

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

General Offices • Selden Street, Berlin, Connecticut

P.O. BOX 270
HARTFORD, CONNECTICUT 06101
(203) 666-6911

July 27, 1982

Docket No. 50-336
B10536

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

Reference: (1) W. G. Council letter to R. A. Clark, dated
September 28, 1981.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2
CEA Guide Tube Inspection

In Reference (1), Northeast Nuclear Energy Company (NNECO) outlined a control element assembly guide tube inspection program which had been planned to follow Cycle 4 operation. The inspection program was designed to address the pertinent operational aspects of guide tube wear prevention methods consisting of Combustion Engineering (CE) guide tube sleeves and reduced flow guide tubes and Westinghouse guide tube sleeves and insets.

The inspections were conducted utilizing a combination of eddy current tests, profilometry and visual examinations with results as follows.

(1) Fuel Assembly Guide Tube Inspections

Eddy current examinations were performed on a total of 13 fuel assemblies. Five sleeved CE assemblies which had resided under control element assemblies (CEA's) for two cycles were examined with no significant wear indicated. Four reduced flow CE assemblies which had also resided under CEA's for two cycles were examined with some minor wear observed at a location which corresponds to the approximate position of the CEA tip during normal operation. Four sleeved Westinghouse assemblies which had resided under CEA's for one cycle were examined with no significant wear indicated.

In addition, the center guide tubes of two assemblies in locations occupied during Cycles 2 and 3 by an assembly showing instrument thimble induced wear at end of Cycle 3 were checked. No wear was detected in either assembly.

A001

Four Westinghouse and two CE fuel assemblies were visually examined for evidence of grid wear. All six of these assemblies were peripheral or adjacent to peripheral assemblies during Cycle 4. Some light wear caused by grid-to-core shroud and grid-to-grid contact was observed however no indications were significant enough to preclude further fuel assembly use. General fuel assembly condition was also determined to be satisfactory.

Four Westinghouse inset design assemblies were visually examined with results indicating wear which would preclude further use under a CEA. The assemblies were evaluated for use in nonrodded locations and found to be acceptable. These assemblies are not positioned in rodded locations for Cycle 5 nor will they be for the remainder of their core residence life.

(2) Control Element Assembly Inspections

Eddy current tests were performed on six CEA's with wear indications found on all six. The indications were located primarily at positions corresponding to the top of the fuel assembly guide post when the CEA's are in operating position. All of the wear was well within the criteria for continued use.

Profilometry was conducted on the center finger of the center CEA. This finger was selected because it experiences the highest fluence within the core. Since boron carbide pellets swell as a function of fluence it follows that the maximum diametral strain would be associated with this finger. Test results indicate that the strain is well within the criterion established for continued irradiation of the CEA.

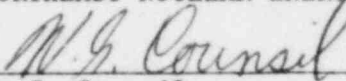
The majority of this information was taken from a contractor's preliminary report of inspection results. NNECO does not expect to revise any of the conclusions presented herein upon issuance of the final inspection report.

NNECO concludes that the positive results of these inspections and of inspections at the end of Cycles 2 and 3 demonstrate that guide tube sleeves are an adequate resolution to the guide tube wear problem at Millstone Unit No. 2. With these results in hand further guide tube inspections are considered superfluous and because of the approximately \$175,000 per cycle cost NNECO no longer intends to continue this program. Profilometry and eddy current testing of CEA's will be performed during future refueling outages.

NNECO trusts you find this information satisfactory. NNECO remains available should the Staff require clarification of any of the above information.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



W. G. Council
Senior Vice President