UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

May 6, 2008

Mr. Joseph E. Pollock
Site Vice President
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT GENERATING UNIT 2 – NRC INTEGRATED INSPECTION REPORT 05000247/2008002

Dear Mr. Pollock:

On March 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 2. The enclosed integrated inspection report documents the inspection results, which were discussed on April 10, 2008, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one finding of very low safety significance (Green). This finding was also determined to be a violation of NRC requirements. However, because of its very low safety significance, and because the finding was entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a written 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 D.C. 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 Senior Resident Inspector at Indian Point Nuclear Generating Unit 2.

In accordance with Title 10 of the Code of Federal Regulations Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room of from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS).

ADAMS is accessible from the NRC Web Site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Eugene W. Cobey, Chief
Projects Branch 2
Division of Reactor Projects

Docket No. 50-247
License No. DPR-26

Enclosure: Inspection Report No. 05000247/2008002
w/ Attachment: Supplemental Information

cc w/encl:
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Vice President, Operations, Entergy Nuclear Operations
Vice President, Oversight, Entergy Nuclear Operations
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F. Zalcman, Pace Law School, Energy Project
L. Puglisi, Supervisor, Town of Cortlandt
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Senator Hillary Rodham Clinton
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P. Musegaas, Riverkeeper, Inc.
M. Kaplowitz, Chairman of County Environment & Health Committee
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Date	04/28/08		04/28/08		05/06/08	

OFFICAL AGENCY RECORD

U.S. Nuclear Regulatory Commission

Region I

Docket No.:	50-247
License No.:	DPR-26
Report No.:	05000247/2008002
Licensee:	Entergy Nuclear Northeast (Entergy)
Facility:	Indian Point Nuclear Generating Unit 2
Location:	450 Broadway, GSB Buchanan, NY 10511-0249
Dates:	January 1, 2008 through March 31, 2008
Inspectors:	C. Hott, Senior Resident Inspector (Acting), Indian Point 2 P. Cataldo, Senior Resident Inspector, Indian Point 3 A. Koonce, Resident Inspector, Indian Point 3 S. Smith, Reactor Inspector, Region I A. Patel, Reactor Inspector, Region I R. McKinley, Reactor Inspector, Region I S. Barr, Senior Emergency Preparedness Specialist, Region I
Approved By:	Eugene W. Cobey, Chief Projects Branch 2 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000247/2008-002; 01/01/2008 – 03/31/2008; Indian Point Nuclear Generating Unit 2; Maintenance Risk Assessment and Emergent Work Control.

This report covered a three-month period of inspection by resident and region based inspectors. One finding of very low significance (Green) was identified which was also determined to be a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." Findings for which the significance determination process (SDP) does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

Green. A self-revealing, non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for failure to provide an adequate procedure for installing cable termination lugs on the 21 service water pump motor cables. As a result, Entergy maintenance personnel installed undersized terminal lugs for the 21 service water pump motor jumper cables on January 26, 2000, which resulted in a high resistance connection that degraded over time and eventually caused the cables to fail while the pump was in service on January 27, 2008. Entergy entered this issue into the corrective action program, replaced the jumper cables with insulated bus bars, tested the motor for damage, and changed Engineering Standard ENN-EE-S-008-IP, "IPEC [Indian Point Energy Center] Electrical Cable Installation Standard," to ensure the use of correctly-sized terminal lugs in the future. Entergy also plans to perform an extent-of-condition review that includes thermography and visual inspections of other safety related motor cable terminations.

The inspectors determined that this finding was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems cornerstone; and, it affected the objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Entergy failed to provide adequate procedural steps to ensure that the 21 service water pump was installed with appropriate electrical connectors. The inspectors evaluated the significance of this finding using Phase 1 of Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," and determined that it was of very low safety significance (Green) because it was not a design or qualification deficiency; it did not represent a loss of system safety function of a single train for greater than its Technical Specification allowed outage time; and it did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. (Section 1R13)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Indian Point Nuclear Generating Unit 2 began the inspection period operating at 100 percent power and remained at or near full power until operators manually tripped the reactor on March 23, 2008, due to lowering steam generator levels as a result of a rapid speed reduction of the 22 main boiler feed pump. Entergy elected to maintain the plant in a shutdown condition to begin the refueling outage (2R18) which had been scheduled to start on March 26, 2008.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 1 sample)

a. Inspection Scope

The inspectors evaluated implementation of the adverse weather preparation procedures and compensatory measures before the onset of, and during, adverse weather conditions. Specifically, the inspectors evaluated Entergy's preparations for, and compensatory measures taken, during a period of adverse weather from February 12, 2007 to February 14, 2007. The inspectors conducted walkdowns of plant equipment and reviewed operating procedures to ensure that equipment important to safety would not be adversely affected by severe weather conditions. The documents reviewed during this inspection are listed in the Attachment. This inspection satisfied one inspection sample for the onset of adverse weather.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 2 samples, 71111.04S - 1 sample)

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns to verify the operability of redundant or diverse trains and components during periods of system train unavailability, or following periods of maintenance. The inspectors referenced the system procedures, the Updated Final Safety Analysis Report (UFSAR), and system drawings to verify that the alignment of the available train supported its required safety functions. The inspectors also reviewed applicable condition reports (CR) and work orders to ensure that Entergy had identified and properly addressed equipment discrepancies that could potentially impair the capability of the available train, as required by Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action." The documents reviewed during these inspections are listed in the Attachment.

The inspectors performed a partial walkdown on the following systems, which represented two inspection samples:

- 21 and 23 emergency diesel generators during 22 emergency diesel generator maintenance; and
- Safety injection system alignment during cold shutdown conditions.

b. Findings

No findings of significance were identified.

.2 Full System Walkdown

a. Inspection Scope

The inspectors performed a complete system walkdown of accessible portions of the residual heat removal system to identify any discrepancies between the existing equipment lineup and the required lineup. The inspectors reviewed operating procedures, surveillance tests, piping and instrumentation drawings, equipment lineup check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors reviewed a sample of CRs and work orders (WOs) written to address deficiencies associated with the system to ensure they were appropriately evaluated and resolved. The documents reviewed during this inspection are listed in the Attachment. The walkdown of the residual heat removal system represented one inspection sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors conducted tours of several fire areas to assess the material condition and operational status of fire protection features. The inspectors verified, consistent with the applicable administrative procedures, that: combustibles and ignition sources were adequately controlled; passive fire barriers, manual fire-fighting equipment, and suppression and detection equipment were appropriately maintained; and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with Entergy's fire protection program. The inspectors evaluated the fire protection program against the requirements of License Condition 2.K. The documents reviewed during this inspection are listed in the Attachment. This inspection represented five inspection samples for fire protection tours, and was conducted in the following areas:

- Fire Zones 23, 62A;
- Fire Zones 60A;
- Fire Zones 14;
- Fire Zones 9, 12A, 13A; and
- Fire Zones 9A, 10A, 11A.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A – 1 sample)

a. Inspection Scope

The inspectors evaluated maintenance activities, and reviewed performance data associated with the 23 emergency diesel generator heat exchanger. The inspectors reviewed applicable design basis information and commitments associated with Entergy's Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," program to validate that the licensee's maintenance activities were adequate to ensure the system could perform its safety function. The inspectors reviewed as-found and as-left results from previous heat exchanger cleanings and eddy-current testing to ensure the periodicity of maintenance activities were appropriate, and conditions adverse to quality were being identified and corrected. The documents reviewed during this inspection are listed in the Attachment. The inspection of the 23 emergency diesel generator heat exchanger represented one inspection sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 1 sample)

a. Inspection Scope

On February 26, 2008, the inspectors observed licensed operator simulator training to verify that operator performance was adequate, and the evaluators were identifying and documenting crew performance problems. The inspectors evaluated the performance of risk-significant operator actions, including the use of emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operation and manipulation, and the oversight and direction provided by the shift manager. The inspectors also reviewed simulator fidelity with respect to the actual plant. Licensed operator training was evaluated against the requirements of 10 CFR Part 55, "Operator Licenses." The documents reviewed during this inspection are listed in the Attachment. This observation of operator simulator training represented one inspection sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12 – 3 samples)

a. Inspection Scope

The inspectors reviewed performance-based problems that involved structures, systems, and components (SSCs) to assess the effectiveness of the maintenance program. The reviews focused on:

- Proper Maintenance Rule scoping in accordance with 10 CFR 50.65;
- Characterization of reliability issues;
- Changing system and component unavailability;
- 10 CFR 50.65(a)(1) and (a)(2) classifications;
- Identifying and addressing common cause failures;
- Trending of system flow and temperature values;
- Appropriateness of performance criteria for SSCs classified (a)(2); and
- Adequacy of goals and corrective actions for SSCs classified (a)(1).

The inspectors also reviewed system health reports, maintenance backlogs, and Maintenance Rule basis documents. The inspectors evaluated the maintenance program against the requirements of 10 CFR 50.65. The documents reviewed during this inspection are listed in the Attachment. The following Maintenance Rule samples were reviewed and represented three inspection samples:

- Chemical volume and control system;
- Instrument air system; and
- Plant computer system.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 samples)

a. Inspection Scope

The inspector reviewed scheduled and emergent maintenance activities to verify that the appropriate risk assessments were performed prior to removing equipment from service for maintenance or repair. The inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. Documents reviewed during this inspection are listed in the Attachment. The following activities represented four inspection samples:

- Planned chemical and volume control system maintenance;
- Emergent work on 21 service water pump motor cable due to lug failure;
- Planned alternate safe shutdown system testing; and
- Emergent work on 22 emergency diesel generator for replacement of a relief valve in the fuel oil system.

b. Findings

Introduction: A self-revealing Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified because Entergy did not provide an adequate procedure for installing cable termination lugs on the 21 service water pump motor cables on January 26, 2000.

Description: On January 27, 2008, the 21 service water pump failed while supplying cooling water to the essential service water header. Operators started the 22 service water pump to restore normal cooling to the essential service water header and verified that the 23 service water pump was available to be started if needed. Operators performed these actions because two service water pumps are required during a postulated accident to supply the necessary loads on the essential service water header.

Entergy determined that the cause of the 21 service water pump failure on January 27, 2008, was due to improperly sized cable lugs which resulted in a high resistance connection that caused the 'B' phase cable to fail. On January 26, 2000, the 21 service water pump had been replaced using procedure PVE-B-030-A, "Johnson (18EC - 2 Stage) Service Water Pump and Motor Replacement." During the replacement, maintenance personnel determined that the replacement motor leads for two of the three phases were not long enough to reach the existing supply cable terminations. As a result, Entergy changed the maintenance procedure to allow maintenance personnel to fabricate jumper cables to extend the length of the motor cables. The motor leads and the jumper cables were both 1/0 flexible stranded wire (133 strand), which required terminal lugs larger than standard 1/0 American wire gage (AWG) cables (19 strand). However, the procedure change did not specify the appropriate size lugs for the 1/0 flexible stranded wire, and as a result, standard 1/0 AWG cable termination lugs were installed. The incorrectly sized lugs resulted in an inadequate crimp and a subsequent high-resistance connection that degraded over time, then failed.

Entergy entered this issue into the CAP (CR-IP2-2008-00414), replaced the jumper cables with insulated bus bars, tested the motor for damage, and changed Engineering Standard ENN-EE-S-008-IP, "IPEC Electrical Cable Installation Standard," to ensure the use of correctly-sized terminal lugs in the future. Entergy is performing an extent-of-condition review that includes thermography and visual inspections of other safety related motor cable terminations.

Analysis: The inspectors determined that this issue was a performance deficiency because Entergy failed to specify by procedure the appropriate terminal lugs for the 1/0 flexible stranded wire motor and jumper cables. This finding was reasonably within Entergy's ability to foresee and prevent, because the use of standard 1/0 AWG cable termination lugs on 1/0 flexible stranded wire was not an approved method of use. Traditional enforcement does not apply since there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements or Entergy's procedures.

The inspectors determined that this finding was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems cornerstone; and, it affected the objective of ensuring the availability, reliability, and capability of

systems that respond to initiating events to prevent undesirable consequences. Specifically, Entergy failed to provide adequate procedural steps to ensure that 21 service water pump was installed with appropriate electrical connectors. The inspectors evaluated the significance of this finding using Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," and determined that it was of very low safety significance (Green) because it was not a design or qualification deficiency; it did not represent a loss of system safety function of a single train for greater than its Technical Specification allowed outage time; and it did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. This finding was determined to not have a cross-cutting aspect since the root problem occurred in the past, and is not indicative of current licensee performance.

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, and drawings of a type appropriate to the circumstances. Contrary to the above, on January 26, 2000, Entergy did not provide a maintenance procedure appropriate to the circumstances to ensure safety related maintenance activities were satisfactorily accomplished. Specifically, the service water motor replacement procedure did not specify the appropriate size cable termination lug for the service water motor cable. The installation of undersized terminal lugs on January 26, 2000, for the 21 service water pump resulted in a high resistance connection that degraded over time and eventually caused the cables to fail while the pump was in service on January 27, 2008. Entergy entered this issue into their corrective action program (CR IP2-2008-00414), replaced the jumper cables with insulated bus bars, tested the motor for damage, and changed Engineering Standard ENN-EE-S-008-IP, "IPEC Electrical Cable Installation Standard," to ensure the use of correctly-sized terminal lugs in the future. Entergy is performing an extent-of-condition review that includes thermography and visual inspections of other safety related motor cable terminations. Because this finding is of very low safety significance and has been entered into the corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000247/2008002-01)

1R15 Operability Evaluations (71111.15 – 6 samples)

a. Inspection Scope

The inspectors reviewed operability evaluations to assess the acceptability of the evaluations, the use and control of compensatory measures when applicable, and compliance with Technical Specifications. The inspectors' reviews included verification that operability determinations were performed in accordance with procedure ENN-OP-104, "Operability Determinations." The inspectors assessed the technical adequacy of the evaluations to ensure consistency with the Technical Specifications, UFSAR, and associated design basis documents (DBDs). The documents reviewed are listed in the Attachment. The following operability evaluations were reviewed and represented six inspection samples:

- CR IP2-2008-00561, instrument air valve 571;
- CR IP2-2008-00425, improper amptector breaker setpoint;
- CR IP2-2008-00860, 22 emergency diesel generator fuel oil leak;

- CR IP2-2008-01021, 22 steam generator degraded main steam isolation valve;
- CR IP2-2008-01090, 21 service water zurn strainer failure; and
- CR IP2-2008-01214, improper emergency diesel generator snubber heat treatment.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 – 1 sample)

a. Inspection Scope

The inspectors reviewed one temporary plant modification package for the installation of an ultrasonic flow detector to measure service water flow to the 24 fan cooler unit. The inspectors verified the design bases, licensing bases, and performance capability of the system was not degraded by the temporary modification. The inspectors verified that the instrumentation adequately verified service water flow through the 24 fan cooler unit as required by Technical Specifications and reviewed the temporary modification against the requirements of 10 CFR 50.59. In addition, the inspectors interviewed plant staff, and reviewed issues that had been entered into the corrective action program to determine whether Entergy had been effective in identifying and resolving problems associated with the temporary modification. The documents reviewed during this inspection are listed in the Attachment. The review of this temporary modification represented one inspection sample.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 – 4 samples)

a. Inspection Scope

The inspectors reviewed post-maintenance test procedures and associated testing activities for selected risk-significant mitigating systems, and assessed whether the effect of maintenance on plant systems was adequately addressed by control room and engineering personnel. The inspectors verified that: test acceptance criteria were clear, the test demonstrated operational readiness and were consistent with design basis documentation; test instrumentation had current calibrations, and appropriate range and accuracy for the application; and the tests were performed as written, with applicable prerequisites satisfied. Upon completion of the tests, the inspectors verified that equipment was returned to the proper alignment necessary to perform its safety function. Post-maintenance testing was evaluated against the requirements of 10 CFR 50, Appendix B, Criterion XI, “Test Control.” The documents reviewed are listed in the Attachment. The following post-maintenance activities were reviewed and represented four inspection samples:

- WO 00139043, containment pressure safety injection input relay 948A after test switch replacement;
- WO 51302681, 21 charging pump following seal replacement;
- WO 00139634, 22 EDG retest after fuel oil valve replacement; and

- WO 00140365, technical support center ventilation system efficiency test following charcoal sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – 7 samples)

a. Inspection Scope

The inspectors witnessed performance of surveillance tests and/or reviewed test data for selected risk-significant SSCs to assess whether they satisfied Technical Specifications, UFSAR, Technical Requirements Manual, and Entergy procedure requirements. The inspectors verified that: test acceptance criteria were clear, demonstrated operational readiness, and were consistent with design basis documentation; test instrumentation had accurate calibration, and appropriate range and accuracy for the application; and tests were performed as written, with applicable prerequisites satisfied. Following the test, the inspectors verified that the equipment was capable of performing the required safety functions. The inspectors evaluated the surveillance tests against the requirements in Technical Specifications. The documents reviewed during this inspection are listed in the Attachment. The following surveillance tests were reviewed and represented seven inspection samples:

- 2-PT-M021C, "Emergency Diesel Generator 23 Load Test," Revision 14;
- 2-PT-M067, "Technical Support Center Diesel," Revision 11;
- 2-PT-M038A, "GT-1 Functional," Revision 6;
- 2-PT-Q-016, "Containment Fan Cooler Unit Flow Test," Revision 2;
- 2-PT-Q030B, "22 Containment Cooling Water Pump," Revision 18 [In-Service Test];
- 2-PT-R022A, "22 ABFP Full Flow Test," Revision 14 [In-Service Test]; and
- 2-PT-R013, "Safety Injection Logic," Revision 27.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP2 Alert and Notification System (ANS) Evaluation

a. Inspection Scope (71114.02 - 1 Sample)

The inspectors conducted a review of the Indian Point Energy Center siren systems, both of the current system and the planned new system. In accordance with the Reactor Oversight Process Deviation Memorandum approved by the Executive Director for Operations on December 19, 2007, the inspectors monitored Entergy's efforts to design, install, and test a replacement alert and notification system throughout the inspection period. Throughout this quarter, inspectors monitored Entergy's efforts to complete the

design of the new Alert and Notification System, in compliance with Federal Emergency Management Agency requirements, and to complete the installation of the system in accordance with the design. The inspectors also inspected the status of, and corrective actions for, the current ANS to assure that Entergy was appropriately maintaining that system. Inspectors were on-site on February 27, 2008, to observe and verify the performance of the current ANS during the annually-conducted full-volume test. The documents reviewed during this inspection are listed in the Attachment. This inspection activity represents one inspection sample.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

a. Inspection Scope

The inspectors observed an emergency preparedness training drill conducted on February 26, 2008. The inspectors used NRC Inspection Procedure 71114.06, "Drill Evaluation," as guidance and criteria for evaluation of the drill. The inspectors observed the drill and critiques that were conducted from the participating facilities onsite, including the Indian Point Unit 2 plant simulator, and the emergency operations facility. The inspectors focused the reviews on the identification of weaknesses and deficiencies in classification and notification timeliness, quality of drill conduct, and accountability of essential personnel during the drill. The inspectors observed Entergy's critique and compared Entergy's self-identified issues with the observations from the inspectors' review, to ensure that performance issues were properly identified. This inspection activity represents one inspection sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator Verification (71151 – 3 samples)

a. Inspection Scope

The inspectors reviewed performance indicator data for the cornerstones listed below and used Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, to verify individual performance indicator accuracy and completeness. The documents reviewed during this inspection are listed in the Attachment.

Initiating Events Cornerstone

- Unplanned Scrams per 7000 Critical Hours (January 2007 to December 2007)
- Unplanned Transients per 7000 Critical Hours (January 2007 to December 2007)

The inspectors reviewed data and plant records from January 2007 to December 2007. The records included PI data summary reports, licensee event reports, operator narrative logs, the licensee corrective action program, and Maintenance Rule records. The inspectors verified the accuracy of the number of critical hours reported, and interviewed the system engineers and operators responsible for data collection and evaluation.

Barrier Integrity Cornerstone

- RCS Activity (January 2007 to December 2007)

The inspectors reviewed data and plant records from January 2007 to December 2007. The records included performance indicator data summary reports, licensee event reports, operator narrative logs, the licensee corrective action program, and Maintenance Rule records. The inspectors verified the accuracy of the number of critical hours reported, and interviewed the system engineers and operators responsible for data collection and evaluation.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 – 1 sample)

.1 Routine Problem Identification & Resolution Program Review

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and to identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of all items entered into Entergy's corrective action program. The review was accomplished by accessing Entergy's computerized database for condition reports, and attending condition report screening meetings.

In accordance with the baseline inspection modules, the inspectors selected corrective action program items across the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for further follow-up and review. The inspectors assessed Entergy's threshold for problem identification, adequacy of the causal analysis, extent of condition reviews, and operability determinations, and timeliness of the associated corrective actions. The condition reports reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified

.2 PI&R Annual Sample Review: Corrective Actions for Technical Support Center (TSC) Diesel (71152 - 1 sample)

a. Inspection Scope

The inspectors conducted a review of the effectiveness of corrective actions associated with the June 2005 NRC finding that identified Entergy's inadequate testing of the temporary technical support center diesel generator (05000247/2005008-01). The inspectors interviewed personnel responsible for implementing the procedures, reviewed condition reports associated with the finding and documented corrective actions and assessed Entergy's threshold for problem identification, the adequacy of the analysis, and extent of condition review. The documents reviewed during the inspection are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified.

The inspectors observed that Entergy appropriately addressed the causes and extent of condition for the finding. Corrective actions for the issue and associated causes were adequate.

4OA3 Event Follow-up (71153 - 1 sample)

.1 Manual Reactor Trip on March 23, 2008, Due to Lowering Steam Generator Levels as a Result of 22 Main Boiler Feed Pump Runback

a. Inspection Scope

The inspectors observed control room personnel response to an unexpected manual reactor trip on March 23, 2008, that resulted from lowering steam generator levels caused by a speed runback (lowering) of 22 main boiler feed pump. The inspectors observed Entergy's post-trip response in the control room to verify that plant equipment response was as expected, and to ensure that operating procedures were being appropriately implemented. The inspectors attended post-trip review and forced outage meetings, and discussed the event and corrective actions with plant management. The cause of the main boiler feed pump runback was not determined by the end of the inspection period. Instead of commencing restart activities, Entergy elected to begin a normal plant cooldown and start the 2R18 refueling outage. The 2R18 outage was originally scheduled to begin on March 26, 2008. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

On April 10, 2008, the inspectors presented the inspection results to you and other Entergy staff members, who acknowledged the inspection results presented. Entergy did not identify any material as proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

B. Christman, Manager of Training and Development
P. Conroy, Director of Nuclear Safety Assurance
J. Pollock, Site Vice President
R. Hansler, Reactor Engineering Superintendent
T. Jones, Licensing Supervisor
S. Manzione, Component Engineering Supervisor
B. McCarthy, Indian Point Unit 2 Assistant Operations Manager
T. Orlando, Director of Engineering
B. Sullivan, Emergency Planning Manager
P. Studley, Site Operations Manager
M. Vasely, Balance of Plant System Engineering Supervisor
S. Verrochi, System Engineering Manager
A. Vitale, General Manager of Plant Operations
R. Walpole, Licensing Manager
R. Burroni, Design Engineering Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000247/2008002-01	NCV	Failure of 21 SWP due to inadequate maintenance procedure (Section 1R13)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

OAP-008, “Severe Weather Preparations,” Rev. 2
OAP-48, “Seasonal Weather Preparation,” Rev. 3

Section 1R04: Equipment Alignment

Procedure
2-SOP-27.3.1.2, “22 Emergency Diesel Generator Manual Operation,” Rev. 20
2-SOP-4.2.1, "Residual Heat Removal System Operation," Rev. 61
2-COL-4.2.1, "Residual Heat Removal System," Rev. 26

Condition Report
IP2-2008-00860

Work Order
00139634

Drawings
9321-F-2030, “Fuel Oil to Diesel Generators,” Rev. 39
A250907, “Electrical Distribution and Transmission System,” Rev. 23

Miscellaneous
IP2-EDG DBD, “Emergency Diesel Generator Design Basis Document,” Rev. 2

Section 1R05: Fire Protection

Procedures
ENN-DC-161, “Transient Combustible Program,” Rev. 1
0-PT-Q001, “Alternate Safe Shutdown Equipment Inventory and Inspection,” Rev. 1
PT-Q17F, “Alternate Safe Shutdown Supply Verification to 21 SIP/RHRP,” Rev. 5
SMM-DC-901, “IPEC Fire Protection Program,” Rev. 2

Condition Report
IP2-2008-00620

Miscellaneous
FPX-93-09146-F, “Removal of Thermo-Lag Fire Barrier from RHR Pump 22 Feeder,” Rev. 0
Indian Point Nuclear Generating Station, Unit No. 2, “Fire Protection Program Plan,” Rev. 9
IP2-RPT-03-00015, “IP2 Fire Hazards Analysis,” Rev. 3

1R07: Heat Sink Performance

Procedures
0-GNR-403-ELC, "Emergency Diesel Generator Quarterly Inspection," Rev. 0
0-HTX-405-EDG, "EDG Lube Oil and Jacket Water Heat Exchanger Maintenance," Rev. 0

Work Orders
51550070
51251286
51550538

Section 1R11: Licensed Operator Requalification Program

Procedures

2-AOP-INST-1, “Instrument/Controller Failures,” Rev. 2
2-AOP-SG-1, “Steam Generator Tube Leak,” Rev. 4
2-AOP-LEAK-1, “Sudden Increase in Reactor Coolant System Leakage,” Rev. 3

Miscellaneous

Simulator Evaluated Scenario, LRQ-SES-26

Section 1R12: Maintenance Effectiveness

Calculations
FIX-00030, "N2 Backup System Capacity to Support Critical AFW System Air Users in Event of Loss of Instrument Air," Rev. 3

Procedures
EN-DC-203, "Maintenance Rule Program," Rev. 0
EN-DC-204, "Maintenance Scope and Basis," Rev. 0
EN-DC-205, "Maintenance Rule Monitoring," Rev. 0
EN-DC-324, "Preventive Maintenance Process," Rev. 3
EN-LI-102, "Corrective Action Process," Rev. 10
2-COL-29.2, "Instrument Air System," Rev. 28
2-SOP-29.2, "Instrument Air System Operation," Rev. 23
ENN-DC-171, "Maintenance Rule Monitoring," Rev. 2

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
EN-WM-101, "On-Line Work Management Process," Rev. 1
IP-SMM-WM-100, "Work Control Process," Rev. 5
SPO-SD-09, "On-line Risk Assessment Process," Rev. 0
IP-SMM-WM-101, "On-Line Risk Assessment," Rev. 2
EN-MA-125, "Troubleshooting Control of Maintenance Activities," Rev. 3

Condition Report
IP2-2008-00148 IP2-2008-00860

Drawing
9321-F-2030-39, "Fuel Oil to Diesel Generators," 8/11/05

Miscellaneous
MI-11272C, "The FM/ALCO 251 Engine," Rev. 0
IP2-EDG DBD, "Emergency Diesel Generator Design Basis Document," Rev. 2

Work Order
00139634

Section 1R15: Operability Evaluations

Procedures
2-PT-Q093, "Instrument Air System," Rev. 0
0-STR-401-SWS, "Service Water Pump Strainers Inspection/Overhaul," Rev. 2
2-SOP-ESP-001, "Local Equipment Operation and Compensatory Actions," Rev. 1
2-E-2, "Faulted Steam Generator Isolation," Rev. 0
EN-OP-104, "Operability Determinations," Rev. 2
0-GNR-408-ELC, "Emergency Diesel Generator 12-Year Inspection," Rev. 2
IP-SMM-AD-102, "IPEC Implementing Procedure Preparation, Review and Approval," Rev. 4
OAP-026, "Determination of Operability," Rev. 0
EN-LI-102, "Corrective Action Process," Rev. 8

Calculation
IP-Calc-06-00373, "EDG fuel oil system," Rev. 0

Condition Reports

IP2-2008-00561	IP2-2008-00591	IP2-2008-00593	IP-2008-01090
IP2-2008-01021	IP2-2008-00860	IP2-2008-00758	IP-2008-01179

Drawings
A208485, "Indian Point #2 28" O.D. Pipe Main Steam Stop Valve," Rev. 8
B208473, "Indian Point #2 Disc Arm Assembly 28"-600# Swing Trip Valve," Rev. 2
9321-F-2030, "Fuel Oil to Diesel Generators," Rev. 39

Miscellaneous
PGI-00005-00, "Valve 571 IA Receiver Relief Valve"
PGI-00152-00, "IA-571 Replacement Piping Analysis"
MI-13024B, "Relief and Regulating Valves," Rev. 0
IP2-MS DBD, "Main Steam System Design Basis Document," Rev. 1
MI-11272C, "FM/ALCO 251 Engine," Rev. 0
IP2-EDG DBD, "Emergency Diesel Generator Design Basis Document," Rev. 2
MMF-PFT-01, "Basic Piping and Tubing," Rev. 2

Section 1R18: Plant Modifications

Completed Tests
2-PT-Q016, "Containment Fan Cooler Unit Cooling Water Flow Test," 2/28/08

Procedures
2-PT-Q016, "Containment Fan Cooler Unit Cooling Water Flow Test," Rev. 2
IP-SMM-AD-102, "IPEC Procedure Review and Approval Form," Rev. 5
EN-LI-100, "Process Applicability Determination," Rev. 4

Drawings
A209762, "Flow Diagram Service Water System Nuclear Steam Supply Plant," 1/14/88
Miscellaneous
0010384524, "Certificate of Calibration Panametrics Flowmeter PT868," 5/1/06
DRN 07-06234, "Containment Fan Cooler Unit Cooling Water Flow Test," Rev. 2

Section 1R19: Post-Maintenance Testing

Procedures
PT-Q59, "Containment Pressure Bistables," Revision 9
PT-2-M4, "Safety Injection System Train "A" Actuation Logic and Master Relay Test," Rev. 17
0-GNR-408-ELC, "Emergency Diesel Generator 12-Year Inspection," Rev. 2
PT-EM1, "TSC Filtration," Rev. 9
PT-EM1A, "TSC Charcoal Analysis," Rev. 3

Calculations
IP-Calc-06-00373, "EDG fuel oil system," Rev. 0

Condition Reports

IP2-2008-00860	IP2-2008-00824	IP2-2008-00856

Work Orders
139043-01
00140365

Drawings
110E089 Sheet 3 of 10, “Safeguards Actuation Schemes Cabinets E7, E8 & F7, F8”
225024-08, “Safeguards Actuation Containment Isolation, Vent & Spray – Train A”
226804, “TSC One Line Diagram Power for Unit 2,” Rev. 13
A226587, “TSC HVAC Flow Diagram,” Rev. 3
A226588, “TSC Part Plan El. 53 HVAC South Half,” Rev. 4
A226589, “TSC Part Plan El. 53 HVAC North Half,” Rev. 5
A226591, “TSC Part Plan El. 72 HVAC South Half,” Rev. 6
A226592, “TSC Part Plan El. 72 HVAC North Half,” Rev. 0
A226596, “TSC HVAC Sections Unit 2,” Rev. 3

Section 1R22: Surveillance Testing

Procedures
2-PT-M021C, “Emergency Diesel Generator 23 Load Test,” Rev. 14
2-PT-M067, “Technical Support Center Diesel,” Rev. 11
2-PT-M038A, “GT-1 Functional,” Rev. 6
2-PT-Q-016, “Containment Fan Cooler Unit Flow Test,” Rev. 2
2-PT-Q030B, “22 Containment Cooling Water Pump,” Rev. 18

Work Order
00136159

Condition Report
IP2-2008-00303

Section 1EP2: Alert and Notification System (ANS) Evaluation

Procedures
IP-EP-AD14, "Maintenance of the Indian Point Siren Electro-Mechanical System," Rev. 1
IP-EP-AD15, "ANS Siren System Administration," Rev. 1
MP-26-EPA-FAP10, "Public Alerting System Test and Repair," Rev. 0

Miscellaneous
"Alert and Notification Systems Design Report," August 1984
ANS Maintenance Logs 2007
Sample of Corrective Actions related to the sirens

Section 4OA1: Performance Indicator Verification

Procedures
EN-EP-201, "Performance Indicators," Rev. 6
EN-LI-114, “Performance Indicator Process,” Rev. 2
NEI 99-02, “Regulatory Assessment Performance Indicator Guideline,” Rev. 5
0-CY-2765, “Coolant Activity Limits - Dose Equivalent Iodine / Xenon and Average Energy (E-Bar),” Rev. 1

Section 4OA2: Identification and Resolution of Problems

Procedures

2-PT0M067, “Technical Support Center Diesel,” Rev. 11

2-PT0M067, “Technical Support Center Diesel,” Rev. 6
2-PT-V065, “TSC DG Auto Start Test,” Rev. 10
2-PT-A046, “TSC DG Blackout Test,” Rev. 1

Condition Reports

IP2-2006-00063	IP2-2007-00479	IP2-2005-02432	IP2-2006-00863
IP2-2006-04922	IP2-2006-06305	IP2-2005-02557	IP2-2003-05199
IP2-2003-05475			

Work Orders

IP2-05-26329	IP2-03-24600	IP2-05-26610	IP2-04-24491
IP2-07-11734			

Section 4OA3: Event Followup

Condition Reports

IP2-2008-01333	IP2-2008-01332	IP2-2008-01335	IP2-2008-01336
IP2-2008-01337	IP2-2008-01350	IP2-2008-01384	IP2-2008-01414

Procedures

2-AOP-FW-1, “Loss of Main Feedwater,” Rev. 9
2-E-0, “Reactor Trip or Safety Injection,” Rev. 0
2-ES-0.1, “Reactor Trip Response,” Rev. 0

LIST OF ACRONYMS

2R18	Unit 2 Refueling Outage 18
ADAMS	Agency-wide Document and Management System
AWG	American wire gage
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
EDG	emergency diesel generator
EDO	Executive Director of Operations
ENTERGY	Entergy Nuclear Northeast
FCU	Fan Cooler Unit
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IST	inservice testing
IPEC	Indian Point Energy Center
LER	Licensee Event Report
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
OA	Other Activities
PARS	Publicly Available Records System
PI	performance indicator
SDP	significance determination process
SSC	structures, systems, or components
SWP	service water pump
TSC	Technical Support Center
UFSAR	Updated Final Safety Evaluation Report
WO	work order