

**Northeast  
Utilities System**

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APR 12 1996

Docket No. 50-423  
B15658

Re: RG 1.133

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Millstone Nuclear Power Station, Unit No. 3  
Loose-Part Detection System

This Special Report is being submitted pursuant to Regulatory Guide (RG) 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors." Regulatory Position 3.a.(2)(e) identifies that a Special Report should be provided to the Nuclear Regulatory Commission within 60 days following a change in the alert level. On February 13, 1996, the Loose Parts Monitoring System (LPM) alert level was reduced to 2.5 g's peak, which is nominally three times more sensitive than the previous alert level.

The LPM was upgraded during the fifth refueling outage. As a result of the upgrade, the LPM performance has markedly improved. The electronic background noise is much lower and the trending results support a new lower alert level without an excessive false alarm rate. A more sensitive alert level has been established. It is anticipated that the alert level will be lowered to 1 g peak after further trending and analysis, to ensure maximum system sensitivity without an excessive false alarm rate.

A historical review of LPM setpoint change reporting has concluded that the setpoint change improvements made in prior years have not been formally reported to the NRC as recommended by Regulatory Positions 3.a.(2)(a) and (e). However, the reporting requirements of Technical Specifications have been met. After initial startup in 1986, the LPM setpoints were established using free weights

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(30 lbm and 0.25 lbm), and were determined to be "as found" between 0.5 g's peak and 2.6 g's peak on July 9, 1986. To meet the RG 1.133 setpoint criteria, the recommended setpoint for the 30 lbm object is 2.5 g's peak, and 17 g's peak for the 0.25 lbm object. However, system background noise and electronic noise during the first fuel cycle caused a large number of false alarms per day. Efforts to reduce the false alarm rate were not completely effective even though the false alarm rate was reduced to approximately 50 alarms per day. Based on current engineering judgment, the LPM was not operable during the first cycle because of the unacceptable high false alarm rate.

In 1989, during the first refueling outage, the LPM was replaced to resolve the unacceptable high false alarm rate. The alert levels were steadily improved by lowering the setpoints on three occasions after the system replacement in 1989. The 1989 LPM was further upgraded in 1993 and replaced in 1996. In each case, the alert levels were improved by lowering the setpoints to be as close as possible to background noise without an excessive false alarm rate. Each LPM improvement was reported to the NRC in the Annual Operating Report. Setpoint changes were also reported in responses to NRC inspections regarding the elimination of unnecessary annunciator windows. The 1993 upgrade reduced LPM electronic noise by improved signal grounding, shielding, and conditioning. In addition, Channel 10 was replaced with an improved differential accelerometer with very low noise in-containment cabling that significantly improved its noise characteristics. The 1996 LPM replacement was a major upgrade; all LPM channels are now differential with very low noise in-containment cabling, and electronic noise was further reduced with improved signal conditioning.

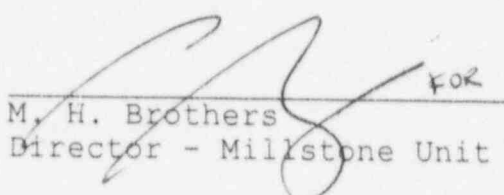
A summary of the alert level improvements achieved in each of the years that upgrades were made is provided in the following list.

<u>DATE</u>	<u>IMPROVED ALERT LEVEL ACHIEVED</u>
December 21, 1989	12 g's peak
July 1, 1992	7.5 g's peak
October 28, 1993	4 g's peak (Ch 2 and 10)
February 13, 1996	2.5 g's peak

Should you have any questions regarding this matter, please contact Mr. Mike Watson at (860) 447-1791 (ext. 6578).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
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M. H. Brothers  
Director - Millstone Unit No. 3

cc: T. T. Martin, Region I Administrator  
A. C. Cerne, Senior Resident Inspector, Millstone Unit No. 3  
V. L. Rooney, NRC Project Manager, Millstone Unit No. 3