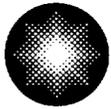


Charles H. Cruse
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**Constellation
Nuclear**

**Calvert Cliffs
Nuclear Power Plant**

*A Member of the
Constellation Energy Group*

November 21, 2000

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Third Interval Inservice Inspection Program Relief Request No. ISI-15; Use of
Code Case N-623 for Deferral of Reactor Pressure Vessel Shell-To-Flange Weld
Examinations

Pursuant to 10 CFR 50.55a(a)(3)(ii), Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) hereby requests relief from certain requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code). Specifically, CCNPP requests relief from the ASME Code Section XI requirements stated in Subarticle IWB-2500, as delineated in Table IWB-2500-1 requiring examination of at least 50% of the reactor pressure vessel (RPV) shell-to-flange weld by the end of the first inspection period of the inservice inspection (ISI) interval. Compliance with the requirements of Subarticle IWB-2500 as delineated in Table IWB-2500-1 would result in hardship without a compensatory quality or safety improvement.

The proposed alternative to the Table IWB-2500-1 requirement is to utilize ASME Code Case N-623, which allows for 100% deferral of the RPV shell-to-flange weld examination to the end of the ISI interval. The proposed alternative will provide an acceptable level of quality and safety, save approximately 4 hours of refueling outage critical path time, and save approximately 600 millirem of cumulative dose.

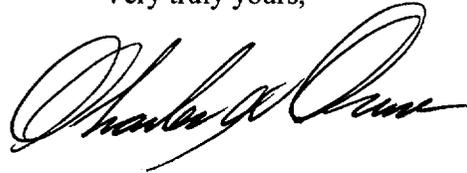
To allow adequate time to finalize the ISI scope for the upcoming Unit 2 spring 2001 refueling outage, Calvert Cliffs requests that the Nuclear Regulatory Commission approve this relief request no later than February 23, 2001.

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Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,



CHC/ALS/bjd

Attachment: (1) Relief Request No. ISI-15, Use of ASME Code Case N-623 for Deferral of Reactor Pressure Vessel Shell-to-Flange Weld Examinations

cc: R. S. Fleishman, Esquire
J. E. Silberg, Esquire
Director, Project Directorate I-1, NRC
A. W. Dromerick, NRC

H. J. Miller, NRC
Resident Inspector, NRC
R. I. McLean, DNR

ATTACHMENT (1)

RELIEF REQUEST NO. ISI-15

USE OF ASME CODE CASE N-623 FOR DEFERRAL OF

REACTOR PRESSURE VESSEL SHELL-TO-FLANGE

WELD EXAMINATIONS

ATTACHMENT (1)

RELIEF REQUEST NO. ISI-15; USE OF ASME CODE CASE N-623 FOR DEFERRAL OF REACTOR PRESSURE VESSEL SHELL-TO-FLANGE WELD EXAMINATIONS

I. COMPONENTS FOR WHICH RELIEF IS REQUESTED:

Class 1 Examination Category B-A reactor vessel shell-to-flange weld Item No. B1.30.

II. CODE REQUIREMENTS:

The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI, 1998 Edition with no Addenda, Subarticle IWB-2500, Table IWB-2500-1, Examination Category B-A, requires inspection of the reactor vessel shell-to-flange weld. Partial deferral of the volumetric examination is permitted. Table IWB-2500-1, Category B-A, Note 3 states, in part;

“When using Inspection Program B, the shell-to-flange weld examination may be performed during the first and third periods, in which case 50% of the shell-to-flange weld shall be examined by the end of the first period, and the remainder by the end of the third period . . .”

III. CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED:

Relief is requested from performing examination of at least 50% of the reactor vessel shell-to-flange weld by the end of the first inspection period. Relief is requested to use ASME Code Case N-623 for 100% deferral of the shell-to-flange weld examination to the end of the inservice inspection (ISI) interval.

IV. BASIS FOR RELIEF:

Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is requested on the basis that compliance with the ASME Section XI Code examination requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The ASME Code Committee has approved Code Case N-623, “Deferral of Inspections of Shell-to-Flange and Head-to-Flange Welds of a Reactor Vessel Section XI, Division 1.” Code Case N-623 provides an alternative to costly and time-consuming first period examinations. In Code Case N-623, the ASME Code Committee has stated that the Code case may be used if the following conditions have been met:

- (a) No welded repair/replacement activities have ever been performed on the shell-to-flange or head-to-flange weld.
- (b) Neither the shell-to-flange weld nor head-to-flange weld contains identified flaws or relevant conditions that currently require successive inspections in accordance with IWB-2420(b).
- (c) The vessel is not in the first inspection interval.

The CCNPP Units 1 and 2 reactor vessels comply with these requirements. Therefore, this Code case is applicable to CCNPP Units 1 and 2.

Deferral of these shell-to-flange weld examinations to the end of a specific plant’s ten-year ISI interval is supported by the present large population of operating reactors. Each reactor is representative of the operating conditions throughout the population of reactors for a particular

ATTACHMENT (1)

RELIEF REQUEST NO. ISI-15; USE OF ASME CODE CASE N-623 FOR DEFERRAL OF REACTOR PRESSURE VESSEL SHELL-TO-FLANGE WELD EXAMINATIONS

nuclear steam supply system design. The volume and number of reactor pressure vessel (RPV) welds inspected within successive ten-year intervals among these various operating reactors are essentially uniformly distributed. This being the case, examining the shell-to-flange welds within the population of operating reactors, partially during the first period of a plant specific ten-year interval, or all at the end of that interval provides the necessary assurance that any industry wide degrading condition will be detected. Additionally, performing ultrasonic examination of all the required RPV welds at one time, on a specific RPV, will improve the reliability and reproducibility of the ultrasonic examinations since the procedures and techniques utilized on the population of welds within a vessel will be at a uniform level of technology. The experience to date indicates that examinations performed on these shell-to-flange welds have not identified any detrimental flaws or relevant conditions. Therefore, changing the schedule for the examination of these welds in aggregate at the end of successive ten-year intervals should provide an equivalent indication of the RPV integrity for a specific RPV.

The proposed alternative provides an acceptable level of quality and safety since the shell-to-flange weld will still receive the same high quality examinations that have been required by the ASME Code Section XI since the reactor was placed in commercial service. The only change is that the shell-to-flange weld will be examined at the same time as the remainder of the reactor vessel welds. No changes are being made to the volumes or areas of material that are examined, or to the non-destructive examination (NDE) personnel qualifications. This relief request does not involve changes to NDE methods or acceptance criteria.

In addition, the following information should be considered: Calvert Cliffs Nuclear Power Plant Units 1 and 2 are currently in the first period of the third inspection interval. The shell-to-flange welds were partially examined, as required, from the flange face during the first period of the second interval. This exam was conducted again at the end of the second interval in conjunction with the ten-year vessel examination. The weld was examined from the flange face as well as the vessel wall using a combination of Code required techniques and Performance Demonstration Initiative techniques. This will allow the examination schedule for this weld not to exceed the length of one inspection interval.

The RPV shell-to-flange examination may either be performed manually or remotely using automated equipment. Performing the examination manually requires the RPV head to be suspended approximately one foot above the RPV flange. This is done to lower the radiation shine from the RPV internals to a reasonable level. With the RPV head suspended, the radiation levels are expected to be approximately 300 millirem/hour. Non-destructive examination personnel must then place their examination tools and equipment under the suspended RPV head to perform the required examination. This method unnecessarily exposes NDE personnel to high radiation doses and potentially hazardous working conditions. The partial examinations are performed from the flange surface following disassembly or prior to re-assembly while the reactor cavity is drained down. Thus, in the typical outage where critical path is through the refuel floor, these examinations become a critical path activity. Performing the examination remotely requires using the automated equipment necessary for the vessel shell and nozzle-to-vessel weld examinations that are performed at the end of the ISI interval (third period). We estimate that deferring 100% examination of the shell-to-flange weld to the end of the ISI interval (third period) would save approximately four hours of critical path time and a cumulative dose of approximately 600 millirem.

ATTACHMENT (1)

RELIEF REQUEST NO. ISI-15; USE OF ASME CODE CASE N-623 FOR DEFERRAL OF REACTOR PRESSURE VESSEL SHELL-TO-FLANGE WELD EXAMINATIONS

V. UTILITY PROPOSED ALTERNATIVE:

Code Case N-623 is to be applied to the reactor vessel shell-to-flange weld for CCNPP Units 1 and 2. The required examination is to be performed by the end of the third ten-year inservice inspection interval.

VI. SAFETY COMMITTEE REVIEW:

The proposed relief request (ISI-15) has been reviewed by our Plant Operations and Safety Review Committee, and they concur that compliance with the requirements specified in Subarticle IWB-2500 as delineated in Table IWB-2500-1, would result in hardship without a compensatory quality or safety improvement. Performing the examinations required under the current ASME Section XI rules would result in unnecessary personnel radiation exposure without a compensating increase in the level of quality and safety. By deferring the reactor vessel shell-to-flange weld examination to the end of the inspection interval, it can be performed with the same automated equipment used to examine the remaining reactor vessel welds. This will provide a significant reduction in radiation exposure and cost associated with performing the examination.

VII. IMPLEMENTATION SCHEDULE:

This Relief Request (ISI-15) is applicable to the CCNPP Units 1 and 2 third ten-year inservice inspection interval.