August 29, 1989

Docket No. 50-220

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Mr. Lawrence Burkhardt III
Executive Vice President, Nuclear Operations
Niagara Mohawk Power Corporation
301 Plainfield Road
Syracuse, New York 13212

Dear Mr. Burkhardt:

SUBJECT: SCHEDULAR EXEMPTION FROM THE REQUIREMENTS OF APPENDIX J TO 10 CFR PART 50 FOR THE SHUTDOWN COOLING SYSTEM VALVES (TAC 71391)

By letter dated November 22, 1988, Niagara Mohawk requested a temporary exemption from the requirements of Appendix J to 10 CFR Part 50, regarding leak testing of the shutdown cooling system isolation valves, 38-01, 38-02, 38-12, and 38-13. Specifically the letter requested an exemption from the requirement that the leakage of these valves be included in the $0.60L_a$ acceptance criteria for type B and C tests.

On the basis of the information provided in your November 22, 1988 submittal and as discussed in the enclosed Exemption, the staff has concluded that the requested temporary exemption from the requirement that the four shutdown cooling system isolation valves be included in the $0.60L_a$ acceptance criteria for the Type B and C tests is justified for the period up to and including the next refueling outage for Nine Mile Point Nuclear Generating Station Unit No. 1. Thus your request for exemption is granted. A copy of the Exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by

Robert A. Capra, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

[EXEMPTION NMP1 71391]

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of NIAGARA MOHAWK POWER CORPORATION, et. al. (Nine Mile Point Nuclear Station Unit 1)	)))))))	Docket No. 50-220

EXEMPTION

I.

Niagara Mohawk Power Corporation, et. al. (the licensee) is the holder of Facility Operating License No. DPR-63, which authorizes operation of the Nine Mile Point Nuclear Station Unit No. 1 at a steady-state power level not in excess of 1850 megawatts thermal. The facility is a boiling water reactor located at the licensee's site in the town of Scriba, New York. The license provides, among other things, that it is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

II.

Appendix J to 10 CFR Part 50 requires that primary reactor containments shall meet certain containment leakage test requirements. Among these are the requirements that containment isolation valves receive local leak rate tests (Type C) and the results of all of the Type C tests are to be added to the results of the Type B tests and the combined leakage rate shall be less than $0.60L_a$.

III.

By letter dated May 6, 1988, the staff sent to the licensee a Safety Evaluation (SE) concerning a review of a portion of the licensee's containment leakage rate testing program. One conclusion of that SE was that Appendix J to 10 CFR Part 50 requires Type C tests to be periodically performed on the four containment isolation valves in the shutdown cooling system return and suction lines.

Consequently, by letter dated November 22, 1988, the licensee requested a temporary exemption from certain requirements of Appendix J to 10 CFR Part 50. Specifically, the licensee requested a temporary exemption from the requirement to perform Type C testing of containment isolation valves 38-01, -02, -12 and -13 in the shutdown cooling system return and suction lines and from the requirement to include the leakage rates of these valves in the sum of all Type B and C leakage rates for comparison to the acceptance criterion (0.60 L_a) of Appendix J. The requested exemption is for the period up to and including the next plant refueling outage, currently scheduled for 1990.

IV.

In the past, the licensee had not included the subject valves in the Type C testing program. The licensee did not consider them to be containment isolation valves under design basis accident situations. However, as stated above, the staff has recently determined that these valves must be Type C tested.

A recent attempt was made to perform a local leakage rate test on the shutdown cooling system isolation valves. However, since these valves were not originally designed to meet Appendix J leakage rate testing requirements and had not been locally leakage rate tested in the past, the valves were found to exhibit leakage rates greater than that allowed by Appendix J. The licensee has determined that these valves cannot be made sufficiently leak-tight to meet Appendix J leakage criteria.

In order to meet the Appendix J requirements the licensee will have to either replace existing shutdown cooling system suction and return line isolation valves or provide the valves with a seal-water system fluid inventory sufficient to assure the sealing function for at least thirty days at an accident pressure of 1.1 Pa. In either case major system changes may be necessary in addition to procurement of any replacement or new equipment. As a result the licensee requested additional time until the next refueling outage to design, procure, install, test, operate and demonstrate the new system.

The following information was provided by the licensee in support of the exemption request.

The shutdown cooling system isolation valves are normally closed even during design basis accident conditions. The shutdown cooling system forms a closed loop with the reactor recirculation system. As a result, if a break inside the containment occurs, leakage will be contained in a closed system. If a break outside the containment occurs, the existing shutdown cooling isolation valves will reduce leakage from the reactor coolant system to the extent that the core will remain covered and fuel damage will not occur. During a water test performed on these valves in 1988, leakage was found to be minor (1.321 gallons/minute).

The shutdown cooling system was recently checked for excessive leakage and was tested for system integrity to be able to contain radioactive materials following an accident.

The shutdown cooling system isolation valves are closed during normal operation. The system is only placed in operation when the plant is in a shutdown condition. These isolation valves are always initially closed prior to, during, and after LOCA.

For a LOCA at NMP-1, the decay heat is removed from the containment by the containment spray system. Even if fission products were released to the reactor coolant, the shutdown cooling system would only recirculate the radionuclides through a closed loop back to the reactor coolant system. The containment spray system will reduce pressure and temperature inside the containment. The rapid depressurization of the containment will reduce leakage through the isolation valves.

The four isolation valves have process system control valves for backup system isolation; thus further minimizing any intra-system leakage. Any leakage from the closed loop will be within the secondary containment where it will be treated before release.

The solid wedge valves used as the inner isolation valves have the unique characteristic whereby the accident pressure itself will assist their leakage tightness.

Based on the above information, the staff finds that plant operation without Type C testing of the subject valves, and consequently, without adding the result of these Type C tests into the summation leakages for comparison to the $0.60L_a$ acceptance criterion, during the period until the next refueling outage will not present an undue risk to the public health and safety, considering the mitigating features of the system described above. After the next refueling outage is complete, the plant will be brought into compliance with Appendix J.

V.

On the basis of the above evaluation, the staff concludes that the requested temporary exemption from the Type C testing requirements of Appendix J to 10 CFR Part 50 for shutdown cooling isolation valves 38-01, -02, -12, and -13 and consequently, the omission of the results of these Type C tests from the summation of leakages for comparison to the $0.60\ L_a$ acceptance criterion, is justified for the period up to and including the next refueling outage for Nine Mile Point, Unit 1.

Accordingly, the Commission has determined pursuant to 10 CFR 50.12(a), that (1) this exemption as described in Section IV 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, and (2) special circumstances are present for this exemption in that the exemption would provide only temporary relief from the applicable regulation and the licensee has made good faith efforts as described below to comply with the regulation since the staff's position was sent to them on May 6, 1988.

The licensee has demonstrated a good faith effort through continuous cooperation with the NRC staff while resolution of this issue was finalized. Although the staff issued its Safety Evaluation on May 6, 1988, further discussions and meetings were required to clarify the issues and separate correspondence dated November 9, 1988 was sent to the licensee to finalize the staff's position. The licensee was cooperative in working through the resolution with the staff and also performed a test, which the staff indicated would be acceptable in its May 6, 1988 Safety Evaluation. However, the test as discussed previously did not produce acceptable results due to physical constraints. Because major system changes may be necessary in addition to procurement of any replacement or new equipment, not granting the exemption would result in an extension of the current outage without significant safety improvements. Therefore, the Commission hereby grants the exemption request identified in Section IV above.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the quality of the human environment 54 FR 26279.

Dated at Rockville, Maryland, this 29th day of August 1989.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by

Steven A. Varga, Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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