

# 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 19, 1982  
Docket No. 50-336  
BI0581

Director of Nuclear Reactor Regulation  
Attn: Mr. Robert A. Clark, Chief  
Operating Reactors Branch #3  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

- References: (1) W. G. Council letter to R. A. Clark, dated  
October 22, 1982.
- (2) W. G. Council letter to R. A. Clark, dated  
March 4, 1982.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2  
Steam Generators

Northeast Nuclear Energy Company (NNECO) has initiated several activities since the last refueling outage at Millstone Unit No. 2 to investigate the cause of the steam generator tube pitting and to prepare a plan of action designed to investigate and mitigate the consequences of the pitting corrosion. The following information is provided to the NRC staff concerning the activities currently planned for the 1983 refueling outage which will assure continued operability of the steam generators.

Recognizing that considerable time will be spent in the primary side of the steam generators, NNECO intends to decontaminate the steam generator channel heads. Current plans are based on the use of a "soft" chemical process which will facilitate the decontamination of the lower portion of the steam generator tubes as well as the tube sheet. The decontamination process will only be performed within the channel heads of the steam generators with the remainder of the primary coolant system isolated. NNECO expects to reduce the radiation levels within the steam generator primary sides by at least a factor of three. This will significantly reduce the personnel exposure for the remainder of the steam generator related activities.

Eddy current examinations for both steam generators are scheduled in accordance with Technical Specification requirements. The thirty (30) row 1 tubes in the sludge pile which were not inspected during the 1981-82 refueling outage will be included in the inspection program. This in fulfillment of our commitment of Reference (2). In addition, profilometer examinations in each Steam Generator will be performed.

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Since the last refueling outage when three steam generator tubes were removed for study, NNECO has supported several ongoing analysis programs designed to determine the cause of the pitting phenomenon. Our tentative determination is that the corrosion is caused by sludge related impurities including sulphur and chlorides. NNECO is currently evaluating several programs designed to remove the sludge from the secondary side of the steam generators and eliminate the pitting mechanisms. At this time, very favorable results have been obtained in sludge lancing demonstrations conducted at plants with steam generator tube patterns identical to that at Millstone Unit No. 2. The sludge lancing process which NNECO is intending to utilize during the upcoming refueling outage mechanically removes the sludge from the steam generator tubes and tube sheet with narrow, high velocity water sprays. The waste generated as a result of this process will be filtered mechanically to remove the sludge. The loaded filters will then be treated as conventional radioactive waste for the purposes of shipment offsite.

NNECO has also been investigating an option to chemically clean the steam generator secondary sides between the tube sheet and the first egg crate support. Current efforts include the identification of all affected steam generator materials, process qualification of the EPRI method, and materials testing. NNECO is not formally committed to this effort pending receipt and evaluation of additional qualification information concerning the effect of the cleaning solvents. Consequently, it is not expected that this project will be undertaken during the 1983 refueling outage.

To minimize the potential for loss of plant efficiency and electrical output, Northeast Nuclear Energy Company is vigorously pursuing a steam generator tube sleeving program. By sleeving, we can reduce the number of tubes which may be required to be taken out of service if the pitting corrosion identified during the last refueling outage has progressed substantially. Sleeves could also enable us to return to service many tubes plugged with removable mechanical plugs during the last refueling outage. It is NNECO's current plan to install bimetallic Inconel 690/625 sleeves upon successful qualification of the materials. The bimetallic sleeve was chosen based on Inconel 625's resistance to pitting and Inconel 690's structural strength and primary side corrosion resistance. Since the Millstone Unit No. 2 Technical Specifications only allow steam generator tube plugging as a corrective measure for defective tubes, a license amendment will be necessary for this effort.

To support continued plant operation with additional plugged steam generator tubes, Northeast Nuclear Energy Company will provide the staff with revised safety analyses for those transients and accidents affected by steam generator tube plugging. Reference (1) provided the results of a revised large break LOCA analysis as well as a small break LOCA evaluation. A reload safety analysis report providing the results of all plant transients affected by both the Cycle 6 reload and additional steam generator tube plugging will be docketed on or about January 1, 1983. This work will be based on 2500 plugged steam generator tubes.

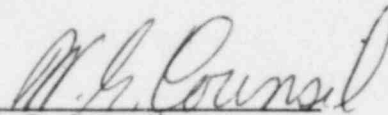
This information is provided to the Staff in order that they be kept apprised of the efforts which Northeast Nuclear Energy Company is pursuing to ensure

continued steam generator operability at Millstone Unit No. 2. In addition, this information is provided to identify the need for significant Staff review time in the near future. Additional information will be forthcoming outlining specific details of the projects outlined herein and where necessary, license amendments and the appropriate staff reviews will be requested. Any steam generator licensing action will be initiated early in 1983 to support the refueling outage currently scheduled to commence on April 16, 1983. All reload related licensing actions including safety analyses and core physics work is scheduled to be docketed by the first of the year.

We look forward to working closely with your staff on these matters such that an expeditious review can be completed to support continued operation of Millstone Unit No. 2. Please contact us if you have any questions.

Very truly yours,

Northeast Nuclear Energy Company

A handwritten signature in cursive script, appearing to read "W. G. Council".

W. G. Council  
Senior Vice President