

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
HOLYOKE WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST NUCLEAR ENERGY COMPANY

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September 10, 1985

Docket No. 50-423

F0802A

Dr. Thomas E. Murley  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

Reference: (1) J. F. Opeka to T. E. Murley, F0787A, dated June 21, 1985.

Dear Dr. Murley:

Millstone Nuclear Power Station, Unit No. 3  
Reporting of Potential Significant Deficiencies  
in Accordance with 10CFR 50.55(e):  
Incore Thermocouple Compression Fittings (SD-83)

In Reference 1, Northeast Nuclear Energy Company (NNECO), reported a potential significant deficiency in the construction of Millstone Unit No. 3 as required by 10CFR 50.55(e). The potential significant deficiency involves the improper installation of upper reactor internal incore thermocouple compression fittings. The subject fittings were Hoke, Inc. "Gyrolock" type compression fittings and were supplied by Westinghouse and installed in accordance with Westinghouse procedures.

During primary system cold hydrostatic testing, one incore thermocouple compression fitting dislodged resulting in leakage. A 100 percent inspection of the remaining subject compression fittings was conducted after completion of the primary cold hydrostatic test. A significant number of these fittings displayed ferrule axial movement requiring further tightening.

Our NSSS supplier, Westinghouse Electric Corporation, and our engineering staff have reviewed the circumstances surrounding the fitting failure and evaluated the conditions noted with the remaining compression fittings. Based upon these reviews and evaluations, NNECO has identified two separate but related potential significant installation deficiencies.

Westinghouse manufacturing and installation procedures require that the incore thermocouple compression fittings be partially assembled at their manufacturing facility and then assembly completed at the appropriate nuclear plant site in conjunction with thermocouple installation. The manufacturing facility's work scope includes the attachment of the compression fitting union body, 5/16 inch nut and larger ferrules to the upper end of the thermocouple conduit on the

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reactor vessel head seal assembly. The completed assembly is given a code hydrostatic test. The Millstone Unit No. 3 seal assembly successfully passed this hydrostatic test as witnessed by the Authorized Nuclear Inspector. Final nuclear plant site assembly requires removal of the compression fitting body only for probe inspection, reinstallation and tightening of compression fitting body to the seal assembly conduit, thermocouple insertion, and the making up of 1/8 inch nut and smaller ferrule for thermocouple to fitting pressure joint.

During the site work scope a nonconformance and disposition report was generated. Bent compression fitting bodies and loose ferrule movement was observed. Westinghouse engineering and a Gyrolock technical representative examined the conditions at the Millstone Unit No. 3 site. Recommended corrective action included bent fitting replacement and retightening fittings.

As stated previously, during the subsequent primary system cold hydrostatic test one compression fitting became dislodged. This fitting was a replacement fitting installed on site. A 100% inspection of the remaining compression fittings revealed many fittings having ferrule axial movement. The axial movement was on ferrules made up at both the Westinghouse facility and Millstone Unit No. 3. Additional bent compression fitting bodies were also noted. These inspection results were reviewed by Westinghouse and NNECO personnel and the Gyrolock Product Manager. The following conclusions were derived:

1. Loose ferrule axial movement was the result of not making up the fitting to the required 1 1/2 turn per "Gyrolock" recommendations.
2. Fittings joints made at Millstone were not made in accordance with Westinghouse procedures. NEOLUBE was not applied on fitting threads and ferrules prior to tightening. The result was (1) failure to obtain proper torque to seat ferrule for proper fitting make up and (2) fitting bodies were bent during attempts by technicians to obtain full 1 1/2 turns on fitting nuts.
3. Fitting joints made at the Westinghouse manufacturing facility were reportedly neolubed. These joints passed two hydrostatic tests without leakage but still required retightening to eliminate ferrule axial movement.

Corrective actions have been completed at Millstone Unit No. 3. Westinghouse procedures were revised to reemphasize neolube lubrication requirements. All loose ferrule compression fittings have been tightened and reinspected. All bent compression fittings have been replaced.

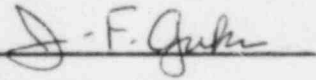
The subject incore thermocouple compression fitting identified two potential significant deficiencies in accordance with 10CFR 50.55(e). The first deficiency concerns the failure to follow appropriate installation procedures and the failure of appropriate inspection personnel to recognize procedures were not followed. Neolube lubrication was not applied to the compression fitting threads and ferrules as required. The result was improperly made up and bent compression fittings.

The second potential deficiency identified was the compression fitting connections made at the Westinghouse - Pensacola facility, which exhibited ferrule axial movement. These fitting joints required additional retightening at Millstone Unit No. 3. Similar compression fitting failures have been identified in NRC IE Information Notice No. 84-55, Supplement 1.

Based upon the corrective actions implemented at Millstone Unit No. 3, we consider this to be our final report closing out SD-83. We trust that the above information satisfactorily responds to your concerns.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
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J. F. Opeka  
Senior Vice President

cc: Mr. J. M. Taylor, Director  
Division of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555