

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 50-286/82-23

Docket No. 50-286

License No. DPR-64 Priority -- Category C

Licensee: Power Authority of the State of New York

P. O. Box 214

Buchanan, New York 10511

Facility Name: Indian Point Nuclear Power Plant, Unit 3

Inspection At: Buchanan, New York

Inspection Conducted: December 7-10, 1982

Inspectors: W A Rekito 1/10/83
W. A. Rekito, Lead Reactor Engineer date

Approved by: L. H. Bettenhausen 1/10/83
L. H. Bettenhausen, Chief, Test Programs date
Section, Engineering Programs Branch

Inspection Summary: Inspection on December 7-10, 1982 (Report No. 50-286/82-23)

Areas Inspected: Routine announced licensing action review and inspection of the Inservice Testing surveillance program for pumps and valves. The inspection involved 32 hours onsite by one region-based NRC inspector.

Results: No violations were identified.

DETAILS

1. Persons Contacted

The technical and supervisory personnel listed below were contacted.

J. Brons, Resident Manager
K. Jacobs, Nuclear Operations & Maintenance Engineer
W. Josiger, Superintendent
L. Kelly, Performance & Reliability Supervisor
J. Shivera, Licensing Coordinator
T. Tanner, Performance Engineer

NRC Personnel

T. Kenny, Senior Resident Inspector
L. Rossback, Resident Inspector

The inspector also interviewed other licensee personnel. They included test technicians and members of the operations staff.

All personnel listed were present at the exit meeting on December 10, 1982.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item 286/80-21-05: During a surveillance test of the Component Cooling pumps, the inspector interviewed several technicians and operators responsible for surveillance testing. They appeared to be adequately trained and knowledgeable of procedure and instrument calibration requirements. Additionally, during a review of many surveillance procedures, the inspector noted a requirement that all test equipment be calibrated and have a current calibration tag on it. This matter is resolved.

3. Inservice Testing (IST) Program for Pumps and Valves

3.1 Documents reviewed

- Inservice Inspection Program Description, Revision 1, submitted to the NRC on December 12, 1980
- "DRAFT" Inservice Inspection Program Description for Pump and Valve Testing, Revision 2
- Procedure AP-19, Revision 4, Surveillance Test Program
- Procedure 3 PT-M18, Revision 7, RHR Pump Functional Test
- Procedure 3 PT-CS15, Revision 1, Auxiliary Boiler (Motor Driven) Feed Water Pump & Valve Test

- Procedure 3 PT-M19, Revision 4, Auxiliary Component Cooling Pumps
- Procedure 3 PT-Q24, Revision 1, Containment Spray
- Procedure 3 PT-M35, Revision 4, Inservice Testing Service Water Pumps
- Procedure 3 PT-M46, Revision 1, Inservice Testing Component Cooling Pumps
- Procedure 3 PT-R64, Revision 0, High-Head Safety Injection Check Valves
- Procedure 3 PT-R66, Revision 0, Inservice Inspection Test Check Valve 881.
- Procedure 3 PT-R76, Revision 0, Inservice Inspection Test of Boron Injection Tank Valves.
- Procedure 3 PT-A15, Revision 1, High Pressure Water Fire Protection System Valve Cycling (On Line)
- Procedure 3 PT-R48, Revision 2, High Pressure Fire Protection System Valve Cycling (Off Line)
- Procedure 3 PT-M42, Revision 5, Main Fire Pump Operability Test
- Procedure 3 PT-R84, Revision 0, Fire Pump Functional Test
- Procedure 3 PT-R40, Revision 2, Water Deluge System Testing
- Procedure 3 PT-W1, Revision 5, Diesel Generator Test
- Procedure 3 PT-V16, Revision 2, Diesel Generator Functional Test
- Procedure 3 PT-R16, Revision 1, Diesel Generator Functional Test
- Procedure 3 PT-R35, Revision 2, Containment Isolation Valve Leakage Tests.
- Twenty-eight selected system drawings, Piping Diagrams

3.2 Scope of Review

The inspector reviewed the above documents to ascertain compliance with 10 CFR 50.55a(g) which requires Inservice Testing (IST) of pumps and valves in accordance with Section XI of the ASME Boiler and Pressure Vessel Code. A major portion of this review was

intended to finalize an NRC Staff evaluation of the licensee's IST program and, pursuant to 10 CFR 50.55a(g)(6)(i), to determine acceptability of requested relief from certain code testing requirements found to be impractical.

During this review, it was noted that some of the previous relief requests were no longer needed because the licensee had upgraded the IST program and was currently meeting the code testing requirements. In other cases, the relief requests were found to be unacceptable or needed additional justification detail. The licensee recognized most of these program deficiencies and was in the process of correcting them as evident from a revised program description (Revision 2) in preparation for submittal to the NRC. However, not all of the necessary test procedure changes are completed.

Problems identified with the certain relief requests and program implementation are described below.

3.3 Auxiliary Component Cooling Pump Testing

IWP-3000 requires that inservice tests be conducted at a reference condition of flow rate or differential pressure. Procedure 3 PT-M19 does not require the system resistance be varied to a reference condition before obtaining test data for evaluation. Additionally, the values established as acceptance criteria slightly exceed the allowable Ranges for Required Action in Table IWP-3100-2. The licensee had felt this was acceptable as documented in his Program Relief Request (General Note 2). However, after reviewing test results data, the inspector determined that the Code Tolerances for Acceptance Criteria were achievable, especially if the test were performed at a reference condition of flowrate.

The licensee acknowledged the inspector's finding and stated that the procedure would be revised to achieve total conformance with the described code test requirements. This matter is unresolved pending revision of the test procedure (50-286/82-23-01).

3.4 Component Cooling Pump Testing

IWP-3000 requires that inservice tests be conducted at a reference condition of flow rate or differential pressure. Procedure 3 PT-M46 does not require the system resistance be varied to a reference condition before obtaining data for evaluation. Additionally the values established as acceptance criteria slightly exceed the allowable Ranges for Required Action in Table IWP-3100-2. The licensee had felt this method and acceptance criteria were an acceptable alternative as documented in his Program Relief Requests (General Note 2) and Note 7 which describes the system operating condition to often require three pump continuous operation. The licensee further explained his uncertainty about the adequacy of the

portable ultrasonic flow measuring device purchased especially for and used to support this testing program.

The inspector observed the use of this special test instrument, examined the piping configuration, and concluded that it should be possible to establish test reference conditions and to achieve the Code Tolerances for acceptance criteria.

The licensee acknowledged the inspector's finding and stated that an attempt would be made to establish a set of test reference conditions which could be duplicated during subsequent tests performed at various system operating conditions and the procedure revised accordingly. The licensee also identified his current review and possible substitution of a different flow measuring device.

This matter is unresolved pending revision of the test procedure to achieve total conformance with the described code test requirements (50-286/82-23-02).

3.5 Service Water Pump Testing

IWP-3000 requires that inservice tests be conducted at a reference condition of flow rate or differential pressure. Procedure 3 PT-M35 does not satisfy this because of a lack of adequate flow measuring instrumentation. However, tests are routinely conducted which correctly measure and evaluate pump vibration. In addition, the differential pressure is measured with trending evaluation done by the IST engineer. The licensee identified this problem and requested temporary relief (Program Relief Requests Note 3 and 7) until the required system modifications were completed. The licensee explained that he has nearly completed a review of proposed changes and vendors bids for the needed flow measuring instrumentation but could not accurately commit to a schedule of completion.

The licensee also requested relief (General Note 2) from the allowable Ranges for Required Action in Table IWP-3100-2.

After review of the existing test procedure and records of results evaluation the inspector concluded that this would be an acceptable procedure for the interim. Accordingly he informed the licensee that this would be so identified in the Safety Evaluation Report and once the needed flow instruments were available, inservice testing would be expected to conform with all code testing requirements.

The licensee acknowledged and agreed with the inspectors' findings.

This matter is unresolved pending achievement of total conformance with the described code testing requirements (50-286/82-23-03).

3.6 Analysis of Results

IWP-3200 specifies that the maximum allowable test data analysis time is 96 hours and that a pump be declared inoperable if the results fall within the required action range of table IWP-3100-2. The inspector stated the NRC position that a pump be declared inoperable and appropriate Technical Specification Action Statement time period started when the determination is made that pump IST data are within the required action range. Further, the NRC requires that the method of results analysis permit the shift supervisor or other first reviewer to make the determination whether or not the test data meets the IST requirements. The inspector explained that the NRC regards the provisions of IWP-3230 to recalibrate instruments and rerun the test to show the pump is still capable of fulfilling its function is an alternative to replacement or repair, not an additional action that can be taken before declaring the pump inoperable.

The licensee's method of analyzing pump IST data does not fully satisfy the above NRC position. In each of the pump IST procedures reviewed, sufficient information existed to make an immediate determination of results falling within the required action range. However, the acceptance criteria section permits the option of performing an evaluation of the deficiency for as long as 96 hours before declaring the pump inoperative. Some licensee management personnel did not fully agree with the above position, stating that this strict automatic action may not always be warranted. The licensee further explained that his expected normal practice would be for the Shift Supervisor to take the required Technical Specification Action for obvious test failures.

This matter is considered unresolved pending licensee action to conform to the described NRC position (286/82-23-04).

3.7 Valve Leak Rate Testing (LRT)

IWV-3420 requires that values for maximum permissible leakage rates be established and leak rate tests be conducted for all Category A valves. The licensee program description states that performance of Type C local leakage rate testing in accordance with 10 CFR 50 Appendix J satisfies this test requirement for all Containment Isolation Valves.

The inspector explained the current NRC position that Appendix J leakage rate testing is an acceptable alternate for IWV-3420 (a) thru (e) but not (f) and (g) which require the specification of individual maximum permissible leakage rates and trending of test results. A review of applicable LRT procedures revealed that some, but not all, valves have individual leakage acceptance criteria and that required trend evaluations are not currently being accomplished in a formal acceptable manner. The inspector also reviewed the list of Reactor Coolant System pressure isolation valves (PIV's) currently being leak rate tested and identified two more subject isolation

valves (730, 731) which should be classified as Category A and leak rate tested. The licensee agreed and stated that these valves would be re-classified as Category A and leak rate tested during the current outage. The licensee further stated that specifying individual limits for all valves would necessitate an engineering analysis which would be completed prior to the next refueling outage, at which time full conformance would be achieved. This matter is unresolved pending completion of the described plan and appropriate revisions made to the IST program description (286/82-23-05).

3.8 Stroke Testing of Check Valves

IWV-3520 requires check valves to be exercised to their safety function position. The licensee was previously given the NRC position that exercising check valves to the open position required positive indication of disc position or demonstration of the minimum safety analysis flow rate through the valve.

In Program Relief Request Note 13, the licensee explained that it was impractical to full-stroke exercise 2 inch check valves 857 C, D, E, F, J, K, L, M, N, P in the boron injection lines to the hot and cold legs. The alternate testing proposed was to part-stroke exercise these valves during refueling outages. This test is done using procedure 3 PT-R64 which uses a 3/4 inch test line as the flow path which by-passes the Boron Injection Tank (BIT). After review of the applicable drawings and procedure the inspector concluded that it was impractical to empty the BIT; and that the part-stroke test being done was the best available alternative. However, the inspector informed the licensee that if ever the BIT were emptied for any other purpose and plant conditions permitted it, they would be expected to perform a special full stroke test of these valves. The licensee acknowledged and agreed with the inspectors' finding. This special situation will be described also in the NRC Safety Evaluation Report.

In Program Relief Request Note 21, the licensee explained that it was impractical to full stroke exercise 10 inch check valves 895 A-D in the four Safety Injection Accumulator discharge lines. The alternate testing proposed was to part stroke exercise these valves during refueling outages. The test procedure (3PT-R-55) uses a 3/4-inch test line as the flow path. However the licensee is still investigating possible methods to full stroke exercise these valves.

The inspector discussed with the licensee the need to develop a test method which more fully exercises these check valves and stated that this will be addressed in the NRC Safety Evaluation Report. This matter is considered unresolved pending licensee action to develop a test to satisfy the code test requirement for valves 895 A-D (286/82-23-06).

3.9 IST Program Scope

The regulation and code require the IST program include all class 1, 2 and 3 pumps and valves. By letter dated January 10, 1978 the NRC staff issued guidance limiting the IST program scope, but including all safety related pumps and valves. The inspector acknowledged some previous confusion on this subject, but explained to the licensee the current NRC:RI position that applicable components in the Fire Protection and Emergency Diesel Generator Auxiliary systems be included in the IST program. The current IST program does not include these components. The licensee management acknowledged the NRC position but did not fully agree that it was warranted, citing alternate existing surveillances as being adequate. The inspector reviewed many of these existing surveillance procedures and considered them to satisfy most, but not all of the Code test requirements. The inspector informed the licensee that this matter would be addressed in the NRC Safety Evaluation Report (SER) approving the IST program and that a formal response would be expected sometime after issuance of the SER. (Followup Item 286/82-23-07)

4. Inservice Test Witness

On December 9, 1982, the inspector observed plant operators and technicians during the conduct of an inservice test of Component Cooling Pumps 31, 32, and 33. The inspector verified that the test was conducted in accordance with the approved procedure 3 PT-M46 and that the test results appeared satisfactory. During this testing the inspector observed the calibration check and technicians' operation of the special Ultrasonic Flow Measuring Device. The technicians and operators appeared to be adequately trained and knowledgeable of procedure requirements.

No unacceptable conditions were found.

5. Facility Tours

The inspector made tours of the facility including the auxiliary building and emergency diesel generator rooms with a licensee representative.

During these tours, the inspector observed operations and activities in progress, implementation of radiological controls, and general condition of safety related equipment. In addition the inspector examined certain pumps and valves in the EDG auxiliary systems to assess their accessibility and meaningful testability.

No unacceptable conditions were identified.

6. Unresolved Items

Items about which more information is required to determine acceptability are considered unresolved. Paragraphs 3.3, 3.4, 3.5, 3.6, 3.7, and 3.8 of this report contain unresolved items.

7. Exit Interview

The inspector met with licensee representatives (see paragraph 1 for attendees) on December 10, 1982. The inspector summarized the scope and findings of the inspection at that time. The inspector also explained plans and expected schedule to complete and issue a SER giving final approval of the IST program for the first 10 year service interval.