

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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April 26, 1983

Docket No. 50-245
A02998

Director of Nuclear Reactor Regulation
Attn: Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

- References: (1) D. M. Crutchfield letter to W. G. Council, dated January 21, 1983
- (2) W. G. Council letter to D. L. Ziemann, dated April 16, 1980

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1
Containment Leak Rate Continuous Monitoring

In Reference (1) Northeast Nuclear Energy Company was requested to provide additional information concerning the subject matter.

We trust that the attached information adequately meets the Staff's needs.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Council
Senior Vice President

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SEND DRUGS to:
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ATTACHMENT I

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 1
CONTAINMENT LEAK RATE CONTINUOUS MONITORING

April, 1983

QUESTION:

1. Provide applicable system drawings (piping diagrams) for the Nitrogen Supply, Containment Purge and Ventilation, and Standby Gas Treatment Systems. Also provide a description of the existing flow measuring devices in these systems, including their range, accuracy, and repeatability specifications.

RESPONSE:

Enclosed are four (4) copies and an aperture card of the following drawings for your information:

<u>NUSCO DWG. NO.</u>	<u>TITLE</u>
25202-26009	Flow Diagram - Atmospheric Control System
25202-24002	HVAC Flow Diagram - Reactor and Radwaste Buildings
25202-24017	HVAC - Control Diagrams

There are two flowmeters associated with the atmospheric control and standby gas treatment system. FE-1601-40 is located on the nitrogen purge line to the drywell. FE-HV-1 is located on the inlet to the standby gas treatment system. Information on these flowmeters is as follows:

FE-1601-40 - Atmospheric control nitrogen purge flow

Type - orifice flowmeter - 6" - 300# W. N. Orifice flange assembly

Range - 0-3500 SCFM @ 3psig

Manufacturer - Daniel Industries

Accuracy of Flow Orifice - Not specified

Repeatability - Not specified

FT-1601-37 - transmitter for FE-1601-40 - Accuracy $\pm \frac{1}{2}\%$

Signal Processing - square root function - Accuracy $\pm \frac{1}{2}\%$

FIC - 1602-7 - indicator for FE-1601-40 - Accuracy $\pm 2\%$

FE-HU-1 Standby Gas Treatment influent flow

Type - Pilot Venturi flow element - 88S79

Range - 0 - 1500 SCFM @ 2" H₂O

Manufacturer - SYBRON/TAYLOR

Accuracy of flow element - $\pm 1\%$

Repeatability - Not specified

FT-HU-2 - Transmitter for FE-HU-1 - Accuracy - $\pm 1/2\%$

Signal Processing - Square Root Function - Accuracy $\pm 1/2\%$

FI-HU-3 - Indicator for FE-HU-1 - Accuracy - $\pm 2\%$

QUESTION:

2. Provide a copy of the current, approved surveillance procedure, along with a summary of the results obtained and problems encountered with its implementation.

RESPONSE:

Technical Specification surveillance requirement 4.7.A.3.g is covered by station procedure 639.1 "Primary Containment Nitrogen Make-Up and Usage". We have also attached operating procedure 311, "Containment System", which is referenced by SP639.1.

Use of the two procedures referenced above has been successful in maintaining the required oxygen concentrations and torus/drywell differential pressure requirements within allowable specifications. The numerous occasions to makeup and vent the drywell atmosphere to comply with these requirements provide an indication of the drywell integrity. To date, there have not been any problems with the implementation of S/P 639.1.

QUESTION:

3. Reference (2) stated that a containment leakage of 0.25 cfm must be measurable to recognize gross leakage equivalent to 1.2 weight percent per day at 43 psig. Provide a description of the calculation method and engineering basis for the minimum value of 0.25 cfm stated.

RESPONSE:

10CFR50 Appendix J, Section III.A.4.a.1.iii provides a formula for converting an accident pressure leakage limit to a lower test pressure leakage limit. This formula is

$$L_t = L_a (P_t/P_a)^{1/2}$$

Where:

L_t = Maximum allowable leak rate at P_t (% per day)

L_a = Maximum allowable leak rate at P_a (% per day)

P_t = Reduced test pressure (psig)

P_a = Peak containment pressure (psig)

The Millstone Unit No. 1 Technical Specification defines the following:

$$L_a = 1.2\%$$

$$P_a = 43 \text{ psig}$$

Reference (2) states that the 0.25 CFM is at 1.8 psig, which is P_t for purposes of this calculation. The 1.8 psig is the setpoint for the maximum allowable drywell pressure. Based on the above, $L_t = 0.0025$ or 0.25%.

Converting to CFM from % /day and using a drywell volume of 146,900 ft³ (from technical specification) yields:

$$L_t = 0.25 \text{ CFM}$$

This leak rate applies only to the drywell. As the torus is normally at or slightly below atmospheric pressure the only leakage would be into the torus.

QUESTION:

4. Provide any additional information relevant to this review; particularly, if the status of any information contained in Reference (2) has changed since its submittal on April 16, 1980.

RESPONSE:

Currently a drywell nitrogen compressor system is being installed and will be operational by June, 1983. This system is shown schematically on Dwg. 82010-26009 sheet 2 of which four (4) copies and an aperture card are enclosed. Operation of this system should eliminate the need to purge the drywell either for oxygen concentration control or to vent the drywell due to high drywell pressure. However, drywell venting to maintain the required torus to drywell differential pressure will continue. To remedy this particular problem, options are being evaluated which include (a) having the capability to have the drywell compressor system take suction from the torus atmosphere and (b) installing a small blower system around one of the torus to drywell vacuum breaker valves. It must be noted that although completion of the preceding modifications will minimize the need for drywell venting and purging, because of the low flows involved continuous primary containment leak rate monitoring via the inerting system makeup still cannot be accomplished. Existing Technical Specifications 3.7.A.2.a (Torus/Drywell differential pressure requirement) and primary containment integrity testing required by 10CFR50, Appendix J, provide adequate indication of containment integrity.