

Docket Number 50-346

License Number NPF-3

Serial Number 2482

September 8, 1997

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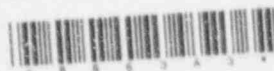
Subject: Request for Relief from certain American Society of Mechanical Engineers (ASME)  
Code Requirements for Inservice Inspection for the Davis-Besse Nuclear Power Station

Ladies and Gentlemen:

In the Federal Register, dated August 8, 1996 (61 FR 41303), the NRC amended its regulations to incorporate by reference the 1992 Edition and Addenda of Subsections IWE and IWL of Section XI of the ASME Code. Subsections IWE and IWL give the requirements for inservice inspection (ISI) of Class CC (concrete containments), and Class MC (metallic containments). The Davis-Besse Nuclear Power Station (DBNPS) containment vessel is a free standing metallic structure which was constructed in accordance with ASME Section III, Subsection B for Nuclear Vessels, 1968 Edition including the Summer 1969 Addenda. The rules of Subsection IWL are not applicable to the DBNPS Containment Vessel.

The purpose of this letter is to request relief pursuant to 10CFR50.55a and (g)(5)(iii) from certain requirements of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The requests for relief deal with the following: visual examination of containment penetration seals and gaskets; bolt torque or tension testing of containment penetration bolting; requirements for nondestructive examination procedures and qualification of nondestructive examination personnel; and containment repairs and replacements. Details concerning the requested relief are provided in the attached Relief Requests RR-E1, RR-E2, RR-E3 and RR-E4.

Relief Request RR-E1 requests relief from Section XI of the ASME Code, 1992 Edition, 1992 Addenda Code Items E5.10 and E5.20 which require visual examination of seals and gaskets on airlocks, hatches and other devices required to assure containment integrity.



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Toledo Edison proposes to examine these seals and gaskets in accordance with Examination Category E-D of the 1995 Edition of Section XI.

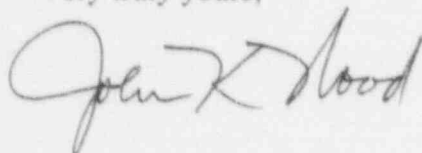
Relief Request RR-E2 requests relief from Section XI of the ASME Code, 1986 Edition, Code Item E8.20 which requires a bolt torque or tension test for bolted connections that have not been disassembled and reassembled during the inspection interval. Toledo Edison proposes that the adequacy of the bolted joints for electrical penetrations, the Personnel Hatch and the Emergency Escape Hatch will be verified through the performance of 10CFR50 Appendix J, Type B testing.

Relief Request RR-E3 requests relief from ASME Section XI, 1992 Edition, 1992 Addenda, Subsection IWA-2200 requirements for nondestructive examination procedures and subsection IWA-2300 requirements for the qualification of nondestructive test personnel. Toledo Edison proposes to utilize examination procedures written to the requirements of 1986 Edition, no addenda, of ASME Section XI. Toledo Edison also proposes that personnel performing non-destructive examination (NDE) will be qualified to the 1986 Edition, no addenda, of ASME Section XI.

Relief Request RR-E4 requests relief from ASME Section XI, 1992 Edition, 1992 Addenda, Subsection IWE, Subsection IWA-4000 for containment repairs and replacements. Toledo Edison proposes that repairs/replacements to the containment vessel will be in accordance with the requirements of 1986 Edition, no addenda of ASME Section XI and preservice examinations will be conducted in accordance with the requirements of Subsection IWE of the 1992 Edition, 1992 Addenda of ASME Section XI.

Should you have any questions or require additional information, please contact Mr. James L. Freels, Manager - Regulatory Affairs, at (419) 321-8466.

Very truly yours,



CAK/dlc

Attachment

cc: A. B. Beach, Regional Administrator, NRC Region III  
A. G. Hansen, DB-1 NRC/NRR Project Manager  
S. Stasek, DB-1 NRC Senior Resident Inspector  
Utility Radiological Safety Board

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## RELIEF REQUEST RR-E1

### Component Description:

52 Containment Electrical Penetration Seals and Gaskets  
Containment Personnel Hatch Seals and Gaskets  
Containment Escape Hatch Seals and Gaskets

### ASME Code Class:

ASME Section XI, 1992 Edition, 1992 Addenda, Examination Category E-D Seals, Gaskets, and Moisture Barriers

### ASME Examination Requirements:

Code Item E5.10 requires the visual examination of seals on airlocks, hatches, and other devices that are required to assure containment leak-tight integrity.

Code Item E5.20 requires the visual examination of gaskets on airlocks, hatches, and other devices that are required to assure containment leak-tight integrity.

### Basis for Relief:

Code Items E5.10 and E5.20 require that all seals and gaskets be inspected each interval. The penetrations discussed below contain internal seals and gaskets which cannot be inspected without disassembly of the penetration.

- Electrical Penetrations:

Electrical penetrations use a header plate attached to a containment penetration nozzle flange with redundant O-rings between the header plate and flange face. Modules through which electrical conductors pass are installed in the header plate. One type, manufactured by Amphenol, uses seals and gaskets to assure leak tight integrity. A second type, manufactured by Conax, uses a set of compression fittings. Replacement modules for the Amphenol penetrations use a combination of O-rings and compression fittings. Each penetration is pressurized with dry nitrogen to maintain and monitor integrity and to prevent the intrusion of moisture into the penetration.

Inspection of the seals and gaskets requires the disassembly of the penetration to gain access to the seals and gaskets.

- Containment Personnel and Emergency Escape Hatches

The Personnel and Emergency Escape Hatches utilize an inner and outer door with gasket surfaces to ensure a leak tight integrity. These gaskets are not the subject of this relief request. However, the hatches do contain other gaskets and seals such as the handwheel shaft seals, electrical penetrations, blank flanges, and equalizing pressure connections which require disassembly to inspect.

Each of the penetrations addressed in this relief request receive a 10 CFR 50 Appendix J Type B test in accordance with the testing frequencies specified in Appendix J. As noted in 10 CFR 50 Appendix J, the purpose of Type B tests is to measure leakage of containment penetrations whose design incorporates resilient seals, gaskets, sealant compounds, and electrical penetrations fitted with flexible metal seal assemblies. Physical inspection of the seals and gaskets in these penetrations requires the joints, which are proven adequate through Appendix J testing, be disassembled. For electrical penetrations, this would involve a pre-maintenance Appendix J test, determination of cables at electrical penetrations if enough cable slack is not available, disassembly of the joint, removal and inspection of the seals and gaskets, reassembly of the joint, re-termination of the cables if necessary, post maintenance testing of the cables, and a post maintenance Appendix J test of the penetration. The work required for the Containment Personnel and Emergency Escape Hatches would be similar except for the determination, re-termination, and testing of cables. Not only does this require the use of outage man-hours, but also imposes the risk that equipment could be damaged. The 1995 Edition of Section XI recognizes that disassembly of joints to perform these inspections is not warranted as Note 1 in Examination Category E-D was modified to state that sealed or gasket connections need not be disassembled solely for performance of examinations.

In addition three of the electrical penetrations are protected from fire per the requirements of 10CFR50 Appendix R. This protection would also have to be removed to perform these inspection:

Six Amphenol modules were replaced in 1988 with an additional four replaced in 1990. The seals and gaskets in these modules did not exhibit any degradation after approximately 14 years of service.

Alternative Examination:

Seals and gaskets will be examined in accordance with the requirements of Examination Category E-D of the 1995 Edition of Section XI. That is, sealed or gasket connections need not be disassembled solely for performance of examinations.

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## RELIEF REQUEST RR-E2

### Component Description:

Containment Electrical Penetration Flange Bolting - 52 Penetrations  
Containment Personnel Hatch Bolting  
Containment Escape Bolting

### ASME Code Class:

ASME Section XI, 1992 Edition, 1992 Addenda, Examination Category E-G Pressure Retaining Bolting

### ASME Examination Requirements:

Code Item E8.20 requires a bolt torque or tension test for bolted connections that have not been disassembled and reassembled during the inspection interval.

### Basis for Relief:

Code Item E8.20 requires that all bolting which has not been disassembled and reassembled during the inspection interval receive a bolt torque or tension test. The test confirms that the bolt torque or bolt tension is within the limits specified for the original design. These limits would include a minimum and maximum torque value within which the bolting torque must fall. This value is determined by the torque value at which the bolt begins to loosen.

Each of the penetrations addressed in this relief request receive a 10 CFR 50 Appendix J Type B test in accordance with the testing frequencies specified in Appendix J. As noted in 10 CFR 50 Appendix J, the purpose of Type B tests is to measure leakage of containment penetrations whose design incorporates resilient seals, gaskets, sealant compounds, and electrical penetrations fitted with flexible metal seal assemblies.

Determination of the torque value requires the bolting be untorqued and then retorqued. This activity is considered maintenance and therefore would require an as-found 10 CFR 50 Appendix J Type B test prior to verifying the torque value and then an as-left Type B test. The performance of the pre-maintenance Type B test in itself proves that the bolt torque is at a value to provide a penetration leak rate that is within acceptable limits. The torque value of the penetration bolting only becomes an issue if the leakage rate is excessive. Once a penetration bolt is torqued, it is not subjected to dynamic, vibration, or thermal forces which would cause its torque to significantly change. Verification of torque values on joints which are proven adequate through 10 CFR 50 Appendix J Type

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B testing results in an increase in outage man-hours without any increase in the level of quality or safety.

In addition three of the electrical penetrations are protected from fire per the requirements of 10CFR50 Appendix R. This protection would also have to be removed to perform these inspections.

Testing history has shown that the electrical penetrations, Containment Personnel Hatch, and Containment Escape Hatch have not exhibited excessive leakage due to inadequate bolt torque.

Alternative Examination:

Bolting in electrical penetrations, the Personnel Hatch, and the Emergency Escape Hatch will not be torque tested. The adequacy of the bolted joints will be verified through the performance of 10 CFR 50 Appendix J Type B testing.

**RELIEF REQUEST  
RR-E3**

Component Description:

IWA-2200 Examination Methods  
IWA-2300 Qualification of Nondestructive Examination Personnel

ASME Code Class:

ASME Section XI, 1992 Edition, 1992 Addenda, Subsection IWE

ASME Examination Requirements:

IWA-2200 provides requirements for nondestructive examination procedures.

IWA-2300 provides requirements for the qualification of nondestructive examination personnel.

Basis for Relief:

In the Federal Register dated August 8, 1996, (61FR41303), the NRC amended its regulations to incorporate the 1992 Edition, 1992 Addenda of ASME Section XI when performing containment examinations. In addition to the requirements of Subsection IWE, this also imposes the requirements of the 1992 Edition, 1992 Addenda of Subsection IWA for containment examinations.

The Davis-Besse Nuclear Power Station (DBNPS) Second Ten Year Inservice Inspection Program is written to meet the 1986 Edition, No Addenda, of ASME Section XI including Subsection IWA. Meeting both the 1986 Edition, No Addenda and the 1992 Edition, 1992 Addenda of ASME Section XI requires separate procedure examination requirements (one for the IWB, IWC, and IWD examinations per the 1986 Edition, No Addenda of ASME Section XI and one for the IWE examinations per the 1992 Edition, 1992 Addenda of ASME Section XI), and separate personnel qualification requirements. Duplicate records to demonstrate compliance with the 1986 Edition, No Addenda, and the 1992 Edition, 1992 Addenda, will also be required. This duplication of procedures and records increases the man-hours necessary to maintain the Inservice Inspection Program without providing any increase in quality of the examinations.

Toledo Edison will utilize examination procedures written to the requirements of the 1986 Edition, No Addenda, of ASME Section XI. These procedures will contain the inspection attributes and acceptance criteria required by the Subsection IWE of the 1992 Edition, 1992 Addenda of ASME Section XI. These procedures will require that remote

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visual examinations be conducted under illumination and distances which will detect the conditions or indications for which the examination is being performed.

Personnel performing nondestructive examinations will be qualified to the 1986 Edition, No Addenda, of ASME Section XI. The nondestructive examinations required by IWE are not sophisticated, complex examinations. Utilization of personnel qualification requirements of the 1986 Edition, No Addenda of ASME Section XI will ensure that inspection personnel have the necessary skills to perform the examinations required by IWE.

Alternative Examination:

The requirements of IWA-2200 and IWA-2300 of the 1986 Edition, No Addenda of ASME Section XI will be used for containment examinations in lieu of IWA-2200 and IWA-2300 of the 1992 Edition, 1992 Addenda of ASME Section XI.

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**RELIEF REQUEST  
RR-E4**

Component Description:

IWA-4000 Repair and Replacement Program

ASME Code Class:

ASME Section XI, 1992 Edition, 1992 Addenda, Subsection IWE

ASME Examination Requirements:

Implementation of the 1992 Edition, 1992 Addenda of ASME Section XI for examination of Class MC components requires the use of Subsection IWA-4000 of the 1992 Edition, 1992 Addenda of ASME Section XI for repairs and replacements to Class MC components.

Basis for Relief:

In the Federal Register dated August 8, 1996, (61FR41303), the NRC amended its regulations to incorporate the 1992 Edition, 1992 Addenda of ASME Section XI when performing containment examinations. In addition to the requirements of Subsection IWE, this also imposes the requirements of the 1992 Edition, 1992 Addenda of Subsection IWA-4000 for containment repairs and replacements.

Toledo Edison holds a National Board Nuclear Repair Certificate of Authorization for repairs/replacements to Class 1, 2, 3, and MC components. This Certificate of Authorization is based on the Davis-Besse Nuclear Power Station (DBNPS) Repair/Replacement program which is written to the requirements of the 1986 Edition, No Addenda, of ASME Section XI. This program requires that repairs and replacements to the containment vessel meet its design specifications and Construction Code requirements. This ensures that the original integrity and quality of the containment vessel will be maintained during repair/replacement activities.

Meeting both the 1986 Edition, No Addenda and the 1992 Edition, 1992 Addenda of ASME Section XI requires the maintenance of two separate repair and replacement programs (one for the IWB, IWC, and IWD components per the 1986 Edition, No Addenda of ASME Section XI and one for the containment vessel per the 1992 Edition, 1992 Addenda of ASME Section XI). Duplicate records to demonstrate compliance with the 1986 Edition, No Addenda, and the 1992 Edition, 1992 Addenda will also be required. This duplication of programs and records increases the man-hours necessary to maintain the DBNPS Repair/Replacement Program without providing any increase in quality of containment vessel repairs/replacements.

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Alternative Examination:

The DBNPS Repair/Replacement Program, written to the requirements of 1986 Edition, No Addenda of ASME Section XI, will be used for repairs and replacements to the containment vessel. Preservice examinations will be conducted in accordance with the requirements of Subsection IWE of the 1992 Edition, 1992 Addenda of ASME Section XI.