAI-5: Escape Hatch

Please provide a description of historical escape hatch usage. Specifically, please clarify whether the escape hatches been operated such that they are only opened to allow emergency egress or to allow maintenance or testing of the hatch itself. Please provide an estimate of how often the escape hatches been used (opened) when containment integrity was required during the past 10 years (accurate enough count to determine never/rarely/often).

RAI-6: Escape Hatch Door Seal Pressure Test

Section 4.0 of the attachment to the letter dated March 17, 2014, states, in part:

On rare occasions, minor modifications accompanied with significant maintenance efforts have resulted in successful performance of the as-left between-the-seals test; however, the following as-found tests grossly failed, even at low test pressures of approximately 12 psig [pounds per square inch gauge].

Given that the TS currently specifies testing the seals at a minimum pressure of 10 psig, please identify whether lower pressures were tried that would allow for repeatable determination of satisfactory seal "bead" and gasket contact; something that would be more definitive/quantitative than a more qualitative chalk/ink contact line visual inspection.

If you have any questions, please contact me at (301) 415-1081 or by e-mail at [Andrea.George@nrc.gov](mailto:Andrea.George@nrc.gov).

Sincerely,

*/RA/*

Andrea E. George, Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosure:  
Request for Additional Information

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**\*via email**

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