August 8, 1989

Docket No. 50-333

LICENSEE: Power Authority of the State of New York (PASNY)

FACILITY: James A. FitzPatrick Nuclear Power Plant

SUBJECT: SUMMARY OF MEETING HELD ON JULY 31, 1989 TO DISCUSS VARIOUS ASPECTS OF THE IN-SERVICE TESTING (IST) PROGRAM RELATED TO THE FACILITY

The meeting was held at the One White Flint North office in Rockville, Maryland. A list of attendees is attached as Enclosure 1.

Enclosure 2 is the request for additional information sent to the licensee by letter dated August 11, 1988. This document formed the basis for the meeting and the discussions held. Only those questions/comments indicated by "*" were addressed, as requested by the licensee.

As a result of the meeting, the licensee gained a better understanding of the outstanding IST issues relating to the FitzPatrick Plant and their relationship toward development of their IST program in response to Generic Letter 89-04, "Guidance On Developing Acceptable Inservice Testing Programs."

Original signed by

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Enclosures:
As stated

cc w/enclosures:
See next page

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[FITZPATRICK MTG SUMMARY]

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Enclosure 1

MEETING ATTENDANCE RECORD

DATE 7/3/89 PAGE 1 OF 1

PURPOSE IST PROGRAM - FITZPATRICK NUCLEAR POWER PLANT

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JAMES A. FITZPATRICK NUCLEAR POWER PLANT
PUMP AND VALVE INSERVICE TESTING PROGRAM
QUESTIONS AND COMMENTS

1. VALVE TESTING PROGRAM

A. General Questions and Comments

1. Provide a list of all valves that are Appendix J, type C, leak rate tested but not included in the IST program and categorized A or A/C.

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 the Section XI leak rate testing requirements of 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. Does the Fitzpatrick IST program meet this staff position for testing containment isolation valves? Identify the groups of valves that are leak tested together and explain how the requirements of IWV-3426 and 3427 are applied to these valves (refer to Valve Relief Request Note V19).

3. 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. If there are any check valves in the Fitzpatrick Nuclear Plant IST program whose full-stroke testing does not conform to this staff position, provide a discussion on how their full-stroke capability is verified.

✶ 4. The NRC staff position is that valves that serve both a pressure boundary isolation function and a containment isolation function must be leak tested to both the Appendix J and the Section XI requirements. Identify the valves, if any, at Fitzpatrick Nuclear Plant, that serve both a pressure boundary isolation function and a containment isolation function. What leak rate testing is performed on these valves?

5. How is valve remote position indication verified every two years as required by IWV-3300?

✶ 6. Provide the limiting values of full-stroke times for the power operated valves in the Fitzpatrick Nuclear Plant IST program for our review. What are the bases used to assign the limiting values of full-stroke time for these valves?

7. IWV-3412 and 3522 permit valves to be tested during cold shutdowns where it is impractical to test them during power operation and these valves are specifically identified by the licensee and are full-stroke exercised during cold shutdowns. The staff requires that the licensee provide a technical justification for each valve or group of similar valves that cannot be full-stroke exercised quarterly during power operation that clearly explains the difficulties or hazards encountered during that testing. Provide these justifications for our review.

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

✶ 9. The NRC staff position is that the emergency diesel generators perform a safety function and that the appropriate pumps and valves in the emergency diesel air start, fuel oil transfer, and external cooling water systems should be included in the IST program and tested to the Code requirements. Identify the components in these diesel generator subsystems that will be included in the IST program, the testing that

will be performed, and any relief requests or cold shutdown justifications that will apply. Also provide the P&IDs that show these diesel generator subsystems for our review.

10. The NRC staff position is that excess flow check valves perform a safety function and should be included in the ISI program and tested to verify their ability to perform their function. Provide a listing of the excess flow check valves at Fitzpatrick. If the testing performed for these valves is not or cannot be in accordance with the requirements of Section XI, a relief request should be provided that includes a basis for relief and the proposed alternate testing.

11. What is the distinction between test methods EF-3 and EF-4 (refer to Appendix B Table B-6). These methods appear to be nearly identical and it is not apparent by their usage how they differ.

12. The NRC staff recognizes that variations introduced by operator reaction times, changes in system parameters, and normal valve maintenance may cause data scatter in the stroke time measurements on some solenoid and air operated valves which stroke rapidly, that could result in corrective actions being required for valves which are not degraded or otherwise impaired. Because of this problem, the NRC staff will grant relief from the trending requirements of Section XI, Paragraph IWV-3417(a), for these rapid acting valves. To obtain this relief, the licensee must assign a maximum limiting stroke time of 2 seconds to these valves and perform corrective actions as required by IWV-3417(b) if the measured valve stroke time exceeds the 2 second limit.

13. What safety related cooling is provided to the spent fuel pool? Does the spent fuel pool cooling system perform any safety function? If it does, the system pumps and active in-line valves should be included in the IST program and tested to the Section XI requirements. Provide the spent fuel pool P&IDs for our review. List the components (if any) that will be added to the IST program and identify the testing that will be performed.

14. What cooling system is utilized to meet the post accident control room habitability requirements? List any active pumps or valves in this cooling system that are not included in the IST program and identify the testing that will be performed on these components, if applicable.

15. 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)?

B. Valves Tested During Cold Shutdowns

1. Cold shutdown justifications have not been provided for the following valves. Provide the technical justification for not full-stroke exercising these valves during power operation (include the specific problem or hazard which precludes quarterly testing).

System	Valves
Reactor Water Recirculation	MOV-43A MOV-43B MOV-53A MOV-53B
Residual Heat Removal	AOV-68A AOV-68B MOV-17 MOV-18
Core Spray	AOV-13A AOV-13B
Reactor Building Cooling Water	AOV-130A AOV-130B AOV-131A AOV-131B AOV-132A AOV-132B AOV-133A AOV-133B AOV-134A
High Pressure Coolant Injection	AOV-18
Instrument Air	IAS-23

C. Reactor Water Recirculation System

1. Are the full-stroke times measured for motor operated valves MOV-43A, 43B, 53A, and 53B as required by IWV-3413? If not, provide the justification for not performing this Code required testing.

2. Provide a more detailed technical justification for not exercising valves RWR-13A, 13B, 40A, and 40B quarterly during power operation or during cold shutdowns (refer to Valve Relief Request Note V1).

D. Control Rod Drive System

1. Provide a detailed discussion that explains how it was determined that the technical specification control rod scram insertion testing meets the intent of Section XI testing requirements (refer to Valve Relief Request Note V2).

2. Provide a more detailed discussion about how the alternate testing specified for control rod drive valves 115 and 138 verify the reverse flow closure of these valves during rod scram testing (refer to Valve Relief Request Note V2)?

3. Valve Relief Request Note V3 is not necessary since the information provided can be incorporated into Valve Relief Request Note V2.

E. Traveling In-Core Probe System

1. Is the fail-safe actuation tested in accordance with the requirements of IWV-3415 for the TIP-ball valves 1 through 4? If not, provide the justification for not performing this Code required testing.

2. Provide a more detailed technical justification for not exercising valve X-35E-TP-1 quarterly during power operation or during cold shutdowns (refer to Valve Relief Request Note V1).

F. Residual Heat Removal System

1. IWV-3522 states that valves that cannot be full-stroke exercised during plant operation should be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Is the air operator used to part-stroke exercise check valves AOV-68A and 68B quarterly during power operations? If not, provide the justification for not performing this testing.

2. As stated in Item A.4, the NRC staff position is that valves that serve both a pressure boundary isolation function and a containment isolation function must be leak tested to both the Appendix J and the Section XI requirements. Valve Relief Request Note V24 states that only the Appendix J, Type C, leak rate test will be performed on valves 10-MOV-17, 18, 32, 33, 25A, and 25B. Demonstrating that the Appendix J leak test is more conservative for one valve is not an adequate technical basis for not performing the Code required testing on other valves. The valves in question are different types and would not necessarily behave in a similar manner.

3. How is maximum safety analysis flow verified through valves RHR-64A, 64B, 64C, and 64D during quarterly valve testing (refer to comment A.3 of this document)?

4. Are valves RHR-MOV-13A, 13B, 13C, and 13D ever required to change position to accomplish a specific function? If so, they are active valves and must be exercised in accordance with IWV-3410.

5. The proposed alternate testing for valves 10-MOV-89A and 89B (refer to Valve Relief Request Note V25) does not provide an adequate means of detecting valve degradation and is, therefore, unacceptable. What alternate testing means can be used to monitor the mechanical condition and degradation of these valves?

✳ 6. Is credit taken for the steam condensing mode of operation in any safety analysis at Fitzpatrick? If so, include all active in-line valves in the IST program.

✳ 7. Review the safety function of the following valves (P&ID FM-20A, 20B, 20C, and 20D) to determine if they should be included in the IST program and be tested to the Code requirements.

MOV-15A	MOV-21A	MOV-36A
MOV-15B	MOV-21B	MOV-36B
MOV-15C	MOV-177A	AOV-71A
MOV-15D	MOV-177B	AOV-71B

8. Review the safety function of the pressure maintenance (keep fill) line check valves to determine if they should be included in the IST program and tested to the Code requirements. These check valves may perform a safety function in the closed position to prevent the diversion of low pressure coolant injection flow and in the open position to ensure that the system piping remains water solid.

G. Standby Liquid Control System

1. How is maximum safety analysis flow verified through valves SLC-43A and 43B during quarterly valve testing (refer to comment A.3 of this document)?

2. Provide a more detailed technical justification for not full-stroke exercising valves SLC-16 and SLC-17 quarterly during power operations or at cold shutdowns (refer to Valve Relief Request Note V5).

H. Reactor Core Isolation Cooling System

✳ 1. The purpose of the IST program is to identify degradation or failure of components which could affect the operability of systems that perform a safety function. Although credit may not be taken for the RCIC system in the facility FSAR, the plant Technical Specifications do contain operability requirements for the RCIC system. Therefore, the NRC Staff

requires that the RCIC pump and associated active system valves be included in the IST program and tested to the Section XI requirements. Identify the affected RCIC system components and the testing that will be performed for these pumps and valves.

2. How does the RCIC operability surveillance test verify a full-stroke exercise of check valves RCIC-4, 5, 7, and 8 (refer to Valve Relief Request Note V6)?

I. Core Spray System

1. Review the safety function of the pressure maintenance (keep fill) line check valves to determine if they should be included in the IST program and tested to the Code requirements. These check valves may perform a safety function in the closed position to prevent the diversion of core spray flow and in the open position to ensure that the system piping remains water solid.

2. IWV-3522 states that valves that cannot be full-stroke exercised during plant operation should be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Is the air operator used to part-stroke exercise check valves AOV-13A and 13B quarterly during power operations? If not, provide the justification for not performing this testing.

3. As stated in Item A.4, the NRC staff position is that valves that serve both a pressure boundary isolation function and a containment isolation function must be leak tested to <u>both</u> the Appendix J and the Section XI requirements. Valve Relief Request Note V24 states that only the Appendix J, Type C, leak rate test will be performed on valves 14-MOV-12A and 12B. Demonstrating that the Appendix J leak test is more conservative for one valve is not an adequate technical basis for not performing the Code required testing on other valves. The valves in question are different types and would not necessarily behave in a similar manor.

4. Review the safety function of valve MOV-26A (P&ID FM-23A coordinates E-4) to determine if it should be included in the IST program and tested to the Code requirements.

J. Reactor Building Cooling System

1. The proposed alternate testing in Valve Relief Request Note V7 is not in accordance with the NRC staff position for sample disassembly and inspection of valves and does not adequately demonstrate the operability of the listed valves. The NRC staff has concluded that a 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. If the operability of the disassembled valve in a group is in question, the remainder of the valves in that group must be disassembled and inspected during that refueling outage. The licensee should propose alternate testing for the valves listed in Valve Relief Request Note V7 that meets the Code requirements or conforms with this NRC staff position.

K. Emergency Service Water System

1. The proposed alternate testing in Valve Relief Request Note V15 is not in accordance with the NRC staff position for sample disassembly and inspection of valves (refer to the discussion in Item J.1 above) and does not adequately demonstrate the operability of the listed valves. The licensee should propose alternate testing for the valves listed in Valve Relief Request Note V15 that meets the Code requirements or conforms with this NRC staff position.

2. Review the safety function of the check valves in the emergency service water supply lines to heat exchangers 03P-16A and 03P-16B (P&ID FM-15A) to determine if they should be included in the IST program and tested to the Code requirements.

3. Provide a more detailed technical justification for not exercising valves ESW-1A, 1B, 6A, and 6B quarterly during power operations and during cold shutdowns (refer to Valve Relief Request Note V18). Other than the valve sample disassembly and inspection proposed in the relief request, what alternate methods have been considered for verifying the reverse flow closure of valves ESW-1A and 1B? What safety function do valves ESW-6A and 6B perform in the closed position?

4. Provide a more detailed technical justification for not exercising the following valves quarterly during power operations and during cold shutdowns (refer to Valve Relief Request Note V26). Explain how initiating ESW flow through these valves could introduce lake water into the reactor building cooling water system. The sample disassembly and inspection described in the alternate testing does not meet the NRC staff position on that testing method as described in Item J.1. This relief request should be modified to conform to the staff positions.

ESW-19A	ESW-21A	ESW-22B
ESW-19B	ESW-21B	ESW-8A
ESW-20A	ESW-22A	ESW-8B
ESW-20B		

5. Provide a more detailed technical justification for not exercising the following valves quarterly during power operations and during cold shutdowns (refer to Valve Relief Request Note V16). Explain how initiating ESW flow through these valves could introduce lake water into the reactor building cooling water system. The sample disassembly and inspection described in the alternate testing does not meet the NRC staff position on that testing method as described in Item J.1. This relief request should be modified to conform to the staff positions.

SWS-60A	SWS-67B	SWS-101
SWS-60B	SWS-68	SWS-102
SWS-67A	SWS-69	

6. Do any of the control valves in the emergency service water supply lines to safety related coolers or components (P&IDs FB-10H, 18H, and 35E) have a <u>required</u> fail-safe position? If so, they should be included in the IST program and be tested to the Code requirements.

L. High Pressure Coolant Injection System

1. IWV-3522 states that valves that cannot be full-stroke exercised during plant operation should be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Is the air operator used to part-stroke exercise check valve AOV-18 quarterly during power operations? If not, provide the justification for not performing this testing.

2. How is a full-stroke exercise of check valves HPI-12, 13, 56, and 65 verified during the HPCI pump test (refer to Valve Relief Request Note V22)?

3. Provide a more detailed technical justification for not exercising valve HPI-61 during cold shutdowns (refer to Valve Relief Request Note V9). Is the valve disk exercised to its safety function position and the valve internals inspected for worn or corroded parts during the valve testing?

4. How are vacuum breaker check valves HPI-402 and 403 verified to full-stroke exercise open (refer to Item A.3 of this document) following HPCI turbine shutdown or intermittent operation (refer to Valve Relief Request Note V17)? How are these check valves individually verified in the closed position?

✳ 5. Review the safety function of valve MOV-21 (P&ID FM-25A coordinates F-4) to determine if it should be included in the IST program and tested to the Code requirements.

M. Containment Vent and Purge System

✳ 1. Provide a more detailed technical justification for not full-stroke exercising valves CAD-19A and 19B quarterly during power operations and during cold shutdowns (refer to Valve Relief Request Note V10). Explain why it would be "ill advised" to perform this testing during operations.

2. How are valves VB-6 and 7 full-stroke exercised quarterly? What is the safety function(s) of these valves?

3. Provide a more detailed technical justification for not full or partial-stroke exercising valves CAD-67, 68, 69, and 70 quarterly during power operations and during cold shutdowns (refer to Valve Relief Request Note V11). Can these valves be exercised with system flow quarterly or during cold shutdowns?

4. Provide a detailed technical justification for not exercising the following valves quarterly during power operations (refer to Valve Relief Request Note V8). What resolutions were made about inservice testing of these valves as a result of the discussions with the NRC?

AOV-111	AOV-114	AOV-117
AOV-112	AOV-115	AOV-118
AOV-113	AOV-116	

5. The proposed alternate testing for valves 27-SOV-125A, 125B, 135A, and 135B (refer to Valve Relief Request Note V21) does not provide an adequate means of detecting valve degradation and is, therefore, unacceptable. What alternate testing means can be used to monitor the mechanical condition and degradation of these valves?

6. Do valves FCV-103A AND 103B (P&ID FM-18E coordinates C-2) have a <u>required</u> fail-safe position? If so, they should be included in the IST program and be tested to the Code requirements.

7. Review the safety function of vacuum breaker check valves VB-1 through VB-5 (P&ID FM-18E coordinates A-4) to determine if they should be included in the IST program and tested to the Code requirements. If it is determined that these valves perform a safety function, identify how they will be tested to their safety positions.

N. Main Steam System

✶ 1. Are valves MOV-74 and 77 ever required to change position to accomplish a specific function? If so, they are active valves and must be exercised in accordance with IWV-3410.

✶ 2. The NRC staff position is that the safety relief valves that perform the ADS function should be categorized B/C in the IST program and be exercised as Category B power operated valves in accordance with Section XI, IWV-3410, to verify their ability to perform the ADS function as well as the safety relief valve function. Which main steam safety relief valves perform the ADS function? It is also a staff position that relief may be granted to exercise these valves on a refueling outage frequency if relief is properly requested. Make the necessary program changes for the ADS valves at Fitzpatrick.

✶ 3. Review the safety function of the check valves in the MSIV leakage control lines (P&ID FM-29A coordinates J-2) to determine if they should be included in the IST program and tested to the Code requirements.

✶ 4. Are valves MOV-202A and 202B ever required to change position to accomplish a specific function? If so, they are active valves and must be exercised in accordance with IWV-3410.

5. Provide a more detailed technical justification that explains why it is not possible to enter the drywell during cold shutdowns when the containment is deinerted to exercise the safety relief/ADS valve discharge line vacuum relief check valves (refer to Valve Relief Request Note V23). Is the torque required to actuate these valves measured in accordance with IWV-3522(b) when the valves are manually exercised?

✶ 6. Are the check valves in the instrument air lines to the air operator accumulators for the MSIVs and ADS valves verified to close during the testing of the associated safety related valves? If not, these valves must be included in the IST program and be tested to the Code requirements.

O. Feedwater System

1. Provide a more detailed technical justification for not exercising valves FSW-28A, FSW-28B, NRV-111A, and NRV-111B during cold shutdowns (refer to Valve Relief Request Notes V12 and V13). Inconvenience is not an adequate justification for not performing Code required testing.

P. Instrument Air System

1. Provide a more detailed technical justification for not exercising valve IAS-22 during cold shutdowns (refer to Valve Relief Request Notes V14).

2. PUMP TESTING PROGRAM

1. Pump Relief Request Note P2 involves a request from the Code requirement to measure pump inlet pressure before and during pump operation for the RHR service water and emergency service water pumps. However, the relief request does not include an alternate testing section and does not identify in sufficient detail how the forebay water level is being used to meet the Code requirements for inlet and differential pressure. Provide the alternate testing performed on these pumps and indicate how the testing adequately monitors pump hydraulic condition and degradation.

2. How are the pump vibration measurements being taken on the submerged RHR service water and emergency service water pumps? If this involves a deviation from the Code requirements, a relief request should be submitted which provides a basis for relief and the proposed alternate testing, including the technical basis for selecting the alternate location (if applicable) for measuring the vibration for these pumps.

3. Lack of installed instrumentation is not an acceptable justification for not measuring the pump flow rate for the emergency service water pumps during pump quarterly testing (refer to Pump Relief Request Note P3). Testing these pumps at shut-off head does not provide sufficient information to monitor pump operability and detect hydraulic degradation. Propose alternate testing that permits evaluation of the hydraulic condition of these pumps.

4. How is differential pressure independently measured for the HPCI main and booster pumps to provide sufficient information to monitor pump operability and detect hydraulic degradation? If this testing deviates from the Code requirements, a relief request should be submitted which provides a basis for relief and a detailed discussion of the proposed alternate testing.

5. Provide a more detailed technical justification for not measuring the pump bearing temperatures for the HPCI main and booster pumps (refer to Pump Relief Request Note P6)?

6. IWP-3210 permits the owner to specify reduced range limits for pumps if the limits of Table IWP-3100-2 cannot be met. However, the limits proposed for the standby liquid control pump flow rate (refer to Pump Relief Request Note P7) appear to be unrealistic since they could allow a pump to become seriously degraded without taking any corrective actions. What are the ranges of flow rate measurements that are normally encountered during testing of the standby liquid control pumps? Can these pumps be tested and have their flow rate measured while pumping into the reactor coolant system on a refueling outage frequency?

7. How are the pump flow rate measurements made for the residual heat removal and the core spray pumps during quarterly pump testing? The P&IDs provided for our review do not show installed flow instrumentation in the test flow paths for these pumps. If portable flow rate instrumentation is utilized, does it meet the requirements of IWP-4110 and 4120?

8. Does the vibration instrumentation used to measure the pump vibration amplitude meet the requirements of IWP-4110 and 4120?

9. Review the safety function of the service water screen wash booster pumps (P-6A and 6B) to determine if they and any associated system valves should be included in the IST program and be tested to the Code requirements. Could failure of these pumps result in blockage of the screens which could render both trains of emergency service water inoperable?