Docket No. 50-423
B12987

Attachment I

Proposed Revision to Technical Specifications
Containment Leakage

August 1988

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of less than or equal to La, 0.9% by weight of the containment air per 24 hours at P_a, 54.1 psia (39.4 psig);

b. A combined leakage rate of less than 0.60 L_a for all penetrations and valves subject to Type B and C tests, when pressurized to P_a; and

c. A combined leakage rate of less than or equal to 0.01 L_a for all penetrations identified in Table 3.6-1 as Enclosure Building bypass leakage paths when pressurized to P_a.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the measured overall integrated containment leakage rate exceeding 0.75 L_a, or the measured combined leakage rate for all penetrations and valves subject to Type B and C tests exceeding 0.60 L_a, or the combined bypass leakage rate exceeding 0.01 L_a, restore the overall integrated leakage rate to less than 0.75 L_a, the combined leakage rate for all penetrations subject to Type B and C tests to less than 0.60 L_a, and the combined bypass leakage rate to less than 0.01 L_a prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR Part 50 using methods and provisions of ANSI N45.4-1972 (Total Time Method) and/or ANSI/ANS 56.8-1981 (Mass Point Method):

a. Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at 40 ± 10 month intervals during shutdown at a pressure not less than P_a, 54.1 psia (39.4 psig) during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection;

b. If any periodic Type A test fails to meet 0.75 L_a, the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet 0.75 L_a, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet 0.75 L_a at which time the above test schedule may be resumed;

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Attachment II

Millstone Unit No. 3

10CFR50 Appendix J, Paragraph III.A.3

Request for Exemption

August 1988

MILLSTONE UNIT NO. 3
REQUEST FOR EXEMPTION FROM THE REQUIREMENTS OF 10CFR50, APPENDIX J

Exemption Requested

Section III.A.3(a) of 10CFR50, Appendix J requires that:

> "All Type A tests shall be conducted in accordance with the provisions of the American Standard N45.4 - 1972, Leakage Rate Testing of Containment Structures for Nuclear Reactors, March 16, 1972. The method chosen for the initial test shall normally be used for the periodic tests."

NNECO hereby requests an exemption to this provision in order to use the mass point method as described in ANSI/ANS-56.8-1981, as an alternative method for calculating containment leakage.

Evaluation

It has been recognized by the professional community that the mass point method is a acceptable means for calculation of containment leakage in addition to the other two methods, point-to-point and total time, which are referenced in ANSI N45.4-1972 and endorsed by the present regulations.

In the point-to-point method, the leak rates are based on the mass difference between each pair of consecutive points which are then averaged to yield a single leakage rate estimate. Mathematically, this can be shown to be the difference between the air mass at the beginning of the test and the air mass at the end of the test expressed as a percentage of the containment air mass.

The total-time method calculates a series of time-weighted leakage rates, based upon differences between an initial data point and points occurring later in time. The adequacy of this method is sensitive to the initial data point. Any perturbations, such as fluctuations in containment air temperature, ingassing or outgassing, or instrument error, can affect the validity of the initial data point and downstream leakage calculations.

On the other hand, the mass point method calculates leakage rates based upon contained air mass. This technique accurately calculates the mass of air inside containment and plots it as a function of time. The slope of the linear least squares fit of the data is the leakage rate. It follows from the above, the mass point method has some advantage when it is compared with the other methods

Justification for Exemption

NNECO's exemption request from the requirements of 10CFR50, Appendix J (Section III.A.3(a)) will not result in undue risk to the health or safety of the public:

(a) The proposed exemption does not change, modify, or restrict existing plant safety limits, safety settings, systems, or operations. The change does not impact the design basis of containment or modify its response during a DBA.

(b) There are no adverse safety effects with this exemption.

(c) The purpose of Appendix J to 10CFR50 is to assure that containment leak-tight integrity can be verified periodically throughout the service lifetime so as to maintain containment leakage rate within the limit specified in the plant Technical Specifications. The underlying purpose of the rule specifying particular methods for calculating leakage rates is to assure that accurate and conservative methods are used to assess the results of containment leakage rate tests. As stated above, the use of the mass point method represents the best available and a widely used method providing accurate results.

Conclusion

Based on the above information, NNECO concludes that the requested exemption is warranted and that the underlying purpose of the regulation would still be met.