

May 4, 2001

Mr. A. Alan Blind  
Vice President - Nuclear Power  
Consolidated Edison Company of  
New York, Inc.  
Indian Point 2 Station  
Broadway and Bleakley Avenue  
Buchanan, NY 10511

SUBJECT: INDIAN POINT 2 - NRC INSPECTION REPORT 05000247/2001-003

Dear Mr. Blind:

On March 31, 2001, the NRC completed an inspection at the Indian Point 2 reactor facility. The enclosed report presents the results of that inspection. The results of this inspection were discussed on April 10, 2001, with you and members of your staff.

NRC inspectors examined activities as they related to reactor safety and compliance with the Commission's rules and regulations, and with the conditions of your operating license. The inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel. Specifically, it involved six weeks of resident and region-based inspections of operations, engineering, maintenance, emergency preparedness, and radiation protection.

NRC findings during this period confirmed safe plant operation, but noted mixed performance in the area of human performance. There were examples noted where plant staff responded well to potential challenges to stable plant operations (a plant down power to 50%, the repair of main boiler feed water pump leaks and speed control problems, and the actions to evaluate and address problems with control rod power supplies and alignment). Additionally, your staff identified a long-standing deficiency on all three emergency diesel generators, which affected the ability to monitor the fuel oil system performance but did not impact diesel operability. However, there were missed opportunities to have discovered this configuration problem because of weaknesses in the preventive maintenance procedures. Similar to our assessment in NRC Inspection 05000247/2000-15, human performance errors impacted risk significant plant equipment and caused an unplanned outage on a gas turbine generator, the diversion of condensate storage tank water, and possibly, the loss of bearing oil on an auxiliary boiler feed water pump.

Based on the results of this inspection, the inspector identified five issues of very low safety significance (Green). Two of these issues involved violations of NRC requirements in the areas of inadequate maintenance procedures and procedure adherence. Because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating the issues as non-cited violations, in accordance with Section VI.A of the NRC's Enforcement Policy. If you deny these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at the Indian Point Unit 2 facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room and will be available on the NRC Public Electronic Reading Room (PERR) link at the NRC home page, <http://www.nrc.gov/NRC/ADAMS/index.html>. Should you have any questions regarding this report, please contact Mr. Peter Eselgroth at 610-337-5234.

Sincerely,

/RA/

Brian E. Holian, Deputy Director  
Division of Reactor Safety

Docket No. 05000247

License No. DPR-26

Enclosure: Inspection Report 05000247/2001-003

Attachment: (1) Supplemental Information

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**U.S. NUCLEAR REGULATORY COMMISSION**

REGION I

Docket No.: 05000247

License No.: DPR-26

Report No.: 05000247/2001-003

Licensee: Consolidated Edison Company of New York, Inc.

Facility: Indian Point 2 Nuclear Power Plant

Location: Buchanan, New York 10511

Dates: February 18 - March 31, 2001

Inspectors: William Raymond, Senior Resident Inspector  
Peter Habighorst, Resident Inspector  
Leonard Cheung, Reactor Engineer  
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Paul Frechette, Security Specialist  
David M. Silk, Senior Emergency Preparedness Specialist  
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Approved by: Peter W. Eselgroth, Chief  
Projects Branch 2  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000247-01-03, on 2/18/2001 - 3/31/2001; Con Edison; Indian Point 2 Nuclear Power Plant. Maintenance and Cross-Cutting Issues.

The inspection was conducted by resident and region-based inspectors. The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process (SDP). This inspection identified all green or no color issues.

### Cornerstone: Mitigating Systems

**Green** During preventive maintenance on the 22 emergency diesel generator (EDG) in March 2001 per ICPM 1780, a technician identified an incorrect configuration on the fuel oil primary filter differential pressure switch for all three emergency diesel generators. Procedure ICPM 1780 did not provide sufficient guidance to detect the configuration problem when the same calibration was performed in 1998 and 1999. This issue did not result in a loss of diesel generator function and had very low safety significance. The failure to provide adequate procedures for EDG maintenance was a Non-Cited Violation of Technical Specification 6.8.1.a.

**Green** During an extended outage on gas turbine 2 (GT-2) for corrective maintenance and a planned outage on EDG 22 for preventive maintenance, GT-3 became inoperable due to loss of air pressure, as indicated by an alarm and lock-out from pressure switch PS-11. The low pressure lock-out occurred when workers used the GT-3 air system to run air-operated tools for the work on GT-2, and could not be cleared initially when the air service was returned to normal. Followup investigations determined that PS-11 was functioning properly, but the pressure lock-out needed to be reset manually, and that requirement was neither known by the operators nor covered in the procedure. Although GT-1 remained operable to satisfy the TS 3.7.C.1 requirements, the loss of GT-3 caused the plant daily risk factor to increase from 2.01 to 5.44 for about 23 hours. This issue had very low safety significance.

**Green** The operators identified a failed status light on the train "A" blackout without safety injection logic circuit, but failed to complete a timely evaluation per AOI 10.1.4 to identify that a blown fuse had de-energized the power supply. This resulted in the untimely detection of a loss of redundancy in the engineered safety features logic. Since the failure did not result in a loss of safety function and the plant was operated within the Technical Specification Table 3.5-3 limiting condition of operation, this issue had very low safety significance. Other performance issues noted included incomplete information provided in the shift turnover brief, the lack of clear guidance in the procedures used to diagnose circuit problems, and the lack of clear directions in the technical specifications on implementing the limiting condition for operation.

**Green** The failure to control tagged equipment resulted in a diversion of approximately 20,000 gallons of inventory from the condensate storage tank, which is the inventory source for the secondary heat removal system. Operations Administrative Directive (OAD)-36 requires that workers inform the control room if operation of a component with a caution tag is desired. Contrary to OAD-36, security personnel inadvertently manipulated a temporary breaker that was caution tagged without informing the operations crew. The event did not result in a loss of safety function and the TS limiting condition of operation for the condensate storage tank was not exceeded. This issue had very low safety significance. This violation is being treated as a Non-Cited violation of Technical Specification 6.8.1.a. This is an example of a configuration control problem.

## Summary of Findings (cont'd)

**Green** The 22 auxiliary boiler feedwater pump (ABFWP) became inoperable when workers accidentally opened a drain valve which caused the loss of oil in the outboard bearing. Actions were taken to identify the adverse condition, assess the pump condition and restore it to an operable status in a timely manner. The event did not result in the loss of the secondary cooling system safety function and the 22 ABFWP was inoperable less than the TS allowed outage time. Therefore, this specific issue had very low safety significance. However, the inoperability of this risk-significant pump is of concern. For example, an NCV was issued in NRC Inspection 05000247/2000-12 for the failure to implement corrective actions to prevent recurrence for the inadvertent operation of the 22 ABFWP overspeed trip device.

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## Report Details

### **SUMMARY OF PLANT STATUS**

The plant operated at full power through the period, except for a power reduction to 50% full power from February 19 through 23, 2001, as the licensee completed repairs on the 21 and 22 main boiler feedwater pumps.

#### **1. REACTOR SAFETY**

##### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness**

#### 1R01 Adverse Weather

##### a. Inspection Scope (71111.01)

The inspector verified the facility design and adverse weather procedures that provide equipment, alarms, and instructions to protect mitigating systems from winter storms and abnormal conditions in the Hudson River. Plant tours were conducted at the intake structure, service water strainers, and various outside plant locations focusing on potential vulnerabilities due to adverse weather. The inspector also evaluated procedure Abnormal Operating Instruction (AOI) 28.0.11, "Winter Storms." The inspector reviewed Con Edison's process for identifying and properly addressing winter storm-related condition reports. The inspector reviewed selected condition reports issued between November 1, 2000 and March 19, 2001. The inspector reviewed Con Edison's actions in response to storms that required entry into AOI 28.0.11 on February 4, February 24, March 4, and March 9, 2001.

##### b. Issues and Findings

No significant findings were identified.

#### 1R04 Equipment Alignments

##### .1 Partial System Walkdown

##### a. Inspection Scope (71111.04S)

The inspector performed a partial system walkdown for emergency diesel generators (EDG) 21 and 23 during the period the 22 EDG was out of service for maintenance on March 25-29, 2001. The references used included SOP 27.3.1.1, "21 Emergency Diesel Generator Operation", and check-off list (COL) 27.3.1, "Diesel Generators". The review was conducted to verify support systems and component alignments were proper, and to note any discrepancies that would impact EDG operability.

##### b. Issues and Findings

No significant findings were identified.

## .2 System Health Reviews

### a. Inspection Scope (71111.04)

The inspector reviewed system engineering procedures SE-SQ-12.110, "System Reviews," and SE-304, "System Health Reports/Presentations" that provided guidance for the system presentations to management. This area was reviewed because NRC had previously noted mixed quality in some system health presentations (reference NRC Report 05000247/2000-013). The inspectors observed presentations to station management on the health of the following systems:

- Auxiliary Feedwater System
- Containment Spray
- Isolation Valve Seal Water
- Radiation monitoring

### b. Issues and Findings

No significant findings were identified.

## 1R06 Flood Protection

### a. Inspection Scope

The inspector reviewed the design basis for the plant site to verify that the intake and service water areas were not vulnerable to external flooding events. This area was inspected because previous NRC reviews noted issues associated with river conditions impacting the service water system, corrective actions associated with the service water discharge strainers, and procedural guidance for monitoring screens. The following documents were used as criteria for the inspection: IPEEE Section 6.3 for External Floods; and UFSAR Sections 2.5 and 9.1.1. The inspector conducted a walkdown of the service water intake and valve strainer areas, and examined the service water systems to verify that the equipment was not subject to damage resulting from external flooding during periods of adverse weather conditions. The inspector reviewed operator actions in response to flood warnings and the following: abnormal and system operating procedures, Individual Plant Evaluation for External Events, annunciator response procedures, the service water design basis documents, licensee event reports, and condition reports for problems that could impact a mitigating system function. The references reviewed are listed at the end of this report.

### b. Findings

No significant findings were identified.

1R11 Licensed Operator Requalification1. Inspection Scope (71111.11)

The inspector reviewed training conducted per Lesson Plan SS.405.012 for licensed operators on March 15, 2001, and assessed the adequacy of the simulator training, licensed operator performance and emergency plan implementation. The inspector selected this simulator drill to observe operator adherence to abnormal operating instructions (reference NRC report 05000247/2000015). The inspector verified the training considered industry experiences and reflected present plant operating conditions. The simulator drill involved a nuclear instrument malfunction, a loss of main condenser vacuum, and the failure of the reactor protection system (RPS) to provide a trip signal in response to a locked rotor on a reactor coolant pump. The operators implemented abnormal operating instruction (AOI) 13.1.3, "Power Range Nuclear Instrument Channel Failure," AOI 20.1, "Loss of Condenser Vacuum," AOI 3.4, "Uncontrolled Reactivity Addition," and various emergency operating procedures.

2. Issues and Findings

No significant findings were identified.

The operators responded correctly during the simulator exercise to recognize the reactor protection system failure, initiate a manual reactor trip and declare an ALERT per emergency action level (EAL) 1.1.1. The inspector noted during discussions with operations trainers that emergency planning personnel had provided guidance that if the RPS low flow trip did not actuate but a secondary automatic reactor trip was successful, then no ALERT classification was necessary. This was contrary to the EAL background document. Other operations crews had appropriately declared ALERT classifications for the same simulator scenario. Con Edison management acknowledged that this guidance was inappropriate, briefed operations crews and initiated Condition Report 200102644 to ensure EAL 1.1.1 is consistency classified.

1R12 Maintenance Rule Implementationa. Inspection Scope (71111.12)

The inspector reviewed risk significant equipment problems and Con Edison followup actions to assess the effectiveness of maintenance activities. Issues selected for review included licensee evaluation of functional failures, maintenance preventable functional failures, repetitive failures, availability and reliability monitoring, and system engineering involvement. Additionally, the licensee's Maintenance Rule documents and system condition reports were reviewed and system engineers were interviewed. The following performance issues associated with the reactor protection system (RPS), nuclear instrumentation (NI), and safety injection actuation system (SIAS) were assessed.

- CR 199907560, Open coil on trip block for Source Range Channel Train A
- CR 199908163, Surveillance test PC-M1, Inadvertent trip of loop 2 OTDT
- CR 199908833, Low pressure trip bistable (PC-457A) out of tolerance
- CR 200000304, Safety Injection System Actuation Train B Surveillance

b. Issues and Findings

No significant findings were identified.

The inspector identified that the licensee failed to properly account for unavailability hours associated with nuclear instrumentation system (CR 199908163), train "A" of the reactor protection system (CR 199908833), and safety injection actuation system train "B" (CR 200000304). Con Edison initiated CR 200102774 to document this issue. The failure to include system unavailability time during surveillance testing (RPS and SIAS) and maintenance (NI) was insignificant when compared to total unavailability, and did not impact the maintenance rule classification of the systems. An extent of condition review was performed on the three systems between October, 1999 and February, 2000; no other deficiencies were noted. Con Edison attributed this problem to system engineer turnover and the failure to accurately account for testing duration and deficiencies that impact maintenance rule performance measures. The failure to monitor in accordance with 10 CFR 50.65(a)(3) is considered a minor violation that is not subject to enforcement actions in accordance with Section IV of the NRC Enforcement Policy, since there was no significant impact on unavailability goals.

1R13 Maintenance Risk Assessment and Emergent Work (71111.13)

a. Inspection Scope

The inspectors reviewed and observed selected portions of planned and emergent maintenance work activities to assess how Con Edison managed the risk in accordance with paragraph (a)(4) of 10 CFR 50.65. The inspector attended planning meetings and discussed the risk management aspect of the activities with maintenance personnel, operators, system engineers, and work coordinators. The inspector verified that the licensee took the necessary steps to plan and control the resulting emergent work activities. Additionally, the inspector verified that the licensee had identified and resolved maintenance risk assessments and emergent work problems. The issues assessed are described below. The review of the repair of the 21 main boiler feedwater pump included in-office review of the repair plan by NRC Region I personnel and on-site review by the resident inspector.

- \* 21 MBFP Leak Repair (WO 01-20309, Calculation PGI-00463-00, UT Record per QA-9001 dated 2/20/01, CR 200101741, CR 200101811)
- \* Control Rod G3 and G5 Alignment, AOI 16.1.1, WO 01-20578, PT-M70
- \* 23 Charging Pump (WO 01-20004, CR 200100997, CR 200101142, PT-Q33C)
- \* Blown Rod Control Trigger Fuses, WO 01-20271 and safety evaluation
- \* 22 Auxiliary Boiler Feedwater Pump loss of bearing oil (CR 200102661)
- \* Inoperable Fuel Oil Differential Pressure Alarm for the emergency diesel generators (CR 200102945, ICPM 1780)

b. Issues and Findings

During the performance of preventive maintenance procedure ICPM 1780, Con Edison identified that the pressure switches for the primary fuel oil strainers were installed incorrectly on all three emergency diesel generators (EDGs), such that an alarm would not have occurred to alert the control room operator to potential clogging of the fuel supply to the engines. An engineering assessment concluded the EDGs remained operable since the strainer differential pressure was displayed locally and operator

action, if necessary, would assure the engines remained functional. The inspector confirmed that the operability determination was supported by guidance to the operator in log DSR-24 and system operating procedures (reference SOPs 27.3.1.1, 27.3.1.2, and 27.3.1.3). The preventative maintenance to clean the strainers was current and there were no indications of high differential pressure problems. Con Edison corrected the pressure switch configuration on EDG 22, and initiated plans to address the switch installations on EDG 21 and 23.

There was a missed opportunity to identify this adverse condition when ICPM 1780 was performed in 1998 and 1999. The ICPM did not provide sufficient guidance to assure detection of a configuration control problem. This issue was documented in condition report (CR) 200102945. Con Edison had previously identified the need to improve the quality of ICPMs (reference CR 199909153), which is being tracked as an open corrective action in the improvement program. NRC Inspection 05000247/2001-002 describes further NRC review of licensee effects to address ICPMs. Risk significant systems such as emergency diesel generators are to be completed on a priority basis.

**(Green)** Insufficient guidance in a preventative maintenance procedure resulted in the failure to detect a long-standing configuration error. This issue did not result in a loss of function of the diesel generators and had very low safety significance when evaluated using the Significance Determination Process (SDP). Technical Specification 6.8.1.a requires, in part, procedures to be implemented for activities referenced in Appendix "A" of Regulatory Guide 1.33, Rev. 2. Appendix A includes a requirement for item "9", "Procedures for Performing Maintenance." The failure to provide adequate procedures for maintenance on the emergency diesels was contrary to TS 6.8.1.a. This violation is being treated as a Non-Cited Violation, consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000 (65 FR 25368) (**NCV 05000247/2001-03-01**).

#### 1R14 Personnel Performance During Nonroutine Plant Evolutions and Events

##### a. Inspection Scope (71111.14)

During the inspection period, the licensee responded to conditions that required operator actions using special or abnormal procedures. The inspectors observed operator performance, reviewed operator logs, reviewed computer data, evaluated operator procedure adherence, and conducted operator interviews. The inspectors reviewed the licensee actions for the events listed below:

- Load Reduction to 50% power per POP 3.1 to repair main boiler feedwater pumps
- Control Rod Exercise and Alignment for Rods G-3 and G-5, PT-M70; AOI 16.1.1

##### b. Issues and Findings

No significant findings were identified.

#### 1R15 Operability Evaluations

##### a. Inspection Scope (71111.15)

The inspector reviewed the following operability evaluations to verify they were completed in accordance with licensee procedures. The inspector reviewed the technical adequacy of the operability evaluation, and verified that the licensee considered other existing degraded conditions as compensating measures, and assured license requirements were met. The following issues were reviewed:

- 21 Boiler Feed Pump Discharge Leak, CR 200101741, SE 01-109-TR, Safety Assessment Main Boiler Feed Pump dated 2/22/01
- Defeat Turbine Runback on Dropped Control Rod, CR 200101885
- OD 01-02, RPS Discrepancies and Operability, CR 200100327

The inspector reviewed licensee evaluations and completed walkdowns of plant areas to independently evaluate licensee conclusions.

b. Issues and Findings

There were no significant findings identified.

NRC review of OD 01-02 continued during this period to assess reactor protection system (RPS) wiring discrepancies. During this period, Con Edison completed a significance level 2 (SL-2) investigation for CR 200100327, and completed a safety evaluation per 10 CFR 50.59 for the differences between the plant and UFSAR Section 7.2.2.9. NRC inspection did not identify anything that would compromise functionality of the protection system. NRC inspection in this area continues (and will be further documented in NRC Inspection 05000247/2001-05). This item is unresolved pending the completion of NRC reviews to evaluate Con Edison's actions in resolving the RPS wiring discrepancies **(URI 05000247/2001-03-02)**.

1R22 Surveillance Testing

a. Inspection Scope (71111.22)

The inspector observed the conduct of PT-M70, "Control Rod Exercise," in the control room and in the field to confirm performance in accordance with approved procedures. The test results were reviewed to verify the equipment met procedural acceptance criteria and was operable consistent with technical specification requirements.

b. Issues and Findings

No significant findings were identified.

**EMERGENCY PREPAREDNESS (EP)**EP2 Drill Observationa. Inspection Scope (71114.06)

The inspector reviewed licensee actions to conduct and evaluate an emergency preparedness training drill on March 28, 2001. The drill scenario included a steam generator tube leak with station blackout and resulted in the activation of the emergency response centers. There was limited participation by the offsite emergency response organizations. The inspector determined that the licensee conducted an appropriate assessment of the drill activities, and determined that activation, notification, classification and protective action recommendations were satisfactory. Con Edison completed a drill critique on April 2, 2001, and identified areas for improvement, such as completing timely personnel accountability, operation of the joint news center, technical support center performance, and communications issues between the emergency operations facility and other centers. (reference condition reports 2001-3263, 3265 through 3268, 3308, 3310, 3313, 3314 and 3315). These areas will be further assessed by NRC inspection in June, 2001.

b. Issues and Findings

No significant findings were identified.

EP4 Emergency Plan Reviewsa. Inspection Scope (71114.04)

The inspector conducted an in-office review of licensee submitted changes for several emergency preparedness documents to determine if the changes decreased the effectiveness of the plan. The review assessed emergency plan changes and implementing procedures related to the risk significant planning standards in 10 CFR 50.47(b) (event classification, notification, radiological assessment and protective action recommendations). Implementing procedures not directly related to the risk significant planning standard received a cursory review. The emergency plan revisions and implementing procedures (IPs) reviewed are listed in the attachment under "Documents Reviewed." Procedures that were canceled were either incorporated into other emergency plan implementing procedures or are addressed by other plant procedures.

b. Issues and Findings

No significant findings were identified.

## 2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

### 2OS1 Access Control To Radiologically Significant Areas

#### a. Inspection Scope (71121.01)

The inspector reviewed licensee activities and analyses to restore the interim steam generator storage area to a non-radiologically controlled area following movement of the old steam generators to the permanent storage building. NRC review of licensee actions to remove minor contamination in the storage area was described in Report 0500027/2000-015. After the completion of cleanup activities, soil samples were taken for independent analysis at the NRC Region I laboratory to verify that the area had been remediated. The NRC sample results were as follows:

<u>Sample</u>	<u>Date</u>	<u>Time</u>	<u>Isotope</u>	<u>Analysis Result</u>
Control	1/18/01	13:55	Cs-137	0.220 +/- 0.020 picoCuries/gram
Soil P-3	2/8/01	10:00	Cs-137	0.031 +/- 0.004 picoCuries/gram
Soil P-4	2/8/01	10:10	Cs-137	0.027 +/- 0.005 picoCuries/gram

#### b. Issues and Findings

No significant findings were identified.

The NRC results were compared to the licensee results and were found to be comparable. The NRC results were positive for Cs-137 and the detected levels for two samples from inside the remediated area were consistent with and indistinguishable from background levels of Cs-137. The NRC results were well below the Offsite Dose Calculation Manual detection limit for environmental Cs-137 of 0.18 picoCuries/gram. The NRC analyses confirmed that the licensee had adequately remediated radioactivity present from the interim storage of the old steam generators to release the area for unrestricted access.

## 4. OTHER ACTIVITIES

### 4OA1 Performance Indicator Review

#### .1 Performance Indicator Data Collecting and Reporting

#### a. Inspection Scope (TI 2515/114)

The inspector reviewed the licensee's performance indicator data collecting and reporting process as described in procedure SAO-114, "Preparation of NRC and WANO Performance Indicators." The purpose of the review was to determine whether the methods for reporting PI data are consistent with the guidance contained in NEI 99-02, Revision 0, "Regulatory Assessment Performance Indicator Guidelines." The inspection included a review of the indicator definitions, data reporting elements, calculational methods, definition of terms, and clarifying notes for the performance indicators. The inspector reviewed licensee actions to address discrepancies in the RCS leak rate measurements to verify problems were satisfactorily resolved.



### RCS Leakage

The inspector reviewed the program for the RCS Leakage Performance Indicator, and included a review of the data from procedure SOP 1.7, "Reactor Coolant System Leakage surveillance," and data for the 1<sup>st</sup> quarter of 2001, the 1<sup>st</sup> quarter of 2000, and 4<sup>th</sup> quarter of 1999. The inspector observed an RCS leak rate determination per SOP 1.7. The licensee addressed problems with RCS leak rate determinations in the corrective action program, as described in a safety evaluation dated 3/6/01, and Condition Reports 200102249, 200101234, 200100491, 200010843, 200010681, 200010520, 200002704, and 200000208.

### Security

The inspector reviewed the licensee's programs for gathering and submitting data for the Fitness-for-Duty, Personnel Screening, and Protected Area Security Equipment Performance Indicators. The review included the licensee's tracking and trending reports, and security event reports for the Performance Indicator data submitted from the 4<sup>th</sup> quarter of 1999 through the 4<sup>th</sup> quarter of 2000.

#### b. Issues and Findings

No significant findings were identified.

### 40A2 Cross Cutting Issues

The inspector reviewed plant events and problems which were indicative of examples of inadequate personnel performance. The items below were addressed in the licensee's corrective action program.

#### .1 Gas Turbine 3 (GT-3) Inoperable

##### a. Inspection Scope

The inspection scope was to review the circumstances resulting in an unplanned outage on GT-3 which lasted about 23 hours.

##### b. Issues and Findings

**(Green)** During an extended outage on gas turbine 2 (GT-2) for corrective maintenance and a planned outage on EDG 22 for preventive maintenance, the licensee identified that GT-3 was inoperable due to a loss of air pressure, as indicated by an alarm and lock-out from pressure switch PS-11 (Condition Report 200102952). The low pressure lock-out occurred when workers inappropriately used the GT-3 air system to run air operated tools for the work on GT-2, and could not be cleared after the air pressure was returned to normal. Followup investigations determined that PS-11 was functioning properly, but the low pressure condition needed to be reset manually, and the manual reset requirement was neither known by the operators nor covered in the procedures (Condition Report 200102983).

Although GT-1 was available to satisfy the TS 3.7.C.1 requirement that one GT be operable, the loss of GT-3 caused the plant daily risk factor (DRF) to increase from 2.01

to 5.44 during the GT-3 outage on March 27- 28, 2001. Two performance issues were noted: the first, inappropriate use of the air supply made GT-3 inoperable; the second, poor procedural guidance and operator knowledge of how to clear the P-11 pressure switch unnecessarily prolonged the GT-3 outage and time in an elevated risk condition (even though the GT-3 status was discovered within 10 hours, Con Edison took another 14 hours to make GT-3 operable). Con Edison focused corrective actions in the areas of work control and operator guidance. The issue had very low safety significance due to the availability and redundancy in the offsite power supplies and the fact that technical specifications were met.

.2 Safeguards DC Power Failure Alarm

a. Inspection Scope

The inspection scope was to evaluate control room operator response and subsequent corrective actions on February 28 associated with a loss of train "B" emergency diesel generator (EDG) sequencer logic power and a loss of train "A" blackout without safety injection logic power supply. The inspection included a review of abnormal operating instruction (AOI) 10.1.4, "Safeguard Relays DC Power Failure," observations of control room operator response, observation of the corrective maintenance to replace the supply logic fuses, and verification of risk assessments. Con Edison initiated the following condition reports (CRs) 200102076, 200102027, 200102049, and 200102063.

b. Issues and Findings

**(Green)** The operator identified at 5:58 a.m. on February 28 that the status light for the train "A" blackout logic was extinguished. Action to replace the bulb was deferred pending assistance by the day shift work group. The operators entered AOI 10.1.4 but did not confirm whether the logic circuit was energized because the procedure lacked sufficient guidance to identify the associated fuse. The operators conducted shift turnover, but communications regarding the status of the train "A" circuit was not complete so that the on-coming day Shift Manager was unaware of its status. The logic circuit fuse was confirmed blown at 2:20 p.m. after the NRC questioned the crew regarding plant status. The loss of the train "A" blackout logic circuit placed the plant in TS 3.5-3 Item 4.c, which has no action time limit because the minimum number of operable channels was met with the train "B" blackout logic operable. Con Edison restored the train "A" circuit at 4:14 p.m and exited the technical specification. This finding had low safety significance when evaluated in the Significance Determination Process.

Unrelated to the train "A" event, the train "B" EDG sequencer circuit failed at 12:20 p.m. The operators properly implemented AOI 10.1.4 to restore that circuit to an operable status by 2:20 p.m. and exited the technical specification. The loss of the train "B" sequencer placed the plant in a 24 hour limiting condition for operation per Technical Specification (TS) 3.5-3 Item 6 and in an elevated daily risk factor. However, neither TS 3.5-3 nor AOI 10.1.4 provided the operator with clear guidance on how to apply the limiting condition for operation (LCO). The operator training on this recently revised TS requirement was not sufficient for the operator to apply the LCO without guidance from Nuclear Licensing. Further, the technical specification allows the channel to be "bypassed" for 24 hours yet there is no bypass on the sequencer logic. Finally, TS 3.5-3

Item 4.c does not define the action time limit when the LCO is not met. The licensee entered these issues into the corrective action program.

.3 Condensate Storage Tank Inventory Diversion

a. Inspection Scope

The inspector evaluated the human performance errors that resulted in a spill of approximately 20,000 gallons of non-radioactive water from the condensate storage tank (CST) during a chemical clean-up of the tank. The CST chloride concentration was above acceptable limits due to an earlier cross-contamination of the tank with city water during auxiliary feedwater system maintenance. The inspector verified the chemistry clean-up temporary alignments and power supplies and reviewed procedural controls in SOP 20.2, "Condensate System Operation." Con Edison initiated condition reports 200102789 and 200102905 to document the performance errors for this event.

b. Issues and Findings

**(Green)** Security personnel manipulated a 120 volt breaker to shut off security lighting without obtaining operations permission. The electrical circuit also provided power to the isolation valve on the discharge of the recirculation pump being used on the temporary demineralizer for the CST. The pump continued to operate with the isolation valve closed, which resulted in the failure of the plastic piping on the discharge of the pump. The CST water drained to the lower level of the turbine building, and did not impact equipment that could initiate or mitigate a plant transient. Less than 5% of CST inventory was lost and the TS limiting condition of operation was not exceeded. The demineralizer connection to the CST was aligned to prevent a leak from draining the tank below the minimum level. Short-term corrective actions were to place a caution tag on the control breaker to alert security personnel. The immediate corrective actions did not preclude a second event four days later when the security individual did not notice the caution tag. Adequate corrective actions were taken by Con Edison in response to the second event (CR 200102905), which included placing the security lights on a separate electrical circuit, reinforcing the need for security personnel to obtain operator permission to operate equipment (including temporarily installed breakers), and moving the recirculation pump from inside to outside the turbine building.

Technical Specification 6.8.1.a. requires, in part, written procedures to be implemented for activities referenced in Appendix "A" of Regulatory Guide 1.33, Rev. 2, which includes requirements for procedure adherence and equipment control (e.g. tagging). Operations Administrative Directive (OAD)-36, "Caution Tags," step 4.2 requires that an individual inform the shift manager, facility support supervisor, or control room supervisor if operation of a component with a caution tag is desired. Contrary to OAD-36, security personnel manipulated a temporary breaker that was caution tagged without informing operations personnel. The issue had low safety significance when evaluated in the Significance Determination Process since there was not a loss of the CST safety function. This violation is being treated as a Non-Cited violation, consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000 (65 FR 25368). **(NCV 05000247/2001-03-03)**.

.4 Loss of Outboard Bearing Oil to the 22 Auxiliary Boiler Feedwater Pump (ABFWP)

a. Inspection Scope

The inspection scope was to review the adequacy of Con Edison's identification and resolution of problems following the discovery that the auxiliary boiler feedwater pump was inoperable due to a worker error.

b. Issues and Findings

**(Green)** On March 16, 2001, a worker noted oil dripping from the sight glass drain valve on the 22 ABFWP outboard bearing. About 25% of the oil volume had leaked from the bearing. The operators declared the pump inoperable from the time of discovery. Con Edison closed the drain valve, added oil to the bearing, confirmed there were no other leaks, and declared the pump operable approximately 2.5 hours after discovery of the leak. If the deficiency was left uncorrected, Con Edison concluded that the ABFWP bearing could potentially have overheated and failed if the pump were operating.

Con Edison concluded that the leak occurred when a worker inadvertently bumped the drain valve and caused it to open. Con Edison's initial corrective action was to counsel workers in the area. The inspector questioned whether the licensee evaluated other potential causes. In addition, the inspector noted that oil level indicators on the 21 and 23 ABFWPs do not have drain valves, raising the possibility that a previous occurrence could have resulted in a modification to prevent recurrence on these pumps. Follow-up action by Con Edison resulted in CR 200102825 to evaluate the drain valve for the 22 ABFWP.

The finding did not result in a loss of the safety function and the 22 ABFWP was inoperable less than the TS allowed outage time. Therefore, this issue had very low safety significance. However, the inoperability of this risk-significant pump is of concern. For example, a previous NCV was issued for failure to initiate corrective actions to prevent recurrence associated with the 22 ABFWP overspeed trip device (NRC report 05000247/2000-012). Both issues were related to human performance and configuration control.

4OA3 Inspection Item Followup (71153)

- .1 (Closed) LER 05000247/2000-01-01: Manual Reactor Trip Following Steam Generator Tube Failure. The inspector reviewed the additional information provided to analyze this event. There was no new noteworthy information in this revision. The corrective actions to address the deficiency were previously reviewed in NRC Inspections 05000247/2000-02 and 05000247/2000-07. This LER is closed.
- .2 (Closed) LER 05000247/2000-06-01: Source Range High Flux Trip Circuitry. The source range monitors (SRMs) were considered to be outside the design basis because potential instrument errors due to operation at the maximum control room design temperature of 120 degrees Fahrenheit (F) had not been properly accounted for in the high flux trip setpoint (Condition Reports 200005514, 5734 and 199909144). Prior to discovery of this condition, the trip setpoint was established at the high end of the source range at 5E+5 counts per second (cps). Con Edison determined that the trip setpoint should be reduced to 2.3E+5 cps to prevent saturation of the loop amplifier if local temperature approached 120 degrees F.

Con Edison concluded that plant operation with the SRMs outside the design basis did not result in any plant operational or safety consequences, since Technical Specification 2.3.1 and Table 4.1-1 do not specify a trip set point for the SRMs; the source range protection trip is not credited in any of the UFSAR Chapter 14 safety analyses (reference UFSAR 14.1.1 and 14.1.5); plant procedure AOI 11.1 requires the plant be shutdown if control room temperature exceeds 104 degrees F if there is no fresh air make-up; and, the reactor would not be operated with control room temperature at 120 degrees F (AOI 11.1). Plant procedures PT-V1, E-0, and AOI 13.1.1 were revised to reflect a new trip setpoint of  $2.3E+5$  cps, and the SRMs were calibrated to the new set point prior to taking the reactor critical on December 30, 2000, following the steam generator replacement outage. The setpoints for the intermediate and power range monitors were proper. Based on the above, the issue was evaluated in the NRC Significance Determination Process as having very low safety significance.

The source range monitors provide reactivity control during reactor startup and protection for deboration and rod withdrawal events (Reference UFSAR 7.2.5.1). The failure to account for design basis temperature limits in the source range trip setpoints was an example of a condition contrary to 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is considered a minor violation because there was no impact on plant safety and Con Edison included the item in the corrective action program.

When Con Edison initially issued the LER on September 5, 2000, the licensee erroneously reported that corrective actions had been taken to calibrate the high flux trip setpoints to account for potential high temperature effects. The corrective actions were subsequently addressed in Condition Report 200006762, which included providing guidance to reviewers who validate implementing documents that support commitments to the NRC (reference Attachment 5 of procedure NSLAD-4, Revision 1).

- .3 (Closed) LER 05000247/2000-07: Exceeded Technical Specification (TS) 4.10 Surveillance Interval. The licensee identified the failure to complete several radioactive effluent surveillances every 31 days per Technical Specification 4.10.B due to an administrative error. There were minimal adverse safety consequences since the radiological release and dose limits were not exceeded; this item had very low safety significance. The licensee addressed this item in the corrective action program as Condition Report 200009107, along with corrective actions to formalize the scheduling of radiological surveillances, and to complete an extent of review for the adverse condition. The failure to meet TS 4.10 is being treated as a minor violation because there was no impact on plant safety and Con Edison included the item in the corrective action program. This LER is closed.
- .4 (Closed) LER 05000247/2000-08: Refueling Water Storage Tank Sampling Technical Specification Violation. The licensee identified the failure to sample the refueling water storage tank monthly during the second quarter of 2000 per Technical Specification 4.10.A.6 due to a failure to follow procedures and to properly track a surveillance that could not be completed due to plant conditions (the tank was empty at the time). There were no adverse safety consequences since there were no releases from the tank; this item had very low safety significance. The licensee addressed this item in the corrective action program as Condition Report 200010020, along with corrective actions to formalize the scheduling and guidance for chemistry surveillances. The failure to meet TS 4.10.A.6 is being treated as a minor violation because there was no impact on plant

safety and Con Edison included the item in the corrective action program. This LER is closed.

#### 4OA4 Meetings

##### Management Meeting

On March 1-2, 2001, NRC Region I Administrator Hubert Miller toured the plant. On the evening of March 2, 2001, a public exit meeting was conducted for the 95003 supplemental inspection.

On March 9, 2001, NRC Chairman Richard Meserve, Executive Director for Operations William Travers and Region I Administrator Hubert Miller toured the plant, along with U.S. Senator Schumer and U.S. Representative Kelly.

##### Exit Meeting Summary

On April 10, 2001, the resident inspector presented the inspection results to Mr. A. Blind and other members of the Con Edison staff who acknowledged the findings. The inspectors asked whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## ATTACHMENT 1

PARTIAL LIST OF INDIVIDUALS CONTACTED

R. Burns	Emergency Preparedness Specialist
J. Camigianis	System Engineer
D. Eccleston	Simulator Training Instructor
M. Donegan	Health Physics/Radioactive Waste Manager
A. Dong	IC engineer
D. Gaynor	Risk Assessment Manager
J. Lijoi	Control Room Supervisor
R. Masse	Plant Manager
T. McCafferty	System Engineering Manager
M. Miele	Radiation Protection Manager
M. Miller	Acting Generation Support Manager
T. Poirier	Work Control Manager
C. Porter	Nuclear Plant Operator
D. Shah	System Engineer
W. Smith	Operations Manager
C. Tippin	Reactor Engineer
W. Osmin	Reactor Engineer
V. Sacco	System Engineer
G. Schwartz	Chief Engineer
G. Seminara	Reactor Operator
T. Waddel	Maintenance Manager
E. Woody	I&C Manager

**ITEMS OPENED, CLOSED, AND DISCUSSED**Opened

05000247/2001-03-02	URI	Review changes to the Facility per 10 CFR 50.59
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Opened and Closed During the Inspection

05000247/2001-03-01	NCV	Inadequate Procedure for EDG Maintenance
05000247/2001-03-03	NCV	Failure to Follow Tagging Controls - CST Inventory Loss

Closed

05000247/2000-01-01	LER	Reactor Trip Following Steam Generator Tube Failure
05000247/2000-06-01	LER	Source Range High Flux Trip Settings
05000247/2000-07	LER	Exceeded Surveillance Interval for Effluent Monitoring
05000247/2000-08	LER	Exceeded Surveillance Interval for RWST Sampling

**LIST OF DOCUMENTS REVIEWED**

Emergency Plan, Rev 01-01 and 01-01a  
 IP-1001, Mobilization of Onsite Emergency Organization (Rev 11)  
 IP-1002, Emergency Notification and Communication (Rev 22)  
 IP-1005, MS-2 / SPA-3 to Determine Thyroid Burdens - CANCELED  
 IP-1006, Site Perimeter Survey - CANCELED  
 IP-1010, Central Control Room (CCR) (Rev 0)  
 IP-1015, Radiological Surveys Outside the Protected Area (Title Change) (Rev8)  
 IP-1019, Coordination of Corporate Response (Title Change) (Rev 9)

IP-1020, Airborne Activity Determination (Rev 8)  
IP-1023, Operations Support Center (Rev 14)  
IP-1024, Emergency Classification (Rev 8)  
IP-1026, Emergency Data Acquisition (Rev 0)  
IP-1027, Personnel Accountability and Evacuation (Rev 12)  
IP-1028, Onsite (Out of Plant) Surveys - CANCELED  
IP-1030, Emergency Operations Facility (Rev3)  
IP-1032, Tornado Emergency - CANCELED  
IP-1035, Technical Support Center (Rev 16)  
IP-1039, Offsite Contamination Checks (Rev 9)  
IP-1040, Relocation of Personnel Dosimetry Facilities - CANCELED  
IP-1041, Use of Triton or Monitoring Radiogas - CANCELED  
IP-1042, In-Plant Radiological Surveys and Sampling - CANCELED  
IP-1046, Responsibilities of Con Edison Personnel During Unit No.3 Emergencies -CANCELED  
IAP-10, Shift Manager - CANCELED  
IAP- 12, Watch Health Physics Technician (WHPT) - CANCELED  
COL 16.1, Rod Position Cluster Drive and Position Indication System  
AOI 16.1.1, Dropped or Misaligned Rod/Position Indication Failure  
Control Room annunciator response procedures (ARP SJF 1-3, 1-7, 3-8, 4-4, 4-6)  
SOPs 27.3.1.1, 27.3.1.2, and 27.3.1.3, Emergency Diesel Generator Operation  
LARP 18, Circulating Water Trouble, 28, Service Water Screen Trouble  
SOP 22.1, Wash Water System and Traveling Screen Operation  
SAO-133, Procedures, TS, and License Adherence and Use Policy  
AOI 13.1.3, Power Range Nuclear Instrument Channel Failure  
ICPM 1780, Diesel Generator 22 Fuel Oil System  
AOI 10.1.4, Safeguard Relays DC Power Failure  
SE-304, System Health Reports/Presentations  
SOP 20.2, Condensate System Operation  
AOI 28.0.4, Plant Flooding - Conventional Side  
AOI 28.0.7, Hurricane, Tornado, High Wind, Thunderstorm  
AOI 20.1, Loss of Condenser Vacuum  
AOI 3.4, Uncontrolled Reactivity Addition  
SE-SQ-12.110, System Reviews  
OAD-36, Caution Tags  
Operator Logs for 2/19/01 to 3/29/00  
Unit 2 Conventional Operator Logs  
Numerous Condition Reports for the period between 2/19/01 to 3/29/00  
PT-Q33C dated 1/26/01, 1/30/01 and 2/2/01  
NSD-TB-93-03-R0, Control Rod Coil Current Profiles  
Safety Evaluations 229-MD and 93-375-73-TM  
Meeting No. 2818 of the Station Nuclear Safety Committee on 2/23/01  
Modification FPX-95-1104-F, Turbine Runback on Rod Drop  
SAO-139 UFSAR Change From: UFSAR Section 7.2.5.2.1 - Rod Drop Protection  
Licensee Event Report 1999-11-01, Loss of RPIS and Turbine Runback  
Individual Plant Evaluation for External Events (Table 6.5-1)  
Con Edison's operator workaround and central control room deficiency list  
Lesson Plan SS.405.012, for Indian Point 2 licensed operators  
Service Water Design Basis document (sections 3.1.1.2, 3.2.12, 3.2.17, 3.2.23, Table 3-3, section A-20, section A-21, section A-25)



Licensee event reports since 1980 associated with system impacts due to Hudson River debris; including associated condition reports between March, 2000 and March, 2001 (including Condition reports 200100505, 200100878, 200100988, 200101466, and 200101869).

### LIST OF ACRONYMS USED

ABFWP	auxiliary boiler feedwater pump
ALARA	As Low As reasonably Achievable
AOI	abnormal operating instructions
ARP	annunciator response procedure
CFR	code of federal regulations
COL	check-off list
CR	condition report
CST	condensate storage tank
DRF	daily risk factor
EAL	Emergency action level
EDG	emergency diesel generator
EP	emergency preparedness
F	Fahrenheit
GT	gas turbine
IP	implementing procedure
LARP	Local annunciator response procedures
LER	licensee event report
NCV	non-cited violation
NEI	Nuclear Energy Institute
OAD	operation administrative directive
POP	plant operating procedure
QA	quality assurance
RCS	reactor coolant system
RPS	reactor protection system
SAO	station administrative order
SDP	significance determination process
SIAS	safety injection activation system
SL	significance level
SOP	system operating procedure
SRM	source range monitors
TS	technical specifications
UFSAR	updated final safety analysis report
WANO	World Association of Nuclear Operators
WHPT	Watch Health Physics Technician