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RECIP.NAME RECIPIENT AFFILIATION
BUTLER,W.R. Project Directorate I-2

SUBJECT: Forwards description of util plan to replace existing tube bundles contained within jacket water HXs of diesel generators A,B,C & D.Installation of replacements scheduled to begin in Fourth Quarter 1991.

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MAY 02 1991

Director of Nuclear Reactor Regulation
Attention: Dr. W. R. Butler, Project Director
Project Directorate I-2
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
JACKET WATER HEAT EXCHANGER TUBE
BUNDLE REPLACEMENT
PLA-3565 FILE A17-7/R41-2

Dear Dr. Butler:

Pennsylvania Power & Light Company (PP&L) is in the process of replacing the existing tube bundles contained within the Jacket Water Heat Exchangers of the A, B, C, & D Diesel Generators. The purpose of this letter is to present PP&L's approach to these replacements.

Briefly, the existing heat exchangers were originally supplied as ASME Section III, Class 3 items from an ASME 'N' Certificate Holder. This original equipment manufacturer has since dropped its Section III Certification. Therefore, utilizing the guidance provided in Generic Letter 89-09, PP&L intends to replace the ASME Section III tube bundles with ASME Section VIII tube bundles supplied from the same original equipment manufacturer.

Note: This approach has been discussed with NRC personnel identified in the Generic Letter.

Specific details of this replacement process are documented in the "Description of PP&L's Plan to Procure Tube Bundle Replacements" which is attached.

Currently, PP&L is proceeding with all procurement activities with the anticipated installation of these replacement tube bundles being started in the fourth quarter of 1991 and the remaining replacements in subsequent D/G planned maintenance outages.

Any questions on this replacement activity should be directed to Mr. A. K. Maron at (215) 774-6536.

Very truly yours,

H. W. Keiser

Attachments

cc: NRC Document Control Desk (original)
NRC Region I
Mr. G. S. Barber, NRC Sr. Resident Inspector - SSES
Mr. J. J. Raleigh, NRC Project Manager

DESCRIPTION OF PP&L'S PLAN TO PROCURE TUBE BUNDLE REPLACEMENTS

Pennsylvania Power and Light Company (PP&L) is in the process of replacing the tube bundles of the jacket water heat exchangers for the Diesel Generators. The existing tubes must be replaced because of corrosion problems. Additionally, some of the tubes have been plugged which have resulted in less than optimum operational condition. There are a total of four (4) jacket water heat exchangers, one (1) for each of the Diesel Generators A, B, C, and D.

The original heat exchangers were designed, manufactured, and stamped to the 1974 Edition including Summer 1974 Addenda of ASME Section III as Class 3 Components by American Standards, Heat Transfer Division. The company is now known as ITT Standard and is no longer in possession of an ASME Section III Certification. However, they do possess an ASME Section VIII Certification. Therefore, PP&L would have two possible options. One option would be to replace the heat exchangers in their entirety with new ones designed, fabricated and stamped to ASME Section III requirements by another manufacturer who is in possession of ASME Section III Certification. This option, aside from being a very costly one, would result in a significantly bigger scope of work. This is because each heat exchanger has four nozzles (excluding the vent and drain nozzles) - two for the shell-side inlet and outlet and two for the water-side inlet and outlet. These nozzles are in both vertical position (shell-side) and horizontal position (water-side). These nozzles are flanged and connected to existing piping systems. Additionally, the heat exchangers are anchored in place. Therefore, to replace the heat exchangers completely with new ones made by a different manufacturer in such a way that all four (4) nozzle flanges match their corresponding mating flanges (not to mention vent, drain, and anchorage flange connections) would be, we believe, a considerable task. The second option would be to utilize NRC's Generic Letter 89-09 which provides guidance on how to procure nonstamped ASME Section III components under special circumstances. This is because, as stated previously, the original manufacturer is no longer in possession of an ASME Section III Certification. Additionally, because of its unique design and tolerance requirements, the tube bundle cannot be procured from a different manufacturer. It is very important to note that, although the Generic Letter 89-09 is for replacement of a complete component, we are replacing only a part (a narrower scope of work), that is, the tube bundle which is internal to the shell.

The heat exchangers are 16 inches in diameter and 136 inches in overall length. The existing tubes are made of 90/10 CU-N1 (SB-111) and tubesheets are made of copper alloy (SB-171). The tube bundle is fixed (tubesheet is sandwiched between shell and water box flanges) on one end and is free to expand (inside the shell with some packing) on the other end. The tube bundle is designed to be removable by unbolting the water box on one side and sliding out the tube bundle. The replacement tubes will be made of SB-690 or SB-676. The replacement tubesheets will be made of SB-688. Approval of these materials for use on ASME Section III components is provided in Code Case N-438-1 which was previously approved by NRC. These materials are made by Allegheny-Ludlum under the commercial designation of AL6XN (UNS N08367).

PP&L plans to procure the tube bundles in the following manner:

TUBE BUNDLES

The tube bundles will be procured from ITT Standard. As stated previously, ITT Standard is the original manufacturer of the heat exchangers. They are no longer in possession of an ASME Section III Certification, but they do possess an ASME Section VIII Certification.

MATERIALS

The materials for the tubes and tubesheets shall be procured from Allegheny-Ludlum by ITT Standard. These materials are approved for use on ASME Section III Components. Allegheny-Ludlum does not currently hold an ASME Certificate either as a Material Manufacturer or Material Supplier.

However, ITT Standard shall provide PP&L with Certified Materials Test Reports. Additionally, PP&L intends to perform chemical and physical analysis on the material specimens, as necessary, to assure authenticity of the materials.

DESIGN

The tube bundles shall be designed to the ASME Section III requirements using the same edition and addenda of the Code which was used for the construction of original heat exchangers.

FABRICATION

Fabrication of the tube bundles entails drilling holes in the tubesheets and assembling the tubes into tubesheets by rolling and expanding only. There will be intermediate tube supports known as baffle plates.

TESTING AND EXAMINATIONS

Since no welding is performed on the tube bundles, no examinations are required. Each tube bundle shall be subjected to a hydrostatic test by the manufacturer at their shop. The hydrostatic pressure test shall be 1.5 times the design pressure of the coolant.

STAMPING

There will be no stamping of the tube bundles.

CODE DATA REPORTS

The manufacturer shall provide a Code Data Report (Form U-2) for each tube bundle.

THIRD PARTY INSPECTIONS

The hydrostest will be witnessed by the manufacturer's Authorized Inspector. We have discussed in detail the procurement of the tube bundles with our Authorized Nuclear Inspector (ANI). Since the scope of fabrication of the tube bundles is very limited (no welding and no examination), our ANI has stated that he would like to review only the procurement documents and Code Data Report by the manufacturer. Additionally, when the tube bundles are replaced, a Repair/Replacement Form shall be filled out on which it would be stated how the tube bundles were procured and it would also be signed by our ANI.

QUALITY ASSURANCE REQUIREMENTS

The manufacturer's Quality Assurance Program shall be reviewed by PP&L. Where deficiencies are noted, if any, for the limited scope of their work, their program will be supplemented by PP&L's Quality Assurance program, as necessary.

Prepared By:

Dale Sattar 4-11-91

Dale Sattar Date

Approved By:

9/11/91

John E. Rothe Date
Supervising Engineer

DMS001C.RPT(9)