

June 11, 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 UNIT 2 - NRC INSPECTION REPORT NO. 05000247/2001-005

Dear Mr. Blind:

On May 4, 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 May 4, 2001, with yourself and other 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 engineering and station personnel. Specifically, the inspection involved onsite review of Reactor Protection System (RPS) wiring issues by region-based engineering and resident inspectors. Additional review was performed in the regional office.

No findings of significance were identified. The inspectors found no issues that would render the Reactor Protection System incapable of performing its intended safety function. However, an unresolved item (URI) pertaining to licensing and design bases for wiring separation inside the RPS cabinets was identified during this inspection. This URI is discussed in detail in Section 1R17.3 of the enclosed report, and will be subject to further NRC review.

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 me at 610-337-5376.

Sincerely,

*/RA/*

William H. Ruland  
Acting Deputy Director  
Division of Reactor Safety

Docket No: 05000247  
License No: DPR-26

Enclosures:

- 1) NRC Inspection Report No. 05000247/2001-005
- 2) Supplementary Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 05000247

License No: DPR-26

Report No: 05000247/2001-005

Licensee: Consolidated Edison Company of New York, Inc.

Facility: Indian Point 2 Nuclear Power Plant

Location: Buchanan, New York 10511

Dates: February 26 - May 4, 2001.

Inspectors: Leonard Cheung, Senior Reactor Inspector  
Roy Fuhrmeister (part time), Senior Reactor Inspector  
George Morris (part time), Reactor Inspector  
William Raymond (part time), Senior Resident Inspector  
April Smith (part time, in-office), Reactor Inspector

Approved by: James C. Linville, Chief  
Electrical Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

### Indian Point 2 Nuclear Power Plant NRC Inspection Report 05000247/2001-005

IR05000247/2001-005; on 02/26 - 05/04/2001, Consolidated Edison Company (Con Edison) of New York, Inc. Indian Point Unit 2, biennial inspection of permanent plant modifications.

The inspection was conducted by region-based and resident inspectors. An unresolved item (URI) pertaining to licensing and design bases for wiring separation inside the RPS cabinets was identified during this inspection. This URI will be referred to the Office of the Nuclear Reactor Regulation (NRR) for their review of the licensing and design basis for electrical separation of wiring inside the RPS cabinets. Once that determination is made, Region I will determine the acceptability of the licensee's wiring and associated 10 CFR 50.59 evaluations (Section 1R17.3).

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Violation

A violation of very low significance which was identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee appear reasonable. This violation is discussed in section 40A7 of this report.

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## Report Details

### 1. **REACTOR SAFETY** **(Cornerstones: Initiating, Mitigating System)**

#### 1R17.1 Corrective Actions for Condition Report 200100327

##### a. Inspection Scope

Con Edison identified wiring and wiring documentation deficiencies within the RPS cabinets over the past years. Some of these deficiencies were documented in eight Condition Reports (CRs 199803574, 199902835, 199903445, 199904968, 200007597, 200009499, 200009641, 200010125). The documented deficiencies included wiring separation issues, wiring configurations not in accordance with design drawings, and cable splices not identified on drawings. On January 11, 2001, Con Edison issued a new CR (200100327) to evaluate the design control aspects of the combined deficiencies. As a result, the following concerns were raised in this CR: quality assurance requirements for design verifications, wiring changes resulting from modifications that could not be located, and wiring separation not in accordance with the UFSAR. This CR recommended that an Operability Determination of the RPS be performed. This CR was classified within Con Edison's corrective action program (which includes four significance levels) as a Significant Level (SL)-2 issue, requiring a root cause evaluation.

The inspectors reviewed a Con Edison evaluation entitled, "SL-2 Evaluation for CR 200100327 on the Reactor Protection System," dated March 7, 2001, to confirm that this evaluation addressed appropriate root causes, contributing causes, compensatory actions, and the proposed corrective actions. The inspectors also attended a Corrective Action Review Board (CARB) meeting which reviewed and discussed the evaluation. The inspectors also reviewed the list of ICA (Implementation of Corrective Actions) for CR 200100327 to confirm that the listed corrective actions adequately addressed the root causes and the concerns raised in CR 200100327. The inspectors reviewed a sample of corrective actions and issues to determine whether these corrective actions were timely and appropriate to address the issues. Further, the inspectors reviewed the rationale provided for delayed corrective actions.

Scope of review for specific issues:

- 1) Con Edison stated that the field verification of approximately 40% wiring of one train of the RPS cabinets had been completed. The inspectors reviewed the ICA list (Item 1.a) and interviewed Con Edison personnel. Con Edison stated that the field verification of the remaining wiring would be completed during the next refueling outage (in 2002), and the update of the wire lists (or other types of drawings to document the as-found wiring conditions) would be completed by January 30, 2003. The rationale provided by Con Edison for not completing these activities earlier was that no functional problems had been found, the RPS wires could only be traced during a plant outage, and that it would take extra time to complete the field verification and documentation.

- 2) CR 200009641 identified undocumented cable splices in the RPS logic cabinet. Con Edison stated that Station Procedure EI-6009, "Class A - Electrical Workmanship Standards Manual," allowed cable splices to be prepared in the field. The inspectors reviewed this procedure (Revision 10, dated November 1994) to confirm that the procedure contained steps for field construction of cable splices.

Con Edison stated that these splices would not be examined until the next refueling outage, because disturbing the cable splices could potentially affect plant operation. Con Edison further stated there was no immediate concern for this issue because both post modification testing (following the replacement of 88 RPS relays during the last outage) and the monthly reactor trip testing had demonstrated the functionality of the RPS. The ICA list for CR 200009641, Item c, initially indicated that the identified cable splices would be documented on the affected drawings by September 27, 2001. However, Con Edison revised the completion date to January 2003 after determining that this issue posed a reactor trip hazard.

- 3) CRs 199904968 and 200010125 discussed the wiring deficiency associated with the P-10 (10% Power) relay contacts that was used to defeat the Source Range Loss of Detector Voltage annunciator, and the wiring deficiency for the relay contacts associated with "manual trip" status lights. These CRs identified the discrepancies between design drawings and as-found configurations. The inspectors reviewed Con Edison's completed and planned corrective actions in resolving the wiring discrepancies to confirm that no unacceptable conditions were involved.
- 4) CR 200100327 stated that Con Edison had been unsuccessful in locating the modification for the P-10 circuit changes, and therefore, the changes might have been unauthorized. During this inspection, Con Edison found the modification package (ESG-82-15349). The inspectors reviewed the modification package to confirm that the circuit change that was used to defeat the Source Range Loss of Detector Voltage annunciator was authorized and appropriate, that the addition of bypass circuits (discussed in CR 199904968) was implemented in response to NRC Confirmatory Order "Control Room Review" dated February 11, 1980, and that the completion of the modification had been confirmed by the NRC resident inspector in 1982 and documented in NRC Inspection Report 82-09.
- 5) CR 200008415 identified deficiencies in the RPS wire lists. The inspectors reviewed this CR to confirm that there was a potential 200°F-hold (problems must be solved before reactor reaches 200°F during restart following an outage) for this issue, that Con Edison later determined the identified deficiencies to be electrical drawing (wire lists) deficiencies, and that the 200°F-hold was deleted before the reactor reached 200°F. However, there was confusion involved in handling the 200°F-hold issue. The Watch Engineer did not complete the operability review before the screening of CR200008415 by the Corrective Action Screening Committee (CASC), and the CASC did not recognize the potential 200°F-hold assignment. This problem was documented in CR 200100602.



In response to the inspectors' questions, Con Edison stated that Station Procedure SAO-112, Condition Reporting Process, had been revised to prevent recurrence of this potential deficient condition. The inspectors reviewed Revision 4 of the Procedure SAO-112 to confirm that: 1) Section 2.4.1 required the Watch Engineer or Shift Manager to review each CR with potential operability concerns at least once per shift; 2) Section 2.7.4 required the CASC to determine from the information provided in the CR if operability determination was needed; and 3) Section 4.3.2.a) required the CASC chairman to ensure that personnel with appropriate expertise for the conditions being reviewed were present or consulted.

The inspectors reviewed IP2 documents to confirm that on February 12, 2001, Con Edison had generated Operability Determination (OD) 01-002, "Ensuring the Functional Capability of a System (RPS) or Component", to demonstrate that the RPS can perform its safety function, in spite of the combined wiring and documentation deficiencies. The inspection scope and findings of the inspectors' review of this OD is discussed in Section 1R17.2 of this report.

The inspectors also reviewed IP2 documents to confirm that on March 12, 2001, Con Edison had completed a safety evaluation (99-160-EV) to address the wiring separation issue regarding RPS wiring configuration conformance with the UFSAR. The inspectors' review of this wiring issue is discussed in Section 1R17.3 of this report.

b. Findings

No findings of significance were identified.

1R17.2 Reactor Protection System (RPS) Operability Determination

a. Inspection Scope

Con Edison generated Operability Determination (OD) 01-002, "Ensuring the Functional Capability of a System (RPS) or Component", on February 12, 2001, to demonstrate that the RPS can perform its safety function, in spite of numerous wiring and wiring document deficiencies. The inspectors reviewed the OD to determine whether the bases used in the determination were valid and accurate. The inspectors also reviewed the supporting documents used in the OD to verify that the data and bases were accurately translated. The supporting documents reviewed included: the RPS test procedures and test results, Con Edison's effort in translating the RPS design requirements to the Component Functional Matrix Database (during the 50.54(f) implementation), the modification for replacing 88 relays in the RPS, and a sample of condition reports (CR) associated with the RPS wiring issues.

Review of RPS Testing

For the RPS testing, the inspectors interviewed Con Edison's staff involved with the RPS test program and the tracking of the completion for the surveillance tests. The

inspectors also reviewed the following sample of four surveillance test procedures and the latest test results:

- 1) PT-2M2, Reactor Protection Logic Train A Functional Test, Revision 16, and two test results dated January 29, 2001, and February 15, 2000;
- 2) PT-Q54, Pressurizer Level Bistables, Revision 8, and one test result dated January 12, 2001, (this test related to initiating events);
- 3) PT-R92, Reactor Protection Alarms and Status Lights, Revision 6, and the test result dated December 27, 2000;
- 4) PT-R51, Reactor Manual Trip Pushbuttons, Revision 6, and the test result dated December 26, 2000.

The inspectors compared these surveillance tests to corresponding loop and schematic diagrams to verify that all necessary relays and switches are accounted for in the surveillance test procedures. The inspectors reviewed the test results to confirm that the RPS successfully passed all tests. The RPS trip logics were tested monthly, with Train A and Train B trip logics being tested every other month.

The inspectors also reviewed the test history and the test tracking for the selected tests, covering the past four years. There were four test anomalies associated with the RPS tests during the past four years, one for PT-2M2 (test switch did not rotate), one for PT-2M3 (train B trip logic, reactor coolant low flow light "on"), one for PT-R92 (annunciator light bulbs burnt out), and one for PT-Q54 (level indicator out of tolerance). The inspectors reviewed the test records associated with these four test anomalies to confirm that the remedies taken to correct them were appropriate. In all cases, the tests were repeated after remedies were completed and were satisfactory.

The inspectors also reviewed Con Edison's response, dated July 25, 1997, to NRC Generic Letter (GL) 96-01, "Testing of Safety-Related Logic Circuits," dated January 10, 1996, to determine the impact of the identified wiring deficiencies on the RPS logic testing. This review included a re-examination of Licensee Event Report (LER) 98-09 and LER 98-09-01, that documented additional actions taken by the licensee in response to GL 96-01, and a review of previous NRC inspection reports (99-02, 98-09, and 98-17) that described NRC follow-up efforts of GL 96-01. LER 98-09 and LER 98-09-01 reported several deficiencies in Indian Point 2 logic testing program that were identified during Con Edison's 10 CFR 50.54(f) review efforts. Three of the identified deficiencies (turbine trip logic relay contact input to the RPS, reactor coolant pump underfrequency input to RPS trip, and intermediate range monitor input to RPS trip) affected the RPS. The inspectors reviewed licensee documents, including operator log, to confirm that the correction actions were completed. The inspectors also conducted a review to determine whether any recently identified wiring deficiencies would have altered the final conclusion of the GL 96-01 inspection (99-02) that logic testing was being performed satisfactorily.

#### Review of RPS Logic Relay Replacement Modification

The OD referenced Modification FPX-00-12449-F, for replacing 88 relays in the RPS cabinets. The inspectors reviewed Modification Package FPX-00-12449-F, Revision 1 to determine the adequacy of the modification. The review also covered the post

modification testing (PMT) of the replaced relays, in which Con Edison discovered that Reactor Trip Relay RT-15 in the Low Auto Stop Oil trip portion of the RPS train A was not properly connected. The inspectors reviewed Drawing 110E073 Sheet 11 and other licensee documents to determine whether this wiring deficiency could affect the RPS operability and whether the licensee corrective actions were appropriate, as follows:

The PMT identified that a wire from cable A-R 201 was not connected, as required, between contact 5 of relay RT-15 and contact 5 of relay RT-16. The effect of the wiring deficiency was that relay RT-15 served no function and an inadvertent reactor trip could occur for a single failure of relay RT-16 (both RT-15 and RT-16 were redundant within one train of the RPS). RPS operability was not affected since the wiring error would not have prevented a reactor trip in response to a turbine trip. The deficiency was documented in CR 200010688. Con Edison corrected the wiring error under Work Order 00-19364. This issue was adequately addressed in the OD.

#### Review of Reactor Trip Parameters

The inspectors also checked two reactor trip parameters (Steam Generator 21 low-low level and Pressurizer high pressure) to confirm the adequacy of Con Edison's Component Functional Database, which identified the components involved in these two instrument loops. The inspectors reviewed the selected sample to confirm that adequate calculations and proper documents existed from the instrument loops to the reactor trip breakers.

#### Review of Unterminated Wires

The OD referenced CR 200008818, regarding two unidentified, untaped, unterminated No. 14 switchboard wires with exposed Burndy lugs attached in the RPS cabinets. These two wires were identified before the replacement of the 88 RPS relays. The inspectors reviewed this CR to confirm that this issue (loose wires) had a 200°F-hold (problem must be solved before reactor reaches 200°F). However there were no records for the corrective actions for the loose wires. The inspectors walked down the RPS cabinets with Con Edison personnel to confirm that these wires could not be found in the cabinets. Con Edison postulated that these two wires might have been corrected (taped) during the relay replacement activity. Con Edison issued another CR (200102147) to follow-up this issue. The inspectors reviewed the testing records to confirm that there was no immediate concern for this issue because both the post modification testing following the replacement of 88 RPS relays and the monthly reactor trip testing had demonstrated the functionality of the RPS.

b. Findings

No findings of significance were identified.

1R17.3 Safety Evaluation for Changing RPS Electrical Separation Criteria

a. Inspection Scope

During the past three years, Con Edison had identified various wiring separation deficiencies within the RPS that did not conform with the wire separation criteria described in UFSAR Section 7.2.2.9. These deficiencies were documented in five Condition Reports (CRs 199803574, 200007597, 200009499, 200009641, and 200008818). An Operability Determination (OD-00-018) was prepared in November 2000 for these wiring separation deficiencies. The Operability Determination had been reviewed by the NRC and documented in a previous inspection report (IR 2000-014).

On March 12, 2001, Con Edison generated Safety Evaluation 99-160-EV to change the UFSAR such that wire separation between safety and non-safety wires is no longer required, that is, safety and non-safety wires can run together within a conduit inside the RPS cabinet. This safety evaluation was independently reviewed by Con Edison on March 12, 2001, and approved by the SNSC (Station Nuclear Safety Committee) on March 15, 2001.

The inspectors reviewed Con Edison's process for this change to determine the adequacy of the process. The review included Safety Evaluation 99-160-EV (both Revisions 0 and 1, discussed later) and the associated analyses, such as Calculation FEX -00146. Further, the inspectors attended the SNSC meeting that approved the safety evaluation on March 15, 2001.

b. Findings

Safety Evaluation (SE) 99-160-EV was based on the old version of 10 CFR 50.59. The inspectors' review of the SE identified various deficiencies, including invalid reasons, and insufficient evaluation to support the conclusion that no unreviewed safety question (USQ) was involved in the change. Specifically, the SE stated that the purpose of the change was to correct an inaccurate statement contained in FSAR 7.2.2.9, and Section III.B.4 of the SE states that "The SIQ (Safety Impact Questionnaire) describes that UFSAR Section 7.2.2.9 is contrary to existing field condition. A change is required to match the field condition." The inspectors determined that this was not a valid reason for the UFSAR to be corrected because the SE did not provide the basis or evidence why the UFSAR was incorrect.

The SE only discussed the failure conditions (to satisfy single failure criterion of IEEE Standard 279, 1968) inside the RPS cabinets, and stated that the postulated failures only affected one train of the RPS. It did not discuss failure modes outside the RPS cabinets for a potential single credible failure that could not affect both trains. The inspector observed that there were annunciator wires that Con Edison added (or functionally added to originally spare wires) to the P-10 relay contacts in a 1982 modification, that were routed from RPS Train A Cabinet directly to Train B Cabinet.

Deleting the separation criteria in the UFSAR would allow a non-safety wire to be physically in contact (insulated wires bundled together) with train A safety related wires at one end and in contact with Train B safety related wires at the other end. The SE did not address this issue and did not discuss the potential of a single credible failure that could affect both train A and train B of the RPS system.

During the inspection, the licensee provided information which demonstrated that the wiring configuration described above would not cause an immediate concern that could affect the operability of the RPS: 1) the affected non-safety related wires were protected by Class 1E fuses and breakers, and 2) there were no higher voltage (insulation damaging voltage) cables being routed together with those wires in the cable tray (located in the cable spreading room) outside the RPS cabinets.

In response to the inspector's concerns, in an April 9, 2001, discussion, Con Edison told the inspectors that it was Con Edison's interpretation that the separation criterion in UFSAR 7.2.2.9 was introduced there incorrectly by Westinghouse during the design stage. The inspectors were shown the response to FSAR review question 7.3 in the *original* FSAR, which was virtually identical to the wording in UFSAR section 7.2.2.9. Con Edison stated that the answer to questions 7.3 was moved into section 7.2.2.9 in the early 1980's. FSAR review question 7.3 concerned RPS signal isolations between safety and non-safety circuits. Con Edison contended that, because the wire separation criterion described in the response to Question 7.3—a question about electrical isolation, not separation—was not responding to the NRC question, the corresponding statement in UFSAR 7.2.2.9 was not a valid design basis.

The licensee provided no other documents created during plant licensing that supported their claim that the separation statements in UFSAR Section 7.2.2.9 were invalid. Because of the lack of additional documents, this issue will be referred to the Office of the Nuclear Reactor Regulation (NRR) for their review and determination whether section 7.2.2.9 was a valid part of the FSAR and of the plant design and licensing basis. This issue is the first part of an unresolved item that is pending review and resolution by NRR. The response to these questions will be used to address the adequacy of safety evaluation SE 99-160-EV. **(URI 05000247/2001-005-02a)**

CRs 199803574, 200007597, 200009499, 200009641, and 200008818 identified conditions that wiring configuration in the RPS and ESF cabinets did not meet the separation criteria described in UFSAR 7.2.2.9. Con Edison did not have a written safety evaluation which provided the bases for the determination that the changes in wiring configuration did not involve an USQ. The enforcement status of this issue will be determined based on the results of NRR's review.

On the April 9, 2001, discussion, Con Edison also referenced a 1988 Safety Evaluation Report (SER) (issued by the NRC as an attachment to Inspection Report 89-12). The licensee stated that this 1988 SER established the current separation criteria for the RPS. Subsequently, Con Edison revised Safety Evaluation 99-160-EV (Revision 1) on April 14, 2001. This SE was approved by the SNSC on April 19, 2001, and a copy was provided to the NRC for the inspectors' review.

The revised SE included the proposed changes to UFSAR 7.2.2.9. The proposed changes retained some of the separation criterion, changing “the separation is maintained...” to “Separation is typically maintained....” However, Con Edison still did not evaluate the effect of the nonsafety-related wires that were routed directly from RPS Train A cabinet to Train B cabinet, without separation from safety-related wires inside the RPS cabinets, to provide the determination that no single credible failure could affect both train A and train B of the RPS system. Instead, on page 6, Attachment V of the revised SE, Con Edison stated that the 1988 SER and Westinghouse Letter IPP-00-371 allow (Item 1) nonsafety-related cable to be run with safety-related cables and (Item 3) alarm/indication circuits to be run between the E and F racks.

The inspectors’ review of the two documents led to a different conclusion. Specifically, page 3 of the 1988 SER states, in part, “The design basis at Indian Point for routing of non-safety cables is that they may be routed in the same cable tray or raceway with safety system cables. The related Indian Point design basis requirement as defined in their installation criteria is that a cable once assigned to a channel must remain in its assigned channel from beginning to final termination. Thus, non-safety system circuit cables that are associated with reactor protection and engineering safety systems by their being routed in the same channel raceway will not be routed from one channel raceway to the channel’s redundant counterpart raceway.”

Although this paragraph refers to “raceway” which Con Edison interpreted to be the wiring outside the RPS cabinets, it clearly states “from beginning to final termination,” which the inspectors interpreted to include the wire ways inside the RPS cabinets, where the terminations were located, as there were no terminations in the raceway outside the RPS cabinets.

As mentioned above, there were annunciator wires that Con Edison added to the P-10 relay contacts in a 1982 modification, that were routed from the RPS Train A Cabinet directly to the Train B Cabinet. Since there was no separation between safety and non-safety wire inside the RPS cabinets, it was not clear whether Con Edison considered these (the added annunciator) wires non-safety related, Train A associated, or Train B associated wires. The inspectors was informed that there were many other non-safety wires routed in this manner.

The 1988 SER did not specifically discuss wire separation between safety and non-safety wires inside control cabinets. However, the SER did reference (on Page 3) Regulatory (RG) 1.75 (IEEE Standard 384-1974) as a basis for accepting the licensee’s cable separation criteria. While Indian Point 2 is not committed to this standard, section 5.6.5 of IEEE Standard 384-1974 stated that non-Class 1E wiring inside a control cabinet (control switchboard) not separated from Class 1E wiring shall be treated as associated circuits in accordance with the requirements of Section 4.5. Section 4.5(1) specified that a train A associated circuit must be separated from other trains.

On April 26, 2001, Con Ed provided additional materials to the NRC for the inspector’s review. These additional materials contained Con Ed’s interpretation, in a sentence by sentence format, rather than using the whole paragraph, of the separation criteria described in the 1988 SER. The inspector reviewed this information and found that it did not provide resolution to this issue.

This issue, whether nonsafety-related wires that were routed directly from RPS Train A cabinet to Train B cabinet, without separation from either train A or train B safety-related wires inside the RPS cabinets met the separation criteria as revised in 1988 for IP2, is the second part of an unresolved item pending further review by NRR and Region I.  
**(URI 05000247/2001-005-02b)**

#### 1R17.4 Review of RPS Open Condition Reports

The inspectors reviewed the RPS condition report history, contained in the CRS database, to assess the extent of condition of identified potential deficiencies in the RPS. Since 1998, over 300 condition reports had been written against the RPS. As of March 9, 2001, 47 CRs had remained open in the database, some for almost three years. Con Edison's record indicated that the Significance Levels (SL) of the open CRs were mostly (37 total) SL 3 CRs, with no SL 1 CR and seven SL 2 CRs. The remainder were SL 4 CRs. The inspectors reviewed the CR record to confirm that all of the 1998 RPS CRs that remained open were SL 3 CRs.

In response to the inspectors' concerns about possible combined operability or functional effects from the 47 open CRs, Con Edison performed an overall assessment of the 47 CRs and concluded that no functional problems existed. The inspectors reviewed a sample of four CRs to confirm that there were no combined effects that could challenge the functionality of the RPS. The selected CRs, based on the inspectors' judgement, were most likely to yield inspection findings. The four CRs reviewed were:

CR 199901696	Surveillance Tests for P7 & P8 Interlocks
CR 199902835	RPS Wiring Discrepancies (part of CR 200100327)
CR 199907837	Surveillance Tests for P7 & P8 Interlocks
CR 200010125	RPS Wiring Discrepancies (part of CR 200100327)

#### b. Findings

No findings of significance were identified.

#### 4OA5 Management Meetings

##### a. Exit Meeting Summary

On May 4, 2001, the inspector presented the overall findings to Mr. A. Blind and other Con Edison personnel. Con Edison acknowledged the findings and did not contest the conclusions. Additionally, none of the information reviewed by the inspectors was considered proprietary.

#### 40A7 Licensee Identified Violations

The following findings of very low significance were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC

Enforcement Policy, NUREG-1600, for being dispositioned as Non-Cited Violations (NCV).

If you deny these Non-cited violations, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Indian Point 2 Station.

NCV Tracking Number

Requirement Licensee Failed to Meet

(1) NCV 2001-005-01

10 CFR 50, Appendix B, Criterion VI, "Document Control", requires measures to be established to control the issuance of documents, such as instruction and drawings, including changes thereto. Con Edison did not adequately control the issuance of the RPS wire lists (controlled documents) in that the errors referenced in CR 200008415 (annunciator circuits incorrectly listed in Reactor Trip listing, incorrect relay numbers and incorrect relay locations) were not corrected. In addition, the RPS wire lists had not been properly updated to incorporate the wiring changes for the P-10 relay contacts in 1982, and the relay replacement/modification in December 2000. The corrective actions for this violation were already in Con Edison's corrective action program (ICA for CR 200100327, Item 1.a). This is being treated as a Non-Cited Violation.



**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee:

R. Allen, Nuclear Safety and Licensing  
J. Baumstark, Vice President, Nuclear Engineering  
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M. Entenberg, Manager, Electrical Design Engineering  
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Nuclear Regulatory Commission

W. Ruland, Acting Deputy Director, DRS

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened and Closed

NCV 05000247/2001-005-01            Inadequate Document Control for RPS Wire Lists

### Opened

URI 05000247/2000-0051-02            Design and licensing basis wiring separation criterion within the RPS cabinets.

## LIST OF ACRONYMS

CARB	Corrective Action Review Board
CFR	code of federal regulations
Con Edison	Consolidated Edison
CR	condition report
FSAR	Final Safety Analysis Report
ICA	Implementation of Corrective Actions
IEEE	Institute of Electrical and Electronics Engineers
LER	License Event Report
NRR	The Office of Nuclear Reactor Regulation
OD	Operability Determination
RG	Regulator Guide
RPS	Reactor Protection System
SDP	Significance Determination Process
SE	Safety Evaluation
SER	Safety Evaluation Report
SIQ	Safety Impact Questionnaire
SL	Significance Level
SNSC	Station Nuclear Safety Committee
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
USQ	Unreviewed Safety Question

## DOCUMENTS REVIEWED

### CONDITION REPORTS

CR 199803574	Various RPS Wiring Discrepancies, dated April 27, 1998
CR 199806265	GL 96-01 Testing Issue, dated July 20, 1998
CR 199806334	RPS Wiring Discrepancies, dated April 22 1998
CR 199900478	RPS Wiring Discrepancies, dated January, 22, 1999
CR 199900830	SPIN Database Setpoint Discrepancies, dated February 4, 1999
CR 199901696	Surveillance Tests for P7 & P8 Interlocks, dated March 5, 1999
CR 199902274	RPS Wiring Discrepancies, dated March 18, 1999
CR 199902835	RPS Wiring Discrepancies, dated April 6, 1999
CR 199903445	RPS Wiring Discrepancies, dated April 28, 1999
CR 199904040	RPS Wiring Discrepancies, dated May 19, 1999
CR 199904968	RPS Wiring Discrepancies, dated June 24, 1999
CR 199907837	Surveillance Tests for P7 & P8 Interlocks, dated October 13, 1999
CR 200007597	RPS Wiring Discrepancies, dated October 6, 2000
CR 200008415	Wiring List Deficiencies, dated November1, 2000
CR 200008818	RPS Wiring Discrepancies, dated November 10, 2000
CR 200009499	RPS Wiring Discrepancies, dated November 27, 2000
CR 200009884	RPS Wiring Discrepancies, dated December 5, 2000
CR 200010125	RPS Wiring Discrepancies, dated December 9, 2000
CR 200010688	RPS Relay RT-15 Wiring Deficiency dated December 23, 2000
CR 200100327	Design Control Concerns for RPS Wiring Discrepancies, dated January 11, 2001
CR 200100602	CR Screening Process Issues, dated January 19, 2001
CR 200102147	Loose Wire Corrective Actions Not Documented, dated March 2, 2001
CR 200102315	RPS Rack Wiring Condition, dated March 7, 2001
CR 200102638	Follow-up of Wiring Discrepancies Identified in CR 200008818, dated March 16, 2001

### SURVEILLANCE PROCEDURES

PT-R92	Reactor Protection Alarms and Status Lights, Revision 6
PT-2M2	Reactor Protection Logic Train "A" Functional Test, Revision 16
PT-Q54	Pressurizer Level Bistables, Revision 8
PT-R51	Reactor Manual Trip Pushbuttons, Revision 6

### STATION PROCEDURES

SAO-112	Condition Reporting Process, Revision 4, dated February 2, 2001
EI-6009	Class A - Electrical Workmanship Standards Manual, Revision 10, dated November, 1994

**WIRING DIAGRAMS**

A201216 Protection Logic Rack E-3, Revision 6  
 A201223 Protection Logic Rack F-3, Revision 6  
 A208685 RPS Test Logic and Protection, Panel E2-E6 & F2-F6, Revision 3  
 A208761 Cable Tray Separation Functions and Routing Designations, Revision 3  
 B225268 Elementary Wiring Diagram of Annunciator PNL 'FDF', Revision 3  
 B225269 Elementary Wiring Diagram of Annunciator PNL 'FDF', Revision 2  
 B225260 Elementary Wiring Diagram of Annunciator PNL 'SFF', Revision 6  
 9321-LL-3135 Elementary Wiring Diagram of Annunciator PNL 'FCF', Revision 4  
 9321-LL-3135 Elementary Wiring Diagram of Annunciator PNL 'FCF', Revision 7

**WIRING LISTS**

615B119 Annunciator Wiring - Reactor Protection System, (11 sheets, with various revisions and dates)  
 615B130 Reactor Trip Wiring - Reactor Protection System", (19 sheets, with various revision and dates)  
 615B133 Supplement, Relay Developments, Sheet 1, Revision A

**SCHEMATIC DIAGRAMS**

110E073 Reactor Protection System Schematic, Sheets 2, 2A, 3, 4, 5, 6, 7, 8, 9, 10, 11, (various revisions and dates)  
 110E124 Miscellaneous Relay Rack 2 Rear (JJ6), Revision 16  
 110E124 Miscellaneous Relay Rack General, Revision 22  
 9321-LL-3135 Elementary Wiring Diagrams of Annunciator Panel, Sheets 5B, 5C, 6, 6B, (various revisions and dates)

**FLOW DIAGRAMS**

9321-F-2738 Reactor Coolant System, Revision 107

**FUNCTIONAL DIAGRAMS**

B225306 Instrumentation Block Diagram-Reactor Control System Pressurizer Level Control, Revision 9  
 B225294 Instrumentation Block Diagram- Reactor Protection System Pressurizer Level, Revision 8

**LOGIC DIAGRAMS**

A225095 Logic Diagrams Reactor Trip Signals, Revision 8  
 A225098 Logic Diagram Nuclear Instrumentation Trip Signals, Revision 4  
 A225099 Logic Diagrams Nuclear Instrumentation Permissives and Blocks, Revision 5  
 A225102 Logic Diagrams Pressurizer Trip Signals, Revision 5  
 A225103 Logic Diagram Steam Generator Trip Signals, Revision 8

**COMPONENT FUNCTION WITH SETPOINTS**

Bistable FC-448F	Reactor Trip Logic Input - De-energizes on steam flow/feed flow mismatch
Bistable LC-417A-1	AMSAC Logic Input - De-energizes on very low steam generator water level
Bistable LC-417B	Reactor Trip Logic - De-energizes on low-low steam generator water level
LC-417A-1/X1	AMSAC Logic Input Relay Train "1", De-energizes on very low steam generator water level

**DESIGN BASES DOCUMENT**

RPS DBD	Design Bases Document for the Reactor Protection System, Revision 0, dated November 2000.
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