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DEC 15 1987

WBRD-50-390/86-66
WBRD-50-391/86-60

10 CFR 50.55(e)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - QUESTIONABLE WELD RADIOGRAPHS PREVIOUSLY ACCEPTED - WBRD-50-390/86-66 AND WBRD-50-391/86-60
FOURTH INTERIM REPORT

The subject deficiency was initially reported to NRC Region II Inspector Gordon Hunegs on November 26, 1986, in accordance with 10 CFR 50.55(e) as SCRs WBN NEB 8651 and WBN NEB 8665. Interim reports were submitted on January 14, February 18, and April 30, 1987. Enclosed is our fourth interim report. Our next report will be provided on or about June 30, 1988.

If there are any questions, please telephone R. D. Schulz at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley, Director
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Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

DEC 15 1987

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
QUESTIONABLE WELD RADIOGRAPHS PREVIOUSLY ACCEPTED
WBRD-50-390/86-66 AND WBRD-50-391/86-60
SCRs WBN NEB 8651 AND WBN NEB 8665
10 CFR 50.55(e)

FOURTH INTERIM REPORT

DESCRIPTION OF DEFICIENCY

The DOE/EG&G weld inspection program, in response to employee concerns at Watts Bar Nuclear Plant (WBN), included the review of radiographs of ASME Section III piping which were completed during the construction period of unit 1. Approximately 400 previously accepted radiographs, representing 86 welds, were reevaluated. The review identified indications in two welds that did not meet ASME Section III requirements. Further investigation of these 400 radiographs by TVA, which included additional radiography, identified one additional unacceptable indication. The radiograph review population was subsequently expanded to 100 percent. The expanded review involved approximately 2,700 welds and associated radiography. EG&G rejected an estimated 500 radiographs, representing approximately 350 welds. Of these, approximately 250 welds have potentially rejectable indications. The remainder were rejected because of radiographic technique discrepancies. (This includes 58 socket welds which were radiographed at the request of Westinghouse.)

This deficiency is attributed to a lack of attention to detail by inspectors when interpreting radiographs. Also, there was insufficient management oversight and quality assurance (QA) surveillance of the work of radiographic interpreters. TVA considers that the oversight and surveillance problems, in conjunction with the high deficiency rate in the interpretation of weld radiographs, represent a significant breakdown in a portion of the QA program.

Unit 2 radiographs were interpreted under the same program and are addressed in SCR WBN NEB 8665.

SAFETY IMPLICATIONS

Welds that do not meet ASME Section III requirements (due to unacceptable indications) may not be suitable for service. Postulated failure of the welds could result in a loss of pressure boundary integrity of the affected safety-related system(s) and in a failure of the safety-related system(s) to perform the required design function, creating a condition which could be adverse to the safe operation of the plant.

CORRECTION ACTION

The unit 1 review of radiographs by level II inspectors, and the rereview of all unit 1 radiographs by independent level III inspectors is complete. Of the approximately 12,000 radiographs, which represented approximately 2,700 welds, 297 radiographs representing 185 welds were rejected for weld imperfections, 192 radiographs representing 138 welds were rejected for film quality or technique discrepancies, and 27 radiographs representing 20 welds were rejected for base material imperfections.

The review of unit 2 radiographs by a level II or III primary reviewer and an independent review by level III inspectors is approximately 35 percent complete.

TVA has implemented a corrective action program which requires that all repair activities be accomplished by an organization holding an ASME Section III certificate of authorization. Repairs are currently being performed to the WBN code of record for construction (ASME Section III-1971 through Summer 1973 Addenda) with exceptions which have been documented in our letter of August 21, 1987. Any further exceptions will be similarly documented.

The unit 1 and unit 2 radiographs having indications which may not meet ASME Section III requirements will be rereviewed. The indications which deviate from ASME Section III requirements will be evaluated and corrective actions developed as required. The basis for any acceptance of deviations from ASME Section III will be submitted for NRC staff review and approval. To date the corrective action for 45 of the unit 1 welds has been completed. TVA anticipates completing all unit 1 corrective actions by March 1, 1988. Hydrostatic testing and final documentation of the repairs on unit 1 will be completed prior to fuel loading. Unit 2 corrective action will be completed prior to fuel loading.

To prevent recurrence of this deficiency, 100 percent of the radiographs for all new ASME Section III piping welds will be evaluated by both a level II and a level III inspector. The site radiographic procedure has been revised to require the documentation of all indications requiring evaluation, and to require a level II and a level III review. Training has been completed for quality control (QC) radiographic interpreters to encompass the lessons learned. Radiography will be included within the scope of all future corporate nondestructive examination (NDE) audits. The QA surveillance group will include radiography as part of its surveillance schedule. To improve management oversight, the number of personnel authorized to review radiographs has been limited.

Additional types of deficiencies, other than those originally identified, were not discovered at the conclusion of the unit 1 reevaluation of radiographs. Therefore the original root cause analysis results (inattention to detail by film interpreters, insufficient management oversight, and lack of effective QA surveillance) was confirmed to be accurate.

Our next report will address the results of our analysis of safety implication for each potential deficiency for unit 1. This report will be submitted on or about June 30, 1988.