EPRI ELECTRIC POWER RESEARCH INSTITUTE

MRP Materials Reliability Program_____MRP 2007-003

(via email)

January 22, 2007

Nuclear Regulatory Commission
Tanya Mensah
One White Flint North
Rockville, Maryland

Subject: Implications of Wolf creek Pressurizer Butt Weld Indications Relative to Safety Assessment and Inspection Requirements

Dear Tanya:

In fall 2005, the PWR fleet committed to mandatory implementation of Primary System Piping Butt Weld Inspection and Evaluation Guideline (MRP-139) under the auspices of NEI-03-08. This guideline imposed a requirement of completing baseline volumetric exams of all A82/182 dissimilar metal butt welds greater than or equal to 4" NPS and operating at pressurizer temperatures by 12/31/2007.

In October 2006, Wolf Creek identified circumferential indications in three pressurizer nozzle dissimilar metal butt welds while implementing the baseline volumetric inspection requirements of MRP-139. Although the structural significance of large circumferential cracks was evaluated, entirely circumferential cracks of this size with no indication of axial cracking were not expected. Consequently, MRP initiated a review of these indications relative to the basis and assumptions of MRP-139 to determine the implications of this discovery on the PWR fleet and implementation of MRP-139 requirements. This review evolved into a multi-faceted effort that has also included a detailed plant survey of current utility implementation plans for pressurizer nozzle inspections and mitigation, additional analytical evaluation of the Wolf Creek indications, and technical interaction with the NRC to compare and refine analytical methods and assumptions. The attached report documents in a comprehensive manner all aspects of the industry evaluation of the Wolf Creek pressurizer nozzle inspection findings.

The following conclusions have been reached from the work described in this report:

- There is nothing regarding the Wolf Creek indications that would invalidate either the MRP-113 safety assessment or the MRP-139 butt weld inspection requirements. The risk of leaks is low and the risk of rupture is extremely low and constantly decreasing as inspections and mitigation are performed.

- The industry does not intend to manage butt weld PWSCC by leakage as evidenced by the commitment to have all Alloy 82/182 butt welds inspected using PDI qualified equipment, procedures and operators and/or mitigated by the spring of 2010.

- The industry is currently on an aggressive schedule to inspect all pressurizer butt welds and mitigate about 92% of the pressurizer butt welds by the spring of 2008 (approximately 16 months from now).

- Accelerating inspection of all pressurizer butt welds is not warranted given the small predicted reduction in the risk of rupture.

- Analyses show that careful visual inspections and improved on-line leakage monitoring will ensure an extremely low risk of rupture over the four year period while the baseline MRP-139 inspections and appropriate mitigation activities are completed.

This material is not considered proprietary and is not transmitted under affidavit. If you have any questions, please contact Craig Harrington (972-556-6519) or Christine King.(650-855-2605).

Best Regards,

Christine King
Manager, Materials Reliability Program

cc: Jeff Gasser, Southern Nuclear
Mike Robinson, Duke Energy
Denny Weakland, First Energy
Craig Harrington, EPRI
David Steininger, EPRI

Attachment 1