November 2, 1987

Docket No. 50-410

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Mr. Charles V. Mangan
Senior Vice President
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Dear Mr. Mangan:

SUBJECT: INSERVICE TESTING PROGRAM FOR NINE MILE POINT, UNIT 2

The NRC staff and its consultants from Idaho National Engineering Laboratory have completed a preliminary review of the Inservice Testing (IST) Program for Nine Mile Point, Unit 2 submitted July 29, 1987. Enclosed is a set of questions and comments developed as a result of that review. The staff and its consultants would like to meet with you at the plant site at your earlies convenience to resolve these concerns. The enclosed list will be used as an agenda for discussions at that meeting. Formal responses to the enclosure are not required prior to the meeting. However, draft responses should be prepared prior to the meeting and be available for the meeting discussion.

Please contact Mary Haughey (301-492-7136) to arrange the meeting.

Sincerely,

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

Enclosure:
As Stated

cc: See next page

PDI-1	PDI-1	EMEB	PDI-1
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10/30/87	10/30/87	11/2/87	11/2/87

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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. Section 1.3.2 on page 1-3 states that "certain components" may be upgraded to later editions and addenda of the Code. The NRC staff position is that individual components cannot be upgraded by

themselves, the entire pump program and or the entire valve program should be based on the same edition and addenda of the Code.

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

B. Reactor Building Closed Loop Cooling System

1. How are valves 2CCP*V143, V148, V161, and V277 verified to full-stroke during quarterly exercising?

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. Do valves 2CSH*V17 and V55 perform a safety-related function in the closed position? If so, how is the reverse flow closure of these valves individually verified?

3. Relief Request No. CSH-VRR-1 refers to IE Bulletin 83-03 for valve 2CSH*V59, however, this bulletin does not apply to this valve, but only to check valves in raw water cooling systems of diesel generators. 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-2).

3. Do valves 2CSL*V14 and V21 perform a safety-related function in the closed position? If so, how is the reverse flow closure of these valves 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 would testing valves 2EGA*V62A, V62B, V63A, and V63B as a unit on the standby diesel generator skid individually verify their reverse flow closure capability?

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. What is the safety-related function of valves 2GSN*RV32A, RV32B, RV34A, RV34B, V70A, and V70B?

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. If credit is taken in accident analysis for the air supply to the main steam safety relief valve accumulators TK-14 thru 31, then their associated supply line check valves perform a safety-related function and should be included in the IST program and tested to the Code requirements.

3. How are valves 2IAS*RV33A, RV33B, RV34A, RV34B, RV35A, RV35B, RV36A, and RV36B verified to full-stroke exercise quarterly?

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)?

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 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. How is the reverse flow closure verified for valve 2ICS*V27 during quarterly testing?

8. Provide a more detailed technical justification for not full-stroke exercising the RCIC turbine trip throttle valve 2ICS*MOV150 quarterly during power operations (refer to Relief Request No. ICS-VRR-2). This valve was deleted from the IST program in the July 1987 revision.

K. Main Steam System

1. If valves 2MSS*SOV97A, SOV97B, SOV97C, and SOV97D have fail-safe actuators then they should be included in the IST program and 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. Provide a more detailed technical justification for not exercising the following valves during cold shutdowns (refer to Relief Request No. RCS-VRR-2).

2RCS*SOV65A	2RCS*SOV66A	2RCS*SOV67A	2RCS*SOV68A
2RCS*SOV65B	2RCS*SOV66B	2RCS*SOV67B	2RCS*SOV68B
2RCS*SOV79A	2RCS*SOV80A	2RCS*SOV81A	2RCS*SOV82A
2RCS*SOV79B	2RCS*SOV80B	2RCS*SOV81B	2RCS*SOV82B

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-3).

3. Provide a more detailed technical justification for not exercising valves 2RHS*MOV24A, MOV24B, and MOV24C quarterly during power operations (refer to cold shutdown test justification RHS-VCS-2).

4. The cold shutdown testing section of cold shutdown test justification RHS-VCS-8 implies that valves 2RHS*MOV67A and MOV67B are not exercised during each cold shutdown but only during those cold shutdowns when certain conditions are met. Clarify this paragraph to indicate the testing that is actually performed on these valves.

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. Review the safety related function of valves 2RHS*MOV26A, MOV26B, MOV27A, and MOV27B to determine if the Category A classification is appropriate. If this categorization is correct, these valves should be leak tested to verify their leak tight capability.

8. What testing is performed on valves 2RHS*V117, V118, V19, and V20? The testing method is not clear from the valve listing table.

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 as shown on the P&IDs or simple check valves as indicated in the valve table? If they are check valves, they should be exercised as Category C valves in accordance with the requirements of IWV-3520.

11. Why are the following valves not setpoint tested in accordance with the Code requirements? Is their only function to provide thermal expansion overpressurization protection?

2RHS*RV61A	2RHS*RV61B	2RHS*RV61C
2RHS*RV110	2RHS*RV139	

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 during quarterly valve testing.

13. Provide a more detailed technical justification for not full-stroke exercising valves 2RHS*MOV22A, MOV22B, MOV80A, and MOV80B quarterly during power operations (refer to cold shutdown justification RHS-VCS-10).

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. Review the safety-related function of valves 2RHS*PV21A and PV21B (P&IDs PID-31D-1 and -31G-1 coordinates D-9 and J-2 respectively) to determine if they should be included in the IST program.

16. There are several valves in the RHS that are Categorized 'A' or 'AC' and identified in the valve tables to be leak tested, however, no leak test type or frequency has been specified in the test interval column. What testing is being performed on these valves to verify their leak tight integrity?

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. Do any Nine Mile Point, Unit 2, accident analyses take credit 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. Provide a more detailed technical justification for not exercising the following valves during cold shutdowns (refer to Relief Request No. SWP-VRR-3).

2SWP*MOV3A	2SWP*MOV19A	2SWP*MOV50A	2SWP*MOV93A
2SWP*MOV3B	2SWP*MOV19B	2SWP*MOV50B	2SWP*MOV93B
2SWP*MOV599	2SWP*V202B		

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-4). How is reverse flow closure verified for these valves?

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. Valve sample disassembly and inspection utilizing a manual full-stroke exercise of the valve disk is an acceptable method to verify a check valve's full-stroke capability. This program involves grouping similar valves together and testing one valve in each group during each refueling outage. The sampling technique requires that each valve in the group be of the same design (manufacturer, size, model number and materials of construction) and have the same service conditions. Additionally, at each disassembly it must be verified that the disassembled valve is capable of full-stroking and that its internals are structurally sound (no loose or corroded parts).

   A different valve of each group is required to be disassembled, inspected and manually full-stroke exercised at each refueling outage, until the entire group has been tested. If it is found that the disassembled valve's full-stroke capability is in question, the remainder of the valves in that group must also be disassembled, inspected and manually full-stroke exercised during the same outage.

   Does the Nine Mile Point Nuclear Station, Unit 2, disassembly and inspection program for valves 2SWP*V201A, V201B, V800A, V800B, V802A, and V802B conform to this staff position (refer to Relief Request No. SWP-VRR-1)?

5. Provide a more detailed technical justification for not exercising valves 2SWP*FV47A, FV47B, FV54A, and FV54B during cold shutdowns (refer to Relief Request No. SWP-VRR-5).

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-2).

9. Review the safety-related function of valves 2SWP*MOV15A and MOV15B (P&IDs PID-11G-4 and 11P-5, coordinates B-7 and G-2 respectively) to determine if they should be included in the IST program and tested to the Code requirements.

10. How is the reverse flow closure of valves 2SWP*V219A and V219B verified during quarterly testing?

11. Do valves 2SWP*TV35A and TV35B (P&ID PID-11J-6, coordinates G-6 and B-6) have <u>required</u> 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?

R. <u>Reactor Water Cleanup System</u>

1. Provide a more detailed technical justification for not exercising valve 2WCS*MOV112 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.

2. PUMP TESTING PROGRAM

1. Provide a more detailed justification for not using vibration monitoring instrumentation that meets the accuracy requirements of Section XI IWP-4110 to measure pump bearing vibration at Nine Mile Point Nuclear Station, Unit 2, (refer to General Pump Relief Request No. GPRR-2).

2. Provide a more detailed justification for not measuring the pump bearing temperatures of the spent fuel pool cooling pumps yearly (refer to Relief Request No. SFC-PRR-1). Lack of installed instrumentation is not an acceptable justification for not measuring this Code required parameter.

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. The Nine Mile Point Nuclear Station, Unit 2 pump inservice testing program indicates that pump bearing temperature is not an applicable test parameter for 13 of the 27 pumps listed. Identify the reasons that this test quantity is not applicable for these safety related pumps.

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. How are pump inlet pressure, differential pressure, and flow rate measured for the ICS system pressure pump (2ICS*P2) during quarterly pump testing?

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. The Nine Mile Point Nuclear Station, Unit 2 pump inservice testing program indicates that pump bearing temperature is not an applicable test parameter for the standby liquid control pumps (2SLS*P1A and P1B), however, Relief Request No. SLS-PRR-2 was provided requesting relief from measuring this Code parameter. Clarify this inconsistency in the IST program.

10. Lack of adequate instrumentation is not an acceptable justification for not measuring the flow rates for condenser water pumps 2SWP*P2A and P2B to the Code required accuracies during pump quarterly testing (refer to Relief Request No. SWP-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?

11. Lack of installed instrumentation is not an acceptable justification for not measuring the pump bearing temperatures for the service water pumps (refer to Relief Request No. SWP-PRR-2). Also, the pumps listed on this relief request are not the same pumps that reference this relief request in the pump testing portion of the IST program.

12. Lack of adequate instrumentation is not an acceptable justification for not measuring and trending pump differential pressures for condenser water pumps 2SWP*P2A and P2B in accordance with the Code. The proposed testing does not provide sufficient information to determine pump hydraulic condition and to detect hydraulic degradation (refer to Relief Request No. SWP-PRR-3). What is the safety function of these pumps?