



CONNECTICUT YANKEE ATOMIC POWER COMPANY

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July 19, 1985

Docket No. 50-213
B11583

Director of Nuclear Reactor Regulation
Attn: Mr. John A. Zwolinski, Chief
Operating Reactors Branch #5
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Gentlemen:

Haddam Neck Plant
Steam Generator

The Connecticut Yankee Atomic Power Company (CYAPCO) has initiated several activities since the last refueling outage at Haddam Neck to investigate the cause of steam generator tube pitting and to prepare a plan of action designed to mitigate the consequences of the pitting corrosion. The following information is provided to the NRC Staff concerning the activities currently planned for the 1986 refueling outage which will assure continued operability of the steam generators.

Recognizing that considerable time may be spent in the primary side of the steam generators, CYAPCO intends to decontaminate the steam generator channel heads. Current plans are based on the use of a chemical decontamination process in conjunction with water lancing which will decontaminate the lower portion of the steam generator tubes as well as the tube sheet and channel head bowl regions. CYAPCO expects to reduce the radiation levels within the steam generator channel heads by at least a factor of three. This will significantly reduce the personnel exposure during the anticipated steam generator related activities.

Eddy current examinations are scheduled for both hot and cold leg sides of all four steam generators. In addition, profilometer and visual inspections will be performed on selected tubes. Tube denting progression will also be monitored and the wrapper support bars will be inspected. Two or more cold leg tubes will be removed for destructive examinations.

Two hot leg tubes were removed from steam generator #2 during the 1984 refueling outage for destructive examination. The destructive examination confirmed that the defects identified by eddy current testing were secondary side initiated pitting. Our current assessment is that secondary side pitting results from a synergistic relationship between tube sheet corrosion product accumulations and ionic impurities, particularly chloride and sulfate.

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To minimize the potential for additional pitting corrosion, CYAPCO is currently planning to remove sludge from the secondary sides of the steam generators by tube sheet sludge lancing. The sludge lancing process mechanically removes the sludge from the steam generator tube sheet with narrow, high velocity water sprays. The waste generated as a result of this process will be filtered to remove any entrained particulate. The loaded filters will then be treated as conventional radioactive waste for the purposes of future shipment offsite. Sludge lancing has been successfully used at Haddam Neck, Millstone Unit No. 2 and many other plants throughout the country.

CYAPCO investigated the option to chemically clean sludge from the steam generator secondary sides between the tube sheet and the first support plate. Chemical cleaning will not be performed during the 1986 refueling outage due to the significant amount of front end time needed to select and qualify a process for Haddam Neck.

CYAPCO is confident it can continue to detect tube defects per Technical Specification requirements using qualified eddy current testing techniques to minimize unwanted signal interferences from tube sheet sludge accumulations. Eddy current probes will be used to perform both absolute and differential coil inspections.

To minimize the potential for loss of plant efficiency and electrical output, CYAPCO is vigorously pursuing a steam generator tube sleeving program. By sleeving, CYAPCO 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. It is CYAPCO's current plan to install qualified tube sleeves. Sleeving was successfully performed on the Millstone Unit No. 2 steam generators during the 1983 and 1985 refueling outages. Since the Haddam Neck Technical Specifications only allow steam generator tube plugging as a corrective measure for defective tubes, a license amendment request will be submitted to the NRC Staff for this effort.

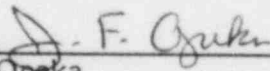
To support continued plant operation with additional plugged steam generator tubes, CYAPCO will provide the NRC Staff with revised safety analyses for those transients and accidents affected by steam generator tube plugging on or about December 15, 1985. The analyses will be based on a total of 2000 plugged steam generator tubes.

This information is provided to the NRC Staff in order that you be kept apprised of the efforts which CYAPCO is pursuing to ensure continued steam generator operability at Haddam Neck. In addition, this information is provided to identify the need for significant NRC Staff review time in the near future. Additional information will be forthcoming outlining specific details of the projects outlined herein and where necessary appropriate staff reviews will be requested. A license amendment request to support steam generator tube sleeving will be submitted by October 1, 1985. NRC review and approval of the proposed Technical Specification change is requested by January 1, 1986 to support steam generator sleeving during the refueling outage.

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 Haddam Neck. Please contact us if you have any questions.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY



J. F. Opeka
Senior Vice President