

July 4, 1990

Docket No. 50-220

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

Dear Mr. Burkhardt:

SUBJECT: ISSUANCE OF AMENDMENT (TAC NO. 71823)

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The Commission has issued the enclosed Amendment No. 118 to Facility Operating License No. DPR-63 for the Nine Mile Point Nuclear Station Unit No. 1 (NMP-1). The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated December 27, 1988, as supplemented on August 28, 1989 and November 17, 1989.

This amendment revises Section 3/4.1.1, Control Rod System, the Bases for Section 3/4.1.1, and Section 3/4.2.7, Reactor Coolant System Isolation Valves, to provide additional testing, Limiting Condition for Operation and Surveillance Requirements for the Scram Discharge Volume. This amendment also deletes a footnote, corrects an administrative error, and replaces a list of initiating signals with a more concise list.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

Robert E. Martin, Senior Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 118 to DPR-63
- 2. Safety Evaluation

cc: w/enclosures  
See next page

PDI-1  
CVogan *CV*  
5/21/90

PDI-1  
DOudinot: rsc  
5/22/90

PDI-1 *DL*  
DLaBarge  
5/23/90

OGC *jc*  
5/18/90

PDI-1  
RMartin  
5/31/90  
+ 6/13/90

PDI-1 *RC*  
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6/26/90

DOCUMENT NAME: ISSUANCE OF AMENDMENT 71823

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Niagara Mohawk Power Corporation

Nine Mile Point Nuclear Station,  
Unit No. 1

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

NIAGARA MOHAWK POWER CORPORATION

DOCKET NO. 50-220

NINE-MILE-POINT NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 118  
License No. DPR-63

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Niagara Mohawk Power Corporation (the licensee) dated December 27, 1988, as supplemented August 28, 1989 and November 17, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-63 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 118, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: July 3, 1990

ATTACHMENT TO LICENSE AMENDMENT  
AMENDMENT NO. 118 TO FACILITY OPERATING LICENSE NO. DPR-63

DOCKET NO. 50-220

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
32	32
---	32a
38	38
117	117
119	119

LIMITING CONDITION FOR OPERATION

If a control rod with a malfunctioned accumulator is inserted "full-in" and valved out of service, it shall not be considered to have a malfunctioned accumulator.

e. Scram Discharge Volume

With one scram discharge volume vent valve and/or one scram discharge volume drain valve inoperable and open, restore the inoperable valve(s) to OPERABLE status within 24 hours.

With any scram discharge volume vent valve(s) and/or any scram discharge volume drain valve(s) otherwise inoperable, restore at least one vent and one drain valve to OPERABLE status within 8 hours.

SURVEILLANCE REQUIREMENT

e. Scram Discharge Volume (SDV)

Scram Discharge Volume Vent and Drain Valves shall be demonstrated OPERABLE during Power Operations by:

1. At least once per month verifying each valve to be open;\*
2. At least once per quarter cycling each valve through at least one complete cycle of full travel; and

The Scram Discharge Volume Drain and Vent valves shall be demonstrated OPERABLE at least once per Operating Cycle by verifying that:

1. Valves close within 10 seconds after receipt of a signal for control rods to scram;
2. Valves open when the scram signal is reset;
3. Level instrumentation response proves that no blockage in the system exists.

\* These valves may be closed intermittently for testing under administrative controls.

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT

f. If specification 3.1.1.a through e, above, are not met, the reactor shall be placed in the hot shutdown condition within ten hours except as noted in 3.1.1.a(2).

g. Reactivity Anomalies

The difference between an observed and predicted control rod inventory shall not exceed the equivalent of one percent in reactivity. If this limit is exceeded, the reactor shall be brought to the cold, shutdown condition by normal orderly shutdown procedure. Operation shall not be permitted until the cause has been evaluated and the appropriate corrective action has been completed.

g. Reactivity Anomalies

The observed control rod inventory shall be compared with a normalized computed prediction of the control rod inventory during startup, following refueling or major core alteration. These comparisons will be used as base data for reactivity monitoring during subsequent power operation throughout the fuel cycle. At specific power operating conditions, the actual control rod configuration will be compared with the expected configuration based upon appropriately corrected past data. This comparison will be made every equivalent full power month.

## BASES FOR 3.1.1 AND 4.1.1 CONTROL ROD SYSTEM

The insertion times previously selected were based on the large number of actual scrams of prototype control rod drive mechanisms as discussed in Section IV-B.6.3.\* Rapid control rod insertion following a demand to scram will terminate Station transients before any possibility of damage to the core is approached. The primary consideration in setting scram time is to permit rapid termination of steam generation following an isolation transient (i.e., main-steam-line closure or turbine trip without bypass) such that operation of solenoid-actuated relief valves will prevent the safety valves from lifting. Analyses presented in Appendix E-1\*, the Second Supplement and the Technical Supplement to Petition to Increase Power Level were based on times which are slower than the proposed revised times.

The scram times generated at each refueling outage when compared to previous scram times demonstrate that the control rod drive scram function has not deteriorated.

### d. Control Rod Accumulators

The basis for this specification was not described in the FSAR and, therefore, is presented in its entirety. Requiring no more than one malfunctioned accumulator in any nine-rod square array is based on a series of XY PDQ-4 quarter core problems of a cold, clean core. The worst one in a nine-rod withdrawal sequence resulted in a  $k_{eff} < 1.0$ --other repeating rod sequence with more rods withdrawn resulted in  $k_{eff} > 1.0$ . At reactor pressures in excess of 800 psig, even those control rods with malfunctioned accumulators will be able to meet required scram insertion times due to the action of reactor pressure. In addition, they may be normally inserted using the control-rod-drive hydraulic system. Procedural control will assure that control rods with malfunctioned accumulators will be spaced in a one-in-nine array rather than grouped together.

### e. Scram Discharge Volume

The scram discharge volume is required to be OPERABLE so that it will be available when needed to accept discharge water from the control rods during a reactor scram, isolate the reactor coolant system from the containment when required, and to comply with the requirements of the NRC Confirmatory letter of June 24, 1983. The fill/drain test was determined to be an acceptable alternative to a reactor scram test at approximately 50% ROD DENSITY. Performance of a water fill/drain test during cold shutdown will verify that the Scram Discharge Volume is OPERABLE and instrument lines are not plugged. The volume comparison test of water drained equal water used to fill will demonstrate that there is no blockage in the system. By comparing the response of the individual instrument lines during the drain test, partial or complete blockage in one line can be detected.

The SDV Instrumentation/valve response surveillance test will be satisfied anytime a scram occurs (less than or equal to 50% rod density) or by the fill/drain test not to exceed an operating cycle.

LIMITING CONDITION FOR OPERATION

- c. If Specifications 3.2.7a and b above are not met, initiate normal orderly shutdown within one hour and have reactor in the cold shutdown condition within ten hours.

SURVEILLANCE REQUIREMENT

- c. At least once per quarter the feedwater and main-steam line power-operated isolation valves shall be exercised by partial closure and subsequent reopening.
- d. At least once per plant cold shutdown the feedwater and main steam line power-operated isolation valves shall be fully closed and reopened, unless this test has been performed within the previous 92 days.

LIMITING CONDITIONS FOR OPERATION  
Table 3.2.7 (Continued)

REACTOR COOLANT SYSTEM ISOLATION VALVES

<u>Line or System</u>	<u>No. of Valves (Each Line)</u>	<u>Location Relative to Primary Containment</u>	<u>Normal Position</u>	<u>Motive Power*</u>	<u>Maximum Oper. Time (Sec)</u>	<u>Action on Initiating Signal</u>	<u>Initiating Signal (All Valves Have Remote Manual Backup)</u>
<u>Reactor Head Spray (One Line)</u>	1	Inside	-	Self Act. Ck.	--	-	--
	1	Outside	Closed	R.M.P.O.	30	-	--
<u>Liquid Poison (One Line)</u>	1	Inside	-	Self Act. Ck.	--	-	--
	1	Outside	-	Self Act. Ck.	--	-	--
<u>Control Rod Drive Hydraulic (One Line)</u>	1	Inside	-	Self Act. Ck.	--	-	--
	1	Outside	-	Self Act. Ck.	--	-	--
<u>Scram Discharge System Vent** (One Line)</u>	2	Outside	Open	A.I.A.O.	10	Close	Automatic or manual reactor scram.
<u>Scram Discharge System Drain** (One Line)</u>	2	Outside	Open	A.I.A.O.	10	Close	
<u>Core Spray High Point Vent (Two Lines)</u>	1	Inside	Closed	AC Motor	30	Close	Reactor water level low-low or high drywell pressure.
	1	Outside	Closed	Air/DC Solenoid	30	Close	

\* R.M.P.O. - Remote Manual Power Operated.  
A.I.A.O. - Automatically Initiated Air Operated.

\*\* See 3.1.1e for LCO requirements.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 118 TO FACILITY OPERATING LICENSE NO. DPR-63  
NIAGARA MOHAWK POWER CORPORATION  
NINE MILE POINT NUCLEAR STATION, UNIT NO. 1  
DOCKET NO. 50-220

INTRODUCTION

By letter dated December 27, 1988, supplemented August 28, 1989 and November 17, 1989, the Niagara Mohawk Power Corporation (the licensee) requested an amendment to the Technical Specifications for the Nine Mile Point Nuclear Station, Unit No. 1. The proposed amendment would revise Section 3/4.1.1, Control Rod System and associated Bases to provide testing, Limiting Condition for Operation requirements and Surveillance Requirements for the Scram Discharge Volume (SDV) to demonstrate that no blockage exists in the system's piping and ensure SDV operability. Surveillance Requirement 4.2.7d. would be redesignated in Surveillance Requirement 4.1.1e. This amendment would also revise Table 3.2.7 in Section 3/4.2.7, Reactor Coolant System Isolation Valves, to delete a footnote, correct an administrative error and replace a list of initiating signals with a more concise list.

BACKGROUND

In November 1987, the staff inspected the scram discharge volume design for Nine Mile Point Unit 1 to determine compliance with the June 24, 1983 NRC Confirmatory Order. As a result, the staff identified two areas of deviation from the Confirmatory Order for the Scram Discharge Volume and a concern with respect to hydraulic coupling. The deviations are from Design Criterion 3 and Surveillance Criterion 3 of the Order. At a meeting on March 1, 1988, the licensee presented justifications for its deviations. The deviation from Design Criterion 3, which involved the location of the level instrumentation taps, was resolved as stated in the NRC staff's letter to Niagara Mohawk Power Corporation dated October 12, 1988. The deviation from Surveillance Criterion 3 involved the licensee's lack of a periodic system test which includes a scram from less than 50 percent control rod density.

The justification for deviation from Surveillance Criterion 3 was also found to be acceptable, as stated in the letter dated October 12, 1988, provided specific conditions were met and that the appropriate technical specification changes were proposed by the licensee. Those conditions involve implementing a post scram evaluation and a periodic testing program to demonstrate that no blockage exists in the SDV piping and to ensure continued operability of the SDV.

## EVALUATION

In its submittals (December 27, 1988, and supplemented August 28, 1989), the licensee has addressed these conditions by proposing an amendment to Technical Specifications Sections 3.1.1, 4.1.1, and associated Bases that add a requirement to demonstrate Scram Discharge Volume (SDV) operability and that SDV instrument lines are free of blockage.

The licensee has stated that a fill/drain test shall be performed once every refueling outage unless a reactor scram has occurred during that cycle with rod density less than or equal to 50%. This test involved filling the system with a predetermined volume of water and recording the time required to drain the system to a repeatable reference level. The data is compared to historic data to provide assurance that operability of the system as an integrated whole is maintained.

The licensee will perform the test during cold shutdown to ensure that (1) adequate volume exists to accept discharge water from the control rods during a reactor scram; (2) adequate instrumentation response is received; (3) instrument lines are free of blockage; and (4) instrument lines can perform their safety function. Only one demonstration of SDV operability per operating cycle is required. However, as committed by the licensee in Attachment B of the August 28, 1989 submittal, this test shall also be performed as a post-maintenance test to determine operability following a breaching of the SDV pressure boundary.

In addition to the fill/drain test, the following will be performed per Surveillance Requirement 4.1.1e. in order to further demonstrate the operability of the SDV system:

Valves will be verified open at least once per month.

Valves will be full travel cycled at least once per quarter.

Valve closure within 10 seconds after receipt of a signal for control rods to scram will be verified.

Valves will be verified open upon resetting of the scram signal.

In addition, during a telephone conference call between NMPC, (Brian Walken) and NRC (Daniele Oudinot) the licensee stated that the low-level and high-level SDV level instruments calibration is performed monthly per surveillance procedure N1-ISP-044-M005 "High water level Scram Discharge Volume Instrument Channel Functional Calibration." Although beyond the scope of the licensee's application submittal, this continuing calibration requirements will contribute further to the operability of the SDV system.

Surveillance Requirement 4.2.7d. which involves full closure and reopening of the scram discharge system air operated vent and drain valves will be redesignated in Surveillance Requirement 4.1.1e.

We also note that TS 4.1.1c.(1) requires that the control rods be individually scram time tested once per cycle. This results in water being discharged to the instrument volume and demonstrates that the line from each tested hydraulic control unit to the SDV is free of any obstructions.

The staff finds that the combination of the proposed fill/drain test, the vent and drain valve stroke test along with the post-scrum evaluation, and the scram time tests provide reasonable assurance of the SDV system operability and that no gross blockage exists in the instrumentation lines. Therefore, the proposed technical specification changes to Sections 3.1.1, 4.1.1, and associated Bases are acceptable. This closes the staff's concerns regarding Surveillance Criterion 3 and hydraulic coupling as discussed in the staff's letter of October 12, 1988.

In addition to the proposed changes to Sections 3.1.1, 4.1.1 and associated Bases evaluated above, Table 3.2.7 would also be changed to (1) delete a footnote, (2) correct a previous administrative error, and replace a list of initiating signals for the scram system vent and drain valves with a more concise list.

1. In its submittal dated November 17, 1989, the licensee proposes to remove the reference to "A.I.P.O." (Automatically Initiated Power Operated) in a footnote for Table 3.2.7. The acronym A.I.P.O. does not appear anywhere in the text, therefore, the footnote "A.I.P.O. - Automatically Initiated Power Operated" no longer applies. This amendment proposes to delete the footnote.

The staff finds this deletion acceptable.

2. Amendment No. 44 was issued without the changes made to Table 3.2.7 per Amendment No. 43 as documented in the Correction Letter dated April 10, 1989. Specifically, the addition of new valves on Table 3.2.7 per Amendment No. 43 did not appear on Table 3.2.7 when Amendment No. 44 was processed. The proposed change would correct this administrative error and combine the changes made per Amendment Nos. 43 and 44.

The staff finds the proposed change acceptable.

3. Current Technical Specification Table 3.2.7 lists in column "Initiating Signals," the parameters which initiate closure of the scram system vent and drain valves. Current Technical Specification Table 3.6.2a lists all the parameters that initiate a reactor scram. Since all reactor scram signals, automatic or manual, initiate closure of the system vent and drain valves, the list in Table 3.2.7 will be replaced by the equivalent "Automatic or manual reactor scram." There is an additional advantage in replacing the list in Table 3.2.7 by a more concise list: There will be no need to modify the initiating signals for the Scram Discharge System Vent and Drain Valves in Table 3.2.7 if changes are made to Table 3.6.2a.

The staff finds the proposed change acceptable.

#### ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of the facility components located within the restricted areas as defined in 10 CFR 20 and to surveillance requirements. The staff has determined that this 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 this

amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(9) and Sec 51.22(c)(10). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: July 3, 1990

PRINCIPAL CONTRIBUTOR:

A. Massey