NUCLEAR ENERGY INSTITUTE

Alexander Marion
DIRECTOR ENGINEERING
NUCLEAR GENERATION DIVISION

October 22, 2001

Mr. Jack R. Strosnider, Director
Division of Engineering
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop O7D4
Washington, DC 20555-0001

SUBJECT: Flaw Evaluation Criteria for Inspection of PWR Reactor Head Penetrations

PROJECT NUMBER: 689

Dear Mr. Strosnider:

Enclosed are industry comments on the NRC proposed flaw evaluation criteria for inspection of PWR reactor head penetrations that were identified by your September 24, 2001, letter. The comments were developed with input from the Materials Reliability Program.

Two types of comments are provided: technical and regulatory. The technical comments address specific criteria in terms of clarity, accuracy and completeness. The regulatory comments focus on the regulatory basis for imposing the criteria on licensees. Our comments are provided in Enclosures 1 and 2.

Your letter stated, "[these criteria are] intended for appropriate use by the industry and staff. At this time, we are forwarding these criteria to you for comment." This wording leaves us uncertain if the proposed criteria are draft or final.

We believe that additional discussion of the proposed criteria would be beneficial to the NRC staff and industry. The upcoming public meeting on Alloy 600 stress corrosion cracking would be a good opportunity to further discuss these criteria and

the NRC disposition of industry comments.

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

Sincerely,

Alex Marion

Alexander Marion

Enclosures

Mr. Keith R. Wichman, NRR/DE/EMCB
Mr. Jacob I. Zimmerman, NRR/DLPM/LPD1

Enclosure 1
Technical Comments

Comment Number	Criteria Topic[1]	Comment	Recommended Action
1.	General	The scope of the proposed criteria did not specify if they are applicable to only the CRDM penetrations or they are also applicable to the other reactor head penetrations (thermal couple, etc.).	Identify the scope of the proposed criteria.
2.	Flaw Characterization	The term flaw is not explicitly defined. To avoid inconsistent application of these criteria, an explicit definition should be given. Section XI to the ASME Code provides an acceptable definition.	Define the term flaw or provide a reference to its definition in Section XI or elsewhere.
3.	Flaw Characterization	The non-destructive technology used to size flaws in reactor head penetrations is still being developed and refined. Therefore, it is important that any associated criteria recognize the state of development.	Revise the acceptance criteria to acknowledge the state of inspection technology, and clearly indicate that flaw sizing and categorization will be performed on a best effort basis using available methods.
4.	Flaw Acceptance Criteria, CRDM Nozzle Pressure Boundary	Last sentence of lead paragraph. "Therefore, the rules for austenitic piping shall be applied with the following exceptions:"	Change to: "Therefore, the following rules shall be applied."
5.	Flaw Acceptance Criteria, CRDM Nozzle Pressure Boundary	First Bullet: All flaws in these components should be evaluated against the remaining criteria, this allowance is unnecessary.	Delete the first bullet. "The allowable flaw standards for austenitic piping in Section XI, IWB-3514.3 may be applied for inside diameter (ID) initiated axial flaws only."
6.	Flaw Acceptance Criteria, CRDM Nozzle Pressure Boundary	Second Bullet Section XI, IWB 3640 does not presently apply to RV head penetrations, although the criteria are generally consistent with IWB 3640.	Replace first sentence with: "Crack growth shall be evaluated for the period of service until the next inspection." Second sentence: Delete: "by IWB 3640"

[1] These are the major criteria groupings identified in the NRC letter dated September 24, 2001, from Jack Strosnider, NRC, to Alex Marion, NEI

7.	Flaw Acceptance Criteria, CRDM Nozzle Pressure Boundary	Third Bullet: Penetration's OD surfaces wetted with reactor coolant could result in OD cracking. If leaks and/or flaws are detected in the CRDM nozzle, the leak may be stopped with a qualified repair. The repair eliminates OD wetting. Therefore, leaving in service an axial flaw, which meets the acceptance criteria, no active crack growth mechanism will exist. Therefore the proposed criteria to repair all OD initiated axial flaws is too stringent.	Revise the criteria to read: "When leaks and/or flaws are detected (by suitable inspection) in the CRDM nozzle, the cause for the leak may be removed by a qualified repair. Axially oriented flaws (both OD and/or ID initiated) that meet the acceptance criteria at the end of the expected period of operation may be left in service, subject to the approval of the regulatory authority having jurisdiction at the plant site."
8.	Flaw Acceptance Criteria, CRDM Nozzle Pressure Boundary	Fourth Bullet: This does not allow for shallow ID initiated circumferential flaws to remain in service. An analytical option should be permitted.	Revise the criteria to read: "All ID initiated circumferentially oriented flaws shall be repaired unless they are evaluated for acceptability and approved by the NRC on a case-by-case basis."
9.	Flaw Acceptance Criteria, CRDM Nozzle Pressure Boundary	Fifth Bullet: This bullet contains two thoughts that should be separated. These are "flaws in the J-groove weld" and "alliterative to Code required repairs."	Make the second sentence: "Alternatives to Code required repairs will be considered for approval if justified." a separate bullet.
10.	Crack Growth Rate	The MRP is working with an expert group to develop a basis for appropriate crack growth rates. This group is considering all available data.	Footnote the bullet to note the ongoing MRP effort to define crack growth rates.

Enclosure 2
Regulatory Comments

Comment Number	Criteria Topic[2]	Comment	Recommended Action
1.	General	The Nuclear Regulatory Commission (NRC) applies a disciplined process for developing and imposing new requirements. Yet the NRC is proposing these inspection criteria without identifying the regulatory basis.	The proposed criteria should include a section that identifies the regulatory basis for imposing these new evaluation criteria.
2.	Flaw Acceptance Criteria, CRDM Nozzle Pressure Boundary	This criterion acknowledges that, "no flaw evaluation rules exist for nonferritic vessels or parts thereof in Section XI." However, the NRC is proposing new requirements in parallel to those provided in Section XI of the ASME Boiler and Pressure Vessel Code, while taking exceptions to the Code. These criteria should be made available to licensee for voluntarily adoption on a plant specific basis.	The proposed criteria should be identified as guidance at this time. Additionally, a task group under the auspicious of ASME Section XI is developing inspection and evaluation criteria that may ultimately be adopted by the NRC in 10 CFR 50.55a.

[2] These are the major criteria groupings identified in the NRC letter dated September 24, 2001 from Jack Strosnider, NRC, to Alex Marion, NEI