

May 29, 2007

Mr. J. V. Parrish
Chief Executive Officer
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P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - REQUEST FOR ADDITIONAL
INFORMATION RELATED TO RELIEF REQUEST 2ISI-32 (TAC NO. MD3905)

Dear Mr. Parrish:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated December 14, 2006, Energy Northwest submitted a request for relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code examination requirements associated with its second 10-year inservice inspection interval program. The request 2ISI-32 pertains to examinations with less than essentially 100 percent volumetric examination coverage of selected welds at the Columbia Generating Station.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete its review. The specific information requested is addressed in the enclosure to this letter. During a discussion with Mr. D. Gregoire of your staff on May 15, 2007, it was agreed that you would provide a response by August 1, 2007, to this request for additional information.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-2296.

Sincerely,

/RA/

Carl F. Lyon, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure: Request for Additional Information

cc w/encl: See next page

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DATE	5/29/07	5/18/07	5/29/07

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TECHNICAL LETTER REPORT
REQUEST FOR ADDITIONAL INFORMATION
FOR SECOND 10-YEAR INSERVICE INSPECTION INTERVAL
REQUEST FOR RELIEF 2ISI-32
ENERGY NORTHWEST
COLUMBIA GENERATING STATION
DOCKET NUMBER 50-397

1. SCOPE

By letter dated December 14, 2006, the licensee, Energy Northwest, submitted Request for Relief 2ISI-32 from certain requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, for Columbia Generating Station (CGS). The request for relief is for the second 10-year inservice inspection (ISI) interval, in which CGS adopted the 1989 Edition, no Addenda, of ASME Code, Section XI, as the Code of record.

In accordance with Title 10 *Code of Federal Regulations* (10 CFR) 50.55a(g)(5)(iii), the licensee has submitted Relief Request 2ISI-32 for multiple ASME Code Examination Category welds. The ASME Code requires that 100 percent of the examination volumes described in applicable Figures IWB- and IWC-2500-X, be performed during each interval. The licensee stated that 100 percent of the ASME Code-required volumes are impractical to obtain at CGS. 10 CFR 50.55a(g)(5)(iii) states that when licensees determine that conformance with ASME Code requirements is impractical at their facility, they shall submit information to support this determination. The U.S. Nuclear Regulatory Commission (NRC) will evaluate such requests based on impracticality, and may impose alternatives, giving due consideration to public safety and the burden imposed on the licensee.

The NRC staff has reviewed the information submitted by the licensee, and based on this review, determined the following information is required to complete the evaluation.

2. REQUEST FOR ADDITIONAL INFORMATION

2.1 General Information

- 2.1.1 In Paragraph 7 (page 12 of 12) of the licensee's submittal, it is stated that the second 10-year ISI interval began on February 10, 1995, and ended on December 12, 2005. It is unclear why the end date of the interval was not February 9, 2005, as this would have been 10 years. Please discuss this issue and provide an explanation for the end date of December 12, 2005. In addition, if the end date was actually December 12, 2005, and since the licensee's requests were submitted on December 14, 2006, explain why CGS did not meet the requirement to submit these requests for relief within 1 year from the end of the subject interval as per 10 CFR 50.55a(g)(iv).

2.2 Request for Relief 2ISI-32-1 and -2, Examination Category B-D, Item B3.90, Full Penetration Welded Nozzles in Vessels

The licensee proposed an alternative (2ISI-24), which was approved by safety evaluation (SE) dated April 25, 2001 (ADAMS Accession No. ML011150323), to limit the examination volume of Category B-D welds to the weld and 1/2-inch of adjoining base material on each side, in lieu of the ASME Code-required examination volume of 1/2-T, where T is the vessel thickness. In accordance with 10 CFR 50.55a(g)(5)(iii), the current Requests for Relief 2ISI-32-1 and -2 have been submitted to demonstrate that achieving greater than 90 percent is impractical for reactor pressure vessel (RPV) top head nozzle-to-vessel Welds N7 and N18.

2.2.1 From the examination report included in the licensee's submittal, it appears that Weld N7 was examined on May 5, 1998, prior to the alternative authorized above, and would have been subject to standard ASME Code volumetric requirements. Please confirm that Weld N7 was performed before the authorized alternative, state whether Weld N7 was examined to original ASME Code volumetric requirements (including the weld and 1/2-T of adjacent base material), and verify that the reported 88 percent coverage applies to the volume of the weld and 1/2-T of adjacent base material.

2.2.2 In the submittal's Section 4, "Impracticality and Compliance," there is no impracticality basis for Weld N7. Please state the impracticality basis and discuss any proposed alternative examination methods and techniques for Weld N7. In addition, state the entire population of Category B-D welds on the RPV at CGS, and discuss how many were fully examined to ASME Code volumetric requirements during the subject inspection interval.

2.2.3 Weld N18, as shown in an examination report included in the licensee's submittal, was examined on June 2, 2001, which is after the authorized alternative referenced above. However, for previously approved alternatives, there is no method for evaluating a subsequent request for relief under 10 CFR 50.55a(g)(5)(iii), i.e., requests for relief to existing alternatives authorized under 10 CFR 50.55a(a)(3) are not permitted, nor are requests to retroactively approve an alternative permitted. Therefore, it appears the licensee has failed to meet the alternative approved by the SE referenced above for Weld N18. Please discuss this issue, and propose an effective action for how CGS will ensure that the authorized alternative or the ASME Code of record requirement will be fully implemented.

2.3 Request for Relief 2ISI-32-3, -4, and -5, Examination Category B-F, Item B5.130, Pressure Retaining Dissimilar Metal Welds

2.3.1 The drawing in the licensee's submittal, RPV-109, Rev. 2, depicts the typical configuration of several welds associated with the High Pressure Core Spray (HPCS) nozzle and safe end. The licensee is requesting relief for Weld 10HPCS(1)-3, which is shown to be a circumferential butt weld joining an Alloy 600 forged safe-end to an SA-508 wrought carbon steel safe-end extension. Please state the weld root and identify the filler materials for Weld 10HPCS(1)-3.

- 2.3.2 Please identify the base and weld materials associated with Welds 12RHR(1)A-14 and 12RHR(1)B-10.
- 2.3.3 Confirm that mock-up(s) with the configurations of the subject welds (i.e., safe-end and safe-end extension, and valve-to-pipe), at CGS were included in the procedure scope and were part of the performance demonstration for Appendix VIII, Supplement 10 qualifications. If not, verify that CGS has augmented the Performance Demonstration Initiative mock-ups with site-specific configurations that would simulate the configuration of the subject welds.
- 2.3.4 State the total population of ASME Code Category B-F welds at CGS, and list completed volumetric coverage percentages associated with each. In addition, confirm that the ASME Code-required surface examination was completed for the subject welds.
- 2.3.5 The licensee should discuss the applicability of new technology, such as ultrasonic-phased array, for achieving greater coverage of these welds, and explain why this technology cannot be implemented at CGS.
- 2.4 Request for Relief 2ISI-32-6 through -20, Examination Category B-J, Item B9.11, Pressure Retaining Welds in Piping
 - 2.4.1 Column 2 of Table 3 in the licensee's submittal notes the associated damage mechanism that might be expected for each of the subject Examination Category B-J welds (e.g., thermal transient, thermal stratification cycling and striping, and intergranular stress-corrosion cracking). This would imply that the subject welds are part of a Risk-Informed ISI (RI-ISI) program. Please confirm this.
 - 2.4.2 If these welds are part of a RI-ISI program, the alternatives approved by NRC generally have specific criteria for addressing limited coverage. Discuss the effects that limited coverage will have on future examinations of these and other welds in the risk-informed program. Additionally, state the total population of Examination Category B-J piping welds in the RI-ISI program, and list how many welds in this population have limited volumetric coverage, including the subject welds. Finally, discuss whether additional welds (similar in risk-ranking) could be examined to augment the limited volumetric coverages on the subject welds.
 - 2.4.3 Dissimilar metal welds (DMWs) are normally examined with single-sided qualified procedures and personnel. The differences between DMWs and austenitic-piping welds may be the weld surface condition and adjoining base-metal contour. Discuss the applicability of using ASME Code, Section XI, Appendix VIII, Supplement 10 qualified procedures and personnel in lieu of Supplement 2 qualifications to achieve increased coverage on the subject welds. Include a discussion on the efforts to achieve an inspectable single-side access configuration for Supplement 2 welds, and the demonstrations on mock-ups for testing different nondestructive examination methods and techniques.
 - 2.4.4 The licensee should discuss whether any new technology such as phased array would provide additional coverage for these welds, and why this technology cannot be implemented at CGS.

2.5 Request for Relief 2ISI-32-21, Examination Category C-F-2, Item C5.51, Pressure Retaining Welds in Carbon or Low Alloy Steel Piping

- 2.5.1 Provide further text and/or a cross-sectional sketch describing the basis for impracticality and showing volumetric and surface coverages for Weld 6MS(1)B-2. In addition, state or show the material, thicknesses, and outside diameters for the subject component.
- 2.5.2 State whether the volumetric examination was performed with procedures and personnel that have been qualified in accordance with ASME Code, Section XI, Appendix VIII, Supplement 2 or 3, as applicable.
- 2.5.3 State the total population of ASME Code Examination Category C-F-2 welds at CGS, and discuss how many of these welds had limited volumetric and surface coverages, including the subject weld.