

**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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March 14, 1983

Docket No. 50-336  
B10724

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) G. C. Lainas letter to W. G. Council, dated March 2, 1983.
  - (2) W. G. Council letter to R. A. Clark, dated April 7, 1982.
  - (3) W. G. Council letter to R. A. Clark, dated April 29, 1982.
  - (4) W. G. Council letter to R. A. Clark, dated July 9, 1982.
  - (5) W. G. Council letter to R. A. Clark, dated February 10, 1983.
  - (6) E. L. Conner letter to W. G. Council, dated March 5, 1982.
  - (7) W. G. Council letter to R. A. Clark, dated March 1, 1982.
  - (8) W. G. Council letter to R. A. Clark, dated November 19, 1982.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2  
Proposed Revisions to Technical Specifications  
Steam Generator Inservice Inspections

Northeast Nuclear Energy Company (NNECO) initiated a shutdown of Millstone Unit No. 2 on March 1, 1983 in accordance with Technical Specification Action Statement 3.4.6.2.b due to unidentified reactor coolant system (RCS) leakage exceeding the Technical Specification limit of 1.0 gpm. NNECO proceeded with

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w/leak:  
\$4000.00

investigations within the containment to identify and quantify leakage from two valves which, from past inspections, were known to be leaking. The results of these investigations, however, were not completely successful as the unidentified portion of the total RCS leakage could not be reduced to within the limits of Technical Specification 3.4.6.2.b. The plant was subsequently placed in COLD SHUTDOWN. The extension of time allowed by the recently granted one-time amendment to Technical Specification Action Statement 3.4.6.2.b (Reference (1)) was used to help quantify actual leakage levels from those valves identified above.

It was decided that an inspection of Steam Generator (SG) No. 1 would be conducted in an effort to better quantify the primary-to-secondary leakage which was known to exist since April, 1982. The baseline primary-to-secondary leakage in SG No. 1 was reported to the Staff in Reference (2) and updated in References (3), (4), and (5) in fulfillment of a commitment made to the Staff prior to restart following the Cycle 5 refueling outage. During the Cycle 5 refueling outage, NNECO had reported eddy-current indications between the tube sheet and the first tube support. These indications were later characterized as pits. NNECO requested and received a license amendment limiting the eddy-current examinations required by Technical Specification 4.4.5.1.2 to the affected area of the steam generator tube bundle. This amendment was granted as documented in Reference (6).

Upon inspection of SG No. 1 with the use of a secondary-to-primary side hydrostatic test, leakage from an unplugged steam generator tube was identified. This leakage was quantified to be 0.21 gpm at a differential pressure of 200 psi. With this information, NNECO performed evaluations to determine the amount of primary-to-secondary leakage which would have existed at normal plant operating conditions. These evaluations were complicated due to the differences which exist between normal plant operating temperatures, pressures and stresses and those which existed at the time of the hydrostatic leak test. The evaluation is further complicated by the lack of a definitive characterization of the defect. Using conservative assumptions regarding the type of defect (ie; to maximize primary-to-secondary leakage), it has been concluded, that at the time the plant was shutdown, the primary-to-secondary leakage rate in SG No. 1 exceeded the limits of Technical Specification 3.4.6.2.c.

Technical Specification 4.4.5.1.3.c.1 specifies additional, unscheduled inservice inspections of steam generators in the event primary-to-secondary leakage exceeds the limits of Specification 3.4.6.2 (0.5 gpm, in any one steam generator). The inspection requirement of Specification 4.4.5.1.3.c.1 consists of a 3% sample of tubes from each steam generator. NNECO is currently planning to conduct inservice inspections of both steam generators at Millstone Unit No. 2 in excess of the requirements of Specification 4.4.5.1.3.c.1 during the Cycle 6 refueling outage currently scheduled to commence in late May, 1983. As such, large scale steam generator inservice inspections at this time are not desirable and, pursuant to 10CFR 50.90, NNECO hereby proposes to amend its operating license, DPR-65, to incorporate the attached proposed changes into the Millstone Unit No. 2 Technical Specifications. The one-time proposed changes will apply only to the outage which commenced on March 1, 1983, and would postpone the steam generator inservice inspection requirements of Technical Specification 4.4.5.1.3.

c.1 until the 1983 refueling outage. The bases for the proposed change are provided below.

The defective tube found to be leaking is located in column 120, row 94 adjacent to a stay rod on the hot leg side of SG No. 1. Figure 1 identifies the location of this tube with respect to the eddy-current inspections conducted during the Cycle 5 refueling outage. The eddy current inspection results for this tube obtained during last year's inspection have been rereviewed and it has been concluded that a defect in excess of the plugging limit existed but was overlooked. The re-review has quantified the depth of the defect to be approximately 83% through wall. The defect has been located at the top of the tube sheet, within the limits of eddy current accuracy, and coincides with various interferences from the combination of deposits, denting, and tube sheet entry.

NNECO has performed eddy-current examinations on the tubes adjacent to the defective tube as well as tubes located around another stay rod on the hot leg side of SG No. 1. No other defective tubes have been identified in these inspections. One potentially degraded tube has been identified (column 121, row 93) with an indication of 34%, although the "indication" could also be characterized as copper related interference.

NNECO has reviewed last year's eddy-current examination results for those tubes located around all stay rods in the hot leg of SG No. 1 and has not identified any degraded tubes. NNECO has also reviewed the eddy-current examination results for randomly selected tubes in the hot leg of SG No. 1, some of which exhibited a tube sheet dent signal, to ensure that additional defective tubes were not overlooked last year. The results of this review have not revealed any additional degraded tubes. Based on the eddy-current and visual inspections conducted on the defective tube, in combination with the destructive and non-destructive examination results obtained during the 1981/1982 refueling outage, the failure mechanism responsible for the leaking tube (120, 94) is most probably due to pitting corrosion. The local tube failure which resulted in the primary-to-secondary leakage was stable and consistent with the leak-before-break scenario.

Structural evaluations performed to support Cycle 5 operation (Reference (7)) and similar evaluations completed to support this proposed license amendment demonstrate that continued Plant operation until the refueling outage (approximately nine (9) weeks of full power operation) is acceptable. These evaluations were performed in accordance with the guidance and requirements of Regulatory Guide 1.121.

As was previously noted, the review of the eddy current examination results from last year's inspection revealed an approximate 83% through wall indication in the tube which leaked. The eddy-current examination conducted on this tube during the current outage indicates a thru wall defect of approximately 92%. If one attributes the increase in unidentified RCS leakage throughout the current fuel cycle entirely to primary-to-secondary leakage, then the defect can be concluded to be stable with leakage increases due to normal erosion of the leakage pathway. Figure 2 presents a history of total RCS leakage rate over the past seven months.

NNECO currently intends to undertake several extensive projects related to the steam generators at Millstone Unit No. 2 during the upcoming refueling outage. These projects were outlined in my letter to you dated November 19, 1982 (Reference (8)) and include decontamination of the primary side of the steam generators, extensive eddy-current and profilometer examinations in both steam generators and an extensive tube sleeving program. The planning and financial outlays for these efforts have been extensive and represent NNECO's commitment to ensure continued operability of the steam generators at Millstone Unit No. 2. Based on the information obtained to date and presented herein, an eddy-current examination of the steam generators at this time is not considered to be necessary. Particularly when a more extensive program of inspections is planned to commence in approximately 9 weeks with the Cycle 6 refueling outage. Personnel exposures to perform such an examination will be reduced during the outage by the steam generator channel head decontamination program. Current radiation fields in SG No. 1 are on the order of 17 rem/hour.

NNECO has reviewed the aforementioned proposed changes pursuant to 10CFR50.59 and has determined that the proposed changes do not constitute an unreviewed safety question. The basis for the determination is that the proposed change does not increase the probability of occurrence or consequences of an accident previously evaluated in the safety analysis report. The potential consequences of a steam generator tube leak are bounded by the results of current analyses performed in support of plant operation. An accident or malfunction different than any previously evaluated in the safety analysis report is not created by the proposed license amendment and the margin of safety as defined in the Bases of the Technical Specifications is not reduced.

The Millstone Unit No. 2 Nuclear Review Board has reviewed and approved the attached proposed change and has concurred in the above determination.

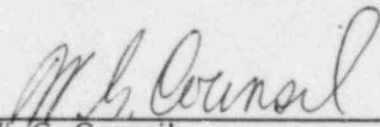
NNECO has reviewed the proposed license amendment pursuant to the requirements of 10CFR170 and has determined that this change constitutes a Class III license amendment. The basis for this determination is that the proposed license amendment involves a single safety issue and does not involve a significant hazards consideration. Therefore, attached is the appropriate Class III License Amendment fee of four thousand dollars (\$4,000.00).

Concerning the capability to measure primary-to-secondary leakage rates in the future, NNECO is investigating the use of the condenser steam jet air ejector radiation monitors together with revised empirical relationships for the secondary side gross activity measurement technique. The discrepancy between the primary-to-secondary leakage measurements obtained during operation and that calculated from actual leak rate measurements obtained during the current outage can be attributed to the difficulty of obtaining a representative secondary side sample of steam generator bulk chemistry to be used for gross activity determinations. It is NNECO's intention to administratively include an appropriate scaling factor in the primary-to-secondary leak rate calculation to reflect the data obtained during the current outage and subsequent startup. These actions will result in more accurate absolute primary-to-secondary leakage rate determinations. It should be noted that the method of detecting overall leakage from the RCS was verified by a special test prior to shut down.

An inspection of SG No. 2 has not been performed based on the fact that the reviews of last year's information for SG No. 1 has not revealed any additional oversights regarding degraded tubes. The primary-to-secondary leakage rate in SG No. 2, corrected to reflect the data obtained from SG No. 1 as discussed above, remains well within the Technical Specification limits. These factors provide substantial assurance that the integrity of SG No. 2 will not become unacceptably degraded during the remainder of Cycle 5 operation.

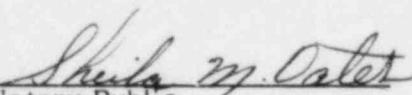
NNECO has staked and plugged the defective tube (120,94) and plugged the tube with the 34% indication (121,93). Currently, plant heatup is scheduled to commence by late in the afternoon of March 16, 1983, based on a favorable review of this license amendment request. A review to support this schedule would be greatly appreciated. My Staff remains available to assist you by any means in this matter.

Very truly yours,

  
W. G. Counsil  
Senior Vice President

STATE OF CONNECTICUT   )  
                                  ) ss. Berlin  
COUNTY OF HARTFORD   )

Then personally appeared before me W. G. Counsil, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensees herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

  
Notary Public

My Commission Expires March 31, 1986