



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

May 30, 2008

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Stop: OWFN P1-35  
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of ) Docket No. 50-260  
Tennessee Valley Authority )

**BROWNS FERRY NUCLEAR PLANT (BFN) - UNIT 2 - SUBMITTAL OF EVALUATION OF AN INDICATION ON CONTROL ROD DRIVE SYSTEM PIPING DISSIMILAR METAL (DM) WELDMENT**

In accordance with the guidance specified in NRC Generic Letter (GL) 88-01, TVA is submitting an evaluation of an indication in a dissimilar metal weld joint located on the Control Rod Drive (CRD) system piping. During the performance of a scheduled inservice inspection of the Reactor CRD system piping, TVA identified an indication in weld RCRD-2-52. Weld RCRD-2-52 is a four inch diameter Schedule 160, A-333 GR 1, carbon steel pipe, counter bored at the weld joint to an approximate schedule 80 wall thickness, welded to an A-182 GR F316 forged austenitic stainless steel valve with ER 309 stainless steel filler metal. RCRD-2-52 is a dissimilar metal IGSCC susceptible weld that had not been stress improved (IGSCC Category D). Previous examinations, conducted prior to Supplement 10 qualification requirements for DM welds, did not identify recordable indications or geometry in this weld. In accordance with TVA's response to GL 88-01, a report is being submitted to document the discovery of a new flaw. A detailed report of the flaw evaluation is provided in Enclosure 1.

TVA removed the entire weld joint, including the surrounding material, and submitted the item to Westinghouse hot cell facilities for non-destructive and destructive metallurgical analysis. The analysis concluded that the cracking initiated on the ID surface from the geometric discontinuity (associated with the weld) on the carbon steel side and propagated in the weld metal near the carbon steel/stainless steel weld interface. The presence of geometric discontinuity and residual stresses from pipe restraint conditions most likely contributed to crack initiation. The cause of the cracking was determined to be the result of pitting and general corrosion of the carbon steel piping and intergranular stress corrosion cracking (IGSCC) in the diluted weld metal at the weld interface.

DO30  
WRB

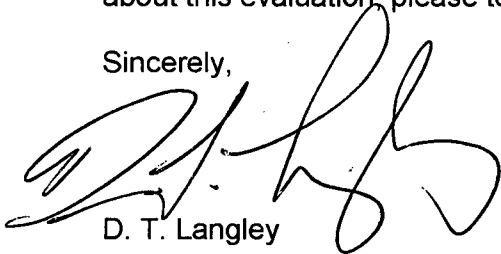
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Oxygenated conditions and an aqueous environment in the presence of weld stresses most likely contributed to crack progression. The replacement weld is also a DM weld and is categorized as IGSCC Category D. Additional welds were examined in accordance with the sample expansion requirements of ASME Section XI, IWC-2430. The four remaining welds in the group were examined and no other indications were identified. The corresponding welds on Unit 1 (RCRD-1-52) and Unit 3 (RCRD-3-52) have been stress improved and are classified as IGSCC Category C.

Enclosure 1 to this letter provides the evaluation of weld RCRD-2-52. Enclosure 2 provides the isometric drawing, 2-ISI-272-C, Sheet 1, which depicts the Unit 2 CRD System weld in question. Enclosure 3 provides the BFN Notification of Indication (NOI).

There are no regulatory commitments contained in this letter. If you have any questions about this evaluation, please telephone me at (256) 729-2636.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. T. Langley', written over the typed name.

D. T. Langley

Manager of Licensing  
and Industry Affairs

Enclosures  
cc: See page 3

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