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REGION I

Report No. 50-247/86-09
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: March 4, 1986 - March 31, 1986

Inspectors: L. Rossbach, Senior Resident Inspector
P. Kelley, Resident Inspector

Reviewed by:

Beverly Hellman for 4/8/86
R. Summers, Project Engineer date
Reactor Projects Section 2B, DRP

Approved by:

L. E. Norrholm for 4/8/86
L. E. Norrholm, Chief date
Reactor Projects Section 2B, DRP

Inspection Summary: Inspection on March 4, 1986 - March 31, 1986 (Report No. 50-247/86-09)

Areas Inspected: This inspection report includes routine daily inspections, as well as unscheduled backshift inspections of onsite activities, and includes the following areas: licensee actions on previously identified inspection findings; refueling/maintenance outage activities; maintenance; surveillance; review of monthly report; ESF system walkdown; environmental qualification, licensee event report followup; fire protection; radiological protection; and plant security. The inspection involved 184 hours by the resident inspectors.

Results: Several Environmental Qualification (EQ) issues were inspected and are discussed in Section 8 of this report. Two unresolved items related to EQ were identified. In addition, the inspectors discussed with site managers two concerns: environmental parameters used by the EQ program should be reviewed, and additional engineering expertise and improved communication is needed to resolve future EQ issues raised by the licensee's staff.

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DETAILS

1. Persons Contacted

Within this report period, interviews and discussions were conducted with members of the licensee management and staff to obtain the necessary information pertinent to the subjects being inspected.

2. Licensee Actions on Previously Identified Inspection Findings

(Closed) (247/82-LO-09) Boron Injection Tank Low Blanket Pressure. The BIT tank has been taken out of service in accordance with Amendment 104 to Technical Specifications. This item is no longer a concern nor did the inspectors observe low blanket pressure in the months preceding the current outage.

(Closed) (Unresolved Item) (247/84-08-03) Auxiliary Boiler Feed Pump #22 Steam Supply Valve PVC-1139 not repaired since 1982. PVC-1139 was replaced during the 1986 refueling outage with a new Copes-Vulcan valve per MWR 82-06407.

3. Refueling/Maintenance Outage Activities

During this inspection period, the unit was brought critical for zero power physics testing and returned to cold shutdown on the schedule listed below. The outage has been extended until late April in order to complete repairs to the electrical generator. At the end of this inspection period, the unit was in cold shutdown to allow replacement of the reactor vessel O-ring seals.

- March 7, unit brought to hot shutdown.
- March 7, reactor coolant system hydro completed.
- March 12, reactor brought critical.
- March 13, unit returned to hot shutdown following zero power physics testing.
- March 25, unit cooldown begun.
- March 27, unit at cold shutdown.

During this inspection period, the inspectors conducted close-out inspections of the containment building and verified that the Residual Heat Removal System and portions of the Safety Injection and Component Cooling Water systems were properly lined up for return to service.

The inspector reviewed the results of foreign objects search and retrieval and the safety analysis of foreign objects left in the vessel. The presence of seven small objects in the vessel were determined to have no safety significance.

The inspector reviewed reactor coolant system leak-rate calculations performed prior to reactor criticality. The inspector determined that the value used for the volumetric coefficient of expansion was not correct for the temperature at which the calculation was performed. The procedure used did contain precautions that the conversion factors should be corrected if not at normal temperatures. RCS leakage was determined to be within specifications through other methods (including containment sump levels). The inspector discussed this with the licensee who stated that they will revise the procedure to include a table of values for temperature dependent conversion factors.

No violations were identified.

4. Maintenance

The inspector observed maintenance in progress and reviewed work packages during this inspection period. The inspector verified proper radiological precautions were taken, approved and adequate procedures were used, QA/QC involvement, LCO's were not violated, and replacement materials were properly certified. The following work packages were reviewed:

- NP 85-23693, Replace Flow Transmitter FT-415 in RCS Loop #21. Foxboro Flow Transmitter FT-415 was inoperable. Upon investigation, it was discovered that the transmitter was leaking and plugged with boric acid. It was replaced with a new Foxboro transmitter.
- NP 85-22774, Reactor Coolant Pump (RCP) #23 Seal Overhaul. Included the disassembly and inspection of the three seals associated with the seal package. The major components of the seals (seal runners and seal rings) were replaced although in good condition. This procedure was performed by Westinghouse personnel including Westinghouse QA due to their knowledge of the seal systems. The licensee has approved Westinghouse's QA program. The RCP is currently in the process of being balanced due to increased vibration.
- NP 85-23081, Main Steam Isolation Valve (MSIV) 1-1 Preventive Maintenance and Installing New Packing. Involved disassembling the MSIV and inspecting the internals. The disc stop was also inspected at this time for signs of deterioration. This was due to a previous failure (sheared disc stop) of the #22 steam generator MSIV in October, 1985 (Inspection Report 85-25). No problems were identified for the four MSIV's. In addition, a modification was completed which installed new lantern rings and reduced the number of packing rings used in the MSIV's. The modification was performed to ensure better

reliability in the closure of the MSIV's by reducing friction. This modification was performed for all the MSIV's. It was determined that this modification does not pose an unreviewed safety question.

No violations were identified.

5. Surveillance

The inspector observed surveillances in progress and reviewed completed surveillances. The inspector verified the surveillance results satisfied Technical Specification requirements, proper administrative approval was received, the tests were conducted properly, and test instruments were properly calibrated. The following refueling surveillances were reviewed:

- PT-R53, Rev. 1, Acoustic Monitor Functional Test performed on January 27, 1986. This test involved striking the piping near the reactor coolant safety valve acoustic sensors and the reactor vessel vent acoustic sensor to functionally check the sensors.
- PT-R16, Rev. 7, Recirculation Pumps Functional Test performed on March 6, 1986. Demonstrated the operability of the two recirculation pumps and partially stroked check valves 886A and 886B.
- PT-R13B, Rev. 3, Auxiliary Feedwater Pumps Automatic Actuation Circuits performed on March 8, 1986. Verified the initiation logic for Auxiliary Feedwater as per Technical Specifications. Included in the test were: simulating blackout conditions with no safety injection available and having the diesels start and the three auxiliary feedwater pumps start; simulating tripping of #21 MBFP and #22 MBFP both separately and together and having the Auxiliary Feedwater pumps start; simulating a low level in one steam generator on 2/3 channels and having one Auxiliary Feedwater pump start; simulating low levels in two steam generators on 2/3 channels and having all Auxiliary Feedwater pumps start.
- PC-R1A, Rev. 6, Reactor Coolant System Narrow Range Temperature Channels Ohms/Volts Converters Calibration performed on January 30, 1986. The Delta T channels signal devices for the reactor coolant system were calibrated.
- PC-R1B, Rev. 5, Reactor Coolant System Tavg and Delta T Instrumentation Calibration performed on January 30, 1986.
- PC-R4, Rev. 6, Pressurizer Pressure Instrumentation performed on February 25, 1986. Included calibrating the pressure transmitters, current repeaters, and lead/lag units. The "as-found" pressure transmitters calibration was found to be slightly out of

specifications on all four pressure transmitters. The pressure transmitters were then calibrated to within specifications satisfactorily.

- PC-EM16, Containment Pressure Transmitter Calibration performed February and March, 1986. Five transmitters were found slightly out of calibration. One transmitter was repaired and all transmitters were calibrated to within specifications.

No violations were identified.

6. Review of Monthly Report

The Monthly Operating Report for February, 1986 was reviewed. The review included an examination of significant occurrence reports to ascertain that the summary of operating experience was properly documented.

The inspector verified through record reviews and observations of maintenance activities discussed in the report that:

- The corrective action was adequate for resolution of the identified item; and,
- The operating report included the requirements of TS 6.9.1.7 & 8.

The inspector has no further questions relating to the report.

7. ESF System Walkdown

The inspectors performed a walkdown of the portions of the Residual Heat Removal system and Component Cooling Water system that are inside of the Containment Building. The systems were found to be lined up so that they were capable of performing their safety functions.

No violations were identified.

8. Environmental Qualification

During this inspection period, the inspector reviewed the licensee's Environmental Qualification (EQ) program, identified steam flow transmitters that were not properly sealed, and identified incomplete implementation of commitments made to assure that temperatures in the Primary Auxiliary Building (PAB) do not exceed 150 degrees F.

Steam Flow Transmitters

While doing a system walkdown in the Containment Building on the afternoon of March 10, the inspector noticed that much of the RTV (Room Temperature Vulcanizing) seal on steam flow transmitter 439B was missing and that a small section of the seal had been removed from three other

transmitters. Station personnel indicated that this had been observed by station engineering personnel on March 7 or 8. On March 11, while on a general tour of the Containment Building, the inspector noticed that the seals had apparently not yet been repaired. The inspector discussed this with the licensee and determined that repair procedures were being written and a repair team was being assembled. The inspector later determined that the detectors were sealed on the evening of March 11. The seals involved were for steam flow transmitters 439A and B and 449A and B (i.e. Loop 3 and 4 steam flow transmitters). These seals were opened during the performance of surveillance test PV-R29 prior to the plant going above cold shutdown on March 7. The plant was in hot shutdown at the time the transmitters were sealed on March 11. Technical Specification 3.5.3 and Table 3.5-3 require a minimum of one operable steam flow channel in each of three lines if above cold shutdown. Because RTV sealant was missing on the flow transmitters on two of the four steam lines, their operability in accordance with this Technical Specification requirement is unresolved for the period from March 7 to March 11. (86-09-01)

From discussions with the licensee, the inspector determined that action had apparently not been taken earlier to seal the transmitters because it was not recognized that the small section of sealant missing from three of the four transmitters (FT 439A, FT 449A, FT 449B) was required to maintain their environmental qualification (EQ). The licensee also reported, but did not verify, that a seal under the transmitter cover plate existed and was adequate for EQ. The inspector discussed with the licensee the concern for additional engineering expertise or improved communication to determine the correct resolution of possible EQ deficiencies when they are identified by the plant staff.

EQ Program Review

Following the discovery of the steam flow transmitter seal issue discussed above, the inspector reviewed portions of the licensee's EQ program to determine if there was evidence of a general problem with their EQ program. The inspector interviewed station engineers working on the EQ program, and the chairman of the licensee's EQ task force (a management oversight group). The inspector also reviewed numerous procedures and records. From this the inspector determined the following:

- The licensee is maintaining an up-to-date master list of equipment required to be environmentally qualified.
- All items on the EQ master list have been physically walked down and this is documented by equipment walkdown sheets.
- Past maintenance activities were reviewed by a consultant to identify their impact on the qualification of previously environmentally qualified equipment.

- Deficiencies identified by walkdowns and document reviews have been resolved and documented.
- EQ requirements have been incorporated into maintenance procedures.
- EQ requirements have been incorporated into surveillance procedures in the form of addenda to those procedures. The licensee plans to incorporate these addenda into the body of the procedures during the regularly scheduled review and revision of these procedures.
- The licensee reviewed IE Information Notice 86-03 on Limitorque valve motor operators. This resulted in an LER which is discussed in Section 9 of this report.
- At the end of this inspection period, the licensee conducted training courses for station personnel to make them aware of environmental qualification and the possible impacts their activities in the plant could have on EQ requirements.

From this review the inspector concluded that, where EQ requirements have been identified, the evidence is that these requirements have been implemented.

Environmental Parameters

Environmental parameters have been defined for each area of the plant to determine the environment that equipment on the EQ master list must be qualified to. In the pipe penetration area one of the parameters is a temperature of 150 degrees F. The inspector reviewed the basis for this number, which is an analysis of high energy lines submitted to the NRC by letter dated April 9, 1973. The analysis states that temperature sensors will be located in the penetration area and will alarm in the control room before the penetration area temperature reaches 150 degrees F. It also states that the operators will isolate high energy lines in the area immediately upon indication of high temperature. The inspector could not locate an alarm response procedure for these temperature switches and when several operators were asked by the inspector about the switches and alarm none were aware of them. On March 20, the inspector notified licensee management who immediately investigated the event and took corrective action. The inspectors' and licensee's investigations determined the following:

- The temperature switches (TC-5212S, TC-5213S, TC-5214S) were installed.
- The temperature switches were not properly classified as Class A equipment and, therefore, work on them was not subject to safety evaluations nor were they regularly calibrated under the licensee's surveillance program.

- The last documented calibration (under Work Order 09147, performed July 7, 1983) stated that the setpoint was 175 degrees F. Two of the switches were recalibrated to 120 degrees F. on March 20. Portions of the switch calibration were observed by the inspectors. Their as-found setpoints were 86 degrees F. and 101 degrees F. The third switch was not immediately located, but was found and calibrated on March 21.
- The switches are not on the EQ master list.
- The switches alarm window 1-6 is on panel SMF in the control room, but the alarm response procedure for that window identified the initiating device as temperature switches in the auxiliary feedwater pump building. The alarm response procedure has since been corrected.
- The pipe penetration temperature switches are not in the Indian Point 2 Technical Specifications, although they are in Indian Point 3's.
- A consulting engineer has done a scoping analysis for Indian Point 3 (A unit similar to Indian Point 2) for high energy line breaks which concluded that without operator action temperatures will not exceed 150 degrees F. in the pipe penetration area. The licensee is obtaining a detailed high energy line break analysis for the pipe penetration area.

From this review, the inspector concluded that the licensee's ability to limit temperatures in the pipe penetration area to the temperature assumed by the EQ program is unresolved. (86-09-02)

The inspector discussed with the licensee the concern that the basis for the other environmental parameters used in the EQ program should also be reviewed. The licensee stated that they have initiated such a review.

The licensee's EQ program will be the subject of a future inspection.

9. Licensee Event Report Followup

The inspector reviewed the following LER's to determine that reportability requirements were fulfilled, immediate corrective action was taken, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications.

86-01, Main Boiler Feedwater Pump (MBFP) Trip/Reactor Trip. This event was reviewed in Inspection Report 85-30. During the current outage, the licensee completed repairs and modifications to the main boiler feedwater pumps (MBFP). The trip of #21 MBFP was traced to a failed high pressure oil hose which was scheduled to be replaced during this outage. A clogged orifice was found in the control system for #22 MBFP and would

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have prevented it from increasing in speed and supplying more of the lost flow. The licensee replaced the oil hose with higher rated steel-jacketed hose. Also during this outage, the licensee modified the MBFP's by replacing the speed control system with one of a design which has been shown at other sites to increase pump reliability. The inspector considers this item closed.

85-15, Two Boron Injection Tank Level Transmitters Out of Calibration. Although two of the four transmitters were found out of calibration, the other two had as-found setpoints within the operable range and, therefore, the transmitters would have performed their safety function of closing the boron injection tank (BIT) discharge valves at low level in the BIT. Also, the BIT and the transmitters have since been removed from service. The inspector considers this item closed.

86-05, Environmental Qualification (EQ) Deficiencies for Limitorque Valves. Following receipt of IE Information Notice No. 86-03, the licensee inspected all Limitorque motor operators on the EQ master list. In addition to the wiring deficiencies discussed in Information Notice No. 86-03, the licensee discovered that in some operators the installed torque switches and limit switches were not qualified. The licensee replaced the switches and wiring with environmentally qualified switches and wiring. The licensee's EQ program will be the subject of a future inspection. The inspector has no further questions about this report.

No violations were identified.

10. Fire Protection

The inspectors walked down portions of fire alarm systems, heat and smoke detection systems, fire header deluge valves, fire pumps, and alarm panels. The inspectors also examined numerous fire penetrations, reviewed the fire barrier removal and reinstallation control system, and reviewed alarm response procedures. The inspectors noted that two pressure maintenance pumps were properly tagged out and that #11 booster pump was also tagged out and the licensee was taking proper action in accordance with the Limiting Condition of Operation. The inspectors also noted that a fire watch was posted in the cable spreading room due to a fire barrier being degraded.

The inspector also reviewed the following 30-day reports and the licensee's compensatory and corrective actions:

- November 1, 1985 report that the Halon System was inoperable until fusible links for Control Building dampers were replaced.
- January 2, 1986 report that the #21 Fan Cooler Unit fire detection alarm was inoperable following the replacement of its terminal block.

- January 3, 1986 report that the #11 booster pump was out of service while repairs were made to a section of the fire main.

The inspectors have no further questions on these events.

On March 28, all three fire pumps were out of service. Number 12 pump was out of service while one of its headers was being replaced. It is expected to be returned to service in a month. Number 11 pump developed a seal leak and was removed from service for repairs lasting about one day. The diesel fire pump was operating while Number 11 pump was being repaired when it tripped. The licensee took compensatory measures which included suspending all welding and cutting activities and designating all security posts as fire watches. The reason for the diesel pump tripping was traced to a loose wire in the governor. It was repaired and restarted. The Number 11 pump repair was also completed and the pump returned to service. The inspectors will review this event to determine if it was properly reported. This is an unresolved item. (86-09-03)

No violations were identified.

11. Radiological Protection

During this inspection period, the inspectors reviewed the following two events:

On March 20, three workers were contaminated when one of them turned on an electric vacuum without the HEPA filter being attached. The three workers were decontaminated to less than 100 cpm above background and released. Whole body counts were taken and showed uptake to the gastrointestinal tracts; the maximum reading was about 12% of permissible body burden CO-60. Whole body counts taken on March 25 showed no detectable contamination. The inspector discussed the event with plant management and two of the contaminated workers. The workers were decontaminated in accordance with plant procedures. The licensee prepared a radiological occurrence report on the event and initiated the following corrective actions: RWP's are being rewritten to require health physics escorts, personnel have been informed to check that filters are attached to vacuums prior to use, and a formal training program on the use of vacuums will be developed. Corrective actions taken on the use of vacuums will be reviewed in another inspection. (86-09-04)

On March 25, a temporary catch basin installed under a pipe leak in the fuel storage building (FSB) fell and spilled some contaminated water, some of which flowed under the loading well door of the FSB. A security guard on patrol noticed the water and reported it. An estimated 10 gallons of water containing 1 milli Ci was released from the building and flowed to a sewer. The inspectors observed the licensee's cleanup activities and reviewed a survey of the drainage system, the FSB, and the area between the FSB and the sewer. Samples taken from the sewer system show that the activity was contained in the sewer's catch basin and there

was no release from the site. The areas involved, including the sewer and catch basin were decontaminated. The licensee is evaluating the possibility of installing a curb at the loading well door. The inspectors have no further questions on this event.

No violations were identified.

12. Plant Security

The inspector discussed with members of the security guard force their understanding of their rights and responsibilities with regard to discussing concerns with NRC inspectors. In general, members of the guard force expressed a correct understanding of these rights and responsibilities; however, a few individuals appeared to be uncertain of these rights and responsibilities. The inspector discussed this issue with plant management who stated that the guard force was free to discuss concerns with inspectors although they are encouraged to bring concerns to the attention of plant management first so that plant management can resolve them.

The security organization is currently developing formal lesson plans to be used in security training programs. The licensee stated that these lesson plans will include the discussion of station policy for handling concerns of the guard force and their rights to communicate with inspectors. The licensee also stated that the rights of employees to communicate with NRC inspectors will be discussed at guard mounts (meetings) in the coming month.

The inspector has no further questions in this area.

No violations were identified.

13. Unresolved Items

Unresolved items are those for which further information is required to determine whether the item is acceptable or a violation. Unresolved items are discussed in Paragraphs 8 and 10.

14. 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. An exit interview was held with licensee management at the end of the reporting period. The licensee did not identify any 2.790 material.

*** Print Diagnostics for: IR IP2 86-09

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