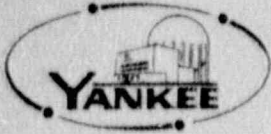


# YANKEE ATOMIC ELECTRIC COMPANY

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580 Main Street, Bolton, Massachusetts 01740-1398

December 26, 1989

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Attention: Dr. Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation

Reference: (a) License No. DPR-3 (Docket No. 50-29)

Subject: 10CFR21 Report on Safety Class 2, U-Tube Heat Exchanger  
Purchased From Southwestern Engineering Company

Dear Dr. Murley:

Yankee has completed an evaluation under 10CFR21 which concluded that a vendor's deviation from the technical requirements set forth in Section VIII of the ASME code for allowable stress values for bolting materials does not represent a substantial safety hazard to the present operation of Yankee Nuclear Power Station. However, we also concluded that this should be reported to ensure that other plants are made aware of this situation.

Enclosure 1 to this letter provides the necessary details of this situation. Should you have any questions regarding this matter, please contact us.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

George Papanic, Jr.  
Senior Project Engineer  
Licensing

GP/gjt/0687v

Enclosure

cc: USNRC Region I  
USNRC Resident Inspector, YNPS

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ENCLOSURE 1

Company Informing the Commission

Yankee Atomic Electric Company  
580 Main Street  
Bolton, Massachusetts 01740

Facility

Yankee Nuclear Power Station  
Star Route  
Rowe, Massachusetts 01367

Component

Heat Exchanger E-36 for the Water Cleanup System

Firm Supplying Component

Southwestern Engineering Company  
242 Pearl Street  
Berlin, Wisconsin 54923

Nature of Defect

In support of the Water Cleanup System (WCS) installation effort at the Yankee Nuclear Power Station, a Safety Class 2, U-tube heat exchanger was purchased from the Southwestern Engineering Company, 242 Pearl Street, Berlin, Wisconsin 54923. The WCS E-36 heat exchanger was purchased under Purchase Order QA40665. The design specifications for the heat exchanger were delineated within Yankee Specification YRS-028, Revision 1.

Subsequent to the initial plant receipt inspection of the heat exchanger, a plant preservice inspection evaluation (NDE) of the heat exchanger required the removal of the studs on the channel cover. During the removal process, the breakaway torque of these studs was found to be, on the average, between 800 ft/lbs to 900 ft/lbs. These studs are A193 B7 3/4 inch - 10 UNC.

After discussing the torquing requirements with the heat exchanger vendor, it became apparent that the vendor performed no procedure for tightening the studs and had no record of what torque value the studs were actually tightened to, prior to shipment. Further, it has been noted by the Cognizant Engineer and the Quality Assurance Engineer who witnessed the hydrostatic testing of the heat exchanger, that the studs may have been overtightened in order to successfully complete the hydrotest.

The E-36 heat exchanger specification delineated the vessel to be designed, fabricated, inspected, and tested in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII, Division I. Section UG-12

ENCLOSURE 1  
(Continued)

of the ASME code sets the maximum allowable stress values for acceptable bolting materials within Table UCS-23. From this table, the following data and limits are imposed for SA-193 B7 bolting less than or equal to 2-1/2 inches in length:

Minimum Yield = 105 ksi  
Minimum Tensile = 125 ksi  
Maximum Allowable Stress = 25 ksi (approximately 110 ft/lbs)

It is apparent from the above data that the channel cover bolting was tightened to a torque value well over the maximum allowable as set forth within ASME VIII. The "as-found" bolt torque values are also approximately four times the EPRI "Good Bolting Practices" guideline criteria.

Date of Incident

The Yankee Nonconformance Report identifying the as-found condition was dated August 10, 1989.

Number of Components

Yankee has only one heat exchanger in its Water Cleanup System.

Corrective Actions Taken

Yankee replaced all the effected heat exchanger studs and approximately 75% of the nuts due to galling.

Related Advice

Yankee's evaluation concluded that no substantial safety hazard currently exists at YNPS since the equipment was undergoing preservice inspection at the time the deviation was discovered and the system was not operational.