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United States Nuclear Regulatory Commission  
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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  
(Relief Request RR-A22)

Ladies and Gentlemen:

The purpose of this letter is to request relief pursuant to 10CFR50.55a(a)(3)(ii) from certain requirements of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code for the Davis-Besse Nuclear Power Station, Unit 1 (DBNPS) for the Second 10-Year Inservice Inspection interval. Details concerning the requested relief are provided in Attachment 1.

Relief Request RR-A22 requests relief from Section XI of the ASME B&PV Code, 1986 Edition, No Addenda, Table IWB-2500-1, Item B5.10 for the examination of the DBNPS Reactor Vessel Core Flood Nozzle to Safe-End butt welds. During the 12<sup>th</sup> Refueling Outage conducted in the spring of 2000 it was not possible to obtain greater than 90% coverage of the examination volume of the two Core Flood Nozzle to Safe-End Welds. Due to the configuration of the nozzles, relief is requested in accordance with 10 CFR 50.55a(a)(3)(ii).

Attachment 2 provides the listing of commitments identified in this document. There are no commitments made by the DBNPS in this document.

NRC approval of this request is requested by November 1, 2001.

Should you have any questions or require additional information, please contact Mr. David H. Lockwood, Manager - Regulatory Affairs, at (419) 321-8450.

Very truly yours,



RMC/

Attachments

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cc: J. E. Dyer, Regional Administrator, Region III  
S. P. Sands, NRC Project Manager  
K. S. Zellers, DB-1 Senior Resident Inspector  
Utility Radiological Safety Board

**RELIEF REQUEST  
RR-A22**

**Component Description:**

- Core Flood Nozzle to Safe-End Welds (Weld Numbers RC-RPV-WR-54/55-W and RC-RPV-WR-54/55-Y)

**ASME Code Class:**

ASME Section XI, Class 1

**ASME Examination Requirements:**

The 1986 Edition of ASME Section XI, Subsection IWB, Table IWB-2500-1, Examination Category B-F, Item B5.10 requires examination of Reactor Vessel Nozzle to Safe-End Butt Welds. Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds," states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10 percent.

**Basis for Relief:**

During the examination of the two DBNPS Reactor Vessel Core Flood Nozzle to Safe-End Butt Welds during the 12<sup>th</sup> Refueling Outage in the spring of 2000, it was not possible to examine greater than 90% of the examination volume.

The Reactor Vessel Core Flood Nozzle (i.e., Core Flood Nozzle) to Safe-End Butt Welds were examined from the inside surface using the Framatome URSULA inspection system. URSULA is a computer controlled system which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the examination surface.

The Core Flood Nozzles are each fitted with a flow restrictor (Figure 1) located in the bore of the nozzle and is welded in place; therefore, the flow restrictor is not removable.

During the examination of the Core Flood Nozzle to Safe-End Butt Welds, it was not possible to examine greater than 90% of the examination volume because of a loss of data at the top of the Core Flood Nozzles. There are only two possible conditions that could result in the loss of data at the top of the nozzles; one being lack of contact between the transducer and the surface of the component, and the other being a lack of coupling media. In order to be certain that the coverage limitation at the top of the nozzles was not attributed to inadequate transducer contact due to tool misalignment, several attempts were made to reposition the inspection tool to obtain better contact at the top of the nozzle. All attempts made to improve transducer contact produced the same inspection results. It was, therefore, concluded that the only other possibility for the limitation at the top of the nozzles was due to inadequate coupling that resulted from air

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trapped at the top of the nozzles. These air pockets were caused by the Core Flood Nozzle Flow Restrictors trapping air during the filling of the Reactor Coolant System for 10-Year Inservice examination of the Reactor Vessel. The design and configuration of the flow restrictors in the two Core Flood Nozzles, and resultant air pockets, caused a loss of data at the top of the nozzles which reduced the examination volume coverage to 86% on the Y-Axis Core Flood Nozzle to Safe-End Butt Weld and to 76% on the W-Axis Core Flood Nozzle to Safe-End Butt Weld.

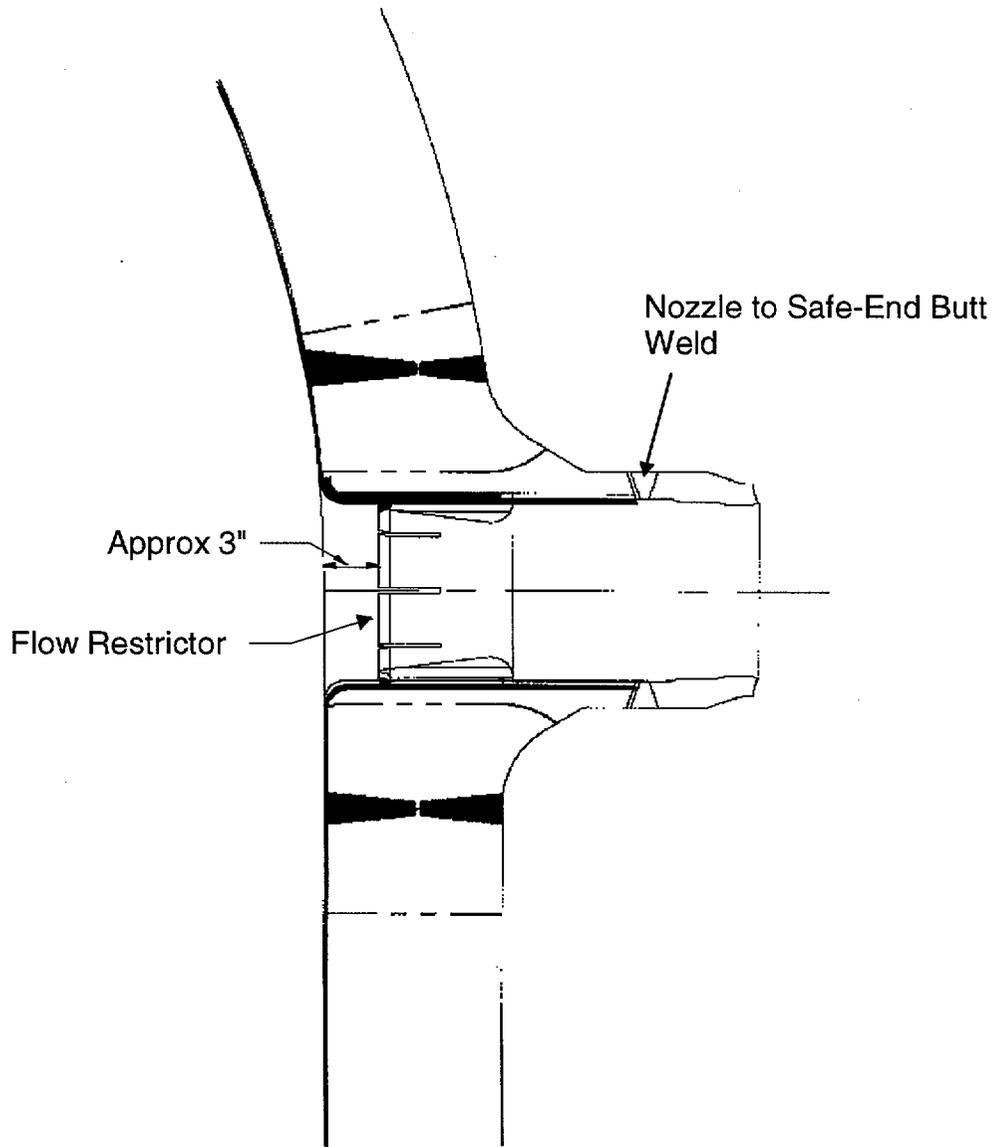
Eighty-six percent (86%) of the Y-Axis Core Flood Nozzle-to-Safe End Butt Weld and 76% of the W-Axis Core Flood Nozzle-to-Safe End Butt Weld examination volumes were examined. No indications exceeding the acceptance standards of IWB-3514 were noted.

Relief from the ASME B&PV Code, Section XI, Table IWB-2500-1, Item B5.10 and Code Case N-460 is requested pursuant to 10 CFR 50.55a(a)(3)(ii) for the Second 10-Year Inservice Inspection interval. The design and configuration of the Core Flood Nozzle Flow Restrictors prohibits a complete examination of the Core Flood Nozzle to Safe-End Butt Welds. This results in a hardship in that complying with the Code requirements would require redesign or removal of the flow restrictors. Any additional examinations to achieve the Code-specified greater than 90% examination coverage would require the offloading the reactor core and removal of the core barrel. As cited above, the examination coverage achieved was marginally below the Code-specified coverage and did not reveal any indications wherein acceptance standards were not met. Therefore, redesign or additional examination efforts would provide no compensating increase in the level of quality or safety.

**Alternative Examination:**

The Core Flood Nozzle to Safe-End Butt Welds were examined to the extent possible. Approximately 86% of the Y-Axis Core Flood Nozzle to Safe-End Butt Weld and 76% of the W-Axis Core Flood Nozzle to Safe-End Butt Weld were examined.

Figure 1  
Reactor Vessel Core Flood Nozzle to Safe-End Butt Weld



Top View

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### COMMITMENT LIST

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station (DBNPS) in this document. Any other actions discussed in the submittal represent intended or planned actions the DBNPS. They are described only for information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs (419-321-8450) at the DBNPS of any questions regarding this document or associated regulatory commitments.

#### COMMITMENTS

#### DUE DATE

None