December 2, 1987

Docket No. 50-410

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Mr. Charles V. Mangan
Senior Vice President
Niagara Mohawk Power Corporation
301 Plainfield Road
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Dear Mr. Mangan:

SUBJECT: INSERVICE TESTING PROGRAM FOR NINE MILE POINT UNIT 2

On November 2, 1987, we sent you a request for additional information (RAI) concerning your July 29, 1987 Inservice Testing (IST) Program for Pumps and Valves for Nine Mile Point Unit 2. Enclosed is a revised RAI for the IST program that reflects the staff's review of your July 30, 1987 submittal on the same subject. This revised RAI replaces that sent to you on November 2, 1987, and is intended to serve as an agenda for the meeting scheduled for December 3 and 4, 1987 at the site.

Many of the questions and comments in the November 2, 1987 RAI have been deleted from this RAI since the concerns that led to their inclusion have been satisfactorily addressed in the most recent program submittal. Some of the original questions have been modified as a result of program changes and the following questions were added to this RAI as a result of our review of the July 30, 1987 program: A-13, A-14, J-9, Q-13, Q-14, S-1, T-1, 2-12 and 2-13. Formal responses to the enclosure are not required before the meeting. However, draft responses should be prepared before the meeting and be available for the meeting discussion.

Sincerely,

Mary F. Haughey, Project Manager
Project Directorate I-1
Division of Reactor Projects, I/II

Enclosure:
As stated

cc: See next page

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CVogan	LMarsh	MHaughey
12/1/87	12/2/87	12/2/87

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NINE MILE POINT NUCLEAR STATION, UNIT 2
PUMP AND VALVE INSERVICE TESTING PROGRAM
QUESTIONS AND COMMENTS

1. VALVE TESTING PROGRAM

A. General Questions and Comments

1. If a manual operator is used to full-stroke exercise check valves that cannot be full-stroke exercised with flow, is the force or torque that is applied to the mechanical exerciser measured to assure compliance with IWV-3522(b)?

2. The NRC has concluded that the applicable leak test procedures and requirements for containment isolation valves are determined by 10CFR50, Appendix J. Relief from paragraphs IWV-3421 through 3425 for containment isolation valves presents no safety problem since the intent of IWV-3421 through 3425 is met by Appendix J requirements, however, the licensee shall comply with Paragraphs IWV-3426 and 3427. General Relief Request GVRR-1 does not comply with this staff position.

3. Provide a listing of all valves that are Appendix J, Type C, leak rate tested which are not included in the IST program and Categorized A or AC?

4. The NRC staff has identified rapid-acting power operated valves as those which stroke in 2 seconds or less. Relief may be obtained from the trending requirements of Section XI, Paragraph IWV-3417(a), however, in order to obtain this Code relief the staff does require that the licensee assign a maximum limiting stroke time of 2 seconds to these valves and comply with the requirements of IWV-3417(b) when the 2 second limit is exceeded. General valve relief request GVRR-3 does not comply with this staff position.

5. Provide the limiting values of full-stroke times for the power operated valves in the Nine Mile Point Nuclear Station, Unit 2, IST program for our review. What are the bases used to assign the limiting values of full-stroke time for these valves?

6. When flow through a check valve is used to indicate a full-stroke exercise of the valve disk, the NRC staff position is that verification of the maximum flow rate identified in any of the plant's safety analyses through the valve would be an adequate demonstration of the full-stroke requirement. Any flow rate less than this will be considered partial-stroke exercising unless it can be shown (by some means such as measurement of the differential pressure across the valve), that the check valve's disk position at the lower flow rate would permit maximum required flow through the valve. Does the Nine Mile Point Nuclear Station, Unit 2, IST program conform to this staff position?

7. The relief request and cold shutdown justification bases should indicate the negative consequences that make testing at the Code required frequency impractical such as endangering personnel, damaging equipment, or resulting in a plant shutdown.

8. Which valves at Nine Mile Point Nuclear Station, Unit 2, are currently leak rate tested to verify a pressure boundary isolation function?

9. Provide a more detailed technical justification for not testing the excess flow check valves quarterly during power operations and during cold shutdowns (refer to General Relief Request GVRR-2).

10. How are the remote position indicators being verified for solenoid operated valves in the Nine Mile Point Nuclear Station, Unit 2, IST program?

11. <u>Deleted</u>

12. Provide P&IDs 52A AND 52G for our review.

13. When a cold shutdown justification addresses a frequency interval greater than each cold shutdown (not to exceed one test every three months) it should be presented in the form of a relief request (refer to the discussion in the "Cold Shutdown Testing" section of Cold Shutdown Test Justifications CSH-VCS-3 and ICS-VCS-4).

14. What is the basis for using ANSI/ASME OM-1, 1981 as the alternative criteria for testing safety and relief valves instead of the criteria as outlined in ASME PTC 25.3-1976 and specified in the ASME Code Section XI, 1983 Edition through Summer of 1983 addenda?

B. Reactor Building Closed Loop Cooling System

1. Review the safety-related function of valves 2CCP*V143, V148, V161, and V277 (P&ID No. 13E-5) to determine if they should be included in the IST program and tested to the Code requirements.

C. High Pressure Core Spray System

1. Provide a more detailed technical justification that explains why valve 2CSH*AOV108 cannot be exercised utilizing system flow quarterly during power operations (refer to cold shutdown test justification CSH-VCS-1).

2. How is the reverse flow closure of valves 2CSH*V17 and V55 individually verified?

3. Relief Request No. CSH-VRR-1 indicates that the reverse flow closure of valve 2CSH*V59 will be verified by disassembly and inspection of the valve during refueling outages. Valve disassembly and inspection is an acceptable method to verify the reverse flow closure of a check valve, but this is not the preferred method. What other test methods have been considered for this valve?

4. How is valve 2CSH*V7 verified to full-stroke exercise open during quarterly testing?

D. Low Pressure Core Spray System

1. Provide a more detailed technical justification that explains why valve 2CSL*AOV101 cannot be exercised utilizing system flow quarterly during power operations (refer to cold shutdown test justification CSL-VCS-1).

2. Provide a more detailed technical justification for not exercising valve 2CSL*MOV104 quarterly during power operations (refer to cold shutdown test justification CSL-VCS-1).

3. How is the reverse flow closure of valves 2CSL*V14 and V21 individually verified?

4. How is the reverse flow closure verified for valve 2CSL*V9 during quarterly testing?

5. Does valve 2CSL*V4 perform a safety-related function in the closed position? If so, how is the reverse flow closure of this valve verified?

E. Standby Diesel Generator System

1. How is the reverse flow closure capability verified individually for valves 2EGA*V62A, V62B, V63A, and V63B?

2. Review the safety-related function of the emergency diesel generator air start valves (2EGA*PCV25A, PCV25B, PCV26A, PCV26B, AOV323A, and AOV323B) and the associated in-line check valves (2EGA*V12A, V12B, V14A, and V14B) to determine if they should be included in the IST program.

F. Fire Protection Water System

1. Are the valves on either side of containment penetration Z-46C (P&ID No. 43G-6 coordinates H-4) Appendix J, Type C, leak rate tested as containment isolation valves? If so they should be included in the IST program and tested to the Code requirements.

G. Feedwater System

1. What type of leak test do valves 2FWS*MOV21A and V21B receive? The leak test type is not specified in the NMP-2 IST program valve tables.

2. Provide a more detailed technical justification for not verifying the reverse flow closure of valves 2FWS*V12A and V12B during cold shutdowns.

H. Nitrogen System

1. Deleted

I. Instrument & Service Air System

1. Provide a more detailed technical justification for not verifying reverse flow closure for the valves identified in relief request No. IAS-VRR-2 quarterly and during cold shutdowns. Identify the specific concerns that make this testing impractical to perform quarterly and during cold shutdowns.

2. Deleted

3. Deleted

J. Reactor Core Isolation Cooling System

1. Provide a more detailed technical justification that explains why valves 2ICS*AOV156 and AOV157 cannot be exercised open utilizing system flow quarterly during power operations. How is the reverse flow closure of these valves being verified during testing at cold shutdowns (refer to cold shutdown test justification ICS-VCS-2)?

2. Is design accident flow verified through valve 2ICS*V29 during quarterly valve testing? If not, how is this valve full-stroke exercised (refer to the comment in Item A.6 of this report)?

3. How is it verified that valve 2ICS*V38 is full-stroke exercised during the quarterly valve testing?

4. Provide a more detailed technical justification that explains why it is not possible to perform the special air test to verify the forward flow capability of valves 2ICS*V39 and V40 either quarterly during power operations or during cold shutdowns (refer to Relief Request No. ICS-VRR-1).

5. Does valve 2ICS*PCV115 (P&ID PID-35C-5 coordinates D-4) have a <u>required</u> fail-safe position? If so, in addition to testing its fail-safe function, this valve must be exercised and have its full-stroke time measured in accordance with the Code.

6. Review the safety-related function of valve 2ICS*FV108 (P&ID PID-35D-3 coordinates D-2) to determine if it should be included in the IST program.

7. Is credit taken in any of NMP-2 safety analyses for the reverse flow closure of either valve 2ICS*V27 or 2ICS*V249?

8. Are valves 2ICS*MOV150 and HYV151 skid mounted components? Does quarterly testing of the RCIC turbine verify the operability of these valves?

9. Valve 2ICS*V28 is addressed in both ICS-VRR-2 and ICS-VCS-4. There is no indication that this valve will ever be full-stroke exercised as required by the Code. What alternate testing methods have been considered to verify the full-stroke capability of this valve?

K. Main Steam System

1. If valves 2MSS*SOV97A, SOV97B, SOV97C, and SOV97D have fail-safe actuators, they should be fail-safe tested in accordance with the Code requirements.

2. Provide a more detailed technical justification that explains why repeatable test conditions cannot be established when testing the ADS valves during reactor refueling outages to allow measurement of meaningful valve stroke times in order to provide a means to detect valve degradation (refer to Relief Request No. MSS-VRR-1).

3. Are the ADS and main steam safety relief discharge line vacuum breakers actually relief valves as shown on the P&IDs or are they simple check valves? If they are check valves, they should be exercised as Category C valves in accordance with the requirements of IWV-3520.

L. Reactor Coolant System

1. Deleted

M. Control Rod Drive Hydraulic System

1. Provide a discussion that explains how it was determined that "the technical specification for control rod scram insertion time testing meets the intent of Section XI testing requirements" (refer to Relief Request No. RDS-VRR-1).

2. What is the frequency for scram testing the control rods at Nine Mile Point, Unit 2 (how many rods are tested at what interval)?

3. Provide a more detailed technical justification for not exercising the 2RDS*115 valves during cold shutdowns (refer to Relief Request No. RDS-VRR-2).

4. Provide a more detailed discussion about the alternate testing being performed to verify the reverse flow closure of the 2RDS*138 valves (refer to Relief Request No. RDS-VRR-3).

N. Residual Heat Removal System

1. Provide a more detailed technical justification that explains why valves 2RHS*AOV16A, AOV16B, and AOV16C cannot be exercised utilizing system flow quarterly during power operations (refer to cold shutdown test justification RHS-VCS-1).

2. Provide a more detailed technical justification that explains why valves 2RHS*AOV39A and AOV39B cannot be exercised utilizing system flow quarterly during power operations (refer to cold shutdown test justification RHS-VCS-1).

3. Deleted

4. Deleted

5. How is it verified that valves 2RHS*V7, V8, and V9 are full-stroke exercised during quarterly testing?

6. What percent of a full-stroke is possible using the air operator when exercising testable check valve 2RHS*AOV150?

7. Is valve 2RHS*MOV26A Appendix J, Type C, leak rate tested to verify its leak tight capability?

8. Review the safety-related function of valves 2RHS*V19, V20, V117, and V118 (P&ID PID-31D-4 coordinates B-2 and P&ID PID-31E-5 coordinates J-2 respectively) to determine if they should be included in the IST program and tested in accordance with the Code.

9. Review the safety-related function of valves 2RHS*LV17A and LV17B (P&IDs PID-31D-1 and 31E-1 coordinates G-5 and D-6 respectively) to determine if they should be included in the IST program.

10. Are 2RHS*RVV35A, RVV35B, RVV36A, and RVV36B relief valves or simple check valves? If they are check valves, they should be exercised as Category C valves in accordance with the requirements of IWV-3520.

11. Deleted

12. If valves 2RHS*V47, V48, V60, and V61 perform a safety-related function in the closed position as identified in the IST program valve table, then their reverse flow closure should be individually verified.

13. Deleted

14. Do valves 2RHS*V17 and V18 perform a safety-related function in the closed position? If so, reverse flow closure should be verified for each of these check valves in accordance with the Code requirements.

15. Deleted

16. Deleted

17. Does valve 2RHS*V3 perform a safety-related function in the closed position? If so, reverse flow closure should be verified in accordance with the Code requirements.

18. Is credit taken in any Nine Mile Point, Unit 2, accident analyses for the operation of the steam condensing mode of the residual heat removal system? If so, valves 2RHS*V13 and V14 (P&ID PID-31D-4 coordinates H-5 and H-2 respectively) should be included in the IST program and tested in accordance with the Code.

O. Fuel Pool Cooling and Clean Up System

1. How are the following valves full-stroke exercised quarterly?

2SFC*V300A	2SFC*V301A	2SFC*V302
2SFC*V300B	2SFC*V301B	2SFC*V303

2. Review the safety-related function of valves 2SFC*HV35A, HV35B, HV54A, and HV54B (P&IDs PID-38A-1 and 38B-1) to determine if they should be included in the IST program. Do these valves have required fail-safe positions?

3. What safety-related systems provide cooling to the spent fuel pool? Are all of the safety-related pumps and valves in these systems included in the IST program and tested to the Code requirements?

P. Standby Liquid Control System

1. Provide a more detailed technical justification for not verifying forward flow operability of valves 2SLS*MOV5A, MOV5B, and V10 during cold shutdowns (refer to Relief Request No. SLS-VRR-1).

2. Provide a more detailed technical justification for not verifying reverse flow closure of valves 2SLS*V12 and V14 during cold shutdowns (refer to Relief Request No. SLS-VRR-2). How is forward flow operability of these valves verified during testing?

3. Review the safety-related function of valve 2SLS*HCV116 (P&ID PID-36A-6 coordinates I-3) to determine if it should be included in the IST program and tested to the Code requirements.

Q. Service Water System

1. Review the safety-related function of the following valves to determine if they should be included in the IST program and tested to the Code requirements.

2SWP*MOV93A	2SWP*FV47A	2SWP*V1028
2SWP*MOV93B	2SWP*FV54A	

2. Provide a more detailed technical justification for not exercising valves 2SWP*V202A, V1024, V1025, and V1027 during cold shutdowns (refer to Relief Request No. SWP-VRR-2).

3. Review the safety-related function of valves 2SWP*MOV1A, MOV1B, MOV1C, MOV1D, MOV1E, and MOV1F (P&IDs PID-11A-7 and 11B-5) to determine if they should be included in the IST program and tested to the Code requirements.

4. Deleted

5. Deleted

6. The Nine Mile Point, Unit 2 IST program valve table does not indicate that remote valve position indication verification is performed for valves 2SWP*AOV78A and AOV78B. Are these valves equipped with remote valve position indication? If so, this indication should be verified in accordance with the Code requirements.

7. Where "periodic testing" is identified in the remarks section for service water system valves, if this testing frequency is less than quarterly then a cold shutdown justification or relief request must be provided for the increased interval.

8. Provide a more detailed technical justification for not exercising valves 2SWP*MOV77A and MOV77B during cold shutdowns (refer to Relief Request No. SWP-VRR-1).

9. Deleted

10. The valve listing table indicates that valves 2SWP*V219A and V219B perform a safety-related function in the closed position, therefore, the reverse flow closure of these valves should be verified during quarterly testing?

11. Do valves 2SWP*TV35A and TV35B (P&ID PID-11J-6, coordinates G-6 and B-6) have required fail-safe positions? If so, they should be included in the IST program and tested in accordance with the Code requirements.

12. How is the reverse flow closure of valves 2SWP*V75A and V75B verified during quarterly testing?

13. Provide a more detailed technical justification for not exercising valves 2SWP*MOV50A and MOV50B quarterly during power operations.

14. Never verifying the full-stroke capability of valves 2SWP*V1002A and V1002B is not an acceptable proposal. What other alternate testing methods and frequencies have been considered for verifying the full-stroke capability of these valves (refer to Valve Relief Request SWP-VRR-3).

R. Reactor Water Cleanup System

1. Provide a more detailed technical justification for not exercising valve 2WCS*MOV112 and MOV200 quarterly in accordance with the Code requirements (refer to cold shutdown test justification WCS-VCS-1).

2. Review the safety-related function of valves 2WCS*MOV128 and MOV129 (P&ID PID-67A-6, coordinates E-9) to determine if they should be included in the IST program and tested to the Code requirements.

S. Reactor Vessel Instrumentation

1. How are valves 2ISC*RV33A, RV33B, RV34A, RV34B, RV35A, RV35B, RV36A, and RV36B verified to full-stroke exercise quarterly? Are these valves simple check valves?

T. Hydrogen Recombiner System

1. Provide a more detailed technical justification for not exercising 2HCS*MOV26A and MOV26B quarterly (refer to valve relief request 2HCS*VRR-1.)

2. PUMP TESTING PROGRAM

1. Deleted

2. Deleted

3. What is the technical basis for the allowable vibration velocity ranges identified in General Pump Relief Request No. GPRR-1? Are the indicated ranges based on peak vibration readings or on RMS values?

4. The Nine Mile Point Nuclear Station, Unit 2 pump inservice testing program does not address the observation of pump lubricant level or pressure. Describe how this IST test quantity is observed as required by Section XI, IWP-3100.

5. General relief cannot be granted from the pump bearing temperature measurement requirements for all safety-related pumps in the IST program (refer to Relief Request No. GPRR-3). For pumps with installed temperature sensors, the annual measurement of bearing temperatures should be performed since it is not excessively burdensome to measure this parameter as required by the Code.

6. Relief Request No. EGF-PRR-1 for the diesel fuel oil transfer pumps indicates that flow rate is determined by measuring day tank level versus time during pump quarterly testing. The system P&ID shows a flow instrument in the normal flow path to the day tank, why isn't this instrument used to perform this testing? If the change in day tank level versus time method is utilized, does it meet the accuracy requirements of IWP-4110?

7. Review the safety-related function of the ICS system pressure pump 2ICS*P2 (P&ID PID-35D-3, coordinates G-5) to determine if it should be included in the IST program and tested to the Code requirements.

8. Lack of adequate instrumentation is not an acceptable justification for not measuring standby liquid control pump flow rates to the Code required accuracies during pump quarterly testing (refer to Relief Request No. SLS-PRR-1). Can new instrumentation be obtained or the existing instrumentation be calibrated differently such that the measured pump flow rates meet the requirements of IWP-4110?

9. Deleted

10. Deleted

11. Deleted

12. The proposed testing, for condenser water pumps 2SWP*P2A and P2B, does not provide sufficient information to utilize to determine pump hydraulic condition and detect hydraulic degradation (refer to Relief Request No. SWP-PRR-1). What other alternative testing methods have been considered for determination of the hydraulic condition of these pumps? What is the safety-related function of these pumps?

13. The Code specifically allows expanded ranges for pump test parameters when the Code specified ranges cannot be met. Where the licensee cannot meet the Code specified ranges for specific pumps in the IST program less restrictive limits may be used. However, a general relaxation from the Code requirements for all pumps in the NMP-2 IST program cannot be granted. (Refer to General Pump Relief Request No. GPRR-2.)