

April 20, 2001

Mr. J. A. Scalice
Chief Nuclear Officer
and Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: BROWNS FERRY, UNIT 2 - REVIEW OF INTERGRANULAR STRESS
CORROSION CRACKING (IGSCC) INDICATION ON RESIDUAL HEAT
REMOVAL SYSTEM PIPING WELD DRHR-2-09 (TAC NO. MB1648)

Dear Mr. Scalice:

During the Unit 2 Cycle 11 refueling outage, while performing scheduled inservice inspection of the residual heat removal system piping, Tennessee Valley Authority (TVA) identified an IGSCC indication in weld DRHR-2-09 that was not previously identified as a flaw. The indication is approximately 2 inches in length and .25 inches in depth. The affected piping is 24 inches in diameter with a pipe wall thickness of 1.20 inches. In accordance with licensee commitments to NRC Generic Letter 88-01, titled "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping," TVA submitted its proposed evaluation for NRC staff approval prior to resumption of operation.

TVA completed a stress corrosion crack growth analysis in accordance with NUREG-0313, Revision 2, "Technical Report on Material Selection and Processing Guidelines for BWR Coolant Pressure Boundary Piping." The analysis stated that "weld DRHR-2-09 is acceptable for at least two additional 24-month operating cycles." This information was submitted to the NRC staff for review along with a request to approve the evaluation and permit restart of the unit.

Based on the information provided in the submittal, the staff concludes that:

1. The subject IGSCC indication is not a new flaw, and its existence can be traced back to ultrasonic testing (UT) performed in the 1994 outage. It appears that this flaw has not grown significantly in length since 1994. The subject indication was missed or was not identified as IGSCC in previous examinations due to geometry limitations. In the current outage, the indication was found due to implementation of improved UT techniques and procedures based on Performance Demonstration Initiative requirements.
2. TVA has reviewed the Induction Heat Stress Improvement (IHSI) process control parameters and has determined that the actual IHSI data recorded for this weld met all the control parameters in the process specification. Therefore, the IHSI treatment of this weld is expected to be effective in mitigating the initiation and growth of cracks.

3. The flaw found in the 1989 outage is similar in size and is about 7 inches away from the flaw found in the current outage. This 1989 flaw was re-inspected in the 1994, 1997, and 2001 outages, and did not show any significant growth.
4. The results of the licensee's flaw evaluation have shown that the structural integrity of the subject weld will be maintained during operation for the next two 24-month fuel cycles. This is expected because of the IHSI treatment of the subject weld.

Therefore, we conclude that the Browns Ferry Unit 2 facility can be returned to operation with reasonable assurance that the integrity of the subject weld in the residual heat removal system piping will continue to be maintained. The safety evaluation which provides the bases for the above conclusions will be transmitted under separate cover. If you have any questions regarding this issue, please contact the Browns Ferry Project Manager, William Long, at 301-415-3026.

Sincerely,

/RA by R. Emch Acting for/

Herbert N. Berkow, Director
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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- 3. The flaw found in the 1989 outage is similar in size and is about 7 inches away from the flaw found in the current outage. This 1989 flaw was re-inspected in the 1994, 1997, and 2001 outages, and did not show any significant growth.
- 4. The results of the licensee's flaw evaluation have shown that the structural integrity of the subject weld will be maintained during operation for the next two 24-month fuel cycles. This is expected because of the IHSI treatment of the subject weld.

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J. A. Scalice

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Tennessee Valley Authority

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