TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

APR 11 1978

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 1217
230 Peachtree Street, NW.
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT - UNIT 1 POLAR CRANE BRIDGE ASSEMBLY - DEFICIENT END TIE WELDS - NCR 1081R - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Region II, Inspector Tom Burdette, on March 9, 1978. Enclosed is our final report on this deficiency.

Very truly yours,

J. E. Gilleland
Assistant Manager of Power

Enclosure
cc: Dr. Ernst Volgenau, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNIT 1

UNIT 1 POLAR CRANE BRIDGE ASSEMBLY - DEFICIENT END TIE WELDS
NCR 1081R - FINAL REPORT

Description of the Deficiency

This deficiency was discovered as a result of an inspection ordered following discovery of some deficient welds on the unit 2 polar crane at Watts Bar Nuclear Plant (see NCR 938R on Watts Bar). Four welds on the bridge assembly end ties (see attached figure) of the unit 1 polar crane do not meet the requirements of AWS-D1.1-72. These four welds contain slag inclusions and exhibit lack of fusion to varying degrees. The deficiency was due to a failure of the fabricator (Broadline Corporation) to follow welding procedures.

Safety Implications

If this deficiency had gone uncorrected, the polar crane bridge assembly would have performed satisfactorily under normal conditons. However, it is possible that during a postulated seismic event, the unit 1 polar crane bridge assembly could have failed, possibly allowing the crane to fall onto the operating deck of the unit 1 reactor.

If the polar crane were to fall onto the operating deck, the resulting damage to the reactor coolant system or the reactor control system may have impaired the ability of the reactor unit to reach and maintain a safe shutdown condition. If the bridge assembly had failed under seismic conditions during a refueling outage, the polar crane could have fallen on the operating deck and possibly damaged the reactor fuel and/or the reactor vessel. Damage of this magnitude has the potential for a condition adverse to the safe operation of the plant.

Corrective Actions

The deficient welds in the unit 1 polar crane bridge assembly will be repaired in accordance with a procedure written by site employees and approved by TVA's Division of Engineering Design. Upon completion of repair, each weld will be examined by magnetic particle test in accordance with TVA Construction Specification, G-29M.

Corrective Actions (Continued)

Satisfactory repair of the four deficient welds will ensure that the unit 1 polar crane can resist seismically induced forces without failure. Preoperational and acceptance testing of the unit 1 polar crane have already been satisfactorily completed. That testing demonstrated the capabilities of the crane for normal operation.

Means Taken to Prevent a Recurrence

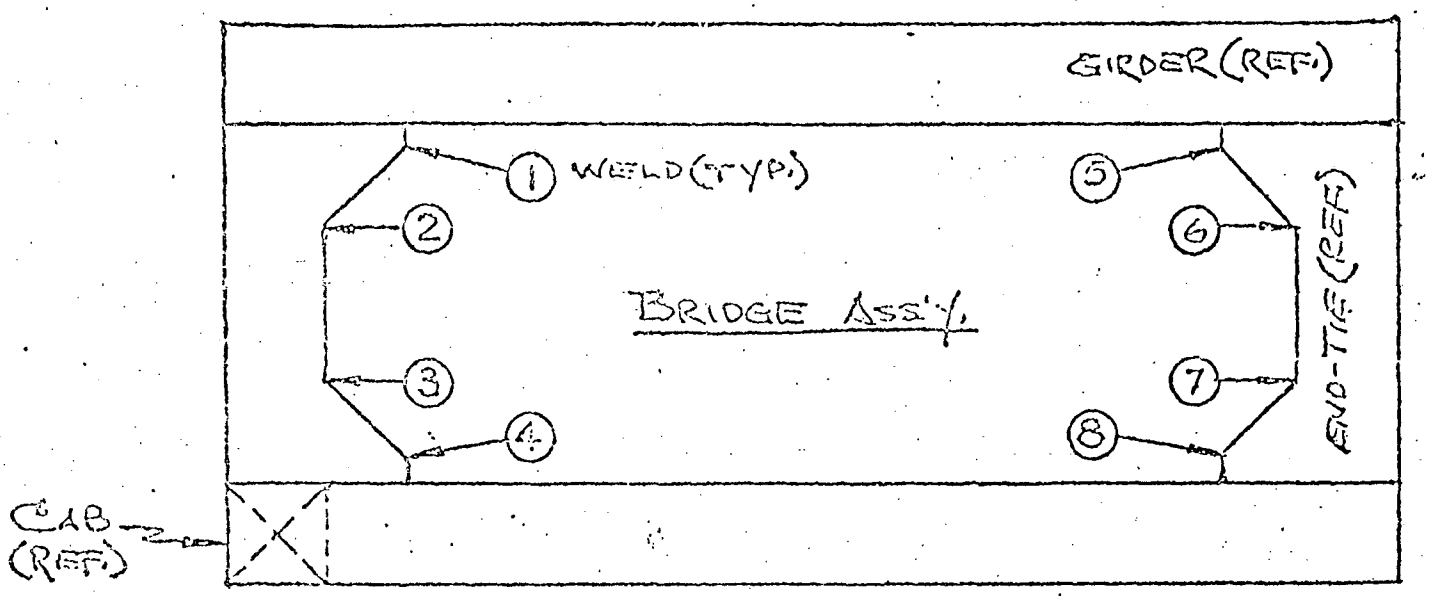
All bridge end ties on cranes manufactured by Broadline Corporation and delivered to TVA nuclear facilities will be examined for faulty welds. Girder welds on cranes manufactured by Broadline for TVA nuclear facilities have previously been examined using RT & MT techniques.

The polar crane bridge assembly for Watts Bar unit 2 has already been repaired and examined as reported in NCR 938R.

Broadline Corporation has been informed of the deficient welds and advised to improve their shop fabrication quality control.

TVA-WBNP

POLAR CRANE, UNIT-1
ATTACHMENT #1 TO NCR-1881R



PLAN

WELD No.	COMMENT
③, ④, ⑦, ⑧	—— WELDS REJECTED BY UT EXAM.
①, ②, ⑤, ⑥	—— WELDS APPROVED BY UT EXAM.

NOTES:
1. — WELDS APPROX. 30" IN LENGTH
2. — BASE MAT'L. — 3/4" PL, A-36

H. GRIMAC, ME