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September 26, 1994

Docket No. 50-336
B14993

Re: 10CFR50.12
10CFR50, Appendix J

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

Millstone Nuclear Power Station, Unit No. 2
10CFR50, Appendix J
Request for Schedular Exemption From
Type B and C Test Requirements

Purpose and Summary

Pursuant to 10CFR50.12, Northeast Nuclear Energy Company (NNECO) hereby requests a schedular exemption from the requirements of 10CFR50, Appendix J, Sections III.D.2(a) and III.D.3, on behalf of Millstone Unit No. 2. This exemption would provide temporary relief from the two-year schedular requirement associated with Type B and C periodic local leakage rate tests (LLRTs). On September 23, 1994, NNECO determined that the 24-month testing requirement had been exceeded for a number of the Type B and C components by up to approximately four months. NNECO has determined that this exemption will not result in undue risk to the health and safety of the public and that the exemption is warranted.

Permitting Millstone Unit No. 2 to proceed with the current schedule for the twelfth refueling outage would be beneficial, since it would allow NNECO to take advantage of the preparations that have been made for the upcoming refueling outage, including initiatives which would reduce personnel radiation exposure, allow dynamic testing of motor-operated valves, permit testing of main steam safety valves, and allow the performance of work on the service water system to reduce shutdown risks. Additionally, the previous Type A, B, and C tests have demonstrated the leak-tightness of the containment and the reliability of the penetrations/valves. Thus, no safety benefit would be gained by forcing the plant to shut down prematurely. NNECO believes that

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permitting the plant to continue to operate until the scheduled shutdown for the twelfth refueling outage has a net positive impact on safety.

Background

Millstone Unit No. 2 has a testing program to measure containment leakage throughout the life of the unit. The testing program was developed to conform to the requirements of Appendix J to 10CFR50. It includes the performance of Type A tests to measure the overall integrated leakage rate, Type B tests to measure local leakage across pressure-containing or leakage-limiting boundaries other than valves, and Type C tests to measure containment isolation valve leakage rates.

10CFR50 Appendix J, Section III.D.2(a) requires that Type B tests be performed during reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than 2 years. Section III.D.3 requires that Type C tests shall be performed during each reactor shutdown for refueling, but in no case at intervals greater than 2 years.

Millstone Unit No. 2 Technical Specification Surveillance Requirement 4.6.1.2.d requires that Type B and C tests shall be conducted at peak containment accident pressure (P_a at 54 psig) at intervals no greater than 24 months except for tests involving air locks. A proposed emergency license amendment and a request for enforcement discretion are being submitted via a separate letter dated September 26, 1994.(1) On September 24, 1994, NNECO requested that the NRC exercise enforcement discretion from the requirements of Technical Specification Action Statements for Limiting Conditions for Operation 3.6.1.1 and 3.6.1.2. The NRC Staff verbally granted this request at approximately 11:15 a.m.

NNECO completed the second Type A test for the present 10-year service period successfully on December 24, 1992. The "As-Found" and "As-Left" integrated leakage rate test (ILRT) results were 0.2809 weight percent per day and 0.2577 weight percent per day (wt.%/day), respectively. Each ILRT result was below the Technical Specification limit of 0.75 L_a (0.375 weight percent per day, based on L_a equal to 0.5 wt.%/day) which demonstrates the

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(1) J. F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2, Proposed Change to Technical Specifications and Request for Enforcement Discretion from the Action Statements for Limiting Conditions for Operation 3.6.1.1 and 3.6.1.2," dated September 26, 1994.

overall leak-tightness of the containment. In addition, as of December 1992, the total Type B and C "As-Found" and "As-Left" leakage results were 0.049 wt.%/day and 0.008 wt.%/day, respectively. These values represent approximately 16.3 and 2.7% of the Technical Specification limit of 0.3 wt.%/day (0.6 L_a, based on L_a equal to 0.5 wt.%/day), respectively. The results of these tests demonstrate that Millstone Unit No. 2 has maintained control of containment integrity by maintaining a conservative margin between the acceptance criterion and the "As-Found" and "As-Left" leakage rates. Subsequent to this ILRT, during Cycle 12, maintenance on several containment isolation valves was performed. The post-maintenance retest requirements were accomplished by successful performance of Type C tests.

NNECO recently conducted a review of the Type B and Type C test data, and on September 23, 1994, determined that a number of components, for which Type B and Type C testing is required, have exceeded their respective 24 month interval. The previous refueling outage was lengthy (approximately seven months) due to the replacement of both steam generators. The LLRTs, during that outage, were conducted from June 1992 through December 1992. Previously, Millstone Unit No. 2 considered the Type B and Type C tests to constitute one group such that the two year surveillance window began after the last component test was completed during the refueling outage. A review of this rationale and discussions with our industry counterparts and the NRC Staff determined that this was not the appropriate interpretation. Rather, each Type B or C test of a penetration or valve should be considered unique, each with its own two year surveillance window. Using the appropriate interpretation, NNECO determined on September 23, 1994, that a number of Type B and Type C tests had not been conducted in accordance with the requirements of Surveillance Requirement 4.6.1.2.d.

Discussion

Schedular Exemption Request

As defined in 10CFR50, Appendix J, Sections III.D.2(a) and III.D.3, Type B and C LLRTs are required to be performed ". . . in no case at intervals greater than 2 years. . . . " The requirement to perform Type B and C LLRTs within a two-year interval was exceeded, for a number of Millstone Unit No. 2 components by up to approximately four months. Based on discussions conducted on September 23, 1994, with our industry counterparts and members of the Staff at NRR and Region I, it is NNECO's understanding that the two-year LLRT interval begins at the time a specific valve, penetration, etc., is tested and ends when the same valve, penetration, etc., is tested again. The

Millstone Unit No. 2 refueling outage is currently scheduled to begin October 1, 1994. This exemption request is hereby submitted in recognition that the two-year test interval has been exceeded for a number of components. NNECO plans to initiate the Type B tests during the week of September 26, 1994. Also, we have determined that no Type B or C tests are due between September 24, 1994, and October 3, 1994 (current scheduled date for achieving Mode 5).

NNECO reviewed the activities which are planned for the week prior to the initiation of the twelfth refueling outage (currently scheduled for October 1, 1994) to determine which activities could not be performed or would be impacted if Millstone Unit No. 2 were required to shutdown prematurely.

Millstone Unit No. 2 is currently scheduled to perform a reactor coolant system (RCS) cleanup to reduce RCS activity levels in an effort to reduce worker exposure during the refueling outage. Millstone is performing this process as an As Low As Reasonably Achievable (ALARA) initiative. The preparation for and execution of this evolution will take approximately four days. The planned activities include resin transfer, hydrolasing for ALARA considerations, resin fill, early boration of the RCS, and filtration of the RCS. NNECO believes that the benefits of this evolution are warranted, and has dedicated a significant amount of critical path time to this evolution. It is estimated that a significant exposure savings of 20 to 25 person rem (15% to 20% radiation field reduction) will be realized.

Shutting down the plant at the scheduled time would allow NNECO to take advantage of another ALARA measure. Typically, the RCS is degassified for 48 hours prior to the start of the refueling outage. A number of degassification prerequisite activities are scheduled for the week immediately prior to the start of the actual degassification process. This additional opportunity to reduce exposure would be lost if the proposed license amendment is not granted.

Additionally, avoiding an early shutdown of Millstone Unit No. 2 would allow NNECO to take advantage of the preparations that have been made for the scheduled refueling outage. These include testing of the main steam safety valves while shutting down (versus during startup), dynamic testing of certain motor-operated valves pursuant to Generic Letter 89-10, pre-outage work on the service water system to reduce the shutdown risk during the refueling outage, and pre-outage training for incoming contractor staff.

In the case of motor-operated valve testing, personnel would not be available to conduct the testing during a premature shutdown

which would mean that the selected valves would have to be tested during startup. In the event that an adverse valve condition is discovered during the startup testing, additional plant transients could be required to resolve the condition.

Shutting the plant down prior to the scheduled shutdown of October 1, 1994, would require a number of outage activities to be rescheduled. This would generate additional hardship for several reasons. First, the resources to accomplish the current scheduled activities would have to be reallocated and reassessed. Secondly, and more importantly, the work planning and control shutdown risk review pursuant to the guidance of NUMARC 91-06 would have to be reassessed. NNECO has dedicated significant resources to develop the shutdown risk analysis to minimize risk, thereby, maximizing safe controlled operation during service water system outages and reduced inventory conditions.

Therefore, a one-time schedular exemption covering the duration of the Millstone Unit No. 2 refueling outage, until Mode 5 is reached, is requested to allow Type B and C LLRTs to be performed at more suitable and appropriate times during the 1994 refueling outage.

Leak Rate Test Data Summary

1. 1992 ILRT Results:

   - Appendix J/Technical Specifications Leak Rate Limit: As-Left less than or equal to 0.75 L_a (0.75 L_a = 0.375 wt.%/day = 646,829 sccm)
   - As-Left = 0.2577 wt.%/day = 444,500 sccm
   - As-Found = 0.2809 wt.%/day = 484,518 sccm

2. 1992 LLRT Results:

   - Appendix J/Technical Specifications Leak Rate Limit: As-Left (maximum path) less than or equal to 0.6 L_a (0.6 L_a = 0.3 wt.%/day = 517,463 sccm)
   - As-Left (maximum path) = 13,731 sccm = 0.016 L_a

3. Present Assessment of penetrations:

   – Type B penetrations (resilient seals):

   - 48 out of 51 total penetration LLRTs exceeded the 24 month interval by up to approximately four months.

- All 48 are electrical penetrations which have passed at least the last two "As-Found" LLRTs.

- The 3 penetrations within the 24 month interval are the personnel air lock, equipment hatch, and the transfer tube.

— Type C penetrations (valves):

- 21 out of 40 total penetration LLRTs exceeded the 24 month interval by up to approximately four months.

- All of the 21 penetrations have passed at least the last two "As-Found" LLRTs.

Justification

The Commission's regulations, specifically 10CFR50.12(a), provide that exemptions may be granted from the regulations in 10CFR50, provided that they are "authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security."

Based on the information provided below, NNECO concludes that exemption from the requirements of 10CFR50, Appendix J, Sections III.D.2(a) and III.D.3 are justified pursuant to 10CFR50.12, entitled "Specific Exemptions," Sections (a)(1), (a)(2)(ii), (a)(2)(iii), and (a)(2)(v) in that:

This exemption "will not present an undue risk to the public health and safety and is consistent with the common defense and security."

In general, the intent of the Commission's regulations and other NRC requirements is to provide reasonable assurance that operation of nuclear power plants does not pose an undue risk to the health and safety of the public. The intent of specific regulations such as 10CFR50, Appendix J, is to set standards which will provide reasonable assurance that the individual contributions to risk posed by specific issues or concerns will be low, such that overall plant risk remains acceptably low. While compliance with the regulations will, for the most part, provide reasonable assurance that plant operation does not pose undue risk to the public, noncompliance does not necessarily represent an unacceptable risk. In this specific case, exceeding the two-year LLRT interval, by up to approximately four months, does not represent an unacceptable safety risk nor irreversible environmental consequences. Once the plant

reaches Mode 5, containment integrity is no longer required, per Technical Specification 3.6.1.1. Furthermore, the proposed schedular exemption does not change, modify, or restrict existing plant safety limits, safety settings, systems, or operations. The proposed schedular exemption does not impact the design basis of containment or modify its response during a design basis loss-of-coolant accident.

"Application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule."

The intent of Type B and C local leak-rate testing is to ensure that the containment leak-tight integrity is maintained within the requirements specified in plant technical specifications during operating cycles. The time interval of 2 years is based, in part, on the expected degradation of components exposed to the environment resulting from a full 24 months of normal plant operation. Millstone Unit No. 2 will shut down for refueling prior to reaching 24 months of power operation. The exemption is being requested in recognition of the schedular implications associated with ensuring the valve-to-valve and penetration-to-penetration LLRTs were not performed in strict adherence to the two-year interval. Once Mode 5 has been reached, containment integrity is not required in accordance with Technical Specification 3.6.1.1. The proposed schedular exemption does not impact the Type B and C test pressure or the maximum allowable leakage rate and only affects the associated schedular requirement. As discussed previously, Millstone Unit No. 2 penetrations have a good history for leak-tightness, thus assuring containment integrity. Therefore, NNECO believes the underlying intent of the rule is maintained.

"Compliance would result in costs that are significantly in excess of those contemplated when the regulation was adopted."

NNECO plans to conduct two operational evolutions during the initial phases of Millstone Unit No. 2 shutdown to reduce personnel radiation exposure consistent with the ALARA program (see previous discussion on page 4 of this submittal). If NNECO is required to prematurely shut down Millstone Unit No. 2, to accomplish the Type B and Type C tests without conducting the evolutions, then the personnel radiation exposures will be contrary to the ALARA program, with no measurable increase in safety.

Current replacement energy costs associated with a premature shutdown in order to comply with the two-year LLRT interval were not contemplated when the regulation was adopted.

NNECO believes that the costs associated with a premature shutdown would clearly represent a financial burden on the company and the customers. Allowing Millstone Unit No. 2 to continue operation for approximately one additional week, until its regularly scheduled refueling outage, will help avoid unnecessary costs associated with an increase in the refueling outage length. Therefore, a schedular exemption is warranted, because compliance would result in undue hardship and other costs that are significantly in excess of those contemplated when the regulation was adopted.

"The exemption would provide only temporary relief from the applicable regulation and the license or applicant has made good-faith efforts to comply with the regulation."

This exemption applies to the current series of Type B and C tests only. The length of the previous steam generator replacement outage and the current Millstone Unit No. 2 fuel cycle is the reason this schedular exemption is necessary. NNECO discovered on September 2., 1994, that strict schedular compliance to the two-year LLRT requirements was not being achieved. NNECO has made a good-faith effort to reevaluate its interpretation of complying with the rule in a more conservative manner. Therefore, the schedular exemption is warranted, because the exemption would provide only temporary relief from the applicable regulation and NNECO has made good-faith efforts to comply with the regulation.

Conclusion

NNECO's exemption request from the requirements of 10CFR50, Appendix J, Section III.D.2(a) and III.D.3 does not change, modify, or restrict existing plant safety limits, safety settings, or operations and does not impact the design basis of containment or modify its response during a design basis loss-of-coolant accident. There are no undue adverse safety affects associated with this exemption, and it will not result in undue risk to the health or safety of the public.

Based on the above information, NNECO concludes that the requested exemption is warranted pursuant to 10CFR50.12 in that the exemption will not present an undue risk to the public health and safety, is consistent with the common defense and security, and special circumstances are present.

NNECO respectfully requests that a schedular exemption to 10CFR50, Appendix J, Sections III.D.2(a) and III.D.3 be granted as soon as possible, to alleviate the requirement for strict adherence to the two-year LLRT interval. Appendix J schedular

exemptions have been granted in the past, as noted in the Staff's Safety Evaluations for the Haddam Neck Plant, dated August 14, 1989[2] and Millstone Unit No. 1, dated April 4, 1991.[3]

If you have any questions regarding this issue, please contact Mr. R. H. Young, Jr. at (203) 440-2073.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: J. F. Opeka
Executive Vice President

BY: _____
E. A. DeBarba
Vice President

cc: T. T. Martin, Region I Administrator
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2
P. D. Swetland, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3

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(2) A. B. Wang letter to E. J. Mroczka, "Exemption to Appendix J--Extension of the Type A, B, and C Leak Rate Test Period," dated August 14, 1989.

(3) M. L. Boyle letter to E. J. Mroczka, "Exemption to Appendix J--Extension of the Type B and C Leak Rate Test Period (TAC No. 79700)," dated April 4, 1991.