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

P.O. BOX 270
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April 17, 1979

Docket No. 50-336

Director of Nuclear Reactor Regulation
Attn: Mr. R. Reid, Chief
Operating Reactors Branch #4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

References: (1) W. G. Counsil letter to R. Reid dated December 18, 1978.
(2) W. G. Counsil letter to R. Reid dated January 24, 1979.
(3) W. G. Counsil letter to R. Reid dated March 29, 1979.

Gentlemen:

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

In References (1), (2), and (3), Northeast Nuclear Energy Company (NNECO) provided information concerning the Sleeved CEA Guide Tube Inspection Program. Subsequently, the NRC Staff has raised additional questions regarding the program. The purpose of this letter is to respond to those questions, and provide some preliminary results of the inspection program.

Responses to the questions noted above are provided in the attached report, CEN-106(N)-P.

The response to Question 2 in the attached report states that pull tests are not planned for the center guide tube sleeves. However, as verbally indicated to the NRC Staff, pull tests will be performed on at least one center guide tube sleeve to the load indicated in CEN-106(N)-P.

Preliminary inspection results of the eddy-current testing of ten (10) fuel assemblies prior to fuel movement indicated no detectable wear in any of the fifty (50) sleeves inspected. Some under expansion of the sleeves was observed and reported as a signal voltage. A total of five sleeves were inspected with a more sophisticated eddy-current probe to confirm the analysis of the testing with regard to the under expansion. These test results confirmed the existence of a 360° ring of under expansion. The two assemblies with the highest under expansion voltage readings are candidates for sleeve pull tests.

These results are preliminary in nature and must still be verified. However, they are being reported here to maintain timely communication of results.

Due to the proprietary nature of the material contained in CEN-106(N)-P, NNECO requests that CEN-106(N)-F be withheld from public disclosure in accordance with the provisions of 10CFR2.790 and that this material be safeguarded. The reasons for the classification of this material as proprietary are delineated in the enclosed affidavit provided by Combustion Engineering. Copies of the non-proprietary version of this document are also provided.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil

W. G. Counsil
Vice President

Attachment

AFFIDAVIT PURSUANT

TO 10 CFR 2.790

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

I, P. L. McGill depose and say that I am the Vice President, Commercial 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 conformance with the provisions of 10 CFR 2.790 of the Commission's regulations and in conjunction with the application of Northeast Utilities dated March 29, 1979, for withholding this information.

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

CEN-106(N)-P, Response to N.R.C. Questions To "Millstone Nuclear Power Station, Unit No. 2, Sleeved CEA Guide Tube Inspection Program", Docket No. 50-336, March 29, 1979.

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 is specific inspection and equipment information, which is owned and has been held in confidence by Combustion Engineering.

2. The information consists of test data or other similar data concerning a process, method or component, the application of which results in a 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 documents herein are 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 reactors competitors of Combustion Engineering.

b. Development of this information by C-E required thousands of man-hours of effort 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 related to obtaining access to test reactor facilities and conducting extensive in-pile testing.

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 supporting information, including test data relative to a process, method or apparatus, 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.

P. L. McGill

Vice President, Commercial

Sworn to before me

this 12th day of April 1979

Notary Public

LISA G. WAICUNAS, NOTARY PUBLIC
State of Connecticut No. 86482
Commission Expires March 31, 1983

CEN-106(N)-NP

RESPONSE TO N.R.C. QUESTIONS TO "MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2, SLEEVED CEA GUIDE TUBE INSPECTION PROGRAM", DOCKET NO. 50-336, MARCH 29, 1979.

APRIL 10, 1979

Combustion Engineering, Inc.
Nuclear Power Systems
Windsor, Connecticut

"LEGAL NOTICE"

"This report was prepared as an account of work sponsored by Combustion Engineering, Inc. Neither Combustion Engineering nor any person acting on its behalf:

"a. Makes any warranty or representation, express or implied including the warranties of fitness for a particular purpose or merchantability, with respect to the accuracy, completeness, or usefulness of the information contained in this report, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately owned rights; or

"b. Assumes any liabilities with respect to the use of, or for damages resulting from the use of, any information, apparatus, method or process disclosed in this report."

RESPONSE TO N.R.C. QUESTIONS TO "MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2, SLEEVED CEA GUIDE TUBE INSPECTION PROGRAM", DOCKET NO. 50-336, MARCH 29, 1979.

Question

State the load and basis for selection for the sleeve pull test.

Response

The sleeve pull test load is [ ] pounds. This load is consistent with the [ ] pound pull test load used during initial installation of the sleeves.

Question

The center guide tube sleeve is of concern because of potentially higher thermal duty (local crevice boiling, corrosion potential, etc.). Could pull tests also be done for these center guide tube sleeves? (Perhaps to specified load for one assembly and to complete withdrawal for the other assembly).

Response

The center guide tube is not more limiting in expected performance (local crevice boiling, corrosion potential, etc.) than the other guide tube/sleeve interfaces. Therefore, pull tests for center guide tube sleeves are not planned.

Question

State the acceptance criteria and statistical basis for the guide tube inspection program.

Response

The development program for eddy current testing sleeved assemblies has shown that the[ ]coil probes are easily capable of detecting worn regions in the sleeve that taper from no wear to [ ] arc. This standard corresponds to a [ ] reduction in the sleeve cross-sectional area and a volume loss of [ ] of the minimum volume required to [ ] the sleeve. If the eddy current testing results in indications below this standard, any fuel assembly can be lifted and reused in any core location for an additional cycle. Therefore, that standard is to be used to evaluate initial site ECT data on a limited number of fuel assemblies [ ] to determine acceptable sleeve performance. The conservatism associated with using the selected standard allows positive conclusions from the inspection program to be based on a [ ] from high wear positions.

Due to the magnitude of the margins discussed above, indications in excess of those corresponding to the standard may only imply that the scope of the inspection should be broadened.

Question

Identify differences in eddy current probes to be used for sleeve examinations relative to probes used at the EOC-1 outage for guide tube examinations. Describe the calibration of the probes and provide the resulting calibration curves.

Response

The eddy current test (ECT) probes used for fuel assembly guide tube sleeve inspection are smaller in diameter than the probes used to inspect the inner diameter of guide tubes. The sleeve inner diameter is smaller than the guide tube inner diameter which requires a reduced size ECT probe.

The[ ]coil probe has a higher frequency and a narrower focus than the probes used for EOC-1 inspections. This modification in operating and geometric parameters was necessary to gain radial and axial resolution.

The azimuthal ECT probe used at the EOC-1 inspection was a single[ ]coil with a[ ]field. The probe used for azimuthal testing is a differential[ ] coil with shielding to reduce the field to a[ ]arc resulting in the same resolution as the single[ ]coil.

The calibration standard for[ ]coil testing is based on identifying a minimum of[ ]inch depth tapered over[ ]of inner sleeve diameter arc.

Question

State the current Revision number and describe differences in sleeve installation procedures from the installation procedure used at EOC-1 (or more recently provided procedure on another plant - i.e. Calvert 2).

Response

The current sleeve installation procedure for sleeving Millstone II fuel is 00000-ESS-107 Revision 03, dated 10/18/78. This is essentially the same procedure used for the purpose of sleeving fuel at the EOC-1 with the following addition and change:

1. Visually inspect tools for missing parts upon removal from pool and,

2. Allow full weight of expansion tools to rest on top of guide post during the expansion operations.

Question

Provide the objective and specific goals of the CEA examinations, both visual and eddy current exams. Describe the calibration and probe for the eddy current examinations.

Response

The purpose of the CEA inspection is to insure that the modified fuel assembly/CEA interface geometry and the sleeve inner diameter chrome surface has no adverse effect on the CEA cladding.

The specific goals of the inspection program are:

1. Determine if there are any surface indications on the control elements due to contact with the guide tube sleeves. (Eddy current and visual exam)

2. Determine if there is any CEA clad thickness reduction at the elevation where the CEA enters the fuel assembly. (Eddy current exam)

The CEA probe is a differential [ ] coil designed to a resolution detection capability of [ ] of CEA outer diameter arc.

[ ] indicates proprietary information