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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 74 TO FACILITY OPERATING LICENSE NO. NPF-69

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION, UNIT 2

DOCKET NO. 50-410

1.0 INTRODUCTION

On September 12, 1995, the U.S. Nuclear Regulatory Commission (NRC) approved a revision to 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," that was subsequently published in the Federal Register September 26, 1995, and became effective October 26, 1995. By this revision, the NRC added Option B, "Performance-Based Requirements," to allow licensees to voluntarily replace the prescriptive testing requirements of 10 CFR Part 50, Appendix J, with testing requirements that are based upon both overall leakage rate performance and the performance of individual components.

By application dated February 7, 1996, as supplemented by letter dated July 26, 1996, Niagara Mohawk Power Corporation (the licensee) requested changes to Operating License paragraph 2.D.ii) and the Technical Specifications (TSs) for Nine Mile Point Nuclear Station, Unit 2, that would permit implementation of 10 CFR Part 50, Appendix J, Option B. The licensee has established a "Containment Leakage Rate Testing Program" and proposes to add this program to the TS. The program references Regulatory Guide (RG) 1.163, "Performance-Based Containment Leakage Test Program," dated September 1995, which provides specific guidance for leakage-rate test methods, procedures, and analyses acceptable to the NRC for complying with the requirements and criteria in Option B.

The licensee's supplemental submittal of July 26, 1996, clarified and provided additional information in support of the initial application for amendment. It does not affect the Commission's finding of no significant hazards consideration that was published in the Federal Register (61 FR 20849, May 8, 1996).

2.0 BACKGROUND

Compliance with 10 CFR Part 50, Appendix J, provides assurance that the primary containment, including those systems and components that penetrate the primary containment, do not exceed the allowable leakage rate specified in the TS and Bases. A maximum allowable leakage rate (La) is determined so that the leakage assumed in the safety analyses is not exceeded. Appendix J classifies as "Type A" those tests that are performed to measure the containment system overall integrated leakage rate; "Type B" refers to pneumatic tests to detect

and measure local leakage rates across pressure retaining, leakage-limiting boundaries; and "Type C" refers to pneumatic tests to measure containment isolation valve leakage rates. Further definition of terms used herein may be found in Appendix J.

On February 4, 1992, the NRC published a notice in the Federal Register (57 FR 4166) that discussed a planned initiative to begin eliminating requirements that are marginal to safety and that impose a significant regulatory burden. Appendix J of 10 CFR Part 50 was considered for this initiative and the NRC staff undertook a study of possible changes to this regulation. The study examined the previous performance history of domestic containments and examined the effect on risk of a revision to the requirements of Appendix J. The results of this study are reported in NUREG-1493, "Performance-Based Containment Leak-Test Program."

From the results of this study, the NRC staff developed a performance-based approach to containment leakage rate testing. On September 12, 1995, the NRC approved this revision to 10 CFR Part 50, Appendix J, and it was subsequently published in the Federal Register September 26, 1995 (60 FR 49495), and became effective October 26, 1995. The revision added Option B "Performance-Based Requirements," to Appendix J to allow licensees to voluntarily replace the prescriptive testing requirements of Appendix J with testing requirements that are based upon both overall and individual component leakage rate performance.

RG 1.163 was developed as a method acceptable to the NRC staff for implementing Option B. It states that the Nuclear Energy Institute (NEI) guidance document NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," provides methods acceptable to the NRC staff for complying with Option B with four exceptions described therein.

Option B requires that the RG or other implementation documents used by a licensee to develop a performance-based leakage-rate testing program must be included, by general reference, in the plant TSs. In its application for amendment, the licensee references RG 1.163 in the proposed TS for Nine Mile Point Nuclear Station, Unit 2.

RG 1.163 specifies a decrease in Type A test frequency to at least one test in 10 years based upon two consecutive successful tests. Type B tests may also be extended to a maximum interval of 10 years based upon completion of two consecutive successful tests. Type C tests may be extended to 5 years based on two consecutive successful tests.

By letter dated October 20, 1995, NEI proposed TS to implement Option B. After some discussion, the NRC staff and NEI agreed on final TS that were attached to a letter from C. Grimes (NRC) to D. Modeen (NEI) dated November 2, 1995. These TS are to serve as a model for licensees when preparing plant-specific TS for license amendment requests to implement Option B.

To determine the performance of each component, a licensee must establish factors that are indicative of or affect performance, such as an administrative leakage limit. The administrative limit is selected to be indicative of the potential onset of component degradation. Although these limits are subject to NRC inspection to assure that they are selected in a reasonable manner, they are not TS requirements. Failure to meet an administrative limit requires a licensee to return to the minimum value of the test interval.

Option B requires that the licensee maintain records to show that the criteria for Type A, B, and C tests have been met. In addition, the licensee must maintain comparisons of the performance of the overall containment system and the individual components to show that the test intervals are adequate. These records are subject to NRC inspection.

3.0 EVALUATION

In its application dated February 7, 1996, as supplemented July 26, 1996, the licensee proposed to establish a "10 CFR Part 50 Appendix J Testing Program Plan" and to add this program to the TS Administrative Controls requirements by new TS Section 6.8.4f. The program references RG 1.163, which specifies a method acceptable to the NRC for complying with Option B. This change also requires associated changes to surveillance requirement (SR) 4.6.1.1.a, "Primary Containment Integrity;" Limiting Condition for Operation (LCO) 3.6.1.2 and SR 4.6.1.2, "Primary Containment Leakage" and referenced TS Table 3.6.1.2-1, "Allowable Leak Rates through Valves in Potential Bypass Leakage Paths;" SR 4.6.1.3, "Primary Containment Airlocks;" SR 4.6.1.4.1, "Primary Containment Structural Integrity;" and SR 4.6.6.1.c.2, "Drywell and Suppression Chamber Hydrogen Recombiner Systems." Changes to corresponding TS Bases were also proposed.

In addition to proposing changes to the TS, the licensee proposed modifications to Paragraph 2.D.ii) of the Operating License which addresses exemptions to Appendix J. The licensee finds that all but one of the exemptions to Appendix J currently authorized by this paragraph will continue to be needed under Option B and proposed that the specified exemptions be retained with minor changes. The licensee's proposed changes are of an editorial nature to make these existing exemptions consistent with Option B (i.e., the changes delete references to sections of Option A and substitute the appropriate reference to Option B). The wording and meaning otherwise remain identical. The NRC staff agrees that retaining these exemptions is appropriate and consistent with the provisions of Option B which provide that "Specific exemptions to Option A...that have been formally approved by the AEC or NRC, according to 10 CFR 50.12, are still applicable to Option B...if necessary, unless specifically revoked by the NRC." Therefore, the proposed changes to Paragraph 2.D.ii) regarding prior exemptions to be retained under Option B are acceptable.

The licensee proposes to delete Paragraph 2.D.ii)(a) of the Operating License which acknowledges "an exemption from the requirement of Paragraph II.D.2(b)(ii) of Appendix J, exempting overall containment air lock leakage testing unless maintenance has been performed on the air lock (Section 6.2.6

of SSER 5)." The licensee concludes that this prior exemption will no longer be needed once Option B is implemented because, unlike Option A, Option B does not include a requirement that air locks opened during periods when containment integrity was not required by the plant's TS be tested at the end of such periods. The NRC staff agrees that this exemption is not needed under Option B and, therefore, finds the proposed deletion acceptable.

Under Option B, a licensee may choose the performance-based option for performing (1) Type A tests, (2) Type B and C tests, or (3) Type A, B, and C tests. For Unit 2, the licensee has elected to perform Type A, B, and C testing on a performance basis.

The NRC staff finds the TS changes proposed by the licensee to be in compliance with the requirements of Option B and consistent with the guidance of RG 1.163 and the model TS of November 2, 1995, with the exceptions discussed below.

The licensee has proposed an exception to RG 1.163 which states that leakage measured from a main steam isolation valve (MSIV) is excluded from the combined leakage rate of 0.6 La. (This also represents an exception to NEI 94-01 inasmuch as treatment of MSIV leakage apart from La differs from the guidance in NEI 94-01). The staff finds this exception acceptable because it is consistent with an existing Appendix J exemption authorized by Unit 2 Operating License Paragraph 2.D.ii(b) that allows MSIV leakage to be treated separately from La in dose analyses for the design basis accident. In addition, the licensee proposed an exception to RG 1.163 that would permit not performing as-found testing of the MSIVs. The NRC staff finds this acceptable since the test interval of the MSIVs will not be performance based and the MSIV leakage is not included in La.

NEI 94-01 states that door seals must be tested prior to re-establishing containment integrity. The licensee proposes the following exception to this guidance:

> Primary containment airlocks' door seals are tested prior to re-establishing containment integrity when something has been done that would bring into question the validity of the previous door seal test.

The staff notes that SR 4.6.1.3.a.2 requires that a seal test must be performed when an air lock has been used. The exception would permit not testing the air lock seals when the reactor had been in a condition where containment integrity had not been required but the air lock had not been opened. The staff finds this change to be acceptable.

Apart from TS changes proposed under Appendix J, the licensee also proposed to extend the testing interval of the air lock interlock specified in SR 4.6.1.3.c from 6 months to 30 months. The licensee finds that this test is more convenient when performed before the overall air lock leakage test. NEI 94-01 specifies that the overall leakage rate test be performed at least every 30 months. To support this change, the licensee reviewed air lock interlock operating experience for approximately 10 years at Nine Mile Point, Unit 2 and

found that unsatisfactory results were obtained in only two tests. Both of these tests occurred after restoration of interlocks that were defeated, as allowed by TS, to facilitate entry into primary containment during a plant outage. In each case, the interlocks were adjusted and the tests were successful. The NRC staff finds these test results to be consistent with industry-wide results. Based on favorable performance history, the staff finds the licensee's proposed extension of the air lock interlock test interval to be acceptable.

Based upon compliance with the requirements of Option B, the guidance of RG 1.163, and the model TS of November 2, 1995, and in accordance with previous exemptions granted by the Commission, the NRC staff finds the proposed changes to be acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (61 FR 20849). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: R. Lobel
D. Hood

Date: August 13, 1996