Docket file
50-443

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 25, 1995

Mr. Ted C. Feigenbaum
Senior Vice President
and Chief Nuclear Officer
North Atlantic Energy Service Corporation
Post Office Box 300
Seabrook, NH 03874

SUBJECT: EXEMPTION FROM THE PERIODIC RETEST SCHEDULE REQUIREMENTS OF 10 CFR PART 50, APPENDIX J - DELAY OF NEXT REQUIRED TYPE A LEAKAGE RATE TEST (TAC NO. M91530)

Dear Mr. Feigenbaum:

By letter dated February 17, 1995, North Atlantic Energy Service Corporation (North Atlantic) requested an exemption from the periodic-retest schedule requirement of 10 CFR Part 50, Appendix J, Section III D.1.(a) for Type A containment leakage testing. Specifically, North Atlantic requested an exemption that would allow postponement of the second Type A test of the first 10-year service period for the Seabrook Station, Unit No. 1 (Seabrook) from the fourth refueling outage to the fifth refueling outage. The fourth and fifth refueling outages are scheduled to begin November 4, 1995, and September 1997, respectively.

We have reviewed the information provided in support of the North Atlantic exemption request. On the basis of the submitted information and as discussed in the enclosed Exemption, we have concluded that there is a high degree of confidence that the Seabrook containment will not degrade to an unacceptable extent while this Exemption is in effect.

We find that granting the Exemption from the requirements of 10 CFR Part 50, Appendix J, Section III.D.1.(a), is authorized by law, will not present an undue risk to public health and safety, is consistent with the common defense and security, and meets the special circumstances described in 10 CFR 50.12(a)(2)(ii). Accordingly, an exemption to delay performance of Type A testing until the 1997 (fifth) refueling outage is granted.

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A copy of the Exemption is enclosed. The Exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by:

Phillip F. McKee, Director
Project Directorate I-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-443
Serial No. SEA-95-006

Enclosure: Exemption

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A copy of the Exemption is enclosed. The Exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Phillip F. McKee, Director
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Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-443
Serial No. SEA-95-006

Enclosure: Exemption

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
NORTH ATLANTIC ENERGY SERVICE CORPORATION	)	Docket No. 50-443
	)	(License No. NPF-86)
	)	
(Seabrook Station, Unit No. 1)	)	

EXEMPTION

I.

North Atlantic Energy Service Corporation (North Atlantic or the licensee) is the holder of Facility Operating License No. NPF-86, which authorizes operation of Seabrook Station, Unit No. 1 (the facility or Seabrook), at a steady-state reactor power level not in excess of 3411 megawatts thermal. The facility is a pressurized water reactor located at the licensee's site in Rockingham County, New Hampshire. The license provides among other things, that it is subject to all rules, regulations, and Orders of the U.S. Nuclear Regulatory Commission (the Commission or NRC) now or hereafter in effect.

II.

Section III.D.1.(a) of Appendix J to 10 CFR Part 50 requires the performance of three Type A containment integrated leakage rate tests (ILRTs) at approximately equal intervals during each 10-year service period of the primary containment. The third test of each set shall be conducted when the plant is shutdown for the 10-year inservice inspection.

III.

By letter dated February 17, 1995, North Atlantic requested temporary relief from the requirement to perform a set of three Type A tests at approximately equal intervals during each 10-year service period of the primary containment. The requested exemption would permit delaying performance of the of the second Type A test by approximately 22 months (from the 1995 refueling outage currently scheduled to begin November 4, 1995, to the 1997 refueling outage projected to start September 1997). The last Type A test was completed October 30, 1992. Thus, if the next Type A test is delayed until the 1997 refueling outage, the interval between tests will be 59 months.

North Atlantic's request cites the special circumstances provision of 10 CFR 50.12, paragraph (a)(2)(ii), as the basis for the exemption. North Atlantic notes that the existing Type B and C testing programs are not being modified by its request and that these testing programs will continue to detect effectively containment leakage caused by the degradation of active containment isolation components as well as containment penetrations. It has been the consistent and uniform experience at Seabrook during the three Type A tests conducted from 1986 to date, that any significant containment leakage paths are detected by the Type B and C testing. The Type A test results have been only confirmatory of the results of the Type B and C test results. Therefore, application of the regulation in this particular circumstance would not serve, nor is it necessary to achieve the underlying purpose of the rule.

Additionally, North Atlantic stated that the exemption request meets the requirements of 10 CFR 50.12, paragraphs (a)(1) and (a)(2)(ii), for the following reasons:

- Based on the excellent performance of the Appendix J Type B and C test program and companion programs, the exemption would not result in undue risk to the health and safety of the public.
- The Type A test results demonstrate that Seabrook has a low-leakage containment. Three Type A tests have been performed at Seabrook without a single test failure, and the highest [as-found] leakage rate of 0.07092 percent per day is well below the acceptance limit of 0.1125 percent per day and the design limit of 0.15 percent per day.
- An assessment of the risk-impact of the exemption concludes that there would be no undue risk to the public health and safety as a result of the proposed schedular extension of the Type A test.
- Resources now being expended on meeting the requirements of Appendix J for the fourth refueling outage Type A test could be better utilized to prepare for and execute other functions with a higher impact on safety during the remainder of Cycle 4 and during the refueling outage.
- The proposed exemption only extends the ILRT from the fourth refueling outage to the fifth refueling outage. North Atlantic is requesting a one time exemption from Section III.D.1(a) of Appendix J that refers to performing ILRTs ". . . at approximately equal intervals" during each 10 year service period.

IV.

Section III.D.1.(a) of Appendix J to 10 CFR Part 50 states that a set of three Type A leakage rate tests shall be performed at approximately equal intervals during each 10-year service period.

North Atlantic has proposed an exemption to this section which would provide a one-time interval extension for the second Type A test in the current 10-year service period by approximately 22 months.

The Commission has determined that pursuant to 10 CFR 50.12(a)(1) this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission further determines that special circumstances, as provided in 10 CFR 50.12(a)(2)(ii), are present justifying the exemption; namely, that application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule.

The underlying purpose of the requirement to perform Type A containment leak rate tests at intervals during the 10-year service period is to ensure that any potential leakage pathways through the containment boundary are identified within a time span that prevents significant degradation from continuing or becoming unknown. The NRC staff has reviewed the basis and supporting information provided by North Atlantic in the exemption request. The NRC staff has noted that North Atlantic has a good record of ensuring a leak-tight containment. All Type A tests have passed with significant margin and North Atlantic has noted that the results of the Type A testing have been confirmatory of the Type B and C tests which will continue to be performed. North Atlantic also has committed to perform, notwithstanding the granting of the proposed exemption, a general inspection of the containment and containment enclosure during the fourth refueling outage even though such an inspection is required by Appendix J, Section V.A. and the Seabrook Appendix A Technical Specifications to be performed only prior to Type A tests. The NRC staff considers that these inspections, though limited in scope, provide an important added level of confidence in the continued integrity of the containment boundary.

The licensee performed a risk analysis which demonstrates that the extension in the Type A test interval would result in a negligible increase in risk. These results are consistent with calculations performed for EPRI (as reported in EPRI TR-104285, "Risk Impact Assessment of Revised Leak Rate Testing Intervals, August 1994) and the staff study reported in NUREG-1493, "Performance-Based Containment Leak Test Program."

The NRC staff has also made use of the information in a draft staff report, NUREG-1493, which provides the technical justification for the present Appendix J rulemaking effort which also includes a 10-year test interval for Type A tests. The integrated leakage rate test, or Type A test, measures overall containment leakage. However, operating experience with all types of containments used in this country demonstrates that essentially all containment leakage can be detected by local leakage rate tests (Type B and C). According to results given in NUREG-1493, out of 180 ILRT failure reports covering 110 individual reactors and approximately 770 years of operating history, only 5 ILRT failures were found which local leakage rate testing could not detect. Thus, Type A testing detected failures not discovered by Type B and C testing in about 3% of the tests, and in these tests the actual leakage rates were only marginally in excess of leak-tightness requirements. This study agrees well with previous NRC staff studies which show that Type B and C testing can detect a very large percentage of containment leaks.

The Nuclear Management and Resources Council (MUMARC), now known as the Nuclear Energy Institute (NEI), provided the NRC staff with summaries of data to assist in the Appendix J rulemaking effort. NUMARC collected results of 144 ILRTs from 33 units; 23 ILRTs exceeded $1.0L_a$. Of these, only nine were not due to Type B or C leakage penalties. The NEI data also added another

perspective. The NEI data show that in about one-third of the cases exceedingallowable leakage, the as-found leakage was less than $2L_a$; in one case the leakage was found to be approximately $2L_a$; in one case the as-found leakage was less than $3L_a$; one case approached $10L_a$; and in one case the leakage was found to be approximately $21L_a$. For about half of the failed ILRTs the as-found leakage was not quantified. These data show that, for those ILRTs for which the leakage was quantified, the leakage values are small in comparison to the leakage value at which the risk to the public starts to increase over the value of risk corresponding to L_a (approximately $200L_a$, as discussed in NUREG-1493). Therefore, based on these considerations, it is unlikely that an extension of one cycle for the performance of the Appendix J, Type A test at Seabrook would result in significant degradation of the overall containment integrity. As a result, the application of the regulation in these particular circumstances is not necessary to achieve the underlying purpose of the rule.

Based on generic and plant specific data, the NRC staff finds the basis for North Atlantic's proposed exemption to allow a one-time exemption to permit a schedular extension of one cycle for the performance of the Appendix J Type A test to be acceptable provided that the general containment inspection is performed.

Pursuant to 10 CFR 51.32, the Commission has determined that granting this Exemption will not have a significant impact on the environment (60 FR 27569).

This Exemption is effective upon issuance and shall expire at the completion of the fifth refueling outage, presently expected to start in September 1997.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

John A. Zwolinski, Acting Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 25th day of May 1995

Dated at Rockville, Maryland,
this day of 1995

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John A. Zwolinski, Acting Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland,
this 25th day of May 1995