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2CAN011402

January 21, 2014

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

SUBJECT: License Amendment Request
Containment Building Emergency Escape Air Lock Testing and Exemption from Certain Requirements of 10 CFR 50, Appendix J
Arkansas Nuclear One, Unit 2
Docket No. 50-368
License No. NPF-6

Dear Sir or Madam:

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.90, Entergy Operations, Inc. (Entergy) is submitting a request for an amendment to Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specifications (TS) to revise the local leak test requirements for the Containment Building Emergency Escape Air Lock doors. In accordance with 10 CFR 50.12, an exemption from certain requirements of 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors," is also requested for ANO-2. The proposed amendment would modify TS 6.5.16 to require a seal contact verification in lieu of a seal pressure test with respect to the Emergency Escape Air Lock doors.

This amendment and exemption request is necessary due to the design characteristics of the ANO-2 Emergency Escape Air Lock doors. The door sealing capability relies, in part, on Containment Building pressure (the doors open into the Containment Building). In the absence of Containment Building pressure, a strongback must be installed to simulate this sealing force in order to perform testing between the two seals embedded in each door. Entergy has received considerable NRC inspection activity associated with testing of the ANO-2 Emergency Escape Air Lock doors, since the use of a strongback, although required from initial plant startup due to inherent design, can be considered a form of test pre-conditioning.

Attachment 1 provides a description and assessment of the proposed TS change and request for exemption. Attachment 2 provides markup pages of existing TS and TS Bases to show the proposed change. Attachment 3 provides revised (clean) TS pages. Attachment 4 summarizes the regulatory commitments made in this submittal.

Entergy requests approval of the proposed license amendment by February 1, 2015, with the amendment being implemented within 90 days of approval.

In accordance with 10 CFR 50.91(a)(1), “Notice for public comment,” the analysis about the issue of no significant hazards consideration (NSHC) using the standards in 10 CFR 50.92 is being provided to the Commission in accordance with the distribution requirements in 10 CFR 50.4.

In accordance with 10 CFR 50.91(b)(1), a copy of this application and the reasoned analysis about NSHC is being provided to the designated Arkansas state official.

If you have any questions or require additional information, please contact Stephenie Pyle at 479-858-4704.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on January 21, 2014.

Sincerely,

ORIGINAL SIGNED BY JEREMY G. BROWNING

JGB/dbb

Attachments:

1. Description and Assessment of the Proposed Changes
2. Proposed Technical Specification and Bases Changes (mark-up)
3. Revised (clean) Technical Specification Pages
4. List of Regulatory Commitments

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Attachment 1 to

2CAN011402

Description and Assessment of the Proposed Changes

DESCRIPTION AND ASSESSMENT OF THE PROPOSED CHANGES

1.0 DESCRIPTION

The proposed amendment would modify Technical Specifications (TS) associated with Arkansas Nuclear One, Unit 2 (ANO-2) Renewed Operating License NPF-6 to revise the local leak test requirements for the Containment Building Emergency Escape Air Lock doors. In accordance with 10 CFR 50.12, an exemption from certain requirements of 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors," is also requested for ANO-2.

The proposed amendment would modify TS 6.5.16 to require a seal contact verification in lieu of a seal pressure test with respect to the Emergency Escape Air Lock doors:

b. Air lock acceptance criteria are:

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

2. Leakage rate for each Personnel Air Lock door is $\leq 0.01\ L_a$ when pressurized to ≥ 10 psig.

3. A seal contact check for each Emergency Escape Air Lock door, consisting of a verification of continuous contact between the seals and the sealing surfaces.

This amendment and exemption request is necessary due to the design characteristics of the ANO-2 Emergency Escape Air Lock doors. The door sealing capability relies, in part, on Containment Building pressure (the doors open into the Containment Building). In the absence of Containment Building pressure, a strongback must be installed to simulate this sealing force in order to perform testing between the two seals embedded in each door. Entergy has received substantial NRC inspection activity associated with testing of the ANO-2 Emergency Escape Air Lock doors, since the use of a strongback, although required from initial plant startup due to inherent design, can be considered a form of test pre-conditioning.

This amendment and exemption request is based most closely on that approved for Palisades on September 30, 1997 (Reference 1), and carried forward during the Palisades adoption of 10 CFR 50, Appendix J, Option B, approved on March 30, 2001 (Reference 2). Both ANO-2 and Palisades are Combustion Engineering plants with similar Containment Building Emergency Escape Hatch Air Lock door designs.

Attachment 2 provides markup pages of existing TS and TS Bases to show the proposed change. Attachment 3 provides revised (clean) TS pages. The TS Bases will be revised in accordance with the TS Bases Control Program (TS 6.5.14) upon implementation of this amendment, as committed to in Attachment 4 of this submittal.

2.0 ASSESSMENT

2.1 Description of Emergency Escape Airlock

The air lock consists of a steel cylinder with circular doors at each end interlocked so that only one door can be open at any time. The air lock is designed to withstand all Containment Building conditions with either door or both doors closed. The doors open towards the interior of Containment Building and the door directly in contact with the Containment Building atmosphere is designated as the inner door. The air lock performs two functions: (1) capable of sealing and maintaining Containment Building integrity during accident conditions (verified by local leak rate testing (LLRT) and by Integrated Leak Rate Testing (ILRT)), and (2) capable of providing the Occupational Safety and Health Administration (OSHA) required emergency personnel egress from the Containment Building.

Double gaskets or seals are provided to seal each door. The seal material currently in use is an ethylene-propylene-diamine-monomer (EPDM), which is the vendor recommended material. The air lock barrel may be pressurized to test its leak tightness without pressurizing the Containment Building. The Emergency Escape Air Lock doors each have two latching pins centered at the top and bottom of the door (corresponding to 12 o'clock and 6 o'clock positions). The Emergency Escape Air Lock door latching pins serve only to position the door against the stationary bulkhead. The doors rely on the increase in containment pressure during a postulated event to provide sufficient closing force to produce an effective seal. The two latching pins alone do not provide an adequate circumferential closing force to allow meaningful door between-the-seals pressure testing.

Pressure testing without test clamps (strongback) is beyond the approved vendor technical manual instructions. The technical manual (TDT368X.0040) for the Emergency Escape Air Lock details the vendor instructions for leak testing the door seals:

> *In order to pressurize between the two seals on any door, the test clamp must first be bolted into place. This test clamp will simulate pressure sealing of the door and will also prevent the door from swinging open when the space between the two seals is pressurized.*
>
> ***WARNING:*** *Do not pressurize the Airlock to full design pressure without first installing the test clamp on the door on the reactor end of the airlock. The door latch is not designed to take the full design pressure from the external direction. The test clamps should be securely in place before any pressure is put inside the airlock. The test clamp is designed to withstand the full design of the Airlock.*

The door seals are required to be replaced every other refueling outage in accordance with the ANO Preventative Maintenance Program, but have been replaced each refueling outage during the recent past. The vendor Certificate of Compliance specifies the cure date (considered the manufacturing date) of each seal. The certificates provide a seal shelf life of 2 years from the cure date. The vendor (W.J. Woolley Company Nuclear, which was acquired by Trentec, now QualTech NP, in 1988) recommends a service life of approximately 5 years for each seal, beginning at the cure date.

Seal adjustment may be necessary following compression of the seal due to performance of the overall Emergency Escape Air Lock full pressure test or following installation and removal of a strongback. Such adjustment may include shimming or latch bracket adjustments. A review of inspections over the past 5 years has not identified a loss of seal resiliency.

2.2 Description of Present Surveillance Test

During a design basis accident (DBA), the pressure applied forces the inner door against the seals. The outer door experiences DBA pressure only if the inner door seals leak by. During pressure testing of the overall air lock, a strongback (structural bracing) is necessary to simulate this pressure on the Containment Building side of the inner door and also to protect the inner door locking pins from the forces generated by the internal test pressure in the air lock barrel. The use of a strongback to complete between-the-seals testing (either door) or full airlock pressure testing (inner door only) is required and was part of the original design of the doors. This design does not permit unrestrained between-the-seals testing.

The between-the-seals test on a given air lock door is required after each door opening, except when the airlock is being used for multiple entries. The outer door must be opened following each overall test of the air lock to remove the strongback from the inner door. As discussed below, the inner door must also be opened to perform a seal contact check, since the seals may take a “set” when pressure applied by an overall air lock barrel test or a strongback is applied to the door.

Past TS surveillance testing for both the Emergency Escape Air Lock illustrates that testing with strongbacks in place is successful; however, the pressure applied by the strongbacks, or the pressure applied to the outer door during the overall air lock pressure test, can cause door seals to take a set that reflects the shape of the seal grooves. With strongbacks installed or test pressure applied to the air lock barrel, the male portion of the door seal (the seal bead) can be pressed into the seal. The seal will remain in this compressed condition for the entire test period, causing the seal to take a set in the seal groove of the air lock bulkhead. After completion of an overall air lock barrel pressure test, the outer door must be opened to remove the strongback from the inner door, and both doors must be opened to verify proper seal contact with the door seal bead in order to ensure that the seals rebound to the pre-test condition. Seal adjustment may be required after testing because the force of the strongbacks on a given door and/or the force due to the air lock barrel test pressure on the outer door can draw the seal bead on the doors further into the seal groove than what would occur under normal door closure forces.

If the seal contact check reveals gaps, seal adjustment is performed to ensure that the seal maintains 360° of contact. Entergy Operations, Inc. (Entergy) considers seal adjustment a normal part of restoration from testing of the ANO-2 Emergency Escape Air Lock, which is controlled by procedure. The seal contact check consists of applying chalk or other viable medium on the seal face and then closing and reopening the air lock door. This will result in a pattern in the chalk (or other medium) that is representative of the door seal bead mating with the seal. If the chalk (or other medium) pattern does not show adequate contact, the seals are adjusted in the area of the gap. Following adjustment, a final seal contact check is performed to verify the integrity of the sealing surface. The practice of verifying acceptable seal contact following performance of the overall air lock leak test and the acceptance criteria for this verification have been incorporated into the maintenance procedures.

While the TS acceptance criteria for an air lock door is ≤ 0.01 L_a when pressurized to ≥ 10 psig, a conservative administrative leak rate limit of 1628 sccm is established at ANO-2. In response to NRC violation, procedures were revised in 2010 to require between-the-seals testing without the use of strongbacks. The first performance of the revised procedures occurred in the following refueling outage (February 2011). Both doors failed this leak test (11190 sccm and 52520 sccm, inner/outer door respectively). Subsequently, maintenance was performed with assistance from the vendor (new seals, new shims, lubrication, and adjusting the door latch brackets to increase the sealing forces), resulting in acceptable as-left test results. In the spring of 2012, ANO and vendor personnel developed a plan to improve maintenance and acquire detailed measurements during the next outage in the event future modification would be necessary. The as-found leak test of the outer door failed during the fall 2012 refueling outage (55145 sccm). Further modification and maintenance was performed (along with acquiring the aforementioned detailed measurements) and both doors passed their respective as-left leak tests.

3.0 TECHNICAL ANALYSIS

The TS changes are necessary due to the original design of the Emergency Escape Air Lock. The annulus between the door seals cannot be successfully tested without the door strongback installed, as indicated by recent test data.

Entergy has performed additional low pressure between-the-seals testing on the Emergency Escape Air Lock door seals to measure seal leak rates at low initial pressures without the door strongbacks installed. The trial tests were performed at pressures near the ≥ 10 psig TS air lock test pressure requirement. With the annulus between the door seals pressurized to approximately 12 psig without the door strongback installed, the test pressure continued to dissipate rapidly. This indicates that the leak rates for between-the-seals testing on the Emergency Escape Air Lock cannot reasonably be properly evaluated against acceptance criteria when the door strongbacks are not installed. In summary, meaningful between-the-seals testing is not possible with the present design of the Emergency Escape Air Lock doors, without the installation of strongbacks or without significant closing torque being applied to the door closure mechanisms. Similarly, the inner door does not fully seal with the reverse-direction pressure of a full air lock pressure test unless the strongback is installed on the inner door.

The pressure applied during a between-the-seals test is in the opposite direction of accident pressure and will act to “lift” the door open or off its seating surface. Accident pressures apply forces to the door in the “designed” direction for greater seal contact and leak tightness. The dual-seal design of the door is such that the direction of air pressure during an accident requires that both seals fail to seal for leakage to pass through door. This is in contrast to a pressure test between the door seals, which acts to lift the door open and will only verify that one of the two seals is not seated. In other words, the failure of a low pressure seal test does not prove the door would not seal in an accident scenario. In addition, to create a door seal-related direct leakage path to the outside atmosphere, both seals on both doors must fail. Note that ANO-2 has performed six ILRTs following initial startup, all of which passed acceptance criteria, indicating the Emergency Escape Air Lock doors are meeting the Containment Building design function when exposed to pressure in the correct (accident) direction.

As a result of NRC violations that are largely based on the use of a strongback as test “pre-conditioning,” Entergy has responded with significant effort to perform door testing without the use of a strongback. Efforts included significant maintenance, with onsite vendor support, performed over recent years and a significant increase in the torque applied to the door during

closure. At least one instance of an employee becoming trapped inside the air lock has occurred due to the excessive force now necessary to operate the opening/closing mechanism. Although a torque applying device has been stationed to assist personnel in door operation, this excessive torque is contrary to the industrial safety purpose of the air lock in providing an immediate escape route from the Containment Building.

As an alternative to the final between-the-seals pressure test required by the TS for verification of door seal functionality, Entergy proposes a final door seal contact verification. This seal performance verification is completed following the full pressure airlock test, after the removal of the inner door strongback, and just prior to final closure of the airlock doors. The requested TS changes would not affect compliance with the present requirement to perform a full pressure Emergency Escape Air Lock each refueling outage. The seal contact check replaces the pressure test required by the Containment Leakage Rate Testing Program for the door opening(s).

Based on the described circumstances and the above evaluation, Entergy's proposal to perform seal contact testing in lieu of between-the-seals leak rate testing on the Emergency Escape Air Lock door seals is acceptable.

4.0 EXEMPTION REQUEST

Entergy Operations, Inc. (Entergy) is the holder of Facility Operating License No. NPF-6, which authorizes operation of the Arkansas Nuclear One, Unit 2 (ANO-2) plant. The ANO-2 facility is a pressurized-water reactor located in Pope County, Arkansas.

In accordance with 10 CFR 50.12, an exemption from certain requirements of 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors," is requested for ANO-2. The proposed amendment would modify TS 6.5.16 to require a seal contact verification in lieu of a seal pressure test with respect to the Emergency Escape Air Lock doors.

10 CFR 50, Appendix J, Option B, III.B requires, in part, "Type B pneumatic tests to detect and measure local leakage rates across pressure retaining, leakage-limiting boundaries…"

The aforementioned exemption is necessary due to the original design of the Emergency Escape Air Lock. Over recent years, a between-the-seals pressure (pneumatic) test of the Emergency Escape Air Lock doors has routinely failed without the use of a strongback to simulate Containment Building accident pressure. 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. The vendor has clearly stated the ANO-2 design does not support testing absent use of a strongback and, to meet leak rate limits, the airlock's latching mechanism must generate a high latch contact such that it will maintain a residual compressive load on the gasket greater than the unseating effect produced by the test pressure. Adjustment and/or modification of the latch in this manner defeats the purpose of the Emergency Escape Air Lock since excessive human force would be required to open the air lock door in an emergency situation. In 2008, after an individual became trapped in the air lock due to being unable to open the door, a torque amplifying device has been installed to assist personnel in door opening/closing. During the fall outage in 2012, the outer door required

mechanical agitation to open and it was noted that the ¾" stainless steel latch pins were bent. Based on efforts to date, Entergy has concluded that attempting to apply excessive closing torque to the door necessary to overcome the original design characteristics is inappropriate.

Based on historical information, the failed attempts to consistently perform the subject test without the use of a strongback, and the industrial safety aspects associated with modifying the door closing torque, Entergy requests an exemption to utilize a seal contact check in lieu of the between-the-seals pressure test.

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 50 when (1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security, and (2) when special circumstances are present. These circumstances include the special circumstances that would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation.

Authorized by Law

This exemption would allow a seal contact check to be performed on the ANO-2 Emergency Escape Air Lock doors in lieu of a between-the-seals test. The seal contact check ensures that the door seals are in full contact with the door face and will provide high confidence that no leak path has been created past the seals due to ingress/egress through the air lock. In addition, the air lock barrel pressure test will continue to be performed as required by the TSs, which verifies the overall leak integrity of the air lock. Finally the door seals will continue to be part of the test boundary during the Containment Building integrated leak rate test (ILRT). This request is similar to that approved for the Palisades plant in September 1997 (Reference 1). As stated above, 10 CFR 50.12 allows the NRC to grant exemptions from the requirements of 10 CFR Part 50. The NRC staff has previously concluded that granting a similar request for another licensee does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulation. The exemption will continue to ensure the safety function of the air lock to minimize or prevent radioactive leakage from the Containment Building during postulated events and will provide Entergy the opportunity to utilize the door as originally designed, which supports the industrial safety function of permitting relatively rapid, easy egress for the Containment Building during emergency conditions. Based on the above, the exemption is authorized by law.

No Undue Risk to Public Health and Safety

The test methods are intended to verify the design function capability of the ANO-2 Emergency Escape Air Lock to provide adequate protection for public health and safety. Emergency Escape Air Lock remains fully capable of performing the required design function during normal and accident operational conditions. The Emergency Escape Air Lock doors maintain a successful history in meeting the periodic full pressure test requirement of the air lock and Containment Building ILRTs. The door seal contact check, in conjunction with the full pressure air lock test, has been shown to be effective in maintaining the design function of the air lock, recently at ANO-2 and for many years at the Palisades plant (Reference 1), which has a similar Emergency Escape Air Lock door design. In addition, the currently required between-the-seals pressure test on the door seals acts to lift the door from the sealing surface and only proves that one of the two seals is leaking. Failure of all four seals (two per door) would need to occur

before the design function of the air lock to limit the release of radioactivity from the Containment Building during postulated events would become degraded. Based on the above, no new accident precursors are created by replacing the between-the-seals pressure test with a seal contact check. In addition, the probability of postulated accident and the potential consequences of an accident are not increased. Therefore, the proposed exemption will not result in undue risk to public health and safety.

Consistent with Common Defense and Security

The proposed exemption has no relation to security issues. The common defense and security is, therefore, not impacted by this exemption.

Special Circumstances

Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated; or

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(iii), are present whenever compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated. The current required testing does not account for original air lock door designs that do not reasonably permit successful testing without use of external pressure being applied (via a strongback in this case). ANO-2 has received violations related to the use of a strongback during air lock door testing as potential test pre-conditioning. As a result, significant maintenance, with onsite vendor support, was attempted to replace many door components and increase the closing torque of the doors. While these efforts resulted in some successful testing of the door seals, the secondary function of the air lock to meet OSHA industrial safety requirements (i.e., provide a relatively easy-to-operate escape path from the Containment Building during emergency conditions) has been significantly degraded.

In light of the above, Entergy, with vendor support, has investigated the potential of substantial modifications to the air lock doors in order to meet the current seal pressure test requirements and the OSHA requirements. Beyond the many components previously replaced along with spring upgrades to help alleviate the excessive force now needed to operate the doors, Entergy has determined complete door replacement (retrofit) would be necessary to resolve the aforementioned issues. Vendor proposals have been received and the associated Entergy cost study has been completed, resulting in an estimated total of over $3,000,000. While high confidence exists that such a modification would resolve the issues at hand, there are not guarantees that all issues will be completely eliminated. The cost of pursuing such a modification is unwarranted because no appreciable increase in nuclear or public safety would be realized. Based on the estimated costs of modifications and because both the radiological and industrial safety aspects associated with the Emergency Escape Air Lock will continue to be met under the proposed exemption, special circumstances have been shown to exist, in accordance with 10 CFR 50.12(a)(2).

As demonstrated above, the requested exemption is authorized by law, does not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Based on this, Entergy believes the requested exemption should be granted for ANO-2.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration Determination

Entergy Operations, Inc. (Entergy) has evaluated the proposed changes to the TS using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

Entergy proposes a change to the Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specifications (TSs), that would permit a seal contact check in lieu of between-the-seal pressure testing associated with the Containment Building Emergency Escape Air Lock door seals. Overall full pressure testing of the Emergency Escape Air Lock will continue at required frequencies. The proposed change also requires an exemption from 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water Cooled Power Reactors," Option B, leak rate testing requirements.

Basis for no significant hazards consideration determination: As required by 10 CFR 50.91(a), Entergy analysis of the issue of no significant hazards consideration is presented below:

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

   Response: No

   The proposed change would permit Emergency Escape Air Lock door seal leak rate testing to be performed by a seal contact check following door opening, overall full pressure test of the Emergency Escape Air Lock, or seal contact adjustments. The seal contact test method will result in a continuation of the established practice which has provided a high degree of confidence in door seal performance. At Palisades Emergency Escape Air Lock door seals which have been inspected in accordance with the proposed methodology have passed subsequent full pressure Emergency Escape Air Lock leakage tests and have not interfered with successful Containment Building Integrated Leak Rate Testing (ILRT).

   Since the proposed methodology can be used to successfully verify door seal condition and contact, the use of this methodology for testing will not cause an increase in the probability of a leaking Emergency Escape Air Lock door seal going undetected. The combination of the door seal contact check and the overall full pressure testing of the Emergency Escape Air Lock will provide high confidence of the air lock performing its design function under accident conditions.

   Therefore, this 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

   The proposed change is associated exclusively with testing of features related to Containment Building integrity. The change affects only the testing methodology of the Emergency Escape Air Lock door seals. The proposed testing method does not result in any physical alterations to the plant configuration, no new structure, system, or component (SSC) is added, no SSC interfaces are modified, and no changes to any design function of an SSC or the methods of SSC operation are being made. As the proposed change would not change the design, configuration, or operation of the plant, the change would not cause the Containment Leakage Rate Testing Program to become an accident initiator.

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

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

   Response: No

   The proposed change is associated exclusively with testing of features related to Containment Building integrity. The change affects only the testing methodology of the Emergency Escape Air Lock door seals. The change is unrelated to an initiator of any accident previously evaluated. The proposed application of a door seal contact check in lieu of a between-the-seals pressure test along with continuation of the overall full pressure test of the Emergency Escape Air Lock will continue to provide high confidence that the Containment Building leakage rate criteria for the Emergency Escape Air Lock will not exceed the maximum allowable leakage rates defined in the TSs or assumed in the accident analysis.

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

Based upon the reasoning presented above, Entergy concludes that the requested change involves no significant hazards consideration, as set forth in 10 CFR 50.92(c), “Issuance of Amendment.”

5.2 Applicable Regulatory Requirements/Criteria

ANO-2 TS 6.5.16 establishes the program required to implement the leakage rate testing of the Containment Building as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program is required to be in accordance with the guidelines contained in NEI 94-01, Revision 2-A, “Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J,” dated October 2008.

ANSI/ANS-56.8-2002, "Containment System Leakage Testing Requirements” describes the inspection and testing requirements necessary to fulfill the intent of the requirements of NEI 94-01, Revision 2-A, as specified in the TS. Because the integrity of the primary

containment boundary with respect to leakage will continue to be verified as required by the above, with approved exemptions, no change in the primary containment boundary's ability to fulfill its design function is introduced.

5.3 Precedence

This amendment and exemption request is based most closely on that approved for Palisades on September 30, 1997 (Reference 1), and carried forward during the Palisades adoption of 10 CFR 50, Appendix J, Option B, approved on March 30, 2001 (Reference 2). Both ANO-2 and Palisades are Combustion Engineering plants with similar Containment Building Escape Hatch Air Lock door designs.

6.0 ENVIRONMENTAL CONSIDERATION

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, and would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change 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 change.

7.0 REFERENCES

1. NRC letter to Palisades dated September 30, 1997, “Palisades Plant – Issuance of Amendment Re: Containment Emergency Escape Air Lock Testing, and Exemption from Certain Requirements of 10 CFR Part 50, Appendix J (TAC No M94528) (ML020840256)

2. NRC letter to Palisades dated March 30, 2001, “Palisades Plant – Issuance of Amendment Re: Option B Containment Leak Rate Testing (TAC No: MB0855) (ML010930230)

Attachment 2 to

2CAN011402

Proposed Technical Specification and Bases Changes (mark-up)

6.5.16 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment 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 NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated October 2008. The next Type A test performed after the November 30, 2000 Type A test shall be performed no later than November 30, 2015.

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

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 58 psig.

The maximum allowable containment leakage rate, L_a, shall be 0.1% of containment air weight per day at P_a.

Leakage rate acceptance criteria are:

a. Containment 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 $\leq 0.75\ L_a$ for Type A tests.

b. Air lock acceptance criteria are:

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

   2. Leakage rate for each Personnel Air Lock door is $\leq 0.01\ L_a$ when pressurized to ≥ 10 psig.

   3. A seal contact check for each Emergency Escape Air Lock door, consisting of a verification of continuous contact between the seals and the sealing surfaces.

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

SR 4.6.1.3.2 requires each containment air lock to be demonstrated OPERABLE as specified in the Containment Leakage Rate Testing Program (TS 6.5.16). In accordance with TS 6.5.16, the Personnel Air Lock leakage limit of $\leq 0.01\ L_a$ provides assurance that the failure of a single air lock door will not result in the total containment leakage limit being exceeded. Due to its inherent design, a seal contact check is performed on the Emergency Escape Air Lock doors to provide assurance that the air lock doors will not encounter excessive leakage.

The interlock mechanism OPERABILITY verification required by SR 4.6.1.3.2 is modified by Note 7, which provides an allowance for not performing the verification unless the air lock is being used for containment access. Because each of the air lock doors meet their respective CONTAINMENT INTEGRITY requirements, the opening of a single door does not result in a breach of containment or challenge the interlock mechanism. In addition, challenges to the interlock mechanism are minimized by strict procedural guidance that prohibits the opening of more than one door in the air lock at a time when CONTAINMENT INTEGRITY is required to be maintained. Therefore, accessing the air lock without intention of ingress or egress through both doors of the air lock does not require performance of SR 4.6.1.3.2.

3/4.6.1.4 INTERNAL PRESSURE AND AIR TEMPERATURE

The limitations on containment internal pressure and average air temperature, assuming a worst case relative humidity value of 0 %, ensure that 1) the containment structure is prevented from exceeding its design negative pressure differential with respect to the outside atmosphere of 5.0 psi, 2) the containment peak pressure does not exceed the design pressure of 59 psig during design basis conditions, 3) the ECCS analysis assumptions are maintained, and 4) the containment cooling fan motor qualifications are maintained.

The limitation on containment average air temperature ensures that the containment liner plate temperature does not exceed the design temperature of 300°F during LOCA conditions. The containment temperature limit is consistent with the accident analyses. Figure 3.6-1 represents analysis limits and does not account for instrument error.

3/4.6.1.5 CONTAINMENT STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the containment will withstand the maximum design pressure of 59 psig.

For ungrouted, post tensioned tendons, the SR ensures that the structural integrity of the containment will be maintained in accordance with the provisions of the Containment Tendon Surveillance Program. Testing and frequency are consistent with 10 CFR 50.55a(b)(2), and Subsection IWL of the ASME Code.

3/4.6.1.6 CONTAINMENT VENTILATION SYSTEM

The containment purge supply and exhaust isolation valves are required to be closed during plant operation since these valves have not been demonstrated capable of closing during a LOCA. Maintaining these valves closed during plant operations ensures that excessive quantities of radioactive materials will not be released via the containment purge system.

Attachment 3 to

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Revised (clean) Technical Specification Pages

6.5.16 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment 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 NEI 94-01, Revision 2-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated October 2008. The next Type A test performed after the November 30, 2000 Type A test shall be performed no later than November 30, 2015.

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

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 58 psig.

The maximum allowable containment leakage rate, L_a, shall be 0.1% of containment air weight per day at P_a.

Leakage rate acceptance criteria are:

a. Containment 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 $\leq 0.75\ L_a$ for Type A tests.

b. Air lock acceptance criteria are:

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

   2. Leakage rate for each Personnel Air Lock door is $\leq 0.01\ L_a$ when pressurized to ≥ 10 psig.

   3. A seal contact check for each Emergency Escape Air Lock door, consisting of a verification of continuous contact between the seals and the sealing surfaces.

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

Attachment 4

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List of Regulatory Commitments

LIST OF REGULATORY COMMITMENTS

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

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Entergy will modify the Technical Specification Bases consistent with the applicable license amendment.	✓		Upon implementation of the approved TS amendment