

**North  
Atlantic**

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The Northeast Utilities System

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NYN- 95012

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United States Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Document Control Desk

References: (a) Facility Operating License No. NPF-86, Docket No. 50-443  
  
(b) North Atlantic Letter NYN-93070, dated May 7, 1993, "License Amendment Request 93-05: Containment Isolation Design For Purge Supply and Exhaust Penetrations (TAC No. M86274)"

Subject: Response to Request for Additional Information

Gentlemen:

North Atlantic Energy Service Corporation (North Atlantic) submitted a License Amendment Request [Reference (b)] to revise Technical Specification 3.6.1.7, Containment Ventilation System, and allow testable blind flanges to be installed in lieu of the outboard containment isolation valves during MODES 1, 2, 3 and 4. In addition, North Atlantic changed the ASME Code classification of these penetrations from ASME Code Class 2 to ASME Code Class MC. This License Amendment Request was approved by the NRC and issued as License Amendment No. 29 on March 7, 1994. The NRC Staff has subsequently requested information regarding the initial qualification of the containment weldneck flange material for the exterior flange on containment penetration HVAC-2. The requested information is provided below.

The Containment penetration weldneck flanges were not modified nor affected by License Amendment No. 29, which simply allowed testable blind flanges to be installed in lieu of the outboard containment isolation valves for operation in MODES 1, 2, 3 and 4. The weldneck flange material of the Containment penetrations for the Containment Structure Air Purge and Heating Subsystem (CAP) meets the requirements of Appendix R of Section III of the ASME Boiler and Pressure Vessel Code. The qualification can be verified with the following evaluation.

Article R-1000 from the non-mandatory Appendix R of the ASME Boiler and Pressure Vessel Code, titled "Determination of Permissible Lowest Service Metal Temperature from T<sub>ndt</sub> for Classes 2 and MC Construction", provides the methodology for determining the permissible lowest service metal temperature for certain ferritic materials which are susceptible to brittle fracture and which are used in ASME Code Class 2 and Code Class MC construction. From Article R-1200 in Appendix R, the lowest permissible service metal temperature is defined by the following equation as,  $T_{ndt} + A$ , where; T<sub>ndt</sub> is the nil-ductility transition temperature for the material under evaluation and, "A" is a temperature value in degrees Fahrenheit which is obtained from the curve in Figure R-1200-1 in Appendix R based on material thickness.

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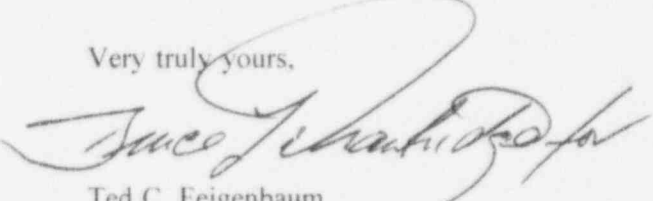
The nil-ductility transition temperature [T<sub>ndt</sub>] for the Containment weldneck flange material was obtained from the data published in Table 4.4 in NUREG/CR 3009, "Fracture Toughness of PWR Component Supports." The T<sub>ndt</sub> value of 8°F was selected from Table 4.4 for this evaluation. The T<sub>ndt</sub> value of 8°F is actually equal to the average NDT + 2σ. In this evaluation a flange material thickness of 3.5" is used. This flange material thickness was selected based on the flange thickness (t") required by the flange radial stress and tangential stress equations specified in Appendix XI of the ASME Code. Using a flange material thickness (t") of 3.5", the corresponding "A" value of 47°F was obtained from the curve in Figure R-1200-1 in Appendix R. Substituting the 8°F and 47°F values into the ASME Appendix R equation identified above results in a lowest service temperature [LST] equal to 55°F.

While in Mode 1 with the plant operating at the 100% power level, in-plant temperature measurements were taken directly from the surface of the weldneck flange. The lowest of the ten temperature measurements was 91°F. By direct comparison of the 55°F LST to the 91°F flange metal temperature it is clear that the flange metal temperature is 36°F above the lowest service temperature [LST] permitted by Appendix R of the ASME Code.

The weldneck flange material of containment penetration HVAC-2 has an actual inservice metal temperature which exceeds the lowest permissible metal temperature allowed by Appendix R of the ASME Boiler and Pressure Vessel Code. The installed weldneck flange was normalized at 1650°F for four (4) hours and air cooled.

We trust that this information should adequately answer the Staff's questions. Should you require additional information please contact Mr. James M. Peschel, Regulatory Compliance manager, at (603) 474-9521, extension 3772.

Very truly yours,



Ted C. Feigenbaum

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