



300 Madison Avenue  
Toledo, OH 43652-0001  
419-249-2300

John P. Stetz  
Vice President - Nuclear  
Davis-Besse

Docket Number 50-346

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United States Nuclear Regulatory Commission  
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Subject: Request for Exemption from 10 CFR Part 50, Appendix J, Type B  
Local Leak Rate Testing Requirements for Containment Air  
Locks

Gentlemen:

This letter transmits Toledo Edison's request for an exemption from the requirements specified in 10 CFR Part 50 Appendix J paragraph III.D.2(b)(ii) regarding containment air lock leakage testing for the Davis-Besse Nuclear Power Station (DBNPS).

Information supporting this request is contained in the attached Exemption Request. Toledo Edison has concluded that for the reasons specified in the attachment, special circumstances as defined in 10 CFR 50.12 exist and that the granting of the requested exemption will not present an undue risk to the health and safety of the public and is consistent with the common defense and security.

The DBNPS ninth refueling outage (9RFO) commenced on October 1, 1994. Approval of this exemption request is needed to minimize adverse schedule impact during heatup into Mode 4 (Hot Shutdown) from the 9RFO. The DBNPS is presently in Mode 6 (Refueling). Although Mode 4 entry is presently scheduled for November 6, 1994, the outage is progressing ahead of schedule. Therefore, Toledo Edison requests NRC approval of this exemption request by November 4, 1994.

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Should you have any questions or require additional information, please contact Mr. William T. O'Connor, Manager - Regulatory Affairs, at (419) 249-2366.

Very truly yours,



MKL/laj

Attachment

cc: L. L. Gundrum, DB-1 NRC/NRR Project Manager  
J. B. Martin, Regional Administrator, NRC Region III  
S. Stasek, DB-1 NRC Senior Resident Inspector  
Utility Radiological Safety Board

#### EXEMPTION REQUEST

In accordance with 10 CFR 50.12, Toledo Edison (TE) requests an exemption for the Davis-Besse Nuclear Power Station (DBNPS) from the requirements specified in 10 CFR Part 50 Appendix J paragraph III.D.2(b)(ii) regarding Type B testing of containment air locks.

#### Background

10 CFR 50.54(o) requires primary reactor containments for water cooled power reactors to be subject to the requirements set forth in 10 CFR Part 50, Appendix J. 10 CFR Part 50, Appendix J, Section III.D.2(b) states:

(i) Air locks shall be tested prior to initial fuel loading and at 6-month intervals thereafter at an internal pressure not less than  $P_a$ .

(ii) Air locks opened during periods when containment integrity is not required by the plant's Technical Specifications shall be tested at the end of such periods at not less than  $P_a$ .

(iii) Air locks opened during periods when containment integrity is required by the plant's Technical Specifications shall be tested within 3 days after being opened. For air lock doors opened more frequently than once every 3 days, the air lock shall be tested at least once every 3 days during the period of frequent openings. For air lock doors having testable seals, testing the seals fulfills the 3-day test requirements. In the event that the testing for this 3-day interval cannot be at  $P_a$ , the test pressure shall be as stated in the Technical Specifications. Air lock door seal testing shall not be substituted for the 6-month test of the entire air lock at not less than  $P_a$ .

(iv) The acceptance criteria for air lock testing shall be stated in the Technical Specifications.

The DBNPS Technical Specification (TS) Section 3/4.6.1.3, Containment Systems, Containment Air Locks, presently includes the following Surveillance Requirements (SRs):

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

- a. \*After each opening except when the air lock is being used for multiple entries, then at least once per 72 hours, by verifying either no detectable seal leakage when the volume between the door seals is pressurized to

10 psig, or by verifying a seal leakage rate of  $\leq 0.0015$  L when the volume between the door seals is pressurized to  $P_a$ , 38 psig, and the air lock door holddowns are installed,

- b. At least once per 6 months by conducting an overall air lock leakage test at  $P_a$ , 38 psig, and by verifying that the overall air lock leakage rate is within its limit, and
- c. At least once per 6 months by verifying that only one door in each air lock can be opened at a time.

\* Exemption to Appendix "J" of 10 CFR 50.

These SRs have been in effect, unchanged, since the issuance of the DBNPS Operating License on April 22, 1977. The noted (asterisked) exemption to Appendix J was a relaxation of the unnecessarily restrictive requirements of Appendix J that existed at that time. Appendix J was revised in 1980 (45 FR 62789) to relax these same unnecessarily restrictive requirements, however a requirement (III.D.2(b)(ii)) was added to test the air locks at  $P_a$  prior to entering the mode where containment integrity is required.

This revised Appendix J requirement applies whenever the plant is in Mode 5 (Cold Shutdown), i.e., containment integrity is not required (Technical Specification 3/4.6.1.1 requires that containment integrity be maintained in Modes 1 through 4). However, if an air lock is opened during Mode 5 operations, paragraph III.D.2(b)(ii) requires that an air lock leakage test at not less than  $P_a$  be conducted prior to entry into Mode 4.

On October 17, 1994, it was identified that although SR 4.6.1.3.a allows the door seals to be tested at either 10 psig or at  $P_a$  (38 psig), the DBNPS did not have a specific exemption to the requirement of Appendix J paragraph II.D.2(b)(ii) which was added to the regulations in 1980. Therefore, although satisfactory performance of the 10 psig door seal surveillance test associated with SR 4.6.1.3.a will satisfy the TS, it will not satisfy Appendix J, paragraph II.D.2(b)(ii).

The requested exemption is to allow the requirements of Appendix J paragraph III.D.2(b)(ii) to be met by performance of an air lock door seal leakage test in accordance with present SR 4.6.1.3.a, provided that no maintenance has been performed on the air lock that could affect the air lock sealing capability. This SR would be performed during plant startup prior to entering Mode 4 where containment integrity is required. If maintenance has been performed on the air lock that could affect the air lock sealing capability, then an overall air lock leakage test in accordance with SR 4.6.1.3.b would be necessary prior to establishing containment integrity.

Basis for Exemption Request

10 CFR 50.12, Specific Exemptions, permits the Nuclear Regulatory Commission to grant exemptions which are authorized by law, will not present an undue risk to the health and safety of the public, and are consistent with the common defense and security, provided that special circumstances are present. Special circumstances are present when application of the regulation in the particular circumstances is not required to achieve the underlying purpose of the rule (50.12(a)(2)(ii)). Toledo Edison believes that full pressure (P) testing of the containment air locks in Mode 5 (Cold Shutdown) prior to establishing containment integrity is not required to achieve the underlying purpose of Appendix J.

The underlying purpose of 10 CFR 50 Appendix J, as provided in the Introduction to Appendix J, is to assure that: a) leakage through the primary reactor containment, and systems and components penetrating primary containment shall not exceed allowable leakage rate values as specified in the Technical Specifications or associated Bases, and b) periodic surveillance of reactor containment penetrations and isolation valves is performed so that proper maintenance and repairs are made during the service life of the containment, and systems and components penetrating primary containment.

Both of these purposes can be accomplished by performance of air lock door seal testing in accordance with SR 4.6.1.3.a, provided that no maintenance has been conducted that could affect the air lock sealing capability.

This exemption will allow TE to use an alternative method to the requirements for conducting a full pressure air lock leakage test. Toledo Edison proposes to utilize seal leakage testing (SR 4.6.1.3.a) as described in paragraph III.D.2(iii) when the reactor is in Mode 5 (Cold Shutdown) or Mode 6 (Refueling) and when no maintenance has been performed that affects air lock sealing capabilities. A full pressure air lock leakage test (SR 4.6.1.3.b) will continue to be performed at least once per six months and following any maintenance that could affect air lock sealing capability. This testing will verify the sealing capability of the air lock has not degraded as a result of routine use or maintenance since the previous test. It will also verify the overall air lock leakage rate is within the Technical Specification limits.

10 CFR 50.12, Specific Exemptions, also identifies special circumstances are present when compliance would result in undue hardship or costs in excess of those contemplated when the regulation was adopted, or costs that are significantly in excess of those incurred by others similarly situated (50.12(a)(2)(iii)). Compliance with the present Appendix J would result in undue hardship and cost through reduced operational flexibility and unwarranted delays in power ascension over the life of the DBNPS in excess of those incurred by other similar facilities that have received exemption from the subject Appendix J paragraph. Performance of the leakage rate tests required

by paragraph III.D.2(b)(ii) takes approximately 12 hours per air lock and requires installation of a strong back device on the inside air lock door (test pressure applied inside the air lock tends to unseat this door because it is designed to seat with accident pressure from inside containment). Even if the periodic 6-month test required by paragraph III.D.2(b)(i) of Appendix J has been satisfied, to meet the requirement of paragraph III.D.2(b)(ii), no access to the containment can be allowed while preparing to leave Mode 5 until every air lock that has been opened in Mode 5 is first tested and the plant has entered Mode 4. The test would effectively be required every time Mode 5 was entered. The containment would have to be cleared of personnel during performance of this test or they would be required to remain inside containment during the test and until the plant reached Mode 4. Often there are several minor operational and maintenance occurrences that require containment entry just prior to entering Mode 4. The special air lock test would have to wait until all such occurrences requiring containment entry were first addressed. This is a very restrictive requirement and would slow the process of returning to operation. Additionally, this extra testing is a drain on manpower resources with little or no resulting increase in assurance the air lock will not experience excessive leakage.

Opening of the air lock has the potential of altering the sealing capability of the air lock because of possible damage to the seals. The door operator (hand wheel) shaft seals experience very little alteration as the shafts rotate within packing. Operating history indicates the shaft seals are effective in maintaining the sealing capability, even with door operation. Additionally, a full pressure test every six months and after maintenance assures operability.

In contrast to the shaft seals, the door seals could experience alteration when the doors cycle. The alterations occur as the knife edges impact the seals. Pressurization of the volume between the seals to 10 psig after each opening, and prior to establishing containment integrity, provides the necessary surveillance to ensure the sealing capability of the door seals. Additionally, the sealing capability of the doors is ensured by the performance of a full pressure test after maintenance which could affect air lock door gasket sealing capability.

In summary, the granting of the requested exemption would allow the substitution of an air lock door seal test for an air lock full pressure test prior to entry into Mode 4 during plant startup. This substitution has no significant impact upon plant operation or safety. The six month test requirement of paragraph III.D.2(b)(i) of Appendix J, the three day test requirement of paragraph III.D.2(b)(iii) of Appendix J, and the need for testing after maintenance has been performed on the air lock in order to declare the air lock operable will continue to demonstrate containment integrity. Therefore, post accident radiological releases which were previously described in the TE Updated Safety Analysis Report will not be affected by the

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exemption. Furthermore, this exemption has no impact on plant radiological or non-radiological effluents and involves no significant occupational exposure.

Because the underlying purpose of Appendix J is preserved, Toledo Edison concludes that the proposed exemption does not present an undue risk to the health and safety of the public and is consistent with the common defense and security.