

**From:** [Benney, Brian](#)  
**To:** [Wideman Steve G](#); [Mullenburg William T](#)  
**Cc:** [Burkhardt, Janet](#); [Chen, Qiao-Lynn](#)  
**Subject:** ME9078 Request for Additional Information (RAI)  
**Date:** Tuesday, September 04, 2012 9:46:01 AM

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September 4, 2012

Mr. Steve G. Wideman  
Wolf Creek Generating Station  
Wolf Creek Nuclear Operating Company

Dear Mr. Wideman:

By letter dated July 2, 2012 (Agencywide Documents Access and Management System Accession No. ML12193A559), the Wolf Creek Nuclear Operating Corporation (WCNOC) submitted Relief Request 13R-07, requesting relief from ASME Code Case N-729-1 for examination of Reactor Vessel Head Penetration welds.

The NRC staff has reviewed the information provided by WCNOC and determined that additional information is needed to complete its review. The request for additional information (RAI) is provided as an attachment to this e-mail. The staff is requesting a written response to the RAIs no later than October 15, 2012.

Please contact me if you have a concern meeting the proposed schedule for responding to this request and/or if WCNOC would like to have a conference call to discuss the RAIs.

Sincerely,  
Brian Benney, Senior Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
(301) 415-2767  
[Brian.Benney@nrc.gov](mailto:Brian.Benney@nrc.gov)

REQUEST FOR ADDITIONAL INFORMATION  
REQUEST 13R-07  
EXAMINATION OF REACTOR VESSEL HEAD PENETRATION WELDS  
WOLF CREEK GENERATING STATION UNIT 1  
WOLF CREEK NUCLEAR OPERATING CORPORATION  
DOCKET NUMBER 50-482

By letter dated July 2, 2012 (Agencywide Documents Access and Management System Accession No. ML12193A559), the Wolf Creek Nuclear Operating Corporation (the licensee) requested relief from certain requirements of the ASME Code, Code Case N-729-1, as conditioned in Title 10, Code of Federal Regulations, Part 50, paragraph 10 CFR

50.55a(g)(6)(ii)(D), for examination of reactor vessel head nozzle penetration welds at the Wolf Creek Generating Station Unit 1. To complete its review, the U.S. Nuclear Regulatory Commission requests the following additional information.

1. Section 5 (top of page 4) of the relief request states that the techniques described in Sections I-2000 and I-3000 of Code Case N-729-1 were validated in the Westinghouse report, WCAP-16589-P, Revision 0, "Structural Integrity Evaluation of Reactor Vessel Upper Head Penetrations to Support Continued Operation: Wolf Creek," August 2006.

(1) Describe the validation process (e.g., how the validation was performed and what parameters were reviewed).

(2) Section 5.2 of the relief request states that the fracture mechanics analysis in WCAP-16589-P does not fully meet the requirements stated in I-3200(a) Method 1 of Code Case N-729-1 because the analysis used the crack growth formula in EPRI MRP-55. Subarticle I-3200(a)(6) requires the use of crack growth rate from Appendix O of the ASME Code, Section XI, 2004 edition. Clarify why the WCAP-16589-P does not fully meet the requirements of I-3200(a) of Code Case N-729-1 in terms of the crack growth formula.

2. Section 4 of the relief request states that penetration nozzle numbers 74 through 78 have a threaded outside diameter and an internal taper. Their configuration poses challenges to achieve the required examination coverage. However, the licensee only asks relief for penetration nozzle numbers 77 and 78 because these two penetration nozzles could not achieve the required coverage.

(1) Provide the examination coverage (the distance) for penetration nozzle numbers 74, 75, and 76.

(2) Discuss why nozzle numbers 74, 75, and 76 are able to meet the required coverage but not nozzle numbers 77 and 78 if they all have the same configuration.

3. Section 5.3 of the relief request states that the radiation levels under the reactor vessel head are estimated to be 10,000 millirem (mRem)/hr at the bottom of the control rod drive mechanism (CRDM) nozzles resulting in an exposure of approximately 2500 mRem per nozzle. Section 5.3 further states that these dose rates are consistent with dose rates measured at the Seabrook Station during 2006, as reported in a Seabrook Station request for relief dated October 27, 2011. The licensee stated that the reactor vessel head configuration at Seabrook Station is similar to that at Wolf Creek. At Seabrook Station, radiation levels under the reactor vessel head were measured during their previous inspection in 2006 and ranged from 7000 mRem/hr to 10,000 mRem/hr at the bottom of the CRDM nozzles.

(1) Explain why Wolf Creek does not have its own plant-specific radioactive dose rates measured at the bottom of the CRDM nozzles from the examinations performed in 2006. (2) Discuss whether the radiation dose will be measured at the bottom of the CRDM nozzles to confirm the estimation of 10,000 mRem/hour during the upcoming examination scheduled for February 2013. If not, provide justification and hardship.

4. Provide the end date of the third 10-year inservice inspection interval.

5. Section 5.2 of the relief request states that the flaw tolerance chart demonstrates that a postulated through-wall flaw at the bottom edge of the proposed alternative examination zone will not grow to the toe of the J-groove weld within an inspection interval of four

refueling cycles.

(1) Provide the as-designed (i.e., as-analyzed) and as-built dimensions of the J-groove weld.

(2) Discuss whether the flaw evaluation in WCAP-16589-P is based on the as-designed or as-built J-groove weld dimensions. If the flaw evaluation was based on the as-designed dimensions, demonstrate that it bounds the flaw evaluation of the as-built dimension.