

March 29, 1988

Docket No. 50-220

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Mr. Charles V. Mangan  
Senior Vice President  
Niagara Mohawk Power Corporation  
301 Plainfield Road  
Syracuse, New York 13212

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ACRS(10)	GPA/PA
ARM/LFMB	JJohnson,RI

Dear Mr. Mangan:

SUBJECT: RELIEF REQUEST TRANSMITTED BY LETTER DATED JULY 8, 1987  
FOR NINE MILE POINT UNIT 1

By letter dated July 8, 1987, Niagara Mohawk Power Corporation requested relief from the requirements of Paragraph IWP-3500(b) of the ASME Boiler and Pressure Vessel Code, Section XI. Paragraph IWP-3500(b) requires bearing temperature measurements once a year for the two high-pressure positive displacement liquid poison pumps. The licensee concludes that temperature measurements are inconclusive of pump performance and proposes to measure pump vibration as an alternative. We have reviewed the request and conclude that the relief may be granted provided the ASME Operation and Maintenance Working Group 6 acceptance criteria be used for vibration measurement. The enclosed Safety Evaluation provides the details of our review.

For the relief that is being granted, we have determined that the temperature measurement requirements of the ASME Code provision cited in the first paragraph are impractical and pursuant to 10 CFR 50.55(a)(3)(i), that the proposed alternative testing method will provide an acceptable level of quality and safety.

The request for relief complies with the standards and the requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter 1. Accordingly, relief from certain provisions of Section XI of the ASME Boiler and Pressure Vessel Code and the applicable addenda is hereby granted, as described in the enclosed Safety Evaluation.

Sincerely,

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

8804050181 880329  
PDR ADOCK 05000220  
P PDR

Enclosure:  
As stated

cc: See next page \* SEE PREVIOUS CONCURRENCE

PDI-1	PDI-1	OGC	PDI-1
*CVogan	*DNeighbors:mak	*MYoung	RCapra
3/02/88	3/02/88	3/24/88	for 3/29/88

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PDI-1  
DNeighbors\*:mak  
3/02/88

OGC *MM*  
*M Young*  
3/24/88

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For the relief that is being granted, we have determined that the temperature measurement requirements of the ASME Code provision cited in the first paragraph are impractical and that the relief granted is authorized by law and will not endanger life, property or the common defense and security and is otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

The request for relief complies with the standards and the requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter 1. Accordingly, relief from certain provisions of Section XI of the ASME Boiler and Pressure Vessel Code and the applicable addenda is hereby granted, as described in the enclosed Safety Evaluation.

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CVogan *CV*  
3/12/88

PDI-1 *DM*  
DNeighbors:mak  
3/12/88

OGC  
/ /88

PDI-1  
RCapra  
/ /88

Mr. C. V. Mangan  
Niagara Mohawk Power Corporation

Nine Mile Point Nuclear Station,  
Unit No. 1

cc:

Mr. Troy B. Conner, Jr., Esquire  
Conner & Wetterhahn  
Suite 1050  
1747 Pennsylvania Avenue, N. W.  
Washington, D. C. 20006

Mr. Thomas W. Roman  
Unit 1 Station Superintendent  
Nine Mile Point Nuclear Station  
Post Office Box 32  
Lycoming, New York 13093

Mr. Frank R. Church, Supervisor  
Town of Scriba  
R. D. #2  
Oswego, New York 13126

Mr. Thomas Perkins  
General Supt.-Nuclear Generation  
Niagara Mohawk Power Corporation  
Nine Mile Point Nuclear Station  
Post Office Box 32  
Lycoming, New York 13093

Resident Inspector  
U. S. Nuclear Regulatory Commission  
Post Office Box 126  
Lycoming, New York 13093

Mr. Gary D. Wilson, Esquire  
Niagara Mohawk Power Corporation  
300 Erie Boulevard West  
Syracuse, New York 13202

Regional Administrator, Region I  
U. S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, Pennsylvania 19406

Ms. Donna Ross  
New York State Energy Office  
2 Empire State Plaza  
16th Floor  
Albany, New York 12223



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

INSERVICE TESTING PUMP TEST RELIEF

NINE MILE POINT NUCLEAR POWER STATION, UNIT NO. 1

DOCKET NO. 50-220

INTRODUCTION

By letter dated July 8, 1987, Niagara Mohawk Power Corporation submitted a pump test relief request for the Inservice Testing Program for its Nine Mile Point Nuclear Station Unit 1 (NMP-1). The requested relief will permit NMP-1 to measure the reactor liquid poison pump vibration instead of bearing temperature once per year.

DISCUSSION

There are two high-pressure positive displacement liquid poison pumps in the NMP-1 plant. Their function is to inject a pre-determined amount of concentrated boron solution into the reactor core within the required time in the event of massive control rods failure. Each of the two pumps has the capacity to achieve the design objective by itself.

NMP-1 conducts monthly flow testing on these pumps at present. Each pump is used to circulate demineralized water through a test tank. The discharge pressure is controlled to 1275 psig by manually throttling a gate valve. Bearing temperatures are measured during the annual flow test as required by IWP-3500(b) of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code Section XI. Since the volume of the test tank is relatively small, the heat up rate of the pump fluid exceeds the rate allowed for bearing temperatures to stabilize. The bearing temperatures thus increase with the fluid temperature and cause the pumps to run for the maximum test time of 2 hours. The high fluid temperature also jeopardizes the integrity of pump packings.

NMP-1 is proposing an alternative testing method by measuring bearing vibration instead of bearing temperatures. Vibration measurements will be taken in the outboard horizontal, vertical and axial directions as well as the inboard horizontal and vertical directions on a monthly basis. The inboard axial direction is inaccessible for measurement.

The purpose of measuring bearing temperature is to determine the degree of bearing deterioration and degradation caused by service. They usually are more detectable toward the end of the service life. By measuring vibration, however, more information can be revealed about the bearing condition. The American Society of Mechanical Engineers Operation & Maintenance Working Group 6 (O&M 6) Standard established a set of rules for the vibration measurement and its acceptance criteria. This set of rules should be used as guidance for the proposed alternative method.

The alternative testing method proposed by NMP-1 would provide, under ideal conditions, comparable information about bearing deterioration and degradation caused by service. In this case, the alternative testing method will provide better results for pump testing and also protect pump packings for better service. The staff deems it acceptable when the O&M 6 acceptance criteria is used and recommends the requested relief be granted on that basis.

CONCLUSION

Based on the review summarized herein, we conclude that the relief may be granted and pursuant to 50.55a(3)(i), the proposed alternative will provide an acceptable level of quality and safety.

PRINCIPAL CONTRIBUTOR:

H. Shaw