

Maine Yankee

RELIABLE ELECTRICITY SINCE 1972

329 BATH ROAD • BRUNSWICK, MAINE 04011 • (207) 798-4100

December 6, 1994

MN-94-118

CDF-94-147

Proposed Change No. 187

UNITED STATES NUCLEAR REGULATORY COMMISSION

Attention: Document Control Desk

Washington, DC 20555

References: (a) License No. DPR-36 (Docket No. 50-309)
(b) "Steam Generator Tube Repair Using Leak Tight Sleeves, Final Report", CEN-618-P, Revision 00, October, 1994, (attached).

Subject: Proposed Technical Specification Change No. 187: Maine Yankee Steam Generator Tube Sleeving

Gentlemen:

This submittal, pursuant to 10 CFR 50.90, is in support of an operating license amendment request to allow the sleeving repair of steam generator tubes at the Maine Yankee plant. The license amendment request is necessary to provide for the implementation of this repair technique, as described and justified in the Attachments to this letter. Steam generator tube sleeving alleviates the continuing need for the plugging of steam generator tubes which have become corroded or otherwise considered to have lost structural capability.

As justification for this request, the following documentation is being submitted for your review and approval:

- Attachment A: Summary Description of the Proposed Technical Specification Changes
- Attachment B: Significant Hazards Evaluation
- Attachment C: Proposed Technical Specification Changes
- Attachment D: Affidavit Pursuant to 10 CFR 2.790 for Submittal of Proprietary Information
- Attachment E: Report CEN-618-P, Revision 00; "Steam Generator Tube Repair Using Leak Tight Sleeves, Final Report"

In order to implement the proposed changes and to update the Facility Operating License, Maine Yankee has provided revisions to those portions of the Technical Specifications which are affected by this change. A summary description of the proposed changes is provided in Attachment A. The proposed Technical Specification pages, as modified to include this change, are provided as Attachment C.

Maine Yankee has evaluated the proposed changes to our Technical Specifications and has determined that these proposed changes do not involve a significant hazards consideration as defined in 10 CFR 50.92. This evaluation is included as Attachment B.

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Mr. Encl.
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Maine Yankee

UNITED STATES NUCLEAR REGULATORY COMMISSION
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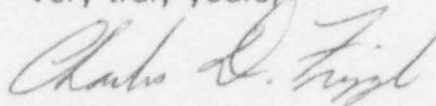
The detailed analyses and testing performed to verify the adequacy of repair sleeves for installation in Maine Yankee's steam generator tubes is provided in the attached proprietary Combustion Engineering, Inc. report, Attachment E. The affidavit attesting to the proprietary nature of this work is provided in Attachment D.

This proposed change has been reviewed by the Plant Operations Review Committee. The Committee has concluded that the proposed Technical Specification changes do not constitute an unreviewed safety question. The Nuclear Safety Audit and Review Committee has also performed an independent review of the proposed change as per the requirements of the Maine Yankee Technical Specifications.

In order for Maine Yankee to be able to take full advantage of this type of steam generator repair at the earliest available date, we request that the USNRC complete their review of this proposed change and issue a Facility License Amendment no later than the start of the Cycle 14/15 refueling outage, February 25, 1995. Additionally, we request that the amendment be effective immediately at that time.

The State of Maine is being notified of this proposed change by copy of this letter.

Very truly yours,



Charles D. Frizzle
President & Chief Executive Officer

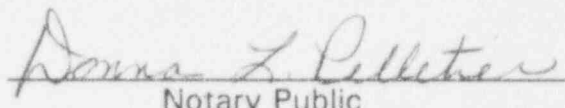
Attachments

c: Mr. Thomas T. Martin (w/o Attachment E)
Mr. J.T. Yerokun (w/o Attachment E)
Mr. P.J. Dostie (w/o Attachment E)
Mr. Clough Toppan (w/o Attachment E)
Mr. Uldis Vanags (w/o Attachment E)

Mr. E.H. Trottier (w/Attachment E)

STATE OF MAINE

Then personally appeared before me, Charles D. Frizzle, who being duly sworn did state that he is President and Chief Executive Officer of Maine Yankee Atomic Power Company, that he is duly authorized to execute and file the foregoing request in the name and on behalf of Maine Yankee Atomic Power Company, and that the statements therein are true to the best of his knowledge and belief.


Notary Public

Donna L. Pelletier, Notary Public
State of Maine
My Commission Expires 12/12/99

Attachment D

Affidavit Pursuant to 10 CFR 2.790 for Proprietary Information

AFFIDAVIT PURSUANT

TO 10 CFR 2.790

Combustion Engineering, Inc.)
State of Connecticut)
County of Hartford) SS.:

I, S. A. Toelle, depose and say that I am the Manager, Nuclear Licensing, of Combustion Engineering, Inc., duly authorized to make this affidavit, and have reviewed or caused to have reviewed the information which is identified as proprietary and referenced in the paragraph immediately below. I am submitting this affidavit in conjunction with the application of Maine Yankee Atomic Power Company and in conformance with the provisions of 10 CFR 2.790 of the Commission's regulations for withholding this information.

The information for which proprietary treatment is sought is contained in the following document:

CEN-618-P, Rev. 00, "Steam Generator Tube Repair Using Leak Tight Sleeves," October 1994.

This document has been appropriately designated as proprietary.

I have personal knowledge of the criteria and procedures utilized by Combustion Engineering in designating information as a trade secret, privileged or as confidential commercial or financial information.

Pursuant to the provisions of paragraph (b) (4) of Section 2.790 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the

information sought to be withheld from public disclosure, included in the above referenced document, should be withheld.

1. The information sought to be withheld from public disclosure, which is owned and has been held in confidence by Combustion Engineering, is the design, development and qualification of the welded steam generator sleeve.
2. The information consists of test data or other similar data concerning a process, method or component, the application of which results in substantial competitive advantage to Combustion Engineering.
3. The information is of a type customarily held in confidence by Combustion Engineering and not customarily disclosed to the public. Combustion Engineering has a rational basis for determining the types of information customarily held in confidence by it, and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The details of the aforementioned system were provided to the Nuclear Regulatory Commission via letter DP-537 from F. M. Stern to Frank Schroeder dated December 2, 1974. This system was applied in determining that the subject document herein is proprietary.
4. The information is being transmitted to the Commission in

confidence under the provisions of 10 CFR 2.790 with the understanding that it is to be received in confidence by the Commission.

5. The information, to the best of my knowledge and belief, is not available in public sources, and any disclosure to third parties has been made pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence.
6. Public disclosure of the information is likely to cause substantial harm to the competitive position of Combustion Engineering because:
 - a. A similar product is manufactured and sold by major pressurized water reactor competitors of Combustion Engineering.
 - b. Development of this information by Combustion Engineering required thousands of manhours and tens of thousands of dollars. To the best of my knowledge and belief, a competitor would have to undergo similar expense in generating equivalent information.
 - c. In order to acquire such information, a competitor would also require considerable time and inconvenience to design, develop and qualify the welded steam generator sleeve.
 - d. The information required significant effort and expense to obtain the licensing approvals necessary for application of

the information. Avoidance of this expense would decrease a competitor's cost in applying the information and marketing the product to which the information is applicable.

- e. The information consists of the design, development and qualification of the welded steam generator sleeve, the application of which provides a competitive economic advantage. The availability of such information to competitors would enable them to modify their product to better compete with Combustion Engineering, take marketing or other actions to improve their product's position or impair the position of Combustion Engineering's product, and avoid developing similar data and analyses in support of their processes, methods or apparatus.
- f. In pricing Combustion Engineering's products and services, significant research, development, engineering, analytical, manufacturing, licensing, quality assurance and other costs and expenses must be included. The ability of Combustion Engineering's competitors to utilize such information without similar expenditure of resources may enable them to sell at prices reflecting significantly lower costs.
- g. Use of the information by competitors in the international marketplace would increase their ability to market nuclear steam supply systems by reducing the costs associated with their technology development. In addition, disclosure would have an adverse economic impact on Combustion

Engineering's potential for obtaining or maintaining
foreign licensees.

Further the deponent sayeth not.

S. A. Toelle

S. A. Toelle
Manager
Nuclear Licensing

Sworn to before me

this 7th day of October, 1994

Laurie J. White
Notary Public

My commission expires: 8/31/99

Attachment A

Summary Description of the Proposed Technical Specification Changes

Summary Description of the Proposed Technical Specification Change

This proposed change revises the surveillance requirements of Technical Specification 4.10 to allow the use of Combustion Engineering sleeving processes for steam generator tube repair. The Technical Specification currently requires degraded steam generator tubes to be repaired by plugging. The proposed change will provide Maine Yankee with an alternative method for repairing degraded tubes.

Because of the importance of the pressure and radiological barrier provided by the steam generator tubes, maintenance of tube bundle integrity has been provided for by the institution of conservative tube leakage restrictions, by regular inspection of the tubes, and by removal from service of tubes which have indication of degradation in excess of specified criteria. As an alternative to the removal of tubes from service, repair methods using sleeves placed inside the tubes at the location of the degradation have been developed and utilized extensively in the nuclear industry. The sleeves are short lengths of tubing with an outside diameter slightly less than the inside diameter of the degraded tube. The sleeve is placed inside the degraded tube and is joined at the top and bottom either mechanically or by a welding process to sound portions of the tube. The installed sleeve in a degraded or defective tube restores the integrity of the barrier provided by the tubes between the primary and secondary fluids. A description of the sleeving process and justification for specific sleeving usage at the Maine Yankee plant is provided in Attachment E of this submittal for the Combustion Engineering sleeve design.

Using existing Technical Specification tube plugging criteria, without provision for sleeving, tubes with indications of degradation in excess of the plugging criteria would have to be removed from service. The tube plugging action results in a reduction of reactor coolant flow through the steam generator. This reduction has a small impact on the assumed margins of reactor coolant flow through the steam generator in the safety analyses and on the heat transfer efficiency of the steam generator. Repair of a tube with the Combustion Engineering sleeving not only maintains the tube in service, but also results in a much smaller flow reduction through the steam generator. Therefore, the use of tube sleeves, in lieu of plugging, minimizes the loss of margin of the reactor coolant system flow and assists in assuring that steam generator heat transfer capacity is maintained at a level consistent with that required for operation at full power. Additionally, minimizing the reduction in reactor coolant system flow via the use of sleeves, serves to minimize the increase in heat flux across the remaining tubes in service and, therefore, may be associated with a decreased potential for tube corrosion.

The proposed amendment, as provided in Attachment C, would modify Section 4.10 of the Maine Yankee Technical Specifications to specify the requirements for the repair of a steam generator tube by installation of Combustion Engineering leak tight sleeves with mechanical or welded joints. Currently, Technical Specifications include only the requirements for repair by plugging of those steam generator tubes with eddy current indications showing greater than 40% through wall degradation. The proposed Technical Specification change delineates the requirements for repairing degraded or defective tubes utilizing the Combustion Engineering sleeving process. The proposed amendment also includes criteria for allowable wall degradation in the sleeve and in the tube in the region of the sleeve to tube joint.

Attachment B
Significant Hazards Evaluation

Significant Hazards Evaluation

This evaluation of the hazards consideration involved with the proposed steam generator tube sleeving is focused on the standards set forth in 10 CFR 50.92(c):

The Commission may make a final determination, pursuant to the procedures in 50.91, that a proposed amendment to an operating license for a facility licensed under 50.21(b) or 50.22 or for a testing facility involves no significant hazards consideration, if the operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or
2. Create the possibility of a new or different kind of accident from any accident previously evaluated; or
3. Involve a significant reduction in a margin of safety.

Maine Yankee believes that the operation of the Maine Yankee plant, in accordance with the proposed steam generator tube sleeving amendment, will not create the possibility of any new accident, increase the probability or consequences of any previously evaluated accident, nor significantly reduce any margin of safety. Thus, Maine Yankee has concluded that this proposed license amendment involves no significant hazards consideration as defined in 10 CFR 50.92(c).

In support of this determination, a discussion of each of the significant safety hazards consideration factors with respect to the proposed license amendment is provided.

- (1) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

The implementation of the proposed steam generator tube sleeving has been reviewed for impact on the current Maine Yankee licensing basis.

With the sleeve dimensions, materials, and connecting joints to the existing tube designed to the applicable ASME Boiler and Pressure Vessel Code, the proposed sleeving repair acts as an in-kind substitution for the original steam generator tubing. The applicable design criteria for the sleeves conform to the stress limits and margins of safety of Section III of the ASME Code. Safety factors of 3 for normal operation and 1.5 for accident conditions were applied to the design. Mechanical testing using the ASME Code stress allowables has been performed in support of the design. Based on the results of vendor analytical and test programs, the sleeves fulfill their intended function as leak tight structural members and meet or exceed all design criteria.

Evaluation of the proposed sleeved tubes indicate no detrimental effects on the sleeve or sleeve-tube assembly from reactor system flow, primary or secondary coolant chemistries, thermal conditions or transients, or pressure conditions or transients as may be experienced at the Maine Yankee plant. Corrosion testing of sleeve-tube assemblies indicate no evidence of sleeve or tube corrosion considered detrimental under anticipated service conditions.

The installation of the proposed sleeves is controlled via the sleeving vendor's proprietary process and equipment. This process has been in use since 1984 and has been implemented some 24 times for the installation of approximately 4100 sleeves. The Maine Yankee steam generator design was reviewed and found to be compatible with the installation process and equipment.

The implementation of the proposed sleeves has no significant effect on either the configuration of the plant or the manner in which it is operated.

Therefore, Maine Yankee has concluded that the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

- (2) Create the possibility of a new or different kind of accident from any other accident previously evaluated.

As discussed above, the structural integrity, thermal characteristics, and material properties of the proposed sleeves are consistent with the existing plant steam generators. Therefore, the functions of the steam generators will not be significantly affected by the installation of the proposed sleeves. In addition, the proposed sleeves do not interact with any other plant systems. The continued integrity of the installed sleeve is periodically verified by the Technical Specification requirements.

Therefore, Maine Yankee concludes that this proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

- (3) Involve a significant reduction in a margin of safety

The repair of degraded steam generator tubes via the use of the proposed sleeves has been confirmed to restore the structural integrity of the faulted tube under normal operating and postulated accident conditions. The design safety factors utilized for the sleeves are consistent with the safety factors in the ASME Boiler and Pressure Vessel Code used in the original steam generator design. The repair limit for the proposed sleeves is consistent with that established for the steam generator tubes. The design of the sleeve to tube joints is verified by testing to preclude significant leakage during normal and postulated accident conditions. Use of the previously identified design criteria and design verification testing assures that the margin to safety with respect to the implementation of the proposed sleeves is not significantly different from the original steam generator tubes.

Therefore, Maine Yankee concludes that the proposed change does not involve a significant reduction in a margin of safety.