REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8609020159 DOC. DATE: 86/08/28 NOTARIZED: YES DOCKET #
FACIL: 50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
AUTH. NAME AUTHOR AFFILIATION
MANGAN, C. V. Niagara Mohawk Power Corp.
RECIP. NAME RECIPIENT AFFILIATION
ADENSAM, E. G. BWR Project Directorate 3

SUBJECT: Forwards revised exemption request to permit fuel loading & low power operation while problems w/MSIV's being resolved, per 860827 meeting w/NRC. Original request submitted on 860822.

DISTRIBUTION CODE: B001D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 12
TITLE: Licensing Submittal: PSAR/FSAR Amdts & Related Correspondence

NOTES:

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
	BWR EB		1	1	BWR EICSB		2	2
	BWR FOB		1	1	BWR PD3 LA		1	1
	BWR PD3 PD		1	1	HAUGHEY, M	01	2	2
	BWR PSB		1	1	BWR RSB		1	1
INTERNAL:	ACRS	41	6	6	ADM/LFMB		1	0
	ELD/HDS3		1	0	IE FILE		1	1
	IE/DEPER/EPB	36	1	1	IE/DQAVT/QAB	21	1	1
	NRR BWR ADTS		1	0	NRR PWR-B ADTS		1	0
	NRR ROE, M. L		1	1	NRR/DHFT/MTB		1	1
	REG FILE	04	1	1	RGN1		3	3
	RM/DDAMI/MIB		1	0				
EXTERNAL:	BNL(AMDTS ONLY)		1	1	DMB/DSS (AMDTS)		1	1
	LPDR	03	1	1	NRC PDR	02	1	1
	NSIC	05	1	1	PNL GRUEL, R		1	1

TOTAL NUMBER OF COPIES REQUIRED: LTTR 36 ENCL 31

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

August 28, 1986
NMP2L-0857

Ms. Elinor G. Adensam, Director
BWR Project Directorate No. 3
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Ms. Adensam:

Re: Nine Mile Point Unit 2
Docket No. 50-410

On August 22, 1986 we submitted an exemption request to permit fuel loading and low power operation of Unit 2 while we resolve some recently identified problems with the Main Steam Isolation Valves. On August 27, 1986 we met with several members of the NRC staff to discuss this request.

As a result of that meeting we are submitting a revised exemption request, attached to this letter, which clarifies our request and provides additional information identified by the NRC staff.

Very truly yours,

C. V. Mangan
Senior Vice President

Enclosure

xc: W. A. Cook, NRC Resident Inspector
Project File (2)

B001
1/1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
Niagara Mohawk Power Corporation	)	Docket No. 50-410
(Nine Mile Point Unit 2)	)	

AFFIDAVIT

C.V. Mangan, being duly sworn, states that he is Vice President of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

C V Mangan

Subscribed and sworn to before me, a Notary Public in and the the State of Maryland and County of Montgomery, this 28 day of AUGUST 1986

Ruth E Ludge
Notary Public in and for
Montgomery County, Maryland

My Commission expires:

July 1, 1990

APPLICATION FOR SCHEDULAR EXEMPTION RELATED TO FURTHER ANALYSIS OF AND POSSIBLE MODIFICATION TO MAIN STEAM ISOLATION VALVES

I. Introduction and Summary

Nine Mile Point Unit 2 ("NMP Unit 2") is a nuclear power plant employing a General Electric Company single cycle, forced circulating boiling water reactor ("BWR") with a plant rated core thermal power level of 3323 MWt corresponding to a net electrical output of 1080 MWe. Niagara Mohawk tendered an application for an operating license for NMP Unit 2 on January 31, 1983. The Final Safety Analysis Report ("FSAR") was docketed on April 12, 1983 subsequent to the completion of the Staff acceptance review.

The main steam isolation valve design and operation are described in Section 5.4.5 of the Final Safety Analysis Report. The Main Steam Isolation Valves are 24-in, reduced port (21 in.) ball-type valves. Two isolation valves are located in each of the four main steam lines; one valve inside containment and one valve just outside containment. They are provided to isolate the main steam lines in the event of a design basis accident in order to limit any radioactive release to the environment, to limit any inventory loss from the reactor vessel, and to terminate the release of mass and energy in the event of a main steam line rupture outside containment.

Recent testing of the main steam isolation valves has disclosed two problems:

1) The mechanical actuator which closes the valve did not always function properly. Two types of problems were encountered: a) the actuator system operated slowly, so that the valve did not close within the time (5 seconds) called for in the Technical Specifications; Sections 3/4.4.7 and 3.4.6.3; and b) on occasion, the actuator did not operate sufficiently to permit the valve to move from its open position.

2) A crack was discovered in a latching roller, a component of the valve actuator. This is similar to a problem that was previously reported to the Nuclear Regulatory Commission under 10CFR50.55(e) (in NMPC letter number 7600, December 9, 1983, C. V. Mangan to R. W. Starostecki).

In light of the above, the main steam isolation valves are not operable in the context of the Technical Specifications, and the requirements of 10CFR50, Appendix A, General Design Criteria 54 and 55 are not met. However, when closed, these valves will provide the isolation function to assure integrity of the Reactor Coolant Pressure Boundary and Primary Containment.

Niagara Mohawk therefore requests a schedular exemption pursuant to the Commission's regulations under 10CFR 50.12(a) to the requirements of 10CFR 50 Appendix A, General Design Criterion 54 (in regard to the provision of redundancy, reliability and performance capability of the isolation and containment capability of the main steam piping system penetrating primary

reactor containment and General Design Criterion 55 (in regard to the provision of one automatic isolation valve inside and one automatic isolation valve outside containment) to allow completion of the analysis required to provide a resolution of the problem, the procurement of equipment found necessary to resolve the problems, completion of any required modification, and the testing to prove the acceptability of the resolutions of the problems.

The requested exemption is to permit fuel loading and performance of those startup tests which can be conducted within the Technical Specifications Operational Conditions 4 and 5 (See Technical Specifications Table 1.2).

The following discussion sections demonstrate that the grant of an exemption would be in accordance with the requirements of 10CFR50.12(a). In particular, as discussed in detail below, grant of the exemption would not present an undue risk to public health and safety.

There are no Technical Specification requirements regarding the position of the valves, i.e., whether they are open or closed, during operation in Modes 4 and 5. At least one isolation valve in each line will be kept closed and deactivated at all times until the testing described in our schedular exemption requests concerning the Offgas Systems and the Electrical Hydraulic Control System which were submitted in our letters dated May 7, 1986 and June 13, 1986, respectively, is complete.

The requested exemption also meets the other requirements of the regulations. Special circumstances exist which meet the standard under

10CFR50.12(a)(2). The requested exemption is authorized by applicable law, including the Atomic Energy Act, 42 U.S.C. 2011 et seq., and National Environmental Policy Act, 42 U.S.C. 4321 et seq., and is consistent with the common defense and security.

II. The Requested Exemption Does Not Present An Undue Risk To The Public Health And Safety

The requested exemption will permit the loading of fresh fuel into the reactor vessel. Fuel loading takes place with the reactor vessel and the drywell open; there is no containment, so no need for containment isolation. During fuel loading the vessel water level will be above the vessel steam line nozzle, a main steam line plug will be in place in each nozzle, and at least one isolation valve in each main steam line will be closed and deactivated* at all times. Such operation is permitted by the Technical Specifications.

It is possible that there will be work activities associated with these valves during the period of the exemption. No occupational

*A Standing Order, issued by the Station Superintendent, will require that one valve in each line be closed at all times. To ensure closure, the circuit breaker controlling the hydraulic pump for the closed valve will be opened and marked up (tagged out).

radiation exposure is expected, however, as the reactor will not achieve criticality. There will be no steam produced, as the temperature in the vessel will not be greater than 200°F.

Operation as described above, presents no undue risk to the health and safety of the public, particularly as there will be virtually no fission product inventory in the fuel at the conclusion of the exemption period.

III. Special Circumstances Exist Which Warrant Issuance Of The Requested Exemption

Special circumstances exist under the categories contained in 10CFR50.12(a)(2) any of which would warrant issuance of the requested exemption. Undue hardship and costs would otherwise result that are significantly in excess of those incurred by other licensees. Further, the exemption is temporary and Niagara Mohawk has made good faith efforts to comply with licensing requirements. These special circumstances are discussed in accordance with the classification contained in the rule.

A. Undue Hardship

> (iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated . . .

Completion of the additional analyses required to demonstrate operability of the main steam isolation valves as well as any necessary hardware changes, prior to fuel loading of the facility would result in undue hardship and costs. Considering all factors, a delay in operation would result in a monthly delay cost of $60,000,000. The $60 million/month has two components. Fifteen million dollars is estimated as additional overhead construction costs, that is, the overhead involved in maintaining the construction status at the site. The remaining forty-five million dollars constitutes financing costs. This $60 million cost does not include the cost of replacement power.

The fuel loading and testing for which the exemption is requested are scheduled to take about 30 days. At the $2,000,000 per day cost of delayed operation, failure to grant the exemption would add $60,000,000 to the cost of the plant.

Thus, special circumstances exist which warrant granting of the exemption.

B. Applicant's Good Faith Efforts

> (v) The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation ...

As noted above, the exemption is being requested to provide temporary relief until the completion of the testing described above. As further discussed, Applicant has made good faith efforts to comply with all regulatory requirements as set forth in applicable Staff guidance.

The main steam isolation valves were procured and installed with the intent of fully meeting the requirements of the Final Safety Analysis Report and the Technical Specifications with regard to closing time. As noted in Section 5.4.5.3, of the Final Safety Analysis Report the ability of the ball-type valve to close in 3 to 5 seconds was demonstrated by a combination of dynamic tests and analysis. However, recent Site testing experience indicates that the actuator mechanism does not function to consistently close the valve within the required five seconds. A number of options is currently being evaluated to assure that the valves close within 5 seconds.

The causes of the above problems are attributed to the following:

1. Failure to close within the five seconds is due to a time related increase in the force required to trip the latch mechanism. The specific cause of the time dependent phenomenon is being investigated.

2. The current investigation indicates that failure of the roller appears to have initiated from pre-existing defects which were induced during the manufacturing process. Through-thickness cracking occurred only after a load was applied to the roller in such a manner, dependent on roller orientation and pre-existing defect size, that the critical stress intensity at the given defect was exceeded.

A modification which is being pursued to resolve the MSIV closure problem includes modification of the hydraulic system which is presently used to open

the MSIV and allow[redacted]t to be latched. The hydrau[redacted] system would be modified to additionally maintain the MSIV in an open position. By accomplishing this, the present mechanical latching mechanism will not be required.

The hydraulic system solenoid valves will be normally closed and changed to continuously energized. In the event of power failure, the solenoid valve will fail open, thereby causing the MSIVs to close. Additionally, hydraulic failure will cause the spring to close the MSIV thereby maintaining the fail safe feature of the valve.

A sketch is provided, Attachment 1, to depict the modified hydraulic system.

The schedule milestones to accomplish the above includes:

Activity	Target Completion Dates
1. Complete Design/Selection of Replacement Components	September 5, 1986
2. Completion of Modification and Testing	September 27, 1986

In addition to the above modification effort, NMPC will be continuing its investigation of how best to accomplish some of the operational advantages of the original mechanical latch design features of the MSIV operator.

The above investigations will not be implemented without further testing and further discussions with the NRC.

As demonstrated above the present design presents no undue risk to the public health and safety during the exemption period in the interim. Thus, under this criterion, good cause has been shown for granting the requested exemption.

IV. The Other Requirements For Issuance Of An Exemption Are Met.

The requested exemption is authorized by applicable law, including the Atomic Energy Act and National Environmental Policy Act. With regard to the "common defense and security" standard, the grant of the requested exemption is consistent with the common defense and security of the United States. The Commission's Statements of Consideration in support of the exemption rule note with approval the explanation of this standard as set forth in Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), LBP-84-45, 20 NRC 1343, 1400 (1984). Thus, the term "common defense and security" refers principally to the safeguarding of special nuclear material, the absence of foreign control over the applicant, the protection of Restricted Data, and the availability of special nuclear material for defense needs. The granting of the requested exemption will not affect any of these concerns and is, therefore, consistent with the common defense and security.

The proposed exemption has been analyzed and determined not to involve additional construction or operational activities which may significantly affect the environment. It will not result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental

Impact Statement-Operating License Stage, a significant change in effluents or power levels or a matter not previously reviewed by the NRC which may have a significant adverse environmental impact.

V. Conclusion

For the foregoing reasons, Niagara Mohawk Power Corporation has demonstrated that it meets the requirements contained in 10CFR50.12(a) for the issuance of an exemption. Therefore, the requested exemption to permit operation of Nine Mile Point Unit 2 during the time that the necessary effort to verify operability of the main steam isolation valves and ensure that they meet their intended function over the design life of the station is being performed, and to allow any changes to the facility required as a result of this effort to be completed prior to proceeding beyond the operational conditions 4 and 5 and granted.