TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

April 16, 1984

WBRD-50-390/83-69
WBRD-50-391/83-64

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - ALTERATION OF FIRE DOORS AND FRAMES WITHOUT EN DES APPROVAL WBRD-50-390/83-69, WBRD-50-391/83-64 - FINAL REPORT FOR UNIT 1 AND THIRD INTERIM REPORT FOR UNIT 2

The subject deficiency was initially reported to NRC-OIE Inspector Linda Watson on November 14, 1983 in accordance with 10 CFR 50.55(e) as NCR 4443R. Interim reports were submitted on December 14, 1983 and February 29, 1984. Enclosed is our final report for unit 1 and third interim report for unit 2. We expect to submit our next report for unit 2 on or about August 31, 1985.

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Licensing

Enclosure
cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
ALTERATION OF FIRE DOORS AND FRAMES WITHOUT EN DES APPROVAL
NCR 4443R
WBRD-50-390/83-69, WBRD-50-391/83-64
10 CFR 50.55(e)
FINAL REPORT FOR UNIT 1 AND
THIRD INTERIM REPORT FOR UNIT 2

Description of Deficiency

A number of fire-rated doors and frames at the Watts Bar Nuclear Plant have been altered without prior approval by TVA's Division of Engineering Design (EN DES).

Alterations included lock hasps welded to doors, signs riveted to doors, torch and weld burns to doors and frames, electrical penetration through frames, and open cutouts in frames. Penetration of door skin and frame occurred in several cases.

In reviewing internal documentation on this and related matters, additional types of fire door and frame alterations and damage were identified. Alterations were made without proper consideration for their impact on the fire resistive rating of the doors and frames. Damage to fire doors and frames which could impact their ratings has also occurred during construction activities.

Problem types that have been identified are outlined below with the corrective actions taken by TVA.

The root cause of the condition is that the personnel responsible for the alterations and damage were not aware of the impact of their actions on the Underwriters Laboratory (UL) fire resistive rating of the doors and frames.

Safety Implications

Fire door and frame alterations or damage, if uncorrected, could adversely affect safe shutdown capability during a fire. They could prevent the doors and frames from functioning to limit the spread of a fire. A fire that is allowed to propogate through a fire barrier penetrated by a door and frame could cause damage to redundant safe shutdown equipment that would exceed the limits established in 10 CFR 50 Appendix R.

Corrective Actions

Fire doors and frames that have been altered or damaged have been dispositioned as follows:

1. Fire door with UL labels removed.

   Letters have been obtained from the door manufacturer and are on file which certify that the doors are UL labelled. Therefore, the doors have been accepted as is.

2. Dents in fire doors and frames.

   Dents have been filled with metal filler, the filler ground flush, and the repaired surface painted.

3. Torch and weld burns in fire doors and frames.

   a. Minor burns in doors and frames have been filled with metal filler, the filler ground flush, and the repaired surface painted.

   b. When burns penetrate their metal skin, doors have been replaced.

   c. Burns in frames that penetrate the metal have been filled with weld material, the welds ground flush, and the repaired surface painted.

4. Electrical penetrations in fire doors and frames.

   a. When penetrations served electrical equipment needed to satisfy NRC mandated security, interlock, or radiation requirements; the doors and frames have been accepted as is.

   b. When penetrations served electrical equipment not associated with door operation, the affected doors have been replaced and electrical conduits, etc., have been rerouted.

5. Open cutouts in frames.

   12-gauge steel reinforcing tabs have been welded to the back side of the frame cutouts to ensure proper alignment of filler plates.

   14-gauge steel filler plates have been welded into the openings, the filler ground flush, and the repaired area painted.

6. Field installed security lock guards.

   The fire doors have been accepted as is, since the lock guards are needed to satisfy NRC mandated security requirements.

7. Field installed weatherstripping

   Either self-adhesive foam weatherstripping or screw-applied weatherstripping has been applied to doors only when required to satisfy air infiltration limits for control of radioactive contamination. These doors have been accepted as is.

8. Electrical equipment mounted on fire doors and frames.

   The fire doors have been accepted as is since the electrical equipment is needed to satisfy NRC mandated security, interlock, or radiation requirements.

9. Hasps and staples welded to frames.

   Hasps and staples were removed, the frame surface ground flush and the repaired area painted.

10. Hasps and staples bolted to fire doors.

    Hasps and staples were removed and the bolts were replaced in the holes in the doors. The bolt ends were then cut flush with the tops of the nuts, tack welded, the welds ground smooth, and the repaired area painted.

11. Hasps and staples welded to fire doors.

    Hasps and staples were removed. Small voids in the doors' metal faces were filled with metal filler, the filler ground flush, and the repaired surface painted.

12. Signs riveted to fire doors.

    The doors were accepted as is, since the signs and rivet holes in the door surfaces will have no significant impact on the fire resistive rating of the doors.

The metal filler used in all repair work was the same type used by the door manufacturer to repair UL approved doors. All field welding on frames was done in accordance with the latest edition of UL 63, Standards for Safety for Fire Door Frames.

In order to prevent recurrence, the personnel involved in the alteration or damage to the fire doors and frames have been indoctrinated in the importance of maintaining the fire resistive rating of fire barrier penetrations. Similar deficiencies have been identified at TVA's Bellefonte Nuclear Power Plant and are being tracked under a separate NCR.

All work for unit 1 is complete.

More information will be available for unit 2 at Watts Bar in our next report.