



NUCLEAR ENERGY INSTITUTE

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May 18, 2001

Dr. Brian W. Sheron  
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Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Mail Stop O5-E7  
Washington, DC 20555-0001

**SUBJECT:** PWR Reactor Pressure Vessel Head Penetrations

**PROJECT NUMBER: 689**

Dear Dr. Sheron:

At an April 12, 2001, meeting, NEI and the Materials Reliability Program (MRP) agreed to provide the NRC staff an interim safety assessment on primary water stress corrosion cracking in PWR reactor head penetrations. The following enclosed reports (proprietary and non-proprietary versions) and the associated affidavit completes this action.

- EPRI Report TP1001491, Part 2, *PWR Materials Reliability Program Alloy 600 Safety Assessment for US PWR Plants (MRP-44), Part 2: Reactor Vessel Top Head Penetrations*, (Proprietary), May 2001 (10 Copies)
- EPRI Report TP1001491 NP, Part 2, *PWR Materials Reliability Program Alloy 600 Safety Assessment for US PWR Plants (MRP-44), Part 2: Reactor Vessel Top Head Penetrations*, (Non-Proprietary), May 2001 (10 Copies)
- EPRI Affidavit (Enclosure 1)

These reports are provided for information, as part of industry's effort to address any generic implications of the PWR head penetration cracking that occurred at Oconee and ANO-1.

EPRI Report TP1001491, Part 2 contains proprietary information as discussed in the enclosed affidavit. The NRC is requested to withhold this report from public disclosure.

In an April 17, 2001, letter, you requested that the industry address several questions. The response to:

- Question 1.a, information describing the CRDM inspections performed to date, is provided in paragraph 4.3 and Table 4-1 of the report.
- Question 1.b, assessment of the circumferential flaws as they relate to those identified at Oconee, is provided in paragraph 4.2, section 5 and Figure 4-1 of the report.

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- Question 1.c, information on the means utilized to detect and characterize through-wall cracks, is provided in sections 2 and 3 as a review of previously performed inspections. The interim safety assessment does not directly rely on volumetric or surface inspection methods.
- Questions 1.d and 1.e, operator actions, are addressed in section 6 and Appendix C.
- Question 2, postulated crack growth rate, is addressed in Enclosure 2 of this letter.

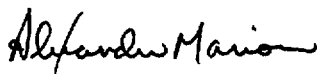
The report recommends that plants having fall 2001 refueling outages and considered to be within 10 effective full power years of Oconee, Unit 3, based on effective time at temperature, perform a visual inspection of the reactor vessel top head capable of detecting small amounts of leakage similar to that observed at Oconee and ANO-1. The nine plants in this grouping plan to perform the recommended inspection. Following the completion of these inspections and other MRP activities, the industry will assess the need for updating the report's recommendations.

This interim report, along with the interim report submitted on Alloy 82/182 pipe butt welds, is part of a comprehensive assessment of Alloy 600/82/182 materials in the primary system currently being conducted by the MRP. This assessment will be completed later this year, and will be used as part of industry's overall efforts to address this issue. We will keep you informed of our progress in this area.

As part of the ongoing MRP activities, a workshop on Alloy 600 issues is scheduled for June 13-14, 2001, in Atlanta, Georgia. The objective of the workshop is to update the industry on recent inspection results, CRDM repair methods, review lessons learned, and discuss near-term recommendations for Fall 2001 and Spring 2002 outages. The NRC staff is invited to attend the workshop and to present its perspective on the issue. A copy of the proposed workshop agenda and registration is provided in Enclosures 3 and 4.

If you have questions, please contact Kurt Cozens 202-739-8085, [koc@nei.org](mailto:koc@nei.org) or me.

Sincerely,



Alexander Marion

KOC/maa  
Enclosures

c: Mr. Jack R. Strosnider, U. S. Nuclear Regulatory Commission (w/o reports)  
Mr. Peter C. Wen, U. S. Nuclear Regulatory Commission (w/o reports)