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

Region I

Report 82-14

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: July 1-31, 1982

Inspectors:

T. Rebelowski — August 6, 1982
T. Rebelowski, Senior Resident Inspector — date

for P. Koltay — 8/13/82
P. Koltay, Resident Inspector — date

Approved by: H. Kister — 8/13/82
H. Kister, Acting Chief, Indian Point Resident Section, Division of Project and Resident Programs — date

Inspection Summary:
Inspection on July 1-31, 1982 (Inspection Report 50-247/82-14)
Areas Inspected: Routine onsite, regular and backshift inspection including licensee action on previously identified inspection findings; operational safety verification; plant tours; radiation protection controls; facility maintenance; surveillance observations; environmental protection; operability of engineered safeguard features; independent limiting condition for operation verification; sampling program review; radioactive waste system controls; containment isolation lineup; licensee event reports followup; onsite licensee event followup; physical security; NRR Headquarters meeting; NUREG 0696, functional criteria for emergency response facilities; and, spent resin transfer. The inspection involved 222 hours by the resident inspectors.
Results: Of the 18 areas inspected, no violations were identified in 17 areas. One apparent violation was identified in one area. (Failure to follow procedures, paragraph 9).

DETAILS

1. Persons Contacted

D. Army, Maintenance Engineer
J. Basile, General Manager Nuclear Power Generation
A. Brescia, I&C Supervisor
K. Burke, Director Regulatory Affairs
W. Carson, Test Engineer
J. Cullen, Radiation Protection Manager
J. Curry, Chief Operations Engineer
W. Ferreira, Radiation Protection Administrator
J. Higgins, Chemistry Manager
C. Jackson, Vice President Nuclear Power
J. Mooney, Electrical Engineer
A. Nespoli, Major Projects Manager
M. O'Kelley, Rad Waste, General Supervisor
J. Quirk, Test and Performance Engineer
D. Rosh, General Manager Technical Support
M. Skotzko, Security Administrator
M. Smith, Chief Technical Engineer
L. Volpe, Test Supervisor
T. Walsh, Instrument and Control Engineer
S. Wisla, General Manager, Environmental Health and Safety

The inspectors also interviewed other licensee employees including members of the operations, health physics, technical support, maintenance, construction, corporate engineering staff, and security personnel.

2. Licensee Action on Previously Identified Inspection Findings

(Closed) Unresolved Item (297-81-11-03): No resin transfer will be conducted until review by the manager of environment, health and safety. The licensee's attempt to transfer resin to a cask resulted in a resin spill. Resin transfer operation was suspended, and the procedure in use, SOP 5.3.2, Revision 4 was subsequently cancelled. The licensee issued a new procedure, RWP 9.5, Transfer of Spent Resin from the Spent Resin Storage Tank to a Shipping Cask, Solidification and Transportation. The procedure incorporated comments generated by the NRC based on a review of the procedure. The inspector verified that the licensee initiated a resin transfer in accordance with the procedure.

(Closed) Unresolved Item (247/81-11-06): As part of Circular 80-03, Protection From Toxic Gas Hazards, the licensee agreed to review CO_2 fire fighting systems in areas that may affect the control room. The inspector verified the licensee's findings that there are no fixed CO_2 installations in areas adjacent to the station control room.

(Closed) Deficiency (247/79-09-01): Failure to log an installed jumper. The licensee failed to log an installed jumper in the jumper log as required by Station Administrative Order 126. The inspector reviewed the licensee's jumper log and sampled jumper installations for a six month period in 1982. The inspector also reviewed SAO 126, Revision 5, dated March 27, 1981, and verified that the licensee's corrective actions are adequate to preclude reoccurrence of this item.

(Closed) Unresolved Item (247/80-22-11): The licensee's response to Report 247/80-22 included plans and actions to improve effectiveness of management control system. One item, the Plant Supervisor's training program, was described. The training program instituted a "Plant Perception Training" which addressed areas of equipment requirements, safety, housekeeping, goal setting, communications, and procedure usage. In addition, a review of Station Administrative Orders No. 123 and No. 116, Personnel Safety Concerns and Housekeeping, were included in the program. The inspector's review indicated that the course will be given on an annual basis, and that new supervisors will be given this training. Due to scheduling, three supervisors had not been given training, and will be included in the 1982 presentations.

(Closed) Unresolved Item (247/79-15-04): The licensee has included in the Radiation Safety training course some elements of the site emergency plan. The inspector's review indicated a minimum of test questions on site emergency procedures. The licensee stated that he will increase test questions in this area and his emphasis on emergency planning.

(Closed) Unresolved Item (247/80-17-06): Test of Fan Cooler Units Service Water Isolation Valves. Test P-MT-43-1 demonstrated the tightness of service water fan cooler valves. No concerns were noted during the inspector's review of the data.

(Closed) Unresolved Item (247/81-20-07): Test PT-V-16 to be revised to address adjustment of leak rates to system design pressures. The licensee has revised Test PT-V-16, Revision 4, May 1, 1982, Accumulator, Low Head Injection Line and RHR Check Valve Leakage Test to adjust leak rates to reflect leakage at design pressures.

3. Operational Safety Verification

Using a unit specific daily and biweekly checklist, the inspector verified:

- Proper control room manning and access control;
- Operators adhering to approved procedures for ongoing activities;
- Adherence to limiting conditions for operations observable from the control room;
- No abnormalities on instrumentation and recorder traces;
- Operators understood the reasons for annunciators which were lit, and that timely corrective action was being taken;
- Nuclear Instrumentation and other reactor protection systems are operable;
- Control rod insertion limits are in conformance with technical specification requirements;
- Containment temperature and pressure indications were in conformance with technical specification requirements;
- No abnormalities indicated on radiation monitor recorder traces; and,
- Onsite and offsite emergency power sources available for automatic operation.

The inspector reviewed the control room log, shift supervisor's log, tagout log, operating orders, significant occurrence reports, daily leakrate calculations, shift turnover check sheet, and diesel operability log to obtain information concerning operating trends and activities, and to note any out-of-service safety systems.

During routine entry and egress from the protected (PA), the inspectors verified:

- Access controls are in conformance with security plan requirements for personnel, packages and vehicles;
- The required number of guards are present and alert;
- Gates in the PA barriers are closed and locked if not attended;
- Isolation zones are free of visual obstructions and objects that could aid an intruder in penetrating the PA; and,
- Personnel radiation monitoring equipment is operable, and that equipment and materials are being monitored prior to release for unrestricted use.

No violations were identified.

4. Plant Tours

During the course of the inspection, the inspector made observations and conducted tours of the following areas during regular and backshifts:

- Turbine Building
- Control Room
- Diesel Generator Rooms
- Primary Auxiliary Building
- Security Control Building
- Auxiliary Feed Pump Building
- Cable Spreading Room
- Maintenance and Operations Building
- Perimeter Fence
- Transformer Yard
- Intake Structure
- Spent Fuel Handling Building
- Containment Building

The following items were observed or verified:

- General plant/equipment conditions including operability and verification of standby equipment;

- Inspected plant areas for fire hazards, fire alarms, extinguishing equipment, actuating controls, fire fighting equipment, and emergency equipment for operability;

- Ignition sources and flammable materials are being controlled;

- Combustible material and debris are promptly removed from the facility;

- Plant housekeeping and cleanliness practices are in conformance with approved programs;

- Excess equipment and material is returned to storage areas;

- Critical clean areas are controlled in accordance with procedures, when required;

- Activities in progress are being conducted in accordance with administrative controls and approved procedures. Verified these activities do not interfere or have the potential to interfere with the safe operation of the facility; and,

- Reviewed a sample of equipment tagouts to verify compliance with Technical Specifications limiting conditions for operation regarding removal of equipment from service.

Findings:

On July 9, 1982, during the inspection of the licensee's diesel driven fire pump room, the inspector noted that the fire pump fuel supply tank level indicator was not operational. Technical Specification, Section 4.14 A requires the licensee to maintain at least 50 gallons of fuel in the tank, and verify tank level once per month. The inspector determined that the licensee provided a dip stick as an acceptable temporary alternate method for determining fuel level. This item was brought to the licensee's attention. The licensee issued MWR 2413 to replace the tank level indicator. This item is considered unresolved, pending NRC review of the licensee's corrective action. (247/82-14-04)

On July 13, 1982, the inspector accompanied members of the Chemical Engineering Branch of NRR on a plant tour. The tour, was part of NRR's comprehensive review of the licensee's ability to meet alternate shutdown requirements imposed by Appendix R to 10 CFR 50. Further review of the licensee's actions in this area has been scheduled. No violations were identified.

5. Radiation Protection Controls

During routine facility tours, the inspectors verified radiation protection controls were properly established by:

- Observing that licensee's HP policies/procedures are being followed;
- Observing portions of area surveys performed by licensee's personnel, and confirming licensee's survey results by independent measurement;
- Verifying by observation and review that the requirements of current RWP's are appropriate, and are being followed;
- Observing proper completion and use of selected RWP's;
- Observing proper use of protective clothing and respirators;
- Observing proper personnel monitoring practices; and,
- Examining randomly selected radiation protection instruments that were in use to verify operability and adherence to calibration frequency.

Findings:

The inspector continued the review of the licensee's corrective actions designed to preclude diver overexposure (see IE Report No. 50-247/82-11), and improve spent fuel movement operations.

The inspector verified the following:

- SOP 17.24, Fuel Storage Building, Fuel Assembly and Component Relocation, includes a requirement for fuel movement instructions to be typed, with controlled copies of the instructions to be given to the operators conducting the placement of fuel assemblies; and,
- The licensee installed additional light racks in the fuel pool, along the east side.

No violations were identified.

6. Facility Maintenance

The inspector reviewed portions of safety-related corrective and preventive maintenance, and determined through observations and reviews of records that:

- The maintenance activity did not violate limiting conditions for operation;
- Redundant components are operable, if required;
- Required administrative approvals, and tagouts were obtained prior to initiating the work, if required;
- Approved procedures were being used, where required;
- The procedures used were adequate to control the activity;
- The activities were being accomplished by qualified personnel;
- Replacement parts and materials being used are properly certified;
- Preventive Maintenance Program is functioning in accordance with approved procedures;
- Radiological controls are proper, and that they are being properly implemented;
- Ignition/fire prevention controls were appropriate, and were implemented, where required;
- QC hold points were observed, and provided independent verification of specific points, if required; and,
- Equipment was properly tested prior to return to service.

Portions of the following maintenance activities were observed and reviewed:

Charging Pump No. 23, MWR 3248 dated July 6, 1982. The licensee identified that the pump output dropped. The licensee replaced all discharge valves and changed the packing on all five cylinders. The inspector reviewed the Post Maintenance Test results, and verified that the charging pump met flow requirements.

Feed Water Valve FCV 417, MWR 3180. The licensee identified two broken bolts on the valve actuator. In order to facilitate repair with the plant on the line, the licensee reduced power to 100 megawatts to allow the use of the feedwater by-pass lines to maintain steam generator levels. Subsequently, the licensee replaced the actuator on FCV 417. The inspector reviewed the results of the Post Maintenance Inspection and Main Feedwater Flow Control Valves Operational Test P-M T-9.

Weld Channel and Penetration Pressurization Zone IV, MWR 3447. Licensee identified PCV 1199 pressure regulator failed high. The licensee repaired the regulator, replaced valve internals, diaphragm and gasket. The inspector reviewed the Post Maintenance Inspection and verified that the WCPP zone pressure is greater than 47 psig.

No violations were identified.

7. Surveillance Observations

A. The licensee's surveillance equipment and program provides assurance that required pumps, fans, valves, and other instrumentation will perform their required functions.

The inspector's verification of the licensee's surveillance program includes:

- Review of surveillance procedure for conformance to technical specification requirements, and verify proper licensee review/approval;

- Verification of test instrumentation calibration;

- Observations of portions of system removal from service. Confirmation that LCO's are met when operational mode requirements are specified;

- Observation of portions of the conducted surveillance test;

- Observation of portions of the system's restoration to service;

- Review test data for accuracy and completeness. Independently calculated selected test results to verify accuracy;

- Confirmation that surveillance test documentation is reviewed and test discrepancies are rectified;

- Verification that test results meet technical specification requirements;

- Verification that testing was done by qualified personnel; and,

- Verification that surveillance schedule for this test was met.

The following surveillance test was witnessed:

- PT-M20, Revision, Auxiliary Component Cooling Pumps Functional Test. The test was conducted on July 21, 1982.

Findings:

Auxiliary Component Cooling Pump No. 22 was noted to operate in the High Alert Range of the Acceptance Criteria. This requires the licensee to increase the frequency of the tests to twice per month.

B. Additional Surveillance Test Verification

Portions of the following surveillance tests were witnessed, by the inspector. The tests were:

- Scheduled in accordance with the TS, where applicable;

- Procedures were being followed;

- Testing was performed by qualified personnel;

- LCO's were met, when applicable; and,

- Restoration of systems was correctly accomplished.

The tests witnessed were:

- PT-BW1, Reactor Vessel and Containment Building Inspection for Leakage and Anomalous Conditions, Revision 1. Inspection was conducted on July 1, 1982. Areas requiring additional attention are two of the five fan cooler drain cylinders that were leaking at the dump valves. Flanges on the level indicators of accumulator tanks showed boric acid leakage.

- PT-W3, Instrument Air System, Revision 4. Inspection conducted on July 18, 1982.

- PT-M56, Charging Pump Operability Test, Revision 0. Test conducted on July 13, 14, 1982.

No violations were identified.

8. Environmental Protection

The inspector observed seven of the licensee's environmental monitoring stations, meterological air sampling and fallout, and verified that the stations operate properly. The inspector also reviewed environmental reports on soil and milk samples, and verified that the data meets the requirements of the technical specifications.

No violations were identified.

9. Operability of Engineered Safeguard Features

A. The inspector verified through direct observation, and procedural review, the operability of a selected ESF system.

The inspection criteria included:

- A walkdown of the accessible portions of selected system;
- System lineups checked against plant drawings;
- Verified hangers and supports were operable;
- Cleanliness of breakers, instrumentation cabinets;
- Instrumentation is properly valved and calibrated;
- Valves in proper position, power available, locked and sealed, as required by checkoff lists; and,
- Local and remote control positions correctly established.

The accessible valve lineups and flow paths for the charging pumps suction and discharge lines were inspected and verified against checkoff list COL-3.

Findings:

On July 14, 1982, during a verification of valve positions against the licensee's procedure COL-3, the inspector noted that Valve No. 1279, No. 23 charging pump recirculation bypass valve was closed but not chained locked. A chain and padlock were located near the valve. The licensee's procedure COL-51, Locked Valves, requires Valve No. 1279 to be closed and chained locked in this position. Upon notification by the inspector, the licensee verified the position of the valve, and chained locked the valve.

The licensee's failure to follow procedure is considered a violation. (247/82-14-01). The inspector noted that the licensee completed major maintenance on the No. 23 charging pump on July 8, 1982. (See Facility Maintenance section of this report). The inspector noted that the Post Maintenance Test, which allowed valve No. 1279 to be unlocked, does not include a subsequent valve position verification consistant with procedure COL-51. This item was discussed, and is under review by the licensee.

B. Additional ESF system operability was determined by observation of:

- Valves in the system flow paths in the correct position;

- Power supplies and breakers are aligned for components that must activate upon initiation signals;

- Major component leakage, lubrication, cooling water supply, and general conditions which might prevent fulfillment of their functional requirements; and,

- Instrumentation essential to system activation or performance operable.

ESF systems inspected included portions of:

- Boric Acid Storage and Transfer System;

- Instrument Air System; and,

- 6900 and 480V AC Distribution.

Findings:

A number of control power lights on the 6900 volt switchgear, were found inoperable. The licensee took immediate corrective action to replace burnt out indicating lights. Redundant indicating lights in the control room were found operational.

No violations were identified.

10. Independent Limiting Condition for Operation Verification

The inspector independently verified equipment status to determine that Technical Specification limiting conditions for operation requirements were being met for the following:

- Fire barrier penetration between the 480 switchgear room and the cable spreading room;

- Boric acid storage facility electrical heat tracing circuits 3, 5, 6, 19, and 23 were verified to be operational; and,

- Isolation Valve Seal Water System. IVSWS tank contains a minimum of 144 gallons of water.

No violations were identified.

11. Sampling Program Review

The inspector reviewed sampling results for the following tests to verify conformance with regulatory requirements:

- Boric Acid Storage Tank, boron concentration for eight tests performed during the month of July;
- Spray Additive Tank, sodium hydroxide concentration for test performed July 6, 1982; and,
- Accumulators, boron concentration for test performed July 6, 1982.

No violations were identified.

12. Radioactive Waste System Controls

The inspector verified through observation and calculations, the liquid and gaseous release programs at the site.

The inspection parameter for liquid and gaseous releases included:

- Releases were in accordance with approved procedures;
- Release approvals were documented;
- Samples were taken and analyzed; and,
- Release control instrumentation was operable during release.

The inspector reviewed the liquid radioactive waste releases associated with the following permits:

- Permit No. 1, released on July 15, 1982;
- Permit No. 5, released on July 18, 1982; and,
- Permit No. 6, released on July 20, 1982.

The inspector also reviewed the airborne radioactive releases associated with the following permits:

- Permit No. 1729, released on July 1, 1982;
- Permit No. 1739, released on July 12, 1982; and,
- Permit No. 1740, released on July 13, 1982.

No violations were identified.

13. Containment Isolation Lineup

To ensure licensee's ability to maintain and exercise containment isolation, the inspector verified by observation:

- That manual valves required to be shut, capped and/or locked met operating mode;

- That motor or air-operated valves were not mechanically blocked and power was available, where required.

The inspector conducted:

- Visual inspection of piping between containment and isolation valves for leakage; and,

- Inspection of selected electrical penetrations.

The following valves and penetrations were included in this inspection:

-	Valve No. E-1	Post Accident Vent Exhaust Line
-	Valve No. E-2	Post Accident Vent Exhaust Line
-	Valve No. 753 H	Component Cooling Water
-	Valve No. 753G	Component Cooling Water
	Valve No. 784	Component Cooling to Reactor Coolant Pump

Also, electrical penetrations 22, 35, 37, 48, and 61 were inspected in the electrical penetrations area.

No violations were identified.

14. Licensee Event Reports Followup

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications.

-	LER 82-022/03L-0	No. 22 Boric Acid Transfer Pump Inoperable
-	LER 82-023/03L-0	Level Indication Failure of BIT Level Channel 944E
-	LER 82-024/03L-0	No. 23 Charging Pump Inoperable
-	LER 82-025/03L-0	No. 21 Steam Generator Level Indicators Drifted Upscale
-	LER 82-026/03L-0	Service Water System supplied by SW Pumps 21, 22, and 23 Inoperable
-	LER 82-027/03L-0	Level Indication Failure of BIT Channel

No violations were identified.

15. Onsite Licensee Event Followup

The following LER's were selected for onsite followup. This review was conducted to verify that the reporting requirements of Technical Specifications and Station Administrative Orders had been met, that appropriate corrective action had been taken, that the events were reviewed as required, and that continued operation of the facility conformed to Technical Specification limits.

Information concerning the selected LER's and records reviewed by the inspector with comments are described below:

LER 82-022/03L-0 - The No. 22 Boric Acid Transfer Pump failure was subject to an engineering review, and MWR 2666 was issued, and a new type of seal was placed in operation.

LER 82-023/03L-0 and LER 82-027/03L-0 - The LER's address Boron Injection Tank Level Indicators. The licensee is performing an engineering evaluation that will address areas of BIT level taps, sensor piping, level transmitter prefilled lines, and heat trace system. The licensee also stated that this review would be complete by August 15, 1982. The results of the review will be subject to a subsequent inspection. The licensee's pending corrective action is unresolved. (247/82-14-02)

LER 82-026/03L-0 - Service Water Pumps No. 21, 22, 23 Inoperable. The licensee replaced service water pumps No. 21, 22, and 23 with repaired pumps. The MWR packages indicate the repairs made, but do not give an analysis of failure mechanism, as both drive motors and pumps were overhauled. The engineering evaluation of the cause of the rapid degradation of pump flow has not been addressed in the LER; thus, the licensee has not determined the cause or remedial action to prevent this type of pump failure. This item is unresolved. (247/82-14-03)

No violations were identified.

16. Physical Security

During the course of the inspection, the inspectors observed the implementation of the security plan by noting:

- The security organization is properly manned and that security personnel are capable of performing their assigned functions;

- Persons and packages are checked prior to allowing entry into the protected area;

- Selected vital area barriers are not degraded;

- Vehicles are properly authorized, searched, and escorted or controlled within the protected area;

- Persons within the protected area display photo identification badges, persons in vital areas are properly authorized, and persons requiring escort are properly escorted;

- Compensatory measures are employed when required by security equipment failure or impairment; and,

- Response to threats or alarms or discovery of a condition that appears to require additional security precaution is consistent with procedures and the security plan.

No violations were identified.

17. NRR Headquarters Meeting

The inspector attended a meeting on July 27, 1982, at Bethesda, Maryland. The subjects discussed with licensee's management were the use of the Probalistic Risk Assessment (PRA) report as a tool for prioritizing elements under review by the licensee. Of the various areas identified in the PRA, the licensee detailed the area of improvements in safe shutdown systems and equipment outside the control room, as one of the major findings.

Other outstanding licensee/NRC issues were discussed, and a scheduling sequence for target completion dates were discussed. NRC Regional/licensee items in the area of ISI testing, Boron Injection Tank Technical Specification changes, and NRC Regional review of Technical Specification changes were discussed. The NRC Regional issues are under review by Region I staff.

18. NUREG 0696 - Functional Criteria for Emergency Response Facilities

The licensee is constructing an office complex that will include a Technical Support Center, (a NUREG 737, Item III A.1.2).

During the inspector's tour of the facility, the inspector questioned the adequacy of the supports on the closed ventilation system that will support continued TSC operations during the implementation of a site emergency.

NUREG 696 states on page 11, Paragraph III, E, that, "The TSC facility must be able to withstand the most adverse conditions reasonably expected during an accident. While the TSC and its equipment need not meet Seismic Category I criteria, it shall be a well engineered structure expected to withstand earthquakes, and capable of withstanding high winds (other than tornadoes) and flood levels."

The licensee's ventilation support system is designed to the Sheet Metal and Airconditioning Contractor National Association requirements, allowing certain ventilation ductwork strap hanger supports to be 16 and 12 gauge sheetmetal. This light gauge does not appear to be consistent with NUREG 696 guidelines. This item will be submitted for regional review. (247/82-14-05)

19. Spent Resin Transfer

The licensee had previously suspended the removal of spent resin to modify the system to accept a contractor cement solidification process. New Procedures were written to address this solidification process.

The inspector reviewed the following procedures for content and process engineering:

- Radwaste Procedure RWP 9.8, Revision 0, Transfer of Spent Resin from the Spent Resin Storage Tank to a Shipping Cask, Solidification and Transportation; and,

- Process Control Program for CNSI Cement Solidification Units.

The inspector's comments were incorporated in Revision 1 of RWP 9.8. Prior to the initial transfer of spent resin, the licensee conducted a run through of process and instrumentation performance prior to the actual transfer. Identified problems were corrected.

On three occasions, the inspector observed portions of the licensee's adherence to procedure during process flow.

Problems developed during the initial flow through of resin due to a previous blocked line. This item was corrected by the cycling of spent resin storage tank isolation valves. The strainer that is in use during the dewatering process was subject to clogging. This item is to be reviewed by the licensee prior to next resin transfer.

Personnel exposure records were reviewed, and found to be at expected levels; at the time of the review, the maximum reading recorded was 600 mr.

The cask has been cemented and remains on site for early shipment.

Activity levels are:

Highest reading at bottom of cask	30 mr
Highest reading at side of cask	17 mr
Highest reading 3 ft. from cask	6 mr
Highest reading 6 ft. from cask	2 mr
Highest reading at cab of carrier	.3 mr

Additional shipments are planned prior to planned refueling outage.

No violations were identified.

20. Unresolved Items

An item about which more information is required to determine whether it is acceptable, or an item of noncompliance is considered unresolved. Paragraphs 4 and 15 contain unresolved items.

21. Exit Interview

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