

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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November 13, 1985

Docket No. 50-423
F0893A

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

- References:
- (1) T. T. Martin letter to W. G. Council, IE Inspection Report No. 50-423/83-14, dated November 22, 1983.
 - (2) W. G. Council letter to T. T. Martin, A03651, dated December 22, 1983.
 - (3) W. G. Council letter to T. T. Martin, F0454A, dated March 16, 1984.
 - (4) W. G. Council letter to T. E. Murley, F0557A, dated June 18, 1984.
 - (5) W. G. Council letter to T. E. Murley, F0575A, dated September 28, 1984.
 - (6) E. C. Wenzinger letter to W. G. Council, IE Inspection Report No. 50-423/84-20, dated December 21, 1984.
 - (7) W. G. Council letter to R. W. Starostecki, A04566, dated January 18, 1985.
 - (8) W. G. Council letter to T. E. Murley, F0666A, dated January 31, 1985.
 - (9) J. F. Opeka letter to T. E. Murley, F0690A, dated June 28, 1985.
 - (10) J. F. Opeka letter to T. E. Murley, F0804A, dated September 17, 1985.
 - (11) J. F. Opeka letter to B. J. Youngblood, B11710, dated September 18, 1985.
 - (12) W. G. Council letter to T. E. Murley, B11438, dated February 1, 1985.

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- (13) J. F. Opeka letter to T. E. Murley, B11630, dated August 1, 1985.
- (14) J. F. Opeka letter to T. E. Murley, F0804A, dated September 17, 1985.
- (15) J. F. Opeka letter to T. E. Murley, F0853A, dated November 1, 1985.

Dear Dr. Murley:

Millstone Nuclear Power Station, Unit No. 3
Reporting of Potential Significant Deficiencies
in Accordance with 10CFR50.55(e):
Tubeco Weld Radiographs (SD-56)

Potential deficiencies with Tubeco weld radiographs were first identified in a notice of violation in IE Inspection Report 50-423/83-14 (Reference (1)). The violation concerned potential film density violations and the placing of penetrameters in the weld. Northeast Nuclear Energy Company (NNECO) responded to this notice of violation and concluded that these were not technical problems or safety concerns (References (2) and (3)). However, a subsequent review uncovered three additional potential problems with Tubeco weld radiographs (undocumented linear indications, excessive geometric unsharpness and penetrameter identification numbers in the weld) which led us to report a potential significant deficiency in the construction of Millstone Unit No. 3 as required by 10CFR50.55(e) (Reference (4)). We concluded that this was not a significant deficiency and that we believed Tubeco weld quality was adequate (Reference (5)).

In Reference (6), you requested that we revise our September 28, 1984 (Reference (5)) response to you based on information revealed during a subsequent, independent review of Tubeco weld radiographs by one of your inspectors.

In accordance with commitments made in References (7), (8), (9), (10), (14), and (15), NNECO hereby provides the following final summarized total weldment figures:

- o NNECO has completed a 100% review of Tubeco Radiographs for QA Category I, ASME III Code Class 1, 2 and 3 welds. A total of 2,743 weld radiographic film packages for 2,192 individual weldments were reviewed.
- o 597 weld radiographs were rejected for film technique, but did not require further nondestructive examination to ensure code compliance.
- o 699 weldments required additional nondestructive examination to ensure code compliance.
- o 553 weldments required volumetric NDE reexamination.
- o 146 weldments required surface NDE examination.

- o 74 weldments have rejectable weld or base metal indications. 49 had rejectable radiographic indications. 24 weldments exhibited rejectable magnetic particle surface indications in the weld or adjacent base material. One weldment exhibited a rejectable ultrasonic indication.
- o 70 weldments were repaired to meet code requirements.
- o A total of 30 weldments within the Containment Recirculating System (RSS) had either radiographic film and/or weld quality problems or radiographic film did not exist (Reference (11)). Four of the RSS weldments had rejectable radiographic indications which could not be repaired since they were encased in concrete.

NNECO and our architect/engineer, Stone and Webster Engineering Corporation, have completed our evaluations and corrective actions concerning the deficiencies associated with Tubeco weld radiographs. Appropriate corrective actions as summarized above were taken to meet commitments to the ASME Code. All weldments with the exception of several RSS weldments embedded in the containment floor were brought into compliance with ASME Code. Detailed information concerning the RSS weldments embedded into the containment floor was provided the NRC previously, Reference (11).

Weld radiographs having penetrameters located in the area of interest and film density of weld exceeding penetrameter density by more than 30% were accepted as meeting ASME Code compliance with the adoption of a later code edition. NNECO has previously requested NRC Staff approval to adopt the appropriate later ASME code edition paragraphs for acceptance of weldments with these radiographic film quality conditions, References (12) and (13).

Several telephone conversations and meetings with NNECO and NRC Region I Staff personnel concerning this issue have been held. NRC verbal concurrence on the acceptability of the weldments with the radiographic film conditions identified and the adoption of the later code edition paragraph were provided. Formal written NRC Staff approval to adopt the two later ASME Code edition paragraphs have not yet been received, however.

All weldments with unacceptable weld quality were reviewed and evaluated to determine if any safety concerns would have resulted if the code rejectable indications had gone undetected. Fracture mechanics analyses were performed on weldments with radiographic indications representing worst case defect size and design stress boundary conditions. The analyses indicate that weld failure would not be expected. Weldments exhibiting rejectable magnetic particle surface indications in the weld or adjacent base material required only mechanical grinding to eliminate the surface indications. Minimum required wall thicknesses were not encroached upon in the ground surface areas. Base material surface imperfection depths did not exceed the allowable material specification finish requirements. Therefore, the code rejectable nondestructive examination indications would not have adversely affected the safety or operations of Millstone Unit No. 3 at any time throughout the expected lifetime of the plant, had the weld indications remained uncorrected. Consequently, the Tubeco problem is not a significant deficiency per 10CFR50.55(e) for Millstone Unit No. 3.

While a significant deficiency per 10CFR50.55(e) was not found for Millstone Unit No. 3 piping specifically, a breakdown in quality control on the part of Tubeco in producing piping weldments is evident. The lack of quality control exhibited by Tubeco could have produced weldments in nuclear grade piping supplied to other nuclear stations which were not fit for their intended purpose. Therefore, Northeast Utilities evaluation has concluded that Tubeco's inferior radiographic process represents a substantial safety hazard.

In summary, NNECO has completed appropriate corrective actions and evaluations concerning deficiencies associated with Tubeco radiographic film. As such, we consider this to be our final report concerning this potential significant deficiency. We believe that the above information satisfactorily responds to your concerns.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

J. F. OPEKA
J. F. Opeka
Senior Vice President

E. J. Mroczka
By: E. J. Mroczka
Vice President

cc: Mr. J. M. Taylor, Director
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