



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

August 26, 1993

Docket No. 50-410

Mr. B. Ralph Sylvia  
Executive Vice President, Nuclear  
Niagara Mohawk Power Corporation  
301 Plainfield Road  
Syracuse, New York 13212

Dear Mr. Sylvia:

SUBJECT: SCHEDULE EXTENSION FOR IMPLEMENTATION OF GENERIC LETTER  
89-10 PROGRAM FOR MOTOR-OPERATED VALVES AT NINE MILE  
POINT NUCLEAR STATION, UNIT 2 (TAC NO. M86321)

In Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," the NRC staff requested nuclear power plant licensees to develop programs to verify the capability of safety-related motor-operated valves (MOVs) to perform their safety functions by June 28, 1994, or three refueling outages after December 28, 1989, (whichever is later). Niagara Mohawk Power Corporation (NMPC) indicated in a letter dated February 5, 1992, that it intended to meet the schedule and recommendations of GL 89-10 at Nine Mile Point Unit 2 (NMP-2). By letter dated April 15, 1993, NMPC informed the NRC staff of its decision to extend the schedule for completing the recommended actions of GL 89-10 beyond June 28, 1994. Specifically, NMPC proposed to test 57 MOVs that have a more significant contribution to overall plant safety by June 28, 1994. The remaining MOVs within the scope of the GL 89-10 program would be tested within 3 months of the end of the fourth refueling outage.

The NRC staff reviewed NMPC's letter of April 15, 1993, and determined that additional information was needed to complete evaluation of the justification for the schedule extension. Accordingly, the staff issued a request for additional information on June 24, 1993. On July 16, 1993, the staff met with NMPC in the NRC One White Flint North Office in Rockville, Maryland, to review and discuss the additional information that had been requested.

During the meeting on July 16, 1993, NMPC informed the staff that there were 41 MOVs within the scope of its GL 89-10 program that would not receive either static or dynamic testing prior to June 1994. The staff explained that the approach being followed by NMPC for these valves would not provide adequate assurance of their reliability, except possibly for those valves with a sizable margin between their estimated capability and their requirements. The staff recommended that NMPC consider revising its test plan for the upcoming outage (scheduled to begin in October 1993) to ensure that all the valves in the program undergo at least static testing before June 1994. The staff also recommended that the information learned on valve requirements from dynamic testing be used in setting up valves that only undergo static testing. During the meeting on July 16, 1993, NMPC was requested to provide certain additional

MAY

9309090302 930826  
PDR ADOCK 05000410  
P PDR

NRC FILE CENTER COPY

FOI  
11



•  
•  
•  
•  
•

10/10/71  
10/10/71  
10/10/71  
10/10/71  
10/10/71

10/10/71

information related to test acceptance criteria, grouping, and capability evaluations. This information was transmitted to the staff on July 21, 1993.

NMPC advised the NRC staff of revisions to its test plan for the upcoming outage during a telephone conference on August 5, 1993. (Participants in this telephone conference included Messrs. Jones, Ward, and Baker from NMPC and Messrs. Eapen, Drysdale, Scarbrough, Sullivan, and Menning from the NRC staff.) Specifically, during the telephone conference NMPC committed to statically test all 15 gate valves in the group of 41 low priority valves during the next refueling outage. NMPC also stated that every effort would be made to statically test the remaining 26 non-gate valves in the low priority group. As a result of rearranging its test plan, NMPC stated that three additional globe valves with significant capability margin would not be statically or dynamically tested before June 1994.

During the telephone conference on August 5, 1993, the staff discussed NMPC's basis for the safety significance and capability margin for the 29 MOVs that will not be statically or dynamically tested before June 1994. The staff did not identify any concerns with the NMPC's assignment of low safety significance. Although NMPC indicated that each of the 29 MOVs has capability margin available, the staff noted that globe valves 2RHS\*MOV26A/B and 2RHS\*MOV27A/B had less thrust margin than the other globe valves. The staff advised NMPC that the revised test plan for NMP-2 was considered to be acceptable. However, the staff requested that NMPC attempt to test as many of the 29 remaining MOVs at least statically before June 1994. In particular, the staff requested that NMPC make a strong effort to test globe valves 2RHS\*MOV26A/B and 2RHS\*MOV27A/B because of their small capability margin compared to other globe valves.

The NRC staff has concluded that NMPC's extension of the implementation schedule for the GL 89-10 program for MOVs is acceptable subject to certain conditions. Those conditions are as follows:

1. For those MOVs that are only tested at partial design basis conditions, NMPC is required to demonstrate the operability of those components at full design basis conditions.
2. For those MOVs that are only statically tested, NMPC is required to demonstrate operability based on the best industry test data available. Based on industry experience, the staff does not consider the original vendor valve factor of 0.3 to be the best data available for gate valves on a generic basis.
3. For those MOVs that will not be statically or dynamically tested before June 1994, NMPC is required to set up those components using conservative theoretical predictions to ensure their capability.
4. The grouping methodology that has been proposed to reduce the extent of dynamic testing must be justified.



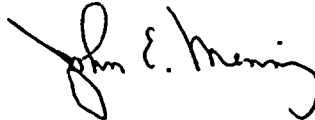
Mr. B. Ralph Sylvia

- 3 -

August 26, 1993

The staff's comments on the NMPC documents related to test acceptance criteria, grouping, and capability evaluations that were transmitted to the staff on July 21, 1993, are being forwarded as an enclosure to this letter for NMPC's consideration. When issued, Supplement 6 to GL 89-10 will provide additional information in these areas. The staff will review NMPC's actions in response to the above-stated conditions and the enclosed comments during future inspections.

Sincerely,



John E. Menning, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosure:  
NRC Staff Comments on  
Licensee Documents Transmitted  
on July 21, 1993

cc w/enclosure:  
See next page



Mr. B. Ralph Sylvia  
Niagara Mohawk Power Corporation

Nine Mile Point Nuclear Station  
Unit 2

cc:

Mark J. Wetterhahn, Esquire  
Winston & Strawn  
1400 L Street, NW.  
Washington, DC 20005-3502

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

Mr. Richard Goldsmith  
Syracuse University  
College of Law  
E. I. White Hall Campus  
Syracuse, New York 12223

Charles Donaldson, Esquire  
Assistant Attorney General  
New York Department of Law  
120 Broadway  
New York, New York 10271

Resident Inspector  
Nine Mile Point Nuclear Station  
P. O. Box 126  
Lycoming, New York 13093

Mr. Richard M. Kessel  
Chair and Executive Director  
State Consumer Protection Board  
99 Washington Avenue  
Albany, New York 12210

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

Mr. John H. Mueller  
Plant Manager, Unit 2  
Nine Mile Point Nuclear Station  
Niagara Mohawk Power Corporation  
P. O. Box 32  
Lycoming, New York 13093

Mr. David K. Greene  
Manager Licensing  
Niagara Mohawk Power Corporation  
301 Plainfield Road  
Syracuse, New York 13212

Vice President - Nuclear Generation  
Nine Mile Point Nuclear Station  
Niagara Mohawk Power Corporation  
P. O. Box 32  
Lycoming, New York 13093

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

Supervisor  
Town of Scriba  
Route 8, Box 382  
Oswego, New York 13126



5

6

7

8



NRC STAFF COMMENTS ON NIAGARA MOHAWK POWER CORPORATION (NMPC)  
DOCUMENTS TRANSMITTED TO THE STAFF ON JULY 21, 1993

Nine Mile Point Unit 2 Engineering Specification NMP2-386M (Revision 1, dated July 21, 1993), "Dynamic Flow Testing of Safety Related Motor Operated Valves to Comply with GL 89-10"

1. The criteria established in Section 5.1 of NMP2-386M do not ensure operability of the tested motor-operated valve (MOV) before it is returned to service. NMPC only requires this determination after return to service in Section 5.2. The criteria must ensure that the operability of all tested MOVs is verified prior to return to service.
2. In Section 5.2, it is stated that only test data from differential pressure tests above 80% of the design basis will be evaluated. All test data must be evaluated for information on MOV operability regardless of the percentage of design basis conditions.
3. The discussion of test acceptance criteria after return to service must be more specific. For example, Section 5.2.3 states that margin must exist between thrust at torque switch trip and extrapolated differential pressure thrust but does not provide detailed information to determine whether margin exists.
4. Section 2.6 defines a dynamic test as either a test with differential pressure and/or flow. The definition needs to reflect that a dynamic test with low or no flow might not provide reliable information on the thrust required to open or close the valve although differential pressure is within the desired range.
5. Section 4.4 in paragraph A.4 states that locations of pressure measurement instruments are based on an allowable 5% pressure drop in the pipeline between the pressure instruments and the MOV under test. In addition to other uncertainties, the actual pressure drop across the valve must be determined regardless of location of measurement instruments.

Nine Mile Point Unit 2 NER-2M-003 (Revision 0, dated July 6, 1993), "Generic Letter 89-10 Dynamic Testing Valve Grouping"

1. The grouping method in Section 3.0 focuses on external attributes but allows different sized valves to be grouped together. NMPC's grouping method is similar to the grouping allowed under NRC Bulletin 85-03, which was found to be inadequate. NMPC should review the information to be provided in Supplement 6 to GL 89-10 on grouping.
2. In Section 4.0, NMPC asserts that, because valve groups will be of the same manufacturer, dimensional attributes will be equal or proportional, thereby assuring similar stress distributions in the valve assembly.



11

12

13

14

15

16

17

18

19

20

However, manufacturing tolerances have been shown to have a significant effect on the thrust required to operate a valve such that apparently identical valves perform differently under dynamic conditions. NMPC's grouping method must provide sufficient justification to demonstrate that the grouped MOVs will perform similarly under dynamic conditions.

NMP2 Detailed Analysis for Output Thrust Capabilities in the Scope of the NMP2  
GL 89-10 Program Extension

1. In Section 2.1.A, NMPC predicts the required thrust based on a 0.3 valve factor for gate valves from original vendor guidance and NMP-2 "design basis." The NRC regulations require that safety-related components be capable of performing their design-basis functions. A specific valve factor would not be part of that design basis requirement for the valve. Industry MOV tests have shown the 0.3 valve factor to be unreliable in conservatively predicting the thrust required for all gate valves. In addition, Westinghouse has recommended approximately 0.5 valve factors for some of their valves (2HCS\*MOV1A/B and MOV2A/B are Westinghouse valves). Use of a 0.3 valve factor creates a significant uncertainty in NMPC's prediction of the thrust required to operate gate valves. NMPC must use best available data in verifying the sizing and settings of its MOVs.
2. In Section 2.2.A, NMPC predicts the thrust capability of MOVs that have not been statically tested with diagnostic equipment using either (1) laboratory test data from Limatorque of the MOV at various torque switch settings, or (2) standard Limatorque spring pack curves and an assumed 0.15 stem friction coefficient. The NRC staff discussed concerns about the use of Limatorque laboratory test data in NRC Inspection Report 99900404/92-01 from an inspection of the Westinghouse Electric Corporation. For example, the stem friction coefficient during the Limatorque testing could have been much lower than present at NMP-2. As discussed in NRC Inspection Report 99900100/93-01, Limatorque does not have any information on the uncertainty in its spring pack curves, but stated that it could be significant. NMPC's prediction of thrust capability may be overly optimistic. During the telephone conference on August 5, 1993, NMPC stated that, of the MOVs that will not be dynamically tested by June 1994, all of the gate valves would at least be statically tested to determine their thrust capability under those conditions. NMPC must continue to be aware of the uncertainties in assessing the capability of MOVs tested only under static conditions as well as the capability of non-gate valves.
3. In Attachment C, NMPC lists thrust/torque margin for the 41 MOVs to be tested after June 1994. However, the minimum required thrust for 2CCP\*MOV122 and 124 does not match this thrust in Attachment A. NMPC must check the table for accuracy and make necessary corrections.



4. NMPC must review problems (such as at Catawba) with vendor estimates of required torque for operating butterfly valves to determine if its predicted torque requirement is justified.
5. NMPC must continue to assess the calculated margin of the valves that will not be dynamically tested based on plant-specific test data and other available test data.



The staff's comments on the NMPC documents related to test acceptance criteria, grouping, and capability evaluations that were transmitted to the staff on July 21, 1993, are being forwarded as an enclosure to this letter for NMPC's consideration. When issued, Supplement 6 to GL 89-10 will provide additional information in these areas. The staff will review NMPC's actions in response to the above-stated conditions and the enclosed comments during future inspections.

Sincerely,

Original signed by:

John E. Menning, Project Manager  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosure:  
NRC Staff Comments on  
Licensee Documents Transmitted  
on July 21, 1993

cc w/enclosure:  
See next page

DISTRIBUTION:

Docket File	NRC & Local PDRs	PEapen, RI
PDI-1 Reading	SVarga	AHansen, 13/E/21
JCalvo	RACapra	TScarborough, 7/E/23
CVogan	JMenning	
OGC	ACRS (10)	
Cowgill, RGN-1	Plant File	

\*See previous concurrence

OFFICE	PDI-1:LA	PDI-1:PM	*EMEB	Region I	PDI-1:D
NAME	CVogan <i>CV</i>	JMenning <i>JM</i>	JNorberg	PEapen <i>per telecon</i>	RACapra <i>RCW</i>
DATE	8/26/93	8/26/93	8/24/93	8/25/93	8/26/93

OFFICIAL RECORD COPY  
FILENAME: G:\NMP2\NM286321.LTR



0  
1  
2  
3  
4  
5  
6  
7  
8  
9

10

11