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U.S. NUCLEAR REGULATORY COMMISSION

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TO: Mr. Ben C. Rusche

FROM: LeBoeuf, Lamb, Leiby & MacRae
Washington, D. C.
LeBoeuf, Lamb, Leiby & MacRae

DATE OF DOCUMENT: 3/24/77

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DESCRIPTION

Ltr. trans the following:

(1-P)

PLANT NAME:
Nine Mile Point Unit No. 1

RJL

ENCLOSURE

Amdt. to OL/change to tech specs.... concerns certain aspects of the control rod system...notorized 3/21/77...

DO NOT REMOVE

ACKNOWLEDGED

(7-P)

(40 cys encl rec'd)

FOR ACTION/INFORMATION

	SAFETY			ENVIRO
	ASSIGNED AD:			ASSIGNED AD:
✓	BRANCH CHIEF:	Lear (5)		BRANCH CHIEF:
✓	PROJECT MANAGER:	Nowicki		PROJECT MANAGER:
✓	LIC. ASST. :	Parrish		LIC. ASST. :

INTERNAL DISTRIBUTION

✓	REG FILE		SYSTEMS SAFETY		PLANT SYSTEMS		SITE SAFETY &
✓	NRC PDR		HEINEMAN		TEDESCO		ENVIRO ANALYSIS
✓	I & E (2)		SCHROEDER		BENAROYA		DENTON & MULLER
✓	OELD				LAINAS		
✓	GOSSICK & STAFF		ENGINEERING		IPPOLITO		ENVIRO TECH.
	MIPC		MACARRY		KIRKWOOD		ERNST
	CASE		BOSNAK				BALLARD
	HANAUER		SIHWEIL		OPERATING REACTORS		YOUNGBLOOD
	HARLESS		PAWLICKI		STELLO		
							SITE TECH.
	PROJECT MANAGEMENT		REACTOR SAFETY		OPERATING TECH.		GAMMILL
	BOYD		ROSS	✓	EISENHUT		STEPP
	P. COLLINS		NOVAK	✓	SHAO		HULMAN
	HOUSTON		ROSZTOCZY	✓	BAER		
	PETERSON		CHECK	✓	BUTLER		SITE ANALYSIS
	MELTZ			✓	GRIMES		VOLLMER
	HELTEMES		AT & I				BUNCH
	SKOVHOLT		SALTZMAN			✓	J. COLLINS
			RUTBERG				KREGER

EXTERNAL DISTRIBUTION

✓	LPDR: Oswego, NY	NAT. LAB:	BROOKHAVEN NAT. LAB.	
✓	TIC:	REG V.IE	ULRIKSON (ORNL)	
✓	NSIC:	LA PDR		
	ASLB:	CONSULTANTS:		
✓	ACRS 16 CYS ~~HOLDING~~/SENT	AS CAT B		

CONTROL NUMBER: 770870172

T

NRC FORM 195 (2-76)

LAW OFFICES OF

LEBOEUF, LAMB, LEIBY & MACRAE

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REGULATORY DOCKET FILE COPY

March 24, 1977

RECEIVED
MAR 25 1977
U.S. NUCLEAR REGULATORY COMMISSION

Mr. Ben C. Rusche
Director
Office of Nuclear Reactor
Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Re: Niagara Mohawk Power Corporation
Nine Mile Point Nuclear Station
Unit No. 1--Docket No. 50-220

Dear Mr. Rusche:

As counsel for the above-named licensee, we hereby transmit three (3) originals and nineteen (19) copies of a proposed amendment to the Technical Specifications for the above-named facility. Also transmitted are forty (40) copies each of Attachments A and B which are the supporting data for the requested change.

The proposed Technical Specifications deal with certain aspects of the control rod system.

Very truly yours,

Le Boeuf, Lamb, Leiby & MacRae

LeBoeuf, Lamb, Leiby & MacRae
Attorneys for Niagara Mohawk
Power Corporation

Enclosures

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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

APPLICATION FOR AMENDMENT

TO

OPERATING LICENSE

Pursuant to Section 50.90 of the regulations of the Nuclear Regulatory Commission, Niagara Mohawk Power Corporation, holder of Facility Operating License No. DPR-63, hereby requests that Specification 3.1.1, 4.1.1 and Bases of the Technical Specifications and Bases set forth in Appendix A to that License be amended. These proposed changes have been concurred with by the Site Operations Review Committee and Safety Review and Audit Board.

The proposed Technical Specification changes are set forth in Attachment A to this application. Supporting Information, which demonstrates that the proposed changes do not involve a significant hazards consideration, is set forth in Attachment B. The proposed change would not authorize any change in the types or any increase in the amounts of effluents or any change in the authorized power level of the facility.

WHEREFORE, Applicant respectfully requests that Appendix A to Facility Operating License No. DPR-63 be amended in the form attached hereto as Attachment A.

NIAGARA MOHAWK POWER CORPORATION

By [signature]

Gerald K. Rhode
Vice President-Engineering

Subscribed and sworn to before me on this 21st day of March, 1977.

[signature]
NOTARY PUBLIC

HAZEL J. CARRICK
Notary Public in the State of New York
Qualified in Onon. Co. No. 4524460
My Commission Expires March 30, 1978

Attachment A

Niagara Mohawk Power Corporation

License No. DPR-63

Docket No. 50-220

Proposed Changes to Facility Operating License

Attached are revisions to Pages 29, 35 and 37 of Appendix A to Facility Operating License DPR-63.

LIMITING CONDITION FOR OPERATION

(b) Whenever the reactor is in the startup or run mode below 20% rated thermal power, no control rods shall be moved unless the rod worth minimizer is operable, except as noted in 4.1.1.b(3)(a)(iv), or a second independent operator or engineer verifies that the operator at the reactor console is following the control rod program. The second operator may be used as a substitute for an inoperable rod worth minimizer during a startup only if the rod worth minimizer fails after withdrawal of at least twelve control rods.

(4) Control rods shall not be withdrawn for approach to criticality unless at least three source range channels have an observed count rate equal to or greater than three counts per second.

SURVEILLANCE REQUIREMENT

(iv) The rod block function of the rod worth minimizer shall be verified by attempting to withdraw an out-of-sequence control rod beyond the block point.

(b) If the rod worth minimizer is inoperable while the reactor is in the startup or run mode below 20% rated thermal power and a second independent operator or engineer is being used he shall verify that all rod positions are correct prior to commencing withdrawal of each rod group.

(2) The rod housing support is provided to prevent control rod ejection accidents. Its design is discussed in Section VII-E.* Procedural control shall assure that the housing supports are in place for all control rods.

(3) Control rod withdrawal and insertion sequences are established to assure that the maximum in-sequence individual control rod or control rod segments which are withdrawn could not be worth enough to cause the core to be more than 0.013 delta k supercritical if they were to drop out of the core in the manner defined for the Rod Drop Accident.[3] These sequences are developed prior to initial operation of the unit following any refueling outage and the requirement that an operator follow the sequences is backed up by the operation of the RWM. This 0.013 delta k limit, together with the integral rod velocity limiters and the action of the control rod drive system, limits potential reactivity insertion such that the results of a control rod drop accident will not exceed a maximum fuel energy content of 280 cal/gm. The peak fuel enthalpy content of 280 cal/gm is below the energy content at which rapid fuel dispersal and primary system damage have been found to occur based on experimental data as is discussed in reference 1.

Recent improvements in analytical capability have allowed more refined analysis of the control rod drop accident. These techniques have been described in a topical report, two supplements and letters to the AEC.[1][2][3][4][5]. By using the analytical models described in these reports coupled with conservative or worst-case input parameters, it has been determined that for power levels less than 20% of rated power, the specified limit on in-sequence control rod or control rod segment worths will limit the peak fuel enthalpy content to less than 280 cal/gm. Above 20% power, even multiple operator errors cannot result in a peak fuel enthalpy content of 280 cal/gm should a postulated control rod drop accident occur.

The following conservative or worst-case bounding assumptions have been made in the analysis used to determine the specificed 0.013 delta k limit on in-sequence control rod or control rod segment worths. The allowable boundary conditions used in the analysis are quantified in references (4) and (5). Each core reload will be analyzed to show conformance to the limiting parameters.

*FSAR

The RWM provides automatic supervision to assure that out-of-sequence control rods will not be withdrawn or inserted; i.e., it limits operator deviations from planned withdrawal sequences. It serves as an independent backup of the normal withdrawal procedure followed by the operator. In the event that the RWM is out of service when required, a second independent operator or engineer can manually fulfill the operator-follower control rod pattern conformance function of the RWM. In this case, procedural control is exercised by verifying all control rod positions after the withdrawal of each group, prior to proceeding to the next group. Allowing substitution of a second independent operator or engineer in case of RWM inoperability recognizes the capability to adequately monitor proper rod sequencing in an alternate manner without unduly restricting plant operations. Above 20% power, there is no requirement that the RWM be operable since the control rod drop accident with out-of-sequence rods will result in a peak fuel energy content of less than 280 cal/gm. To assure high RWM availability, the RWM is required to be operating during a startup for the withdrawal of a significant number of control rods for any startup.

(4) The source range monitor (SRM) system performs no automatic safety function. It does provide the operator with a visual indication of neutron level which is needed for knowledgeable and efficient reactor startup at low neutron levels. The results of reactivity accients are functions of the initial neutron flux. The requirement of at least 3 cps assures that any transient at or above the initial value of 10^{-8} of rated power used in the analyses of transients from cold conditions. One operable SRM channel would be adequate to monitor the approach to critical using homogeneous patterns of scattered control rods. A minimum of three operable SRM's is required as an added conservation.

c. Scram Insertion Times

The revised scram insertion times have been established as the limiting condition for operation since the postulated rod drop analysis and associated maximum in-sequence control rod worth are based on the revised scram insertion times. The specified times are based on design requirements for control rod scram at reactor pressures above 950 psig. For reactor pressures above 800 psig and below 950 psig the measured scram times may be longer. The analysis discussed in the next paragraph is still valid since the use of the revised scram insertion times would result in greater margins to safety valves lifting.

Attachment B

Niagara Mohawk Power Corporation

License No. DPR-63

Docket No. 50-220

Supporting Information

On December 23, 1976, we were notified by our fuel supplier that the Rod Worth Minimizer should be operable at power levels up to 20 percent instead of the current 10 percent as required by the Technical Specifications. This change is necessary to limit the maximum fuel energy content to 280 cal/gm during a postulated control rod drop accident. Supplement 3 to NEDO-20360, "GE BWR Generic Reload Application for 8 x 8 Fuel" Rev. 1 dated September 25, 1975, provides additional supporting information.