U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No: 50-286/93-30

Licensee: New York Power Authority 1633 Broadway New York, New York 10019

Facility:

Location: Buchanan, New York

Dates:

December 19, 1993 to January 17, 1994

Reactor Projects Section 1B

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Indian Point 3 Nuclear Power Plant

Approved by:

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Areas Inspected: This inspection report discusses resident inspector safety inspections of plant activities in the following areas: plant operations; maintenance; engineering and plant support.

Results: Inspection results are summarized in the attached executive summary.



EXECUTIVE SUMMARY

Indian Point 3 Nuclear Power Plant

NRC Inspection Report No. 50-286/93-30

<u>Plant Operations:</u> NYPA continued the performance improvement outage throughout the reporting period. The reactor remained in the cold shutdown condition. The work "slowdown" initiated by plant management in response to early-December 1993 operational events continued throughout the period.

NRC closely monitored NYPA's initiatives in improving the work control process and the control of the plant's configuration. The inspectors reviewed NYPA's ongoing process and procedural improvements and their completion of commitments outlined in NYPA's December 22, 1993 letter to NRC. During the period, NYPA demonstrated the ability to maintain the necessary control of a limited number of plant activities. The cognizance of the licensed operating staff, particularly in the control room, dramatically improved. NYPA is developing the criteria necessary to assess when an increase in the number of activities should be initiated.

Maintenance: A number of maintenance activities were inspected during the period. Worksite technicians and mechanics displayed strict adherence to the work package steplists. During the performance of a retest of auxiliary feedwater system recirculation piping, NYPA discovered that a required temporary procedure change (TPC) was missing from the controlled copy of the system operating procedure (SOP) to be used as part of the retest. Further review of controlled copies of SOPs by the inspector revealed additional examples of deficiencies in the control of TPCs. Although the inspector considered NYPA's immediate corrective actions acceptable for the specific findings, the missing TPC and the retention of voided TPCs in SOPs are examples of deficiencies in the control of procedure documentation and have the potential to cause inadvertent usage or omission of temporary procedures. The recurring nature of the deficient utilization of TPCs is of NRC concern and will continue to be tracked under URI 93-09-10. These findings will not be cited in accordance with the enforcement policy because the corrective actions for numerous violations in NRC IR 50-286/92-28, 93-03 and 93-09 are in progress and these findings are additional examples of the same programmatic problem. Further, this item is being tracked as a formal NRC restart issue.

Engineering: The inspectors observed corrective maintenance on the Bantam 11 radiation monitoring system in the control room. The failure of the Bantam 11 caused the operating staff to consider several safety-related effluent radiation monitors to be inoperable. The inspector questioned why the Bantam 11 was considered non-category 1 equipment and why ongoing maintenance activities without QA oversight were acceptable. The inspector also

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questioned whether the design of the Bantam 11 was acceptable based upon the classification and function of the computer control system. As of the end of the period, NYPA continued to investigate these findings. This issue remains unresolved. URI 93-30-01

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DETAILS

1.0 SUMMARY OF PLANT ACTIVITIES

1.1 Plant Activities

NYPA continued the performance improvement outage throughout the reporting period. The reactor remained in the cold shutdown condition. The work "slowdown" initiated by plant management in response to the recent operational events continued throughout the period.

Activities of significance during the period included:

On December 20, 1993, during NYPA's disassembly and inspection of the 35 service water pump (SWP) due to declining pump performance noted during surveillance testing, numerous linear indications and cracks were observed in the pump casing. The impeller was subsequently replaced and the pump was reinstalled satisfactorily. NYPA then disassembled and was currently inspecting the 34 SWP for similar deficiencies. Results of an analysis of the cracks in the 35 SWP impeller casing and the completed inspection of 34 SWP will be used to determine NYPA's additional corrective actions.

On December 27, 1993, NYPA identified a through-wall pin hole leak on the auxiliary feedwater pump recirculation line. Recirculation of the condensate storage tank (CST) for cold weather protection was secured until repairs were completed on January 5, 1994.

On January 12, 1994, while performing a functional test of the Appendix-R diesel generator, the air start motor started and attempted to engage the flywheel approximately 30 minutes into the diesel run. The diesel remains inoperable while NYPA determines and corrects the cause for the failure.

Cold weather preparations and precautions continued throughout the inspection period. Temporary heaters were installed in areas with disabled heat trace and the monitoring of vital outside areas was performed each shift to ensure equipment was not subjected to freezing conditions.

1.2 NRC Activities

Specialist inspectors from the Division of Reactor Safety (DRS) were onsite and at the White Plains office from January 10-14, 1994, to inspect NYPA's ongoing corrective actions and program to address issues related to fuse control, cable separation and the NRC Electrical Distribution Functional Inspection (EDSFI). (NRC Region I Inspection Report 50-286/93-32)

Regional inspectors from DRS were onsite from January 10-14, 1994, to inspect NYPA's work control process improvements. (NRC Region I Inspection Report 50-286/94-01)

An unannounced specialist inspection of NYPA's security program was conducted from January 12-13, 1994, to assess the performance of the security department during the ongoing outage. (NRC Region I Inspection Report 50-286/94-03)

2.0 PLANT OPERATIONS (71707)

2.1 Routine Operations Reviews

Using the probabilistic risk assessment (PRA) inspection guidance and applicable drawings and checkoff lists, the inspectors independently verified safety system operability by performing control panel and field walkdowns on the following systems:

- Low Pressure Injection System (RHR)
- Service Water System
- Component Cooling Water System (CCW)
- Electrical Distribution System

All systems were properly aligned for the existing plant conditions.

The inspectors routinely observed plant operations including operator shift turnovers, shift briefings, operator logs, system tagouts, alarm response, control manipulations and system operation. The inspectors verified that the plant was being operated safely and in accordance with procedural and regulatory requirements.

The inspectors also observed site and vital area access controls. The security department effectively implemented the security plan during the activities observed. The inspectors also observed the radiological controls in place throughout the period and considered them effective in meeting the objectives of the radiological controls program.

2.2 Work Control Process Improvements

As a result of the configuration control and work control process problems described in NRC inspection report 50-286/93-29, NYPA commenced a work "slowdown" at the site in order to allow for:

- an assessment of the current process problems
- implementation of work control process improvements
- improved cognizance and oversight of plant activities
- reestablishment of Operations Department's positive control of the plant

This slowdown decreased the number of activities to be worked daily as well as extending the amount of time required for the scheduling of an activity prior to initiation. NRC inspectors have closely monitored NYPA's initiatives in this area and the control of work activities. The resident staff was assisted in this activity by two regional inspectors during the period of January 10-14, 1994, in NRC inspection 50-286/94-01. During these NRC evaluations, the inspectors reviewed NYPA's ongoing process, procedural improvements and their completion of commitments outlined in NYPA's December 22, 1993 letter to NRC outlining the work control improvements.

During this inspection, NYPA has demonstrated the ability to maintain the necessary control of a limited number of plant activities. Their ability to plan, risk-assess, schedule, tagout and isolate, authorize, provide oversight and control, and successfully retest these activities has been verified. The cognizance of the licensed operating staff, particularly in the control room, has improved. In addition, worksite technicians and mechanics have displayed strict adherence to the work package steplists. Minor procedural violations have been identified by NYPA early enough to allow for correction prior to becoming significant issues. These findings have allowed NYPA to continue to identify the process and programmatic problems.

NYPA management has decided to utilize the James A. Fitzpatrick work control process at Indian Point 3. The incorporation of this new methodology and the development of the required procedures is underway. NYPA has decided to perform a safety evaluation of the new work control process in order to allow for a formal evaluation of the new methodology. In addition, NYPA is developing the criteria necessary to assess when an increase in the number of activities should be initiated. This criteria will reviewed and evaluated by the NRC. The ongoing activities will continue to be closely monitored by the NRC resident staff.

3.0 MAINTENANCE (62703/61726)

3.1 Routine Maintenance Review

The inspectors' review of maintenance activities included the following:

93-06391	RHR Loop 4 Cold Leg Flow Transmitter Calibration
94-0221	Bantam 11 Radiation Monitor Repair
93-02469	PC-455C Replace Internals
93-10209	31 ABFP Recirculation Bypass Line Leak
93-09281	35 Service Water Pump Replacement
93-04780	Central Control Room (CCR) Painting
93-3182-09	31 RHR Pump Cleaning

93-3182-09 31 RHR Pump Cleaning

93-02810 Traveling Water Screens PM

93-10209-02 Retest ABFP Recirculation Line

During the observation of maintenance activities and review of records, the inspectors verified that required administrative controls and tagouts were obtained, procedures were adequate, certified parts and materials were used, test equipment was calibrated, radiological requirements were implemented and quality control hold points were established as required. Deficiencies noted during the performance of these activities are discussed in further detail in this report.

3.1.1 (Update) URI 93-09-10: Temporary Procedure Change Deficiencies

During the performance of a retest of auxiliary feedwater system recirculation piping, NYPA discovered that a required Temporary Procedure Change (TPC) was missing from the controlled copy of the System Operating Procedure (SOP) to be used as part of the retest. Further review of controlled copies of SOPs by the inspector revealed additional examples of deficiencies in the control of TPCs.

On January 6, 1994, NYPA was preparing to retest a section of recirculation piping in the auxiliary feedwater system. A pipe reducer in the section of piping had been replaced, and three welds were to be tested for leak tightness using maintenance work procedure WR 93-10209-02. The retest procedure specified that SOP-FW-4, "Auxiliary Feedwater System Operation," be used to initiate recirculation flow to the condensate storage tank (CST) to check the integrity of the welds. During the performance of the retest, but prior to the initiation of recirculation flow, the NYPA shift supervisor noted that a recent TPC to SOP-FW-4 (TPC #93-964) was not included in the controlled copy of the SOP at the worksite. The shift supervisor had initiated that particular TPC on December 26, 1993, and the purpose of the TPC was to isolate the auxiliary feedwater regulating valves, if leakage was suspected, to prevent flow to the steam generators during recirculation for CST freeze protection. Use of SOP-FW-4 without the TPC may have led to undesired leakage past the auxiliary feedwater regulating valves into the steam generators. The worksite copy of SOP-FW-4 (Controlled Copy #5) had been obtained from a file cabinet located outside of the shift supervisor's office. The technicians performing the retest obtained a copy of the missing TPC, and completed the procedure satisfactorily. Subsequent to the retest, NYPA drafted Deviation/Event Report 94-021, dated January 6, 1994, to document the TPC control deficiency.

The inspector reviewed copies of SOP-FW-4 in the shift supervisor's office and in the control room and found that both copies included TPC #93-964. The inspector also reviewed a sampling of controlled copies of other SOPs to determine if others may be missing TPCs. No other instances of missing TPCs were found. However, the inspector noted three cases

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of voided TPCs (TPCs no longer in effect) not being removed from controlled copies of SOPs, as required. Specifically, voided TPCs #93-0672 and #93-0673 to SOP-RW-7 and voided TPC #93-0892 to SOP-EL-5 were found in the shift supervisor's copy of the SOPs. The inspector discussed all TPC documentation control deficiencies with licensee representatives, who initiated prompt corrective actions to remove the voided TPCs, to add the missing TPC to SOP-FW-4, and to initiate a review of TPC documentation control. The inspector considered the corrective actions to be appropriate.

The missing TPC and the retention of voided TPCs in SOPs are examples of deficiencies in the control of procedure documentation and have the potential to cause inadvertent usage or omission of temporary procedures. The recurring nature of the deficient utilization of TPCs was initially discussed in NRC Inspection Report 50-286/93-08 and also in IRs 93-13, and 93-16 and will continue to be tracked under URI 93-09-10. These findings are of concern to the NRC due to the recurring nature and indicate the need for continued management attention in this area. These findings will not be cited in accordance with the enforcement policy because the corrective actions for numerous violations in NRC IR 50-286/92-28, 93-03 and 93-09 are in progress and these findings are additional examples of the same programmatic problem. Further, this item is being tracked as a formal NRC restart issue.

3.2 Routine Surveillance Review

The inspectors' review of surveillance activities included in the following:

3PT-M16 32/33 Safety Injection Functional Test

3PC-R8 RHR Flow Calibration

3PT-O61 Area Radiation Monitors Functional Test

3PT-M79B 32 Emergency Diesel Generator (EDG) Functional Test

The inspectors reviewed these surveillance tests in accordance with approved procedures, Technical Specifications and vendor recommendations. During the observation of surveillance activities and the review of test records, the inspectors reviewed surveillance performance, required administrative controls, adequacy of test procedures, calibration of test equipment, utilization of required radiological controls, detail of the test review process, and documentation of deficiencies and corrective action implementation. The inspectors noted NYPA's successful trending of 35 service water pump performance, resulting in the initiation of timely corrective maintenance on the pump.

4.0 ENGINEERING (37700)

4.1 Bantam 11 Radiation Monitor

The Bantam 11 is a computer control system in the radiation monitoring system (RMS) located in the control room and installed by NYPA in 1987. The Bantam 11 is a DEC PDP 11/73 computer system that monitors all RM-80 type radiation monitors for data collection, trending and hourly logs. The Bantam 11 consists of a cathode ray tube (CRT) display, keyboard, annunciator system printer and recorders. The keyboard and CRT allow the reactor operators to interface with the RM-80 micro-processors for performing control functions, determining monitor status and adjusting radiation monitor high alarm setpoints.

On January 14, 1994, the inspector observed ongoing corrective maintenance activities on the Bantam 11 radiation monitor in the control room. These activities were being conducted by NYPA I&C technicians under consultation from a Bantam 11 vendor representative. During the maintenance activity, NYPA determined that a specific CPU board in the Bantam 11 had caused the unit to fail. This board was being replaced by NYPA technicians. Subsequently, NYPA determined that a timer switch was inadvertently mispositioned and resulted in the actual failure of the computer system.

During the observation of this activity, the inspector noted that there was no oversight of the maintenance by the quality assurance department. Upon reviewing the work package at the worksite, the inspector also noted that the Bantam 11 was categorized on the package as non-category 1 equipment. In addition, the inspector noted that the replacement parts for the Bantam 11 were commercial grade components.

FSAR Section 16.1.7 states that non-category 1 is the QA classification for systems and/or components which are non essential for safe shutdown. Failures of equipment in this category could result in a loss of power generation, but would not endanger the public.

The inspector noted that as a result of the recent failure of the Bantam 11 requiring the ongoing corrective maintenance, the operating staff had declared several effluent radiation monitors in the plant inoperable and commenced required backup sampling in accordance with technical specifications. These compensatory actions were still in place during the ongoing maintenance activities to repair the Bantam 11.

Since the failure of the Bantam 11 caused the operating staff to consider several safetyrelated effluent radiation monitors to be inoperable, the inspector questioned if the Bantam 11 was non-category 1 equipment and if the ongoing maintenance activities without QA oversight were acceptable. The inspector also questioned whether the design of the Bantam 11 was acceptable based upon the classification and function of the computer control system.

The shift supervisor and the licensing manager initiated an investigation to address the inspector's concerns. As a precautionary measure, NYPA decided to continue to consider

the Bantam 11 inoperable until the issues regarding the quality and design control over the equipment and radiation monitoring system are resolved.

On January 17, 1994, NYPA determined that the classification of the Bantam 11 as noncategory 1 was acceptable and subsequently communicated this conclusion to the inspector. However, the inspector noted several inconsistencies in NYPA's basis for this conclusion. Specifically, information presented by the licensee regarding the design and operation of the Bantam 11 was not consistent with each other or available documentation. In light of the inspector's further concerns, NYPA commenced a formal investigation into the design, installation and operation of the Bantam 11 and its role in the radiation monitoring system. As of the end of the period, the NYPA investigation continued. This issue remains unresolved. (URI 93-30-01)

5.0 MANAGEMENT MEETINGS (30702)

At periodic intervals during the inspection, meetings were held with senior facility management to discuss the inspection scope and findings. The issues in this inspection were discussed with site management throughout this inspection and an exit meeting was held on January 25, 1994 to discuss the findings and conclusions of this report period. During the discussion, the licensee did not identify any 10 CFR 2.790 material and did not take exception to any of the conclusions of this inspection.