

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-247/79-12

Docket No. 50-247

License No. DPR-26 Priority -- Category C

Licensee: Consolidated Edison Company of New York, Inc.

4 Irving Place

New York, New York 10003

Facility Name: Indian Point Nuclear Generating Station, Unit 2

Inspection at: Buchanan, New York

Inspection conducted: August 19 - September 15, 1979

Inspectors: Jon R Johnson for 10/29/79
Rebelowski, Resident Inspector date signed

Jon R Johnson 10/29/79
Johnson, Reactor Inspector date signed

_____ date signed

Approved by: R. R. Keimig 10-29-79
R. R. Keimig, Chief, Reactor Projects Section date signed
No. 1, RO&NS Branch

Inspection Summary:

Inspection on August 19 - September 15, 1979 (Report No. 50-247/79-12)

Areas Inspected: Routine inspection of plant operations including: shift logs and records; tours of the facility; inspection of stagnant borated water systems; pipe support base plate anchor bolt testing; preparation for unit startup following refueling; startup testing following refueling; surveillance testing; loose parts monitoring; training; and, observations of physical security. The inspection involved 68 inspector-hours on site by the NRC resident inspectors.

Results: Of the ten areas inspected, no items of noncompliance were identified.

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DETAILS

1. Persons Contacted

A. Brescia, Instrument and Control Supervisor
L. Burbige, Engineering, Senior Engineer
W. Carson, Test Engineer
J. Curry, Nuclear Training Director
W. Ferreira, QA Engineer
J. Higgins, Chemistry Supervisor
L. Kawula, Test and Performance Engineer
C. Limoges, Reactor Engineer
J. Makepeace, Technical Engineering Director
B. Maroney, Chief Operations Engineer
W. Monti, Manager, Nuclear Power Generation Department
J. Mooney, I&C Engineer

The inspector also interviewed and observed other licensee employees including members of the operations, technical services, health physics, security and maintenance staffs.

2. Review of Plant Operations

a. Shift Logs and Operating Records

The inspector reviewed the following logs and records on a sampling basis for the period of August 1-31, 1979.

- Senior Reactor Operator Log
- Watch Supervisor Log
- Conventional Nuclear Plant Operator Log
- Significant Occurrence Reports
- High Radiation Area Locked Gate List
- Control Room Log Sheet
- Conventional Area Log Sheet
- Nuclear Area Log Sheet

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- Control Room Cold Shutdown Log Sheets
- Condenser Delta T Logs
- Chemistry Logs

The logs and records were reviewed to verify the following items:

- Log book reviews are being conducted by the staff.
- Significant Occurrence Reports confirm compliance with Technical Specification reporting and LCO requirements.
- Log book entries involving abnormal conditions are sufficiently detailed.

Acceptance criteria for the above review included inspector judgement and requirements of applicable Technical Specifications and the following licensee procedures:

- QAD-3, "Plant Surveillance and Log Keeping Policy"
- SAP-124, "Reporting of Anomalous Conditions"

No items of noncompliance or unresolved items were identified during the inspector's review of logs and records.

b. Plant Tour

At various times during the inspection, the inspector toured the following accessible plant areas:

- Control Room
- Diesel Generator Room
- Primary Auxiliary Building
- Turbine Building
- Containment Building
- Security Control Building
- Auxiliary Feed Station

The following observations/determinations were made:

- Radiation protection controls: step-off pads, storage/disposal of protective clothing, and control of high radiation areas were observed for adequacy in all areas toured.

- Piping vibrations: all areas toured were examined for evidence of excessive piping vibration.
- Control Room and Nuclear Plant Operator station manning: these areas were observed to determine compliance with regulatory requirements.
- Selected valve positions/equipment start positions were observed.
- Discussions with watch personnel pertaining to reasons for selected lighted annunciators: the SRO was questioned to determine if he was knowledgeable of the reasons for all lighted annunciators.
- Seismic restraint oil levels: a sampling of plant hydraulic restraints was performed.
- Monitoring instrumentation: Control Room instrumentation including Control Rod Positions, Accumulator Tank Levels, and Pressures, Nuclear Instrumentation, Containment Temperatures and Pressures, and various on-line recorders were observed.
- Plant housekeeping conditions/cleanliness were observed.
- LSSS/LCO: equipment status or operating parameters were observed for conformance to the LSSS/LCO requirements.
- Shift turnovers of control room operators and watch supervisors were observed on regular and back shifts.

Acceptance criteria for the above items included inspector judgement and requirements of 10 CFR 50.54(k), Regulatory Guide 1.114, applicable Technical Specifications and the following licensee procedures:

- SAO 105, "Work Permits"
- SAO 114, "Station Fire Protection Systems"
- SAO 116, "Housekeeping Policy"
- SAO 126, "Jumper Log"
- SAO 128, "Security Plan Implementation"

No items of noncompliance were identified during the plant tours.

c. Reactor Coolant Pump Lagging Fires

During the period from September 4-9, 1979, the licensee experienced several fires in reactor coolant pump lagging. These fires occurred in lagging that was observed to have oil present, and during the

initial RCS heatup following refueling. A summary of these events is given in the following table:

<u>Date</u>	<u>Time</u>	<u>Event</u>	<u>Approximate RCS Temp.</u>
9/4/79	0445	Fire in #24 RCP lagging	~ 380°F
9/6/79	0655	Fire in #22 RCP lagging	~ 400°F
9/7/79	0328	Fire in #21 RCP lagging	~ 500°F
9/9/79	0343	Fire in #22 RCP lagging	~ 545°F

The inspector entered the containment and viewed the area of the burned lagging around No. 24 RCP and observed that the lagging had been oil-soaked. The inspector suggested that a chemical analysis be performed for chloride contamination of the piping surfaces that were wetted during fire extinguishing. The inspector also requested that a safety evaluation be performed prior to unit startup.

During each occurrence, the fire response teams responded adequately to contain the fires. The licensee stated that in several cases the lagging was observed to be smoldering and when the lagging was subsequently removed, it flashed into flames.

The licensee performed a chemical analysis on September 4, 1979, for chloride contamination of the piping which had been wetted when the fire was extinguished. Results of this analysis indicated ~ .001 mg cl/100 cm².

On September 7, 1979, the SNSC reviewed these events and determined that it was safe to continue unit startup. The licensee stated that this matter would also be scheduled for review by the offsite review committee.

The inspector reviewed a test report dated August 7, 1975, which listed the flash point and fire point of oil samples taken from all 4 RCP's. The flash point was listed as approximately 420°F and the fire point was 465°F. The report also stated that the oil was typical of a "DTE-Medium" type oil which is listed in the vendors technical manual as an equivalent recommended oil to be used.

The inspector questioned the licensee as to why the fires originated at RCS temperatures less than the flash point listed in the August 7, 1975 test report described above. The inspector was also concerned as to the justification for using oil whose flash point was lower than the maximum temperatures expected in the RCS coolant during normal operation.

The licensee is currently reevaluating this problem in the following areas:

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- Whether or not a different type of oil can be used.
- Methods to prevent future oil leaks.
- Use of a canned/mirrored lagging to prevent oil saturation of the lagging.

This item is unresolved pending review of the licensee's reevaluation as stated above (50-247/79-12-02).

3. Stagnant Borated Water Safety Related System

- Reference: (a) I&E Bulletin No. 79-12, dated July 29, 1979
 (b) Consolidated Edison Co. of NY response, August 24, 1979
 (c) Diagram 9321F2735/A206744A-0

The licensee has advised the Office of Inspection and Enforcement of their program to identify possible pipe cracks in stagnant, oxygenated, borated water in safety related systems.

The inspector verified that documentation established by the licensee contained the following:

- a. A review of safety related stainless steel piping systems, and identified systems and portions of systems containing stagnant, oxygenated, borated water.

The inservice inspection program and IE Circular 76-06 response accounted for 63 examinations of pipe lines under review. Safety Injection diagram boundaries for systems containing stagnant water (surveillance frequency over one month) was reviewed, visual and volumetric inspection of additional liners were conducted to meet sampling criteria. A minimum of 10% of welds were noted.

Over and above the ISI inspections, visual inspection of fifteen additional liners (approximately 34 welds) were performed, with lines at test pressure or at normal system pressure. No leakage was observed.

The inspector found discrepancies on accumulator piping lines 350, 351, 352, and 352, where normal pressures were not met during inspection. The licensee reexamined these lines. No leakage or accumulations of boron were indicated. The inspector has no further questions on this item.

4. Pipe Support Base Plate Anchor Bolt Testing

The licensee has completed the onsite actions in compliance with IE Bulletin 79-02, which describes the verification of pipe support base plates using concrete expansion anchor bolts.

The licensee identified a total of 148 base plates, of which 121 were tested. A failure rate of 8.1% was found. The failures included visual and mechanical testing failures. Corrective actions were completed including modifications where required.

For base plates that were inaccessible due to high radiation areas and physical location were deemed untestable, an analysis of worst case basis was performed and found to meet the design criteria for loading forces on adjacent hanger base plates.

The licensee has committed to retention of original data onsite and a final report to the NRC will be issued prior to October 1, 1979.

The inspector observed repair activities. Repairs were accomplished per Ebasco Procedure No. 5, which was approved for use by Con-Ed.

A final report addressing Teledyne Utility Group generic program and results of field inspection is to be reviewed during a subsequent inspection.

5. Review of Plant Operations - Refueling; Preparations for Startup

- a. The inspector witnessed selected portions of the unit startup following refueling. Observations were made to verify that:
 - Surveillance tests required to be performed prior to startup were satisfactorily completed.
 - Startup was being performed in accordance with technically adequate and approved procedures which have been revised, as necessary, to reflect changes made to the facility.
 - Startup activities were being conducted in accordance with Technical Specification requirements.
- b. The inspector reviewed the following completed surveillance test procedures:
 - PT-R81, Containment Spray System Valve Test, Revision 2.
 - PT-R14, Safety Injection System Electrical Load Test, Revision 5.
 - PT-R13, Safety Injection System Test, Revision 9.
 - PT-R15, Hydrogen Recombiner Functional Test, Revision 3.
 - PT-R-29, SIS Pump Full Flow Verification Test, Revision 2.
 - PT-R45, Battery Charger Ground Detection Test, Revision 0.
 - PT-R37, Main Fire Pump Capacity and System Flow Check, Revision 0.

- PT-R21, Main Steam Stop Valve Functional Test, Revision 3.
- PT-R17, Boron Injection Tank Outlet Valve Operational Test, Revision 2.
- PC-R1A, Reactor Coolant Loop RTD Calibration, Revision 4.
- PC-R1B, Reactor Coolant Loop Tavg and ΔT RTD Calibration, Revision 3.
- PC-R1C, Reactor Coolant Loop Wide Range RTD Calibration, Revision 3.
- PC-R2, Reactor Coolant Flow Transmitter Calibration
- PC-R3, Pressurizer Level Calibration, Revision 3.
- PC-R4, Pressurizer Pressure Calibration, Revision 3.

No items of noncompliance were identified.

- c. The inspector observed at various times during the unit startup, the performance of the following procedures:

- COL-12, Safety Injection System, Revision 12.
- COL-46, Plant Startup, Revision 5.
- COL-1, Precriticality Check Off List, Revision 12.
- TE-7, Initial Criticality, Revision 1.

The inspector noted on September 7, 1979, that the copy of COL-1, Precriticality Check Off List, which was in the control room to be used in preparation for the unit startup, was in conflict with the Technical Specifications Section 3.3.A.C.

COL-1, Section 2.4, contained a check that the SIS accumulators were filled to between 58% and 76% (800-815 ft³). The Technical Specifications Section 3.3.A.C requires that, upon return to Cycle 4, the volume in the SIS accumulators be between 716 and 731 ft³.

The licensee stated that a recalibration of the accumulator level instrumentation had been performed so that the accumulator volume would be between 716 and 731 ft³ when the control room indicator was between 58 and 78%.

The inspector reviewed Temporary Procedure Change 79-47, September 8, 1979, and verified that the revised calibration curve (level (%) vs. volume (ft³)) had been placed in the control room curve/data book.

The inspector also verified that COL-1 had been revised to reflect this change.

The inspector had no further questions in this area.

6. Startup Testing - Refueling

The inspector observed selected portions of the following tests prior to criticality following refueling in order to verify that they were performed in accordance with technically adequate and approved procedures:

- TE-6, Incore Thermocouple and Reactor Coolant System RTD Calibration, Revision 3.
- PC-R6, Rod Position Indication System Calibration, Revision 5.

No items of noncompliance or unresolved items were identified.

7. Surveillance Testing

The inspector witnessed selected portions of the performance of Surveillance Test, PT-R6, Main Steam Safety Valve Setpoint Determination. Observations were made to verify that test performance was consistent with approved procedures, test equipment required by the procedure was properly calibrated, test results are reviewed by the appropriate personnel, and that any deficiencies identified are properly resolved.

The inspector observed that Section 3.2 of the test procedure, PT-R6, Revision 4, required the installation of a 0-2,000 psig test gage to measure steam header pressure yet the gages installed in preparation of the test were 0-1,000 psig in range. After questioning the licensee management and the Watch Supervisor, a 0-2,000 psig test gage was installed and used for the test.

The inspector had no further questions.

8. Loose Object in the Reactor Vessel

The licensee had previously identified and evaluated with the Metal Input Monitoring System (MIMS) that a loose object in the reactor coolant system existed. During the present outage, the licensee recovered a nonmagnetic object approximately 7" x 1-5/8" x 1/4".

On unit heatup from cold shutdown at 250°F, the MIMS indicated, on reactor coolant pump operation, a similar characteristic of the presence of another loose object of approximate weights between .2 to 1.5 lbs.

A safety analysis for operability of Unit 2, with a loose object, was performed on August 7, 1979, and was approved by the Nuclear Facility Safety Committee and Station Nuclear Safety Committee.

Based on the safety analysis, the committee concluded that the plant could be safely heated up from plant heatup (70° to 250°) to hot full power operations. The continuing MIMS, neutron noise monitoring, neutron flux and T/C maps, coolant chemistry are being monitored to further verify reactor operation.

The inspector will review the licensee's continuing program to verify the above parameters (247/79-12-01). This item is unresolved.

9. Training

The inspector attended a formal lecture given by a member of the licensee's training staff to various licensee and contractor personnel on the subjects of radiological health and safety and emergency planning.

Specific topics discussed included:

- Exposure limits (regulatory and administrative).
- Exposure control.
- Contamination control.
- Donning and removing anti-C clothing.
- Procedures for various radiological/emergency alarms.

A written examination was given at the conclusion of the lecture.

No items of noncompliance or unresolved items were identified.

10. Observation of Physical Security

The resident inspector made observations, witnessed and/or verified, during regular and off-shift hours, that the selected aspects of the security plan were in accordance with regulatory requirements, physical security plans and approved procedures.

a. Physical Protection Security Organization

- Observations and personnel interviews indicated that a full time member of the security organization with authority to direct physical security actions was present, as required.

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-- Manning of all three shifts on various days was observed to be as required.

-- All physical security members observed appeared capable of performing their assigned tasks.

b. Physical Barriers

Selected barriers in the protected area (PA) and vital areas (VA) were observed and random monitoring of isolation zones was performed. Observations of truck and car searches were made.

c. Access Control

Observations of the following items were made:

-- Identification, authorization and badging

-- Access control searches

-- Escorting

-- Communications

-- Compensatory measures when required

d. Findings

The inspector identified no items of noncompliance.

11. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable, items of noncompliance, or deviations. Unresolved items are discussed in Paragraphs 2.c and 8.

12. Exit Interview

At periodic intervals during the course of this inspection, meetings were held with senior facility management to discuss inspection scope and findings.

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