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

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October 10, 1978

Docket No. 50-245

Director of Nuclear Reactor Regulation
Attn: Mr. D. L. Ziemann, Chief
Operating Reactors Branch #2
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Reference: (1) Dresden Nuclear Power Station, Unit No. 3, letter, B. B. Stephenson to J. G. Keppler, Directorate of Regulatory Operations - Region III, dated November 5, 1976.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1
Main Steam Tunnel Radiation Monitors

This letter is submitted pursuant to Section B3.2 of the Millstone Unit No. 1 Technical Specification Bases which requires a performance evaluation of the process radiation monitoring system relative to detecting fuel leakage.

High radiation monitors in the main steam tunnel are designed to rapidly detect gross fuel failures. The instrumentation provides an automatic Group 1 isolation when radiation levels reach seven times full power background, so that 10CFR100 guidelines are not exceeded for the most rapid failure mechanism postulated (control rod drop accident).

We have evaluated the performance of the radiation monitors in both the main steam tunnel, and the steam-jet air ejector. The initial evaluation was done after approximately five years of operation, using data through June, 1975. This data at full power operation shows the main steam-jet air ejector activity monitor reading gradually varied over 1.5 decades while the main steam-line activity monitor remained constant. A subsequent evaluation using data through April, 1977 shows that at full power operation, the steam jet air ejector activity monitor reading gradually varied over 2.5 decades while the main steamline activity monitor remained constant. From these evaluations, we conclude there has been no abnormal fuel related events at Millstone Unit No. 1 resulting in sufficient coolant activity changes, to be detectable by the main steamline radiation monitors. The data has shown, however, that the monitors are very sensitive to power level changes.

Dresden Unit No. 3 has a similar main steam-line radiation monitoring system, to that used at Millstone Unit No. 1. They had a minor incidence of fuel failure on October 31, 1974, caused by a control rod withdrawal error. Their main steam-line

radiation monitors increased by 30% and, thus, they concluded the system will respond to fuel failures, Reference (1). Based on the similarities, we believe the Millstone Unit No. 1 main steam radiation monitors will also respond as designed.

The Dresden incident was only a minor fuel failure but did prove that the monitors will respond. Calculations of source terms for the control rod drop accident for Millstone Unit No. 1 indicate that the monitor response will be at least 50 times the normal operating level. Thus, the design-trip setting of seven times full power background is adequate for isolation prior to exceeding 10CFR100 limits.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil
Vice President