

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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May 15, 1984

Docket No. 50-423
B11161

Director of Nuclear Reactor Regulation
Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

- References: (1) B. J. Youngblood letter to W. G. Council, Requests for Additional Information for Millstone Nuclear Power Station, Unit No. 3, dated May 31, 1983.
- (2) B. J. Youngblood letter to W. G. Council, Draft SER for Millstone Nuclear Power Station, Unit No. 3, dated December 20, 1983.

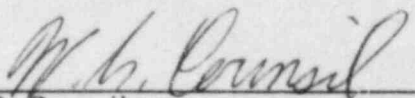
Dear Mr. Youngblood:

Millstone Nuclear Power Station, Unit No. 3
Response to Core Performance Branch Question 492.5

Attached is Northeast Nuclear Energy Company's (NNECO) response to Core Performance Branch Question 492.5 which was contained in Reference (1). This was also identified as a DSER open item in Reference (2). This response should fully resolve the Staff's concerns on this subject. If you have any questions, please contact our licensing representative directly.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY ET AL
By Northeast Nuclear Energy Company, Their Agent



W. G. Council
Senior Vice President

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

Then personally appeared before me W. G. Council, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, an Applicant herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Applicants 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, 1988

Open Items

Core Performance Branch (CPB)

CPB-2 Loose Parts Detection Program (Draft SER Section 4.4.5)

The staff will require the following additional information from the applicant to complete its review:

- (1) a description of the monitoring equipment including sensor type and location, data acquisition, recording and calibration equipment.
- (2) a description of how alert levels will be determined, including sources of internal and external noise, diagnostic procedures used to confirm the presence of a loose part, and precautions to ensure acquisition of quality data.
- (3) a description of the operation program, including signature analysis during startup, normal containment environment operation, the seismic design, and system sensitivity.
- (4) a detailed discussion of the operator training program for operation of the LPMS, planned operating procedures, and record keeping procedures.
- (5) a report from the applicant that contains an evaluation of the system for conformance to RG 1.133.
- (6) a commitment from the applicant to supply, before power operation, a report describing operation of the system hardware and implementation of the loose part detection program.

Response (5/84)

Refer to response to Question 492.5.

MNPS-3 FSAR

NRC Letter: May 31, 1983

Question Q492.5 (SRP Section 4.4)

Regulatory Guides 1.133, Revision 1 and 1.70, Revision 3 require that FSAR Section 4.4.6 contains a description of the Loose Parts Monitoring System (LPMS) which will be installed at Millstone 3. The information that should be supplied is:

- (1) a description of the monitoring equipment including sensor type and location, data acquisition, recording and calibration equipment.
- (2) a description of how alert levels will be determined, including sources of internal and external noise, diagnostic procedures used to confirm the presence of a loose part, and precautions to ensure acquisition of quality data.
- (3) a description of the operation program, including signature analysis during startup, normal containment environment operation, the seismic design, and system sensitivity.
- (4) a detailed discussion of the operator training program for operation of the LPMS, planned operating procedures, and record keeping procedures.
- (5) a report from the applicant that contains an evaluation of the system for conformance to RG 1.133.
- (6) a commitment from the applicant to supply, before power operation, a report describing operation of the system hardware and implementation of the loose part detection program.

Response (5/84)

1. The sensors used in the Millstone 3 LPMS are piezoelectric accelerometers which are designed to sense vessel vibrations and convert this vibration input to a proportional electrical output.

The sensors will be located at natural collection regions on the upper and lower reactor vessel and on the lower portions of the steam generators.

The LPMS panels located in the control room receive the conditioned electrical signals from the sensors located on the vessels. This portion of the LPMS continuously monitors the signals from the sensors. If a signal indicative of a loose part is detected, visual alarms are activated. In addition, the magnetic tape recorders are activated by these alarm conditions and an analog tape of the signals is available for later detailed analysis.

Periodic calibration of the individual LPMS channels will be accomplished using established methods.

2. Alert levels will be selected so as to conform to the sensitivity limits of Reg. Guide 1.133, i.e., a 4-oz. metal object exhibiting a kinetic energy of 0.5 ft.-lbs. at a distance of up to 3 ft. from a sensor.

Based on previous experiences, it is anticipated that alert levels will be substantially higher than background noise levels attributable to both internal and external noise sources such that background noise levels will not affect the determination of alert level set points. Background noise levels will be closely monitored during startup to make certain this is the case at Millstone 3.

Quality of data will be ensured through normally scheduled system maintenance and training of personnel.

3. When the LPMS is in operation the operations staff will periodically check its functionality by manually actuating the channel alert indicators. Operating procedures will provide the operating personnel directions on actions to be taken in the event of an alarm.

Vessel vibration characteristics will be evaluated during startup and on a continuing basis thereafter.

During start-up testing the LPMS sensitivity to small simulated loose part impact 3 ft. from sensor locations will be documented. In accordance with Reg. Guide 1.133 this will include simulations of a 4-oz. metal object with a kinetic energy of 0.5 ft.-lb.

4. Operator training for the LPMS will be conducted as part of the on-going systems training program, including the operating procedure. The operating procedure is under development and will include, as a minimum, alarm response and switch lineup. Records will be stored in accordance with existing station procedures.
5. The Millstone 3 LPMS conforms to the guidelines stated in Regulatory Guide 1.133 with the following exceptions:

- o Only one sensor is located on each steam generator.

The system specifications were issued and the purchase orders were placed prior to the issuance of Regulatory Guide 1.133.

- o The loose part detection system is not qualified to an OBE.

OBE qualification is in excess of the requirements placed on other alarms of equal importance in disclosing failures during plant operation.

- o Calibration will be verified at least once per fuel cycle or every 18

months, whichever is greater.

This calibration period is adequate because the loose parts detection system is not safety-related. (Refer to revised FSAR Table 1.8-1 under Regulatory Guide 1.133.)

6. Reports will be provided as required by Regulatory Guide 1.133.