



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
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February 8, 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 05000247/2007005**

Dear Mr. Pollock:

On December 31, 2007, 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 January 10, 2008, with Mr. Anthony Vitale 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 four findings of very low safety significance (Green). Three of these findings were also determined to be violations of NRC requirements. Additionally, two licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of their very low safety significance, and because they were entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any 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. 220555-002; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; 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 or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS).

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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. 05000247/2007005
w/ Attachment: Supplemental Information

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Region I

Docket No.: 50-247

License No.: DPR-26

Report No.: 05000247/2007005

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 2

Location: 450 Broadway, GSB
Buchanan, NY 10511-0249

Dates: October 1, 2007 through December 31, 2007

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Enclosure

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SUMMARY OF FINDINGS

IR 05000247/2007-005; 10/01/07 – 12/31/07; Indian Point Nuclear Generating Unit 2; Fire Protection, Heat Sink, Maintenance Risk Assessment and Emergent Work Control, and Event Follow-up.

This report covered a three-month period of inspection by resident and region based inspectors. Four findings of very low significance (Green) were identified. Three of these findings were determined to be non-cited violations (NCVs). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 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: Initiating Events

- Green. A self-revealing finding was identified because Entergy did not implement corrective actions for an adverse condition associated with aging critical power supplies. The inspectors determined that the failure to implement corrective actions was a performance deficiency because it was contrary to the requirements of Entergy's procedure EN-LI-102, "Corrective Action Process." Entergy placed this issue in the corrective action program and initiated actions to replace all single-point vulnerable instrument power supplies and all high critical instrument power supplies at both Indian Point Unit 2 and Indian Point Unit 3 that have not been already replaced.

The inspectors determined this finding was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone; and, it impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety systems. Specifically, aging capacitors caused the failure of the power supply to the feedwater low suction pressure transmitter, which caused a reduction of main boiler feed pump speeds and resulted in operators initiating a manual reactor trip on February 28, 2007. The inspectors evaluated the significance of this finding using Phase 1 of IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." This finding was determined to be of very low safety significance (Green) because, while it was a transient initiator that resulted in a reactor trip, it did not contribute to the likelihood that mitigation equipment or functions would not be available. (Section 4OA3)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation (NCV) of Unit 2 License Condition 2.K. because Entergy failed to identify a degraded fire barrier in the emergency diesel generator (EDG) room. Specifically, the inspectors identified a backflow preventer valve in an EDG sump that could not perform its function due to a large allen wrench that was positioned in a manner that would prevent the valve from shutting. Entergy removed the tool, verified functionality of the valve, and entered this condition into the corrective action program.

The inspectors determined that this finding was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone; and, it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using Phase 1 of Inspection Manual Chapter (IMC) 0609 Appendix F, "Fire Protection Significance Determination Process." The inability of the backflow preventer valve to perform its function represented "moderate" degradation based on the size of the drain line, and the distance between the EDG sumps. The inspectors determined that this issue was of very low safety significance (Green) because the degradation of the fire barrier was "moderate," and there was a non-degraded automatic water-based fire suppression system in the affected fire area.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy personnel routinely conduct tours in the EDG building and had not identified the degraded condition of the backflow preventer valve. (P.1(a)) (Section 1R05)

Cornerstone: Barrier Integrity

- Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Entergy failed to implement effective corrective actions for a condition adverse to quality associated with reduced flow to the containment fan cooler units due to fouling, which resulted from exceeding the periodicity of preventive maintenance activities to clean and inspect the containment fan cooler units. On September 16, 2007, the 25 containment fan cooler unit was declared inoperable due to inadequate service water flow caused by partial fouling of the heat exchanger. Entergy implemented actions to restore service water flow to the 25 containment fan cooler unit, and they entered this issue into their corrective action program to schedule the maintenance on other containment fan cooler units and to evaluate the appropriate periodicity for the preventive maintenance activity.

The inspectors determined that this finding was more than minor because it was associated with the Structures, Systems, and Components and Barrier Performance attribute of the Barrier Integrity cornerstone; and, it impacted the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to take effective corrective actions to prevent exceeding the periodicity for the cleaning and inspection of the 25 containment fan cooler unit resulted in partial flow blockage to the component, and a reduction in flow below the value required by Technical Specifications. The inspectors evaluated this finding using IMC 0609, Appendix H, "Containment Integrity Significance Determination Process." This was determined to be a Type B finding because it potentially impacted containment integrity, but did not result in the increased likelihood of an initiating event. This finding was determined to be of very low safety significance (Green), because it did not impact a function that was important to large early release frequency. (Section 1R07)

- Green. The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy failed to implement corrective actions to monitor a condition adverse to quality associated with degradation of service water flow rates to the containment fan cooler units following the failure of surveillance test 2-PT-Q016,

“Containment Fan Cooler Unit Cooling Water Flow Test,” Revision 1, on September 16, 2007. Entergy’s corrective actions, which had been developed following failure of the 25 containment fan cooler unit to pass the surveillance flow acceptance criteria on September 16, 2007, included compensatory measures for operations personnel to monitor service water flow to the containment fan cooler unit and to increase the frequency of the quarterly surveillance test. Operations personnel recorded the five containment fan cooler unit service water flow rates in the unit narrative logs, but did not effectively monitor the service water flow rates. Consequently, Entergy failed to identify degrading service water flow and take action prior to the containment fan cooler units being rendered inoperable due to insufficient flow on October 14, 2007. Entergy entered this issue into the corrective action program and updated their action plan to begin systematic trending of service water flows to the containment fan cooler units until the next refueling outage.

The inspectors determined this finding was more than minor in accordance with IMC 0612, Appendix E, “Examples of Minor Issues,” Example 3.g, because the failure to implement a corrective action contributed to the service water flows being out-of-specification to all five containment fan cooler units. The inspectors evaluated this finding using IMC 0609, Appendix H, “Containment Integrity Significance Determination Process.” This was determined to be a Type B finding because it potentially impacted containment integrity, but did not result in the increased likelihood of an initiating event. This finding was determined to be of very low safety significance (Green), because it did not impact a function that was important to large early release frequency.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy did not effectively implement corrective actions for a condition adverse to quality associated with degradation of service water flow to containment fan cooler units. (P.1(d)) (Section 1R13)

B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee’s corrective action program. These violations and Entergy’s actions are described in section 4OA7 of this report.

REPORT DETAILS

Summary Of Plant Status

Indian Point Generating Unit 2 began the inspection period operating at full power and remained at or near full power throughout the inspection period.

1. REACTOR SAFETY**Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

1R04 Equipment Alignment (71111.04Q – 3 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 (CRs) 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 three inspection samples:

- Gas turbine 1 during gas turbine 3 maintenance on November 6, 2007;
- Service water following essential header swap on October 15, 2007; and
- Instrument air following maintenance on December 20, 2007.

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 Unit 2 auxiliary boiler feedwater system to verify the existing equipment lineup was correct. 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 auxiliary boiler feedwater system represented one inspection sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q – 9 samples)

a. Inspection Scope

The inspectors conducted a tour 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 are listed in the Attachment. This inspection represented nine inspection samples for fire protection tours, and was conducted in the following areas:

- Fire Zones 1, 2, and 2A;
- Fire Zones 90A and 91A;
- Fire Zones 11, 12, 13 and 24;
- Fire Zone 65A;
- Fire Zones 61A and 62A;
- Fire Zone 23;
- Fire Zone 10;
- Fire Zones 5, 5A, 6, 6A 7, 7A and 8; and
- Fire Zone 17.

b. Findings

Introduction: The inspectors identified a Green non-cited violation (NCV) of License Condition 2.K. because Entergy failed to identify a degraded fire barrier in the emergency diesel generator (EDG) building.

Description: During a fire protection walk-down in the EDG building, the inspectors noted a large allen wrench in the 22 EDG sump that was positioned in a manner which would prevent one of two backflow preventer valves from shutting. Three EDGs are in the building, each with its own sump. Each sump has two drains equipped with backflow preventer valves that prevent reverse flow from the common drain header for the EDGs from communicating with the EDG sump. The inspectors reviewed Entergy's Fire Hazards Analysis Report and noted that the backflow preventer valves were credited to prevent burning oil or other burning fluids from propagating a fire via the interconnecting drain system. The allen wrench was positioned such that one of the two valves would not have closed to perform this credited function.

The inspectors informed shift operations personnel of the issue. Plant operators removed the allen wrench, verified that the valve operated properly, and entered the issue into the corrective action program.

The inspectors determined that Entergy's failure to identify the degraded condition associated with the 22 EDG sump backflow preventer valve was contrary to License Condition 2.K. and constituted a performance deficiency.

Analysis: The inspectors determined that this finding was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone; and, it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using Phase 1 of Inspection Manual Chapter (IMC) 0609 Appendix F, "Fire Protection Significance Determination Process." The inability of the backflow preventer valve to perform its function represented "moderate" degradation based on the size of the drain line, and the distance between the EDG sumps. The inspectors determined that this issue was of very low safety significance (Green) because the degradation of the fire barrier was "moderate," and there was a non-degraded automatic water-based fire suppression system in the affected fire area.

The inspectors determined that the finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy personnel routinely conduct tours in the EDG building and had not identified the condition of the degraded fire barrier.
(P.1(a))

Enforcement: License Condition 2.K. requires that Entergy implement and maintain in effect all provisions of the NRC-approved fire protection program, as approved in part by the NRC Safety Evaluation Report dated January 31, 1979. The Safety Evaluation Report requires administrative controls comparable to those described in NRC Branch Technical Position 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976." Branch Technical Position 9.5-1 requires that measures be established to assure that conditions adverse to fire protection, such as deficiencies, deviations, defective components, and non-conformances are promptly identified, reported, and corrected. Contrary to License Condition 2.K., Entergy failed to promptly identify the degraded condition of the 22 EDG sump backflow preventer valve. Once identified by the inspectors, Entergy initiated CR-IP2-2007-04332, documenting the deficiency in their corrective action program. Because the violation was of very low safety significance and it was entered into the corrective action program, this violation is being treated as a non-cited violation per Section VI.A of the NRC Enforcement Policy.
(NCV 05000247/2007005-01, Failure to Identify Degraded Fire Barrier in EDG Building)

1R07 Heat Sink Performance (71111.07 – 1 sample)

a. Inspection Scope

The inspectors evaluated maintenance activities, and reviewed performance data associated with the containment fan cooler units. 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. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: A self-revealing Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Entergy failed to implement effective corrective actions for a condition adverse to quality associated with reduced flow to the containment fan cooler units due to fouling, which resulted from exceeding the periodicity of preventive maintenance activities to clean and inspect the containment fan cooler units.

Description: On September 16, 2007, the 25 containment fan cooler unit was declared inoperable due to inadequate service water flow to ensure the component could perform its design basis function. Entergy determined the cause of the reduced service water flow was due to partial fouling of the containment fan cooler unit heat exchanger.

The inspectors reviewed past maintenance activities associated with the 25 containment fan cooler unit and determined the last cleaning and inspection was performed on April 8, 2000. The scheduled periodicity for this preventive maintenance activity was every six years. This preventive maintenance was scheduled to be performed during the March 2006 outage; however, it was removed from the outage scope and changed to be performed on-line following the outage. Following the completion of the outage, Entergy determined that this preventive maintenance could not be accomplished with the plant at power, and deferred it to the spring 2008 outage. Entergy determined this was acceptable because the maintenance would still be performed in its grace period.

The inspectors reviewed previous CRs associated with the 25 containment fan cooler unit and identified that a previous concern with exceeding the six-year periodicity was identified in CR IP2-2000-8452. The CR noted that, when near the six-year point, the service water throttle valve to the 25 containment fan cooler unit was full open, therefore the six-year periodicity was appropriate, but exceeding six years would result in a flow reduction to less than that required to perform its safety function. Based on this CR, the preventive maintenance was added to the 2000 outage scope. However, no actions were taken to ensure that the grace period would not be used at a later date. Additionally, the surveillance which adjusted the throttle valve position was removed from the preventive maintenance program based on the assumption that the quarterly flow test would provide equivalent data. However, the quarterly test results were not trended, therefore degrading flow would not result in adjusting the throttle valve position until the flow was below that required to ensure the component could perform its safety function.

On April 8, 2006, the containment fan cooler units exceeded the six-year clean and inspect periodicity. On September 16, 2007, the 25 containment fan cooler unit was declared inoperable due to partial fouling of the containment fan cooler unit's heat exchanger that resulted in containment fan cooler unit service water flow below the Technical Specification (TS) required value. The inspectors determined that the failure to take effective corrective action for an identified degraded condition associated with reduced flow to the containment fan cooler units due to fouling, which resulted from exceeding the periodicity of the preventive maintenance activities, was a performance

deficiency and did not meet the requirements of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions".

Analysis: The inspectors determined that this finding was more than minor because it was associated with the Structures, Systems, and Components and Barrier Performance Attribute of the Barrier Integrity cornerstone; and, it impacted the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to take effective corrective actions to prevent exceeding the periodicity for the cleaning and inspection of the 25 containment fan cooler unit resulted in partial flow blockage to the component, and a reduction in flow below the value required by Technical Specifications. The inspectors evaluated this finding using IMC 0609, Appendix H, "Containment Integrity Significance Determination Process." This was determined to be a Type B finding because it potentially impacted containment integrity, but did not result in the increased likelihood of an initiating event. This finding was determined to be of very low safety significance (Green), because it did not impact a function that was important to large early release frequency.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, on November 1, 2000, Entergy closed CR-IP2-2000-8452 without implementing corrective actions for a condition adverse to quality associated with reduced flow to the containment fan cooler units due to fouling which resulted from exceeding the periodicity of preventive maintenance activities. On April 8, 2006, the 25 containment fan cooler unit exceeded the six-year preventive maintenance periodicity. Consequently, on September 16, 2007, service water flow to the 25 containment fan cooler unit degraded to less than that required by Technical Specifications. Entergy entered this issue into the corrective action program as CR IP2-2007-03706 and implemented actions to restore service water flow, schedule the preventive maintenance, and evaluate the appropriate periodicity for the preventive maintenance. 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 05000247/2007005-02, Failure to Implement Corrective Actions to Prevent Exceeding Preventive Maintenance Frequency for 25 Containment Fan Cooler Unit)**

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

a. Inspection Scope

On October 16, 2007, 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." This observation of operator simulator training represented one inspection sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12 – 2 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. 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 two inspection samples:

- Control rod drive mechanism fans; and
- Unit 2 heating, ventilation, and air conditioning for the central control room.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed maintenance activities to verify that the appropriate risk assessments were performed prior to removing equipment for work. 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:

- 23 battery low cell voltage;
- 21 main boiler feed pump speed control oscillations;
- 13.8 kilovolt bus section 2 outage; and

- Degraded service water flow.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy failed to implement corrective actions to monitor a condition adverse to quality associated with degradation of service water flows to the containment fan cooler units following the failure of surveillance test 2-PT-Q016, "Containment Fan Cooler Unit Cooling Water Flow Test," Revision 1, on September 16, 2007.

Description: On September 16, 2007, quarterly surveillance test 2-PT-Q016 failed due to low service water flow to the 25 containment fan cooler unit, and the 25 containment fan cooler unit was declared inoperable. Entergy determined that the likely cause was degraded flow and partial blockage of the containment fan cooler unit heat exchanger, as documented in CR IP2-2007-03706. Following system flow balancing efforts, the operability evaluation specified that operations was to initiate a special log to monitor service water flows to the containment fan cooler unit on a daily basis until the next refueling outage. This action was put in place as a compensatory measure to ensure further degradation could be identified and actions taken before reduced flow resulted in inoperability of the safety-related containment fan cooler units. Entergy planned to complete the long-term corrective action of cleaning and inspecting the containment fan cooler units during the next refueling outage in the spring of 2008.

On September 20, 2007, Entergy initiated a special log with the stated purpose of "monitoring service water system flow to 25 containment fan cooler unit...to confirm continued compliance with TS [Technical Specifications] Surveillance Requirement (SR) 3.6.6.3;" the minimum service water containment fan cooler unit flow requirement. EN-OP-115, "Conduct of Operations," Revision 5, Section 5.10(4), Equipment Monitoring, requires operations personnel to review several consecutive readings of suspect parameters to facilitate short-term trending and early degradation of systems. In addition, EN-OP-115, Section 5.10(8), requires operations personnel to identify unusual or unexpected situations or conditions which warrant additional attention or corrective actions, and to report indications of changing equipment conditions so that degrading performance can be investigated and corrected. Entergy commenced recording service water flow data on September 20, 2007, but failed to effectively monitor or trend the recorded data in accordance with EN-OP-115. Subsequently, on October 14, 2007, the scheduled 2-PT-Q016 surveillance test identified inadequate service water flows to all five containment fan cooler units, rendering the containment fan cooler unit system inoperable. Entergy reviewed the data that was available to operators prior to the failed surveillance test and concluded that not enough information existed to identify a decreasing trend in system performance. However, when the inspectors reviewed the available recorded data, the inspectors determined that a negative trend in system performance data was apparent from October 11 through 14, 2007. Specifically, the inspectors noted progressive decreases in recorded flows to the containment fan cooler unit from October 11 through 14, 2007. In addition, containment fan cooler unit flow data is indicated on meters in the control room, readily available to operators, and degrading system performance should have been identified by the operators.

Entergy entered this issue into the corrective action program (CR IP2-2007-03706) and instituted trending of service water flows to the containment fan cooler units by

operations personnel. Corrective actions were also issued to evaluate the failure to perform effective monitoring of the data, as previously specified. Additionally, following inoperability of the containment fan cooler units on October 14, 2007, Entergy verified operability of the service water system by performing testing on service water pump discharge check valves, inservice testing of the 23 service water pump, inspection and testing of the 23 service water pump strainer, and re-performing the 2-PT-Q016 surveillance to verify normal system parameters.

The inspectors determined that this issue was a performance deficiency because Entergy failed to effectively implement corrective actions to address a condition adverse to quality associated with service flow to the containment fan cooler units. This finding was reasonably within Entergy's ability to foresee and prevent, because Entergy had established a requirement on September 20, 2007, that operations monitor service system flows to the containment fan cooler units for degradation, per the Operability Evaluation of condition report IP2-2007-03706, to confirm continued compliance with TS SR 3.6.6.3. The service water flow indications to the containment fan cooler units were recorded but were not effectively monitored, and the inadequate service water flows identified on October 14, 2007 were apparent from trend analysis over the period 11 through 14 October, 2007.

Analysis: This finding was more than minor because it was similar to IMC 0612 Appendix E, "Examples of Minor Issues," Example 3.g, in that, the failure to implement a corrective action contributed to the service water flows being out-of-specification to all five containment fan cooler units. The inspectors evaluated this finding using IMC 0609, Appendix H, "Containment Integrity Significance Determination Process." This was determined to be a Type B finding because it potentially impacted containment integrity, but did not result in the increased likelihood of an initiating event. This finding was determined to be of very low safety significance (Green), because it did not impact a function that was important to large early release frequency.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy did not effectively implement corrective actions for a condition adverse to quality associated with degradation of service water flow to containment fan cooler units. (P.1(d))

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, from September 20, 2007, through October 14, 2007, Entergy failed to effectively implement corrective actions for a condition adverse to quality associated with degradation of service water flow to the containment fan cooler units following the failure of surveillance test 2-PT-Q016, on September 16, 2007. Specifically, Entergy did not effectively implement daily monitoring of service water flows to the containment fan cooler units, which resulted in the failure to identify degrading service water flow and take action prior to the containment fan cooler units being rendered inoperable due to insufficient flow. Entergy entered this issue into the corrective action program (CR IP2-2007-03706) and instituted trending of service water flows to the containment fan cooler units by operations personnel. 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 05000247/2007005-03, Failure to Implement**

Corrective Actions for Degraded Containment Fan Cooler Unit Service Water Flow)

1R15 Operability Evaluations (71111.15 – 4 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. The documents reviewed are listed in the Attachment. The following operability evaluations were reviewed and represented four inspection samples:

- CR IP2-2007-4008, 21 reactor coolant pump standpipe lowering level;
- CR IP2-2007-4142, 23 service water pump degraded pressure;
- CR IP2-2007-4518, 26 service water pump due to foreign material entry; and
- CR IP2-2007-4905, 21 and 22 EDG incorrect jacket water and lube-oil control elements.

b. Findings

No findings of significance were identified.

The inspectors identified an unresolved item (URI) concerning incorrect temperature control valve elements installed on the 21 and 22 EDG jacket water and lube oil systems. The original EDG design required 170°F temperature control elements in the jacket water system three-way temperature control valve and 180°F temperature control elements in the lube oil system three-way temperature control valve to maintain EDG jacket water and lube-oil systems within the required temperature bands. The respective three-way valves control the inlet temperatures to the jacket water cooler and the lube oil cooler by sending or bypassing jacket water or lube oil to each system's cooler. The EDG jacket water and lube oil coolers are cooled by the service water system. In 1989, the EDG design was modified by DER-1691, "Engineering Evaluation of Increasing Overloading Capacity on the Emergency Diesel Generators," which specified, in part, that 180°F temperature control elements be installed in the jacket water system and 195°F temperature control elements be installed in the lube oil system to account for an EDG power up-rate and a 10°F increase in design basis ultimate heat sink temperature. The 180°F and the 195°F control elements assured EDG operability during a 30 minute period at a rating of 2300 kilowatt (kw) and a higher design basis service water temperature of 95°F. The original 170°F and 180°F control elements were designed for a maximum short-term loading of 1950kw and a maximum service water temperature of 85°F. Following completion of the EDG upgrades, on October 26, 2002, the original 170°F jacket water control elements and 180°F lube oil control elements were incorrectly installed on the 22 EDG under WO 02-33401. The incorrect jacket water and lube oil control elements were also installed on the 21 EDG on February 27, 2003, under WO 01-22824.

Based on the available information, the inspectors were unable to verify the impact on EDG performance with the incorrect control elements installed due to a number of other upgrades that were also made to the EDGs under DER-1691. Some of these included upgraded heat exchangers on the jacket water and lube oil systems, an upgraded exhaust manifold, and upgrades to the EDG ventilation system. Entergy has contracted with a vendor to perform an analysis to determine the actual impact on past operability of having the original 170°F control elements in the jacket water system and the 180°F control elements in the lube-oil system based on actual service water temperatures that have been observed. The EDGs are currently operable because service water temperatures are substantially below the original service water design temperature of 75°F. In addition, Entergy initiated actions to install the correct control elements in the two affected EDGs prior to service water temperatures exceeding 75°F in 2008. The impact of incorrect jacket water and lube-oil control elements on the 21 and 22 EDGs will be an unresolved item pending NRC review of Entergy's analysis of past operability. **(URI 05000247/2007005-04, Impact of Incorrect Jacket Water and Lube Oil Control Elements on EDG Performance)**

1R17 Permanent Modifications (71111.17 – 1 sample)

a. Inspection Scope

The inspectors reviewed plant drawings and modification documentation associated with the power supply to the fuel storage building gantry (Ederer) crane. The inspectors conducted field walkdowns to verify the as-built configuration complied with the modification package, DCP 03-2-132, "New Power Feed for Ederer Crane." The inspectors reviewed applicable regulatory and industry standards to ensure the power supply configuration complied with current industry standards and requirements.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 – 9 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." Documents reviewed are listed in the Attachment. The following post-maintenance activities were reviewed and represented nine inspection samples:

- WO 51205446, isolation valve seal water valve SOV-3516 following repair;

- WO 51307035, safety injection valve SI-MOV-866D following maintenance;
- WO 51319018, containment fan cooler unit flow verification following corrective maintenance;
- WO 51320530, 24 reactor coolant system cold leg temperature transmitter following replacement;
- WO 00126334, 23 service water pump strainer following corrective maintenance;
- WO 00126362(01), steam flow / feed flow bistable following replacement;
- WO 00132002, main steam isolation valve MS-3C following corrective maintenance;
- WO 00133637, retest following vapor containment pressure transmitter replacement; and
- WO 51326056, refueling floor dry cask crane following rotary limit switch corrective maintenance.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – 5 samples)

a. Inspection Scope

The inspectors witnessed performance of surveillance test and/or reviewed test data of selected risk-significant structures, systems and components 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 five inspection samples:

- 2-PT-Q61, "Main Steam Line Pressure Bistables," Revision 12;
- 2-PT-Q026C, "23 Service Water Pump," Revision 12;
- 2-PT-Q35B, "22 Containment Spray Pump Test," Revision 14;
- 2-PT-SA067, "Main Turbine Stop and Control Valves Exercise Test," Revision 4;
- 0-SOP-LEAKRATE-001, "RCS Leakage Surveillance, Evaluation; and Identification," Revision 0.

a. Findings

No findings of significance were identified.

1R23 Temporary Modifications (71111.23 – 1 sample)

a. Inspection Scope

The inspectors reviewed a modification (Engineering Change #4222) and installation packages (WOs 128820-08 and 128820-10) associated with the installation of temporary fine screens on the 27 and 28 service water inlet bays during de-silting operations on the pump suction side of the intake structure. The inspectors reviewed the design basis of the as-built configuration to ensure the temporary screens would provide similar performance. The inspectors conducted a field walkdown of the temporary screens following installation to ensure the installation was completed in accordance with the modification documentation. The inspectors reviewed the compensatory measures in place to monitor the temporary screen performance and evaluated operations, engineering and maintenance activities to validate that required information was being collected and reviewed.

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)

An on-site review was conducted to assess the maintenance and testing of Entergy's ANS. During this inspection, the inspectors interviewed site emergency preparedness (EP) staff responsible for implementation of the ANS testing and reviewed condition reports (CRs) pertaining to the ANS for causes, trends, and corrective actions. The inspectors reviewed Entergy's original ANS design report to ensure compliance with those commitments for system maintenance and testing. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 2, "Alert and Notification System Testing." Planning standard 10 CFR 50.47(b)(5) and the related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

In addition to the above baseline inspection, additional inspection was conducted in accordance with the baseline inspection program deviation authorized by the NRC Executive Director of Operations (EDO) in a memorandum dated October 31, 2005, and renewed by the EDO in a memorandum dated December 11, 2006. A new ANS is being installed around the Indian Point Energy Center to satisfy commitments documented in an NRC Confirmatory Order dated January 31, 2006, that implements the requirements outlined in the 2005 Energy Policy Act. Throughout this quarter, inspectors monitored Entergy's efforts to design the new ANS and develop an installation schedule. The inspectors also inspected the status of, and corrective actions for, the current ANS to assure that Entergy was appropriately maintaining the system. Inspectors were on-site on November 28, 2007, to observe and verify the performance of the current ANS during the annually-conducted full-volume test of the current ANS. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System

a. Inspection Scope (71114.03 – 1 Sample)

A review of Indian Point's ERO augmentation staffing requirements and the process for notifying the ERO was conducted. This was performed to ensure the readiness of key staff for responding to an event and to ensure timely facility activation. The inspectors reviewed procedures, CRs, and drills associated with the ERO notification system. The inspectors interviewed personnel responsible for testing the ERO augmentation process. The inspectors compared qualification requirements to the training records for a sample of ERO members. The inspectors also verified that the EP department staff were receiving required training as specified in the Emergency Plan. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 3, "Emergency Response Organization Augmentation." Planning standard 10 CFR 50.47(b)(2) and related requirements of 10 CFR 50, Appendix E were used as reference criteria. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes

a. Inspection Scope (71114.04 – 1 Sample)

Since the last NRC inspection of this program area, Entergy implemented the latest Emergency Plan Revision following a determination, in accordance with 10 CFR 50.54(q), that the changes resulted in no decrease in effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. The inspectors conducted a sampling review of the Emergency Plan changes, and all changes to Emergency Action Levels, to identify potential decreases in effectiveness of the Emergency Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses

a. Inspection Scope (71114.05 – 1 Sample)

The inspectors reviewed self-assessments and audit reports to assess Entergy's ability to evaluate their performance and programs. The inspectors reviewed CRs initiated from January 2006 to November 2007, at Indian Point, from drills, self-assessments, and

audits for 2006 and 2007 as required by 10 CFR 50.54(t). This inspection was conducted according to NRC Inspection Procedure 71114, Attachment 5, "Correction of Emergency Preparedness Weaknesses and Deficiencies." Planning standard 10 CFR 50.47(b)(14) and the related requirements of 10 CFR 50, Appendix E were used as reference criteria. Documents reviewed are listed in the Attachment.

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 October 24, 2007. 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, 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.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

a. Inspection Scope (71121.03 - 9 samples)

During the period of November 26 through 30, 2007, the inspectors conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation, and the adequacy of the respiratory protection program for issuing self contained breathing apparatus (SCBA) to emergency response personnel. Implementation of these programs was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Entergy's procedures.

- 1) The inspectors reviewed the UFSAR sections describing the liquid radwaste system, solid radwaste system, and gaseous radwaste system to identify applicable radiation monitors associated with transient high radiation areas in the plant for review.

- 2) The inspectors verified that the radiation protection (RP) instrument issue area provided for the selection of appropriate portable RP instruments for use during work in radiologically significant areas.
- 3) Current calibration records and applicable calibration procedures were reviewed for the following plant radiation monitors and portable RP instruments. In addition, the applicable calibrators utilized were reviewed for appropriate instrument calibration geometries and National Institute of Standards and Technology (NIST) standard traceability.

Unit 2 Plant Radiation Monitors

- Main steam line radiation monitors (R-28, R-29, R-30, and R-31)
- Refuel floor area radiation monitor (R-5)
- Containment high-range radiation and noble gas monitors (R-25, R-26)
- Gaseous and particulate containment radiation monitors (R-42, R-41)
- In-core area radiation monitor (R-7)
- Steam generator blowdown radiation monitor (R-49)

Unit 3 Plant Radiation Monitors

- Steam line radiation monitors (R-62A, R-62B, R-62C, and R-62D)
- Refuel floor area radiation monitor (R-5)
- Containment high-range radiation and noble gas monitors (R-25, R-26)
- Gaseous and particulate containment radiation monitors (R-12, R-11)
- In-core area radiation monitor (R-7)
- Steam generator blowdown radiation monitor (R-19)

Portable RP Instruments

- 55 electronic dosimeters
- 8 radiation survey instruments
- 6 extendable probe survey instruments
- 3 neutron radiation survey instrument
- 2 continuous air monitors
- 10 portal monitors
- 2 beta and alpha air sample counters
- 2 whole body counters

Calibrators

- 2 Shepherd 81-12B beam source calibrators
 - 1 Shepherd 142-10 panoramic calibrator
 - 1 Shepherd 149 neutron source calibrator
 - 1 Shepherd 1000B box source calibrator
- 4) Radiological incidents involving internal exposures identified by condition reports were reviewed for 2007. In addition, dosimetry electronic records were queried for any internal exposures greater than 50 millirem committed effective dose equivalent. None were identified for further review.

- 5) The inspectors reviewed nine condition reports initiated between July 2007 and November 2007, relative to the radiation protection program. The inspectors verified that problems identified by these CRs were properly characterized in Entergy's event reporting system, and those applicable causes and corrective actions were identified commensurate with the safety significance of the occurrences.
- 6) Based on the condition reports reviewed, no repetitive deficiencies were identified for further follow-up.
- 7) With respect to the RP portable instruments listed in 3) above, the inspectors reviewed instruments' calibration expiration and response check stickers. The inspectors also reviewed applicable response check beta-source and instrument sign-out procedures.
- 8) Emergency plan-specified self contained breathing apparatus (SCBA) equipment and qualified users were sampled based on Indian Point Energy Center Emergency Plan documents, (IP-EP-AD6, IP-EP-AD6-20, IP-EP-AD6-21). This included inspection of selected SCBAs and air bottle cascade systems located inside or adjacent to both the Unit 2 and Unit 3 main control rooms. SCBA qualification records for all on-shift reactor operators were verified for currency.
- 9) The inspectors examined selected SCBA units for periodic air cylinder hydrostatic testing and maintenance records. Additionally, the inspectors reviewed documentation of replacement parts and certification of the repair personnel.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety (PS)

2PS2 Radioactive Materials Processing and Shipping (71122.02 – 6 Samples)

a. Inspection Scope

During the period of October 1 through 5, 2007, the inspectors conducted the following activities to verify that Entergy's radioactive material processing and transportation programs complied with the requirements of 10 CFR 20, 61, and 71; and Department of Transportation (DOT) regulations 49 CFR 170-189.

- (1) The inspectors reviewed the solid radioactive waste system description in the updated final safety analysis report (UFSAR), and the 2005 and 2006 radiological effluent release data. This information was reviewed for information on the types and amounts of radioactive waste disposed, and the scope of Entergy's audit program to verify that it meets the requirements of 10 CFR 20.1101.
- (2) The inspectors walked-down the liquid and solid radioactive waste processing systems of Units 1, 2 and 3 to verify whether the current system configuration and operation were consistent with the descriptions contained in the UFSAR and in the process control

program (PCP). The inspectors reviewed the status of any radioactive waste process equipment that was not operational and/or was abandoned in place, to verify that the changes were reviewed and documented in accordance with 10 CFR 50.59, as appropriate. The inspectors reviewed the current processes for transferring and dewatering of radioactive waste resin and sludge discharges into shipping/disposal containers to determine if appropriate waste stream mixing and/or sampling procedures, and methodology for waste concentration averaging provide representative samples of the waste product for the purposes of waste classification, as specified in 10 CFR 61.55 for waste disposal.

- (3) The inspectors reviewed the radio-chemical sample analysis results for each of Entergy's radioactive waste streams, and reviewed the use of scaling factors and calculations associated with these radioactive waste streams to account for difficult-to-measure radio-nuclides. The inspectors reviewed Entergy's program to ensure that the waste stream composition data accounts for changing operational parameters, and therefore, remains valid between the annual or biennial sample analysis update. The inspectors also verified that Entergy's program assures compliance with 10 CFR 61.55 and 10 CFR 61.56, as required by Appendix G of 10 CFR 20.
- (4) The inspectors observed shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifests, shipping papers provided to the driver, and licensee verification of shipment readiness; verified that the receiving licensee is authorized to receive the shipment packages; and, observed radiation workers during the preparation and shipment of dry active waste (DAW) shipment number 07-328 on October 3, 2007, to Duratek. The inspectors verified that the shipper was knowledgeable of the shipping regulations and that shipping personnel demonstrated adequate skills to accomplish the package preparation requirements for public transport with respect to NRC Bulletin 79-19, "Packaging of Low-Level Radioactive Waste for Transport and Burial," and 49 CFR 172 Subpart H. The inspectors also verified that Entergy's training program provides training to personnel responsible for the conduct of radioactive waste processing and radioactive material shipment preparation activities.
- (5) The inspectors sampled the following non-excepted package shipment records and reviewed these records for compliance with NRC and DOT requirements:
 - 06-052, resin liner to Studsvik on March 6, 2006;
 - 06-078, resin liner to Studsvik on March 22, 2006;
 - 06-089, reactor coolant pump motor to Curtis Wright/EMD on March 31, 2006;
 - 06-093, DAW to Duratek on April 3, 2006;
 - 06-112, filter liner to Studsvik on April 20, 2006;
 - 07-032, storm drain waste to Studsvik/Race on January 29, 2007;
 - 07-113, DAW to Duratek on March 12, 2007;
 - 07-177, resin liner shipment to Studsvik on May 1, 2007;
 - 07-323, resin liner shipment to Studsvik on September 26, 2007; and
 - 07-328, DAW shipment to Duratek on October 3, 2007.
- (6) The inspectors reviewed Entergy's Licensee Event Reports, Special Reports, audits, State agency reports, and self-assessments related to the radioactive material and transportation programs performed since the last inspection, to verify that identified problems were entered into the corrective action program for resolution.

- (7) The inspectors reviewed eight condition reports that were initiated between July 2005 and October 2007 that were associated with the radwaste transportation program. The inspectors verified that problems identified by these CRs were properly characterized in Entergy's event reporting system, and that the applicable causes and corrective actions were identified commensurate with the safety significance of the occurrences.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151 – 10 samples)

a. Inspection Scope

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

Mitigating Systems Cornerstone

- Mitigating Systems Performance Index – Heat Removal System (July 2006 to September 2007)
- Mitigating Systems Performance Index – Cooling Water (July 2006 to September 2007)

The inspectors reviewed data and plant records from July 2006 to September 2007. The records included PI data summary reports, licensee event reports, operative 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.

Emergency Preparedness Cornerstone

- Drill and Exercise Performance (DEP)
- Emergency Response Organization Drill Participation
- Alert and Notification System Reliability

The inspectors reviewed data and plant records from October 2006 to September 2007. The records included PI data summary reports, licensee event reports, operative 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.

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness

The inspector reviewed implementation of the licensee's Occupational Exposure Control Effectiveness PI program. Specifically, the inspector reviewed CRs, and radiological controlled area dosimeter exit logs for the past four calendar quarters. These records were reviewed for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures against the criteria specified in Nuclear Energy Institute 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 5, to verify that all occurrences that met the NEI criteria were identified and reported as performance indicators.

Public Radiation Safety Cornerstone

- Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences

The inspector reviewed a listing of relevant effluent release reports for the past four calendar quarters, for issues related to the public radiation safety PI, which measures radiological effluent release occurrences per site that exceed 1.5 millirem/quarter whole body dose or 5.0 millirem/quarter organ dose for liquid effluents; 5 millirads/quarter gamma air dose, 10 millirad/quarter beta air dose, and 7.5 millirads/quarter for organ dose for gaseous effluents.

The inspector reviewed the following documents to ensure the licensee met all requirements of the performance indicator.

- Monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases
- Quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases
- Dose assessment procedures

Physical Protection Cornerstone

- Fitness-for-Duty
- Personnel Screening
- Protected Area Security Equipment

The review included Entergy's tracking and trending reports, personnel interviews and security event reports for the PI data collected since the last security baseline inspection.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 – 4 samples)

.1 Routine PI&R 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 (CRs), and attending CR screening meetings.

In accordance with the baseline inspection procedures, 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, the adequacy of the cause analysis, extent of condition reviews, and operability determinations, and the timeliness of the associated corrective actions. The CRs reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 PI&R Annual Sample Review: Semi-Annual Trend Review (71152 - 1 sample)

a. Inspection Scope

The inspectors performed a semi-annual review to identify trends that might indicate the existence of a more significant safety issue. The inspectors included in this review, repetitive or closely-related issues that may have been documented by Entergy outside of the corrective action program, such as trend reports, PIs, major equipment problem lists, maintenance rule assessments, and maintenance or corrective action program backlogs.

The inspectors reviewed Entergy's corrective action program database for the third and fourth quarters of 2007 to assess the total number and significance of CRs written in various subject areas, such as individual department-generated CRs, or for particular equipment, such as EDGs, to identify notable trends, if applicable. The inspectors also reviewed Entergy's corrective action program quarterly trend reports and nuclear oversight quarterly reports for the second and third quarters of 2007, to ensure Entergy was appropriately evaluating and trending adverse conditions.

b. Assessment and Observations

No findings of significance were identified.

The inspectors determined that Entergy was appropriately identifying and evaluating trends from identified adverse conditions and other available data. However, Entergy has been slow to respond to some issues that involve degraded systems and

components which escalate within the trending process until they become adverse trends and require more substantial corrective action, e.g. service water system leaks.

.3 PI&R Annual Sample Review: Procedure Upgrade Project (71152 - 1 sample)

a. Inspection Scope

In the NRC's Annual Assessment Letter for Indian Point Units 2 and 3, dated March 2, 2007, the NRC identified a substantive cross-cutting issue in the area of human performance at Unit 2 due to the number of inspection findings that were attributable to procedure adequacy over the assessment period. In June 2007, the NRC performed a PI&R annual sample review of Entergy's progress in addressing the substantive cross-cutting issue. The inspectors identified concerns with the effectiveness of Entergy's implementation of their corrective action plan and documented these observations in NRC inspection report 05000247/2007003, Section 4OA2.4. On August 31, 2007, the NRC issued the Mid-Cycle Performance Review letter for Indian Point Units 2 and 3. The letter stated that Entergy had not met the criteria for clearing the cross-cutting issue due to a lack of demonstrated sustainable performance improvement as evidenced by effective implementation of an appropriate corrective action plan.

The inspectors reviewed Entergy's corrective action plan to address this issue. The inspectors reviewed the scope of procedures included in the upgrade project in the areas of Maintenance, Instrumentation and Control, and Operations. The inspectors evaluated Entergy's project plan to determine if the procedure change scope adequately addressed the previously identified concerns. The inspectors reviewed a sample of completed procedures in each of the disciplines to assess the effectiveness of Entergy's review and change process. The inspectors reviewed Entergy's work-down curves to assess the timeliness of the project completion dates and evaluated the current status of the project to assess timeliness of the corrective actions to date. The inspectors also reviewed Entergy's self assessments of the upgrade project to ensure they were self-critical, identified problems at the appropriate threshold, and that corrective actions were implemented to address any identified concerns. In addition, the inspectors reviewed Entergy's project metrics to ensure they were effective in monitoring progress and in proactively identifying areas of concern. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings of significance were identified.

However, several observations and deficiencies were noted by the inspectors. The inspectors determined that the scope of procedures included in the upgrade project was appropriate to address the identified concerns. The inspectors noted that in the area of operations, the number of procedures requiring evaluation within project scope had only been recently fully determined, approximately one year after the start of the project. Therefore, the total work load was not previously well understood. The inspectors reviewed Entergy's process to assess their review strategy for the procedures within the project scope, and the types of changes driven by that process in the areas of best practices, level of detail and human performance error traps. The inspectors determined that the review strategy appeared effective in driving the required changes to address the adequacy of the procedures within the project scope.

The inspectors evaluated Entergy's implementation of the project plan by reviewing Entergy's progress through November 2007, and evaluating Entergy's work-off curves and expected project completion dates in each of the areas. The inspectors determined that minimal progress had been made in the area of operations since inception of the first project plan created in October 2006. Progress in the area of operations procedures did not reflect effective implementation of the project plan to date.

The inspectors identified several underlying causes for this lack of progress. For example, the inspectors noted that the overall project plan was well defined, but the detailed, lower tier processes to implement the plan and the scope of procedural changes necessary to achieve success were not well established prior to commencing the upgrade project in this area. The inspectors also noted that communications problems between management and the work groups resulted in delays due to process inefficiencies. In addition, the metric used to evaluate project progress in this area was not reflective of actual work completion.

Entergy's work-off curve in the operations area showed that the project goal for completed procedures had been met for the previous six months. The inspectors' review of the 147 procedures credited as complete identified that 28 of those had been de-scoped from the project and 58 had been voided before inception of the project but still included in the work-off curve as within scope. A total of 61 procedures were identified as complete through actual productive effort within the project, and the majority of these had been completed in October and November 2007. Of those, 15 procedures had been revised, 30 had been reviewed and determined that no revision was needed, and 16 had been voided based on the procedure revisions. The inspectors determined that based on actual completed work, the work-off goal had only been achieved for two months, not six months as indicated. The inspectors determined that this impacted management's ability to effectively monitor project progression.

The inspectors reviewed three self-assessments completed by Entergy in 2007. The inspectors noted that the first self-assessment, completed in the first quarter of 2007, did not include operations because no product had been generated from within that group. The inspectors determined that this was a missed opportunity for early identification of concerns associated with the development of the lower tier processes within that group. The other two assessments identified a common concern associated with resource allocation and adequate skills of the staff. In the area of operations the project had been hampered by a lack of skilled word processors, which resulted in a backlog of procedures that have been outlined and awaiting construction. The inspectors determined that Entergy had been slow to address this identified concern. This had a negative impact on procedure production rates. In addition, this resulted in the procedure prioritization moving away from a risk-based focus and toward work on lower level procedures that did not require significant change to complete. At the end of the inspection period, Entergy was still developing a plan to provide sufficient resources to meet production goals for 2008 in the area of operations.

The inspectors also identified a concern with the implementation of the instrumentation and controls procedures portion of the project due to the extended timeline for completion and the associated screening strategy in place to minimize risk. Entergy currently projects completion of the instrumentation and controls portion of the procedure upgrade project in 2014; therefore, Entergy applied a screening strategy to prioritize the

procedures needing revision. However, the inspectors determined that the screening methodology was not robust; in that, it only considered whether there were past problems with a specific procedure, rather than positively validating the adequacy of the procedure. Additionally, the inspector assessed that the project completion dates appeared to be driven primarily by the available resources, rather than the associated risk.

.4 PI&R Annual Sample Review: Safety Conscious Work Environment Corrective Actions (71152 - 1 sample)

a. Inspection Scope

On January 22, 2007, Entergy issued a letter [ADAMS Ref. ML070240242] with a plan of actions intended to improve the safety conscious work environment (SCWE) at Indian Point Energy Center. The plan included corrective actions to improve communications; identify and prevent retaliation, chilling effect, and the perception of retaliation; enhance the corrective action program; enhance the employee concerns program; and improve the broader work environment at Indian Point. Entergy also indicated that metrics would be developed to measure performance at achieving the components of a healthy SCWE and an assessment would be conducted to confirm the effectiveness of its actions in early 2008.

In June 2007, the inspectors performed PI&R sample inspections on each operating unit to review the status of Entergy's corrective actions related to the SCWE. The inspectors concluded that Entergy's progress on these corrective actions was adequate. The inspectors observed that Entergy had implemented a number of actions to address previously identified issues affecting the work environment.

The NRC's Mid-Cycle Performance Review letter for Indian Point Units 2 and 3 [ML0724309421], dated August 31, 2007, stated that the NRC would continue to monitor progress in the SCWE area through the baseline inspection program by performing PI&R inspection samples during the fourth quarter of 2007. During the week of December 3, 2007, the inspectors completed these inspection samples for Indian Point Units 2 and 3. The inspectors interviewed personnel from selected work groups, reviewed CRs, and examined other supporting documentation for Entergy's actions to improve the SCWE.

b. Findings and Observations

No findings of significance were identified.

The inspectors observed that site management has continued its focus on improvements in the safety conscious work environment, particularly through site-wide initiatives, communications, and meetings. The inspectors determined that Indian Point personnel adequately addressed the NRC's observations from the previous inspection of the safety conscious work environment in June 2007. These observations included deficiencies associated with the Executive Review Board, the Executive Protocol Group, and reviews of condition reports for trends related to the safety conscious work environment.

All personnel interviewed by the inspectors stated that they would raise nuclear safety concerns. Although the inspectors concluded that a safety conscious work environment

exists at Indian Point, a few individuals indicated they may not raise minor issues or write condition reports for low-level items, because they were not confident that they would be fully resolved in the corrective action program.

.5 PI&R Annual Sample Review – Service Water Piping Corrosion Monitoring Program (71152 – 1 sample)

a. Inspection Scope

On July 18, 1989, the NRC issued Generic Letter 89-13, “Service Water System Problems Affecting Safety-Related Equipment,” which required, in part, that licensees establish an inspection and maintenance program to repair defective protective coatings, and corroded service water system piping and components that could adversely affect performance of their intended safety function. Large diameter piping in the service water system is constructed with carbon steel and internally-lined with concrete to preclude corrosion due to the brackish Hudson River water. Entergy monitors the condition of the concrete lining through internal, visual inspections of accessible portions of piping during plant outages. Despite the concrete lining, corrosion still occurs at weld joints where small gaps in the concrete liner exist from original construction. Entergy monitors service water piping corrosion at susceptible welds through ongoing, non-destructive testing using radiography and ultrasonic pipe thickness measurements. The current inspection included a review of program documents, internal piping inspections, radiographic and ultrasonic test results for pipe thickness, self-assessments, service water system health reports, and condition reports related to piping degradation in the service water system. In addition, the inspectors performed walk downs of selected portions of the service water system to confirm locations of known pin-hole leaks and to verify the effectiveness of repairs to previously identified and repaired leak locations.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined that, in general, Entergy is adequately identifying service water corrosion issues and taking appropriate corrective actions when degradation is identified. However, several observations were identified by the inspectors regarding implementation of the Generic Letter 89-13 program at Indian Point Energy Center (IPEC).

Entergy procedure SEP-SW-001, “Generic Letter 89-13 Service Water Program,” Revision 1, specifies, in part, that IPEC maintain an index of inspections and inspection results, and perform trending of inspection results. The inspectors determined that this procedure was not being effectively implemented. However, the inspectors did not identify any instances where IPEC’s failure to index inspection results, retain inspection results, or perform trending impacted operability of the service water system.

SEP-SW-001 also specifies that IPEC generate condition reports when inspections reveal degradation. The inspectors determined that condition reports were not routinely generated when inspections reveal degradation. However, the inspectors noted that Entergy generally made repairs to degraded piping and welds even if condition reports were not generated when the conditions were first identified.

In addition, SEP-SW-001 calls for internal inspections of the concrete liner in all service water system large bore piping every ten years. The inspectors reviewed a sample of video-recorded internal piping inspections and determined that while Entergy performs some internal piping inspections, the guidelines were not being fully implemented. The inspectors also determined, through interviews with IPEC engineering staff, that a general assumption exists that pin-hole leaks only occur at welds because all other internal areas of the pipe are protected from corrosion by the concrete liner. However, the inspectors noted that this assumption is only valid if the concrete liner is intact, and that the concrete liner should be inspected periodically in accordance with program requirements to validate this assumption. The inspectors did not identify any concrete liner degradation issues during review of the recorded internal inspections that were not repaired as required.

The inspectors determined that the corrosion monitoring program appears to be more reactive than proactive. Preventative inspection activities appear to be decreasing as evidenced by a smaller number of weld inspections at both units in successive outages. However, the number of pin-hole leaks in service water piping appears to be increasing as evidenced by a recent condition report (CR-IP2-2007-03822), which discussed a potential adverse trend in the number of pin-hole leaks that have developed in service water piping. The inspectors reviewed Entergy's planned actions in CR-IP2-2007-03822 and determined that they were appropriate.

4OA3 Event Follow-up (71153 - 6 samples)

.1 Dry Cask Mockup Evolutions on October 11, 2007

a. Inspection Scope

The inspectors observed Entergy personnel conducting operations involving movement of a dry cask mockup into the spent fuel pool (SFP) with the new gantry crane. During the evolution, the mockup was observed to experience interference while being lowered into the SFP, due to a protruding pipe skimmer line several inches above the pool waterline. The inspectors observed Entergy's response to the interference and actions to place the crane and mockup in a safe condition. The inspector observed from the SFP area, verified that crane operations were appropriately monitored, and ensured that operating procedures were being appropriately implemented. The inspectors discussed the evolution and corrective actions with plant management. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 (Closed) Licensee Event Report (LER) 05000247/2006005-00: Automatic Reactor Trip Due to a Turbine Trip as a Result of a Main Generator Exciter Protective Trip Caused by a Genex Power Supply Loss of Electrical Ground.

On November 15, 2006, an automatic reactor trip was initiated due to a main generator exciter protective trip during troubleshooting of the excitation system power supply. Following the reactor trip signal, all control rods inserted and all safety systems functioned as designed. Entergy determined that the cause of the trip was a loose

electrical terminal in a power supply cabinet. This loose terminal caused the operating power supply to spike low during troubleshooting activities, which initiated a main generator exciter protective trip. Entergy entered this issue into the corrective action program (CR IP2-2006-06658), repaired the terminal connection, and replaced the power supply. The inspectors' evaluation of initial operator response and follow-up actions was documented in Section 4OA3 of inspection report 05000247/2006005. The inspectors reviewed LER 5000247/2006005-00, Entergy's causal analysis, and the associated corrective actions. No findings of significance or violations of NRC requirements were identified. This LER is closed.

- .3 (Closed) Licensee Event Report (LER) 05000247/2007001-00: Technical Specification Prohibited Condition Due to Exceeding the Allowed Completion Time for an Inoperable Residual Heat Removal Pump due to an Electrical Supply Breaker Failure.

On January 2, 2007, the 21 residual heat removal pump failed to start on demand during surveillance testing. Entergy determined that the cause of the failure was a mis-positioned inertial latch in the pump breaker mechanism within the breaker cubicle. The inspectors evaluated Entergy's corrective actions to ensure these actions were adequate and appropriate, which included, for example, replacement of the affected breaker with a refurbished breaker, extent of condition inspection of similar breakers, and vendor-related examinations to determine the nature of the foreign material (residue) identified on the inertia latch bushing that may have contributed to internal binding. The inspectors reviewed the LER, the associated CR IP2-2007-00013, as well and corrective actions as discussed above. No findings of significance or violations of NRC requirements were identified. This LER is closed.

- .4 (Closed) Licensee Event Report (LER) 05000247/2007002-00: Technical Specification Prohibited Condition Due to Exceeding Containment Air Temperature Limit Allowed Outage Time as a Result of Changes in Instrument Uncertainty.

On January 3, 2007, during an engineering review of historical containment temperature values, Entergy identified that the Technical Specification (TS) required parameter of containment temperature obtained by operators from control room instruments did not accurately reflect instrument uncertainty. As a result, containment temperature exceeded the TS 3.6.5 analytical limit of 130°F for 23 hours on August 16 and 17, 2005, by 1.25°F. Entergy determined that the cause of the exceedance was failure to update control room surveillance procedures with the correct temperature limits that included appropriate instrument uncertainties based on revised calculations.

Entergy entered this issue into the corrective action program as CRs IP2-2006-05177 and IP2-2007-03001. The inspectors reviewed the LER and CR, and verified that the condition was corrected and corrective actions were adequate to address the adverse condition. The enforcement aspects of this finding are discussed in Section 4OA7. This LER is closed.

- .5 (Closed) Licensee Event Report (LER) 05000247/2007003-00: Plant in a Condition Prohibited by Technical Specifications due to Operation with Control Room Ventilation System High Flow.

On January 3, 2007, during control room ventilation system (CRVS) testing, Entergy identified that the Indian Point Unit 2 CRVS booster fans exceeded system flow limits of

2000 cubic feet per minute (+/- 10 percent), as required by TS Surveillance Requirement 3.7.10.4. Entergy determined that the cause of the high ventilation flow rates was due to maintenance activities performed on the 21 control room fan on October 26, 2006. Human performance weaknesses and inadequate procedures contributed to the failure of Entergy to verify appropriate CRVS flow rates following the maintenance in October 2006.

Entergy entered this issue into the corrective action program as CR IP2-2007-00013. The inspectors reviewed the LER, the CR, and Entergy's apparent cause evaluation. The inspectors verified that the condition was corrected and corrective actions were adequate to address the adverse condition, which included revisions to post-work testing requirements and applicable maintenance procedures to prevent recurrence. The enforcement aspects of this finding are discussed in Section 4OA7. This LER is closed.

.6 Failure to Implement Corrective Actions for Aging Critical Power Supplies and (Closed) Licensee Event Report (LER) 05000247/2007004-00

a. Inspection Scope

On February 28, 2007, control room operators manually initiated a reactor trip from 100 percent reactor power in response to decreasing steam generator levels and decreasing main boiler feedwater pump speeds. Following the reactor trip, all control rods inserted and all safety systems functioned as designed. Entergy determined the cause of the decreased main boiler feedwater pump speeds and resultant decreasing steam generator levels was due to a failed power supply for the main boiler feedwater pump suction pressure transmitter. Entergy entered this issue into their corrective action program (CR IP2-2007-01046), replaced the failed power supply, and replaced the effected pressure transmitter. The inspectors' evaluation of initial operator response and follow-up actions was documented in Section 4OA3 of inspection report 05000247/2007002.

The inspectors reviewed LER 0500247/2007004-00, Entergy's causal analysis, and the associated corrective actions. No violations of NRC requirements were identified. This LER is closed.

b. Findings

Introduction: A self-revealing Green finding was identified because Entergy did not implement corrective actions for an adverse condition associated with aging critical power supplies.

Description: On February 28, 2007, a failed power supply to the feedwater low suction pressure transmitter resulted in reduction of main boiler feedwater pump speeds and subsequent lowering of steam generator water levels. In response to the indications of a loss of main feedwater, control room operators initiated a manual reactor trip. Entergy determined that the power supply failed due to failure of its filter capacitors as a result of age-related degradation. Following a reactor trip that occurred on August 31, 1999, station personnel generated CR-IP2-1999-06840 to evaluate the need for a capacitor replacement program. This CR was later closed to a 2002 CR that was generated to track implementation of a capacitor replacement program. In May 2003, Entergy

determined that a capacitor replacement program was not necessary and the 2002 CR was closed.

Following the February 28, 2007 reactor trip, Entergy initiated CR-IP2-2007-01046 and determined that existing plant programs were insufficient to address capacitor aging degradation. Entergy plans to take comprehensive corrective actions via four capital improvement projects targeted at replacing all single-point vulnerable instrument power supplies and all high critical instrument power supplies at both Indian Point Unit 2 and Indian Point Unit 3 that have not been already replaced. Entergy plans to complete these corrective actions in 2009. In addition, Entergy plans to establish a preventative maintenance program that will replace all single point vulnerable and critical power supplies again on a periodic basis.

The inspectors determined that the failure to implement corrective actions for a known adverse condition related to age-related degradation of capacitors was a performance deficiency because it is contrary to the requirements of Entergy's procedure EN-LI-102, "Corrective Action Process." This procedure requires that corrective actions resolve deficiencies.

Analysis: The inspectors determined this finding was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone; and, it impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety systems. Specifically, the aging capacitors caused the power supply to fail and resulted in operators having to initiate a manual reactor trip on February 28, 2007. The inspectors evaluated the significance of this finding using Phase 1 of IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." This finding was determined to be of very low safety significance (Green), because while it was a transient initiator that resulted in a reactor trip, it did not contribute to the likelihood that mitigation equipment or functions would not be available. Specifically, the failed power supply did not result in a trip of the main boiler feed pumps but resulted in the main boiler feed pumps going to minimum idle speed. Operators could have locally raised the speed of the main boiler feed pumps to feed the steam generators using approved operating procedures following the reactor trip.

Enforcement: No violation of regulatory requirements occurred. The inspectors determined that the finding did not represent a violation of NRC requirements because the failure to implement corrective actions occurred on a non-safety-related system. **(FIN 05000247/2007005-05, Failure to Implement Corrective Actions Associated with Aging Critical Power Supplies)**

4OA5 Other Activities

.1 Strike Contingency Plan (92709 - 1 sample)

a. Inspection Scope

The inspectors reviewed Entergy's activities to prepare for a potential work disruption upon expiration of the contract between Entergy and the Utility Workers Union of America on January 17, 2008. The union represents certain Indian Point Energy Center employees including non-licensed operators, reactor operators, and support organization

personnel (i.e., maintenance workers, chemistry technicians, and health physics technicians). The inspectors reviewed Entergy's strike contingency plan to verify that the plan accounted for the manning requirements of Technical Specifications, the Indian Point Energy Center Emergency Plan, and NRC regulations. The inspectors evaluated the plan content to verify that the required minimum number of qualified personnel will be available for the proper operation and safety of the facility and that facility security will be maintained. The inspectors observed a strike contingency coordination meeting on December 19, 2007. Documents reviewed are listed in the Attachment.

Subsequent to the period of this inspection report, on January 8, 2008, Entergy announced that workers represented by the Utility Workers Union of America ratified an agreement extending the current collective bargaining agreement until January 17, 2010.

b. Findings

No findings of significance were identified.

.2 (Closed) URI 05000247/2003011-01: Evaluation of Cable Splices to Assess Impact on Internal Flood Analysis.

During an internal flood protection inspection in the primary auxiliaries building, the NRC identified a number of spliced electrical cables within close proximity to containment spray system piping. These cables were not identified and the splices were not recorded in licensee drawings or records. The Indian Point Individual Plant Examination for External Events, Section 5.2.2.1.4, stated that spray effects from pipe ruptures in this area would not be risk significant because there were no electrical cable splices within 10 feet of fluid piping systems. URI 2003011-01 was opened because Entergy had not determined if the splices affected risk significant cables or equipment, and had not completed an extent of condition review. The inspectors conducted a review of WO IP2-03-17236 to assess the adequacy of Entergy's walkdowns of the cables to ensure that all cabling potentially impacted was included in the review, and to evaluate Entergy's extent of condition review. The inspectors reviewed Entergy's engineering assessment which determined that the splices did not impact any risk significant equipment, and did not adversely impact plant safety. The inspectors determined that Entergy's review was adequate and the impact of the cable splices was appropriately characterized. No findings of significance or violations of NRC requirements were identified. This item is closed.

4OA6 Meetings, including Exit

Exit Meeting Summaries

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

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) 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 NCVs.

- TS 3.6.5 requires, in part, that containment air temperature shall be maintained less than 130°F. Contrary to this requirement, Entergy identified that containment air temperature exceeded the TS 3.6.5 analytical limit of 130°F for 23 hours on August 16 and 17, 2005, by 1.25°F. This issue was entered into Entergy's corrective action program as IP2-2006-05177 and IP2-2007-03001. This finding was more than minor because a TS-required temperature limit was exceeded. The inspectors determined that this finding is of very low safety significance (Green), based on IMC 0609, Appendix H, "Containment Integrity Significance Determination Process," Phase 1 screening, because the containment function was not lost, and the pressure/temperature margin contained in the design and licensing basis enveloped the small exceedance of the initial containment temperature assumed in the accident analysis.
- TS 3.7.10.4 requires, in part, that CRVS train makeup flow rates must deliver 2000 cubic-feet-per-minute (+/- 10 percent). Contrary to this requirement, Entergy identified that CRVS flow rates were greater than 2200 cubic-feet-per-minute for the period October 26, 2006, through January 3, 2007. This issue was entered into Entergy's corrective action program as CR IP2-2007-00013. This finding was more than minor because a TS-required flow limit was exceeded. The inspectors determined that this finding is of very low significance (Green), based on IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," Phase 1 screening because it only represented a degradation of the radiological barrier function of the control room envelope.

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 DISCUSSEDOpened

05000247/2007005-04	URI	Impact of incorrect jacket water and lube oil control elements on EDG performance. (Section 1R15)
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Opened and Closed

05000247/2007005-01	NCV	Failure to Identify Degraded Fire Barrier in EDG Building. (Section 1R05)
05000247/2007005-02	NCV	Failure to Implement Corrective Actions to Prevent Exceeding Preventive Maintenance Frequency for 25 Containment Fan Cooler Unit (Section 1R07)
05000247/2007005-03	NCV	Failure to Implement Corrective Actions for Degraded Containment Fan Cooler Unit Service Water Flow. (Section 1R13)
05000247/2007005-05	FIN	Failure to Implement Corrective Actions Associated with Aging Critical Power Supplies. (Section 4OA3)

Closed

05000247/2006005-00	LER	Automatic Reactor Trip Due to a Turbine Trip as a Result of a Main Generator Exciter Protective Trip Caused by a Generex Power Supply Loss of Electrical Ground. (Section 4OA3.2)
05000247/2007001-00	LER	Technical Specification Prohibited Condition Due to Exceeding the Allowed Completion Time for an Inoperable RHR Pump Due to an Electrical Supply Breaker Failure. (Section 4OA3.3)
05000247/2007002-00	LER	Technical Specification Prohibited Condition Due to Exceeding Containment Air Temperature Limit Allowed Outage Time as a Result of Changes in Instrument Uncertainty. (Section 4OA3.4)
05000247/2007003-00	LER	Plant in a Condition Prohibited by Technical Specifications due to Operation with Control Room Ventilation System High Flow. (Section 4OA3.5)
05000247/2007004-00	LER	Manual Reactor Trip Due to Decreasing Steam Generator Levels Caused by Loss of Feedwater Flow as a Result of Feedwater Pump Suction Pressure Transmitter Power Supply Failure (Section 4OA3.6)
05000247/2003011-01	URI	Evaluation of Cable Splices to Assess Impact on Internal Flood Analysis. (Section 4OA5.2)

LIST OF DOCUMENTS REVIEWED**Section 1R04: Equipment Alignment**Procedures

2-COL-31.1, "Gas Turbine 1," Revision 8
 2-COL-21.3, "Steam Generator Water Level and Auxiliary Boiler Feedwater," Revision 30
 COL 24.1.2, "Service Water Essential Header Verification," Revision 14
 2-COL-29.2, "Instrument Air System," Revision 28
 2-SOP-29.2, "Instrument Air System Operation," Revision 23

Condition Reports

IP2-2007-04837	IP2-2007-04838	IP2-2007-04839	IP2-2007-04840
IP2-2007-04841	IP2-2007-04842	IP2-2007-04843	IP2-2007-04844
IP2-2007-04845			

Work Requests

WRT-IP2-06-34182 WRT-IP2-04-09317 WRT-IP2-2007-00344 WRT-IP2-06-00617

Drawings

260587, "GT1 Fuel Oil System in Gas Turbine Enclosure"
9321-F-2019, "Flow Diagram Boiler Feedwater," Revision 113

Miscellaneous

IP2-SW DBD, "Design Basis Document for Service Water," Revision 1

Section 1R05: Fire Protection

Procedures

ENN-DC-161, "Transient Combustible Program," Revision 1
ENN-DC-189, "Fire Drills," Revision 0
SAO-703, "Fire Protection Impairment Criteria and Surveillance," Revision 25
PT-M55, "Fire Doors," Revision 12
2-PT-SA020, "Swing Fire Doors," Revision 0

Condition Reports

IP2-2007-04332

Miscellaneous

Indian Point Nuclear Generating Station, Unit No. 2, "Fire Protection Program Plan," Revision 9
IP2-RPT-03-00015, "IP2 Fire Hazards Analysis," Revision 3

Section 1R07: Heat Sink Performance

Condition Reports

IP2-2000-08452 IP2-2007-03706

Procedures

SEP-SW-001, "Generic Letter 89-13 Service Water Program," Revision 1
2-PT-Q016, "Containment Fan Cooler Unit Cooling Water Flow Test," Revision 0

Work Orders

IP2-94-69960 IP2-94-69958 IP2-94-69957 IP2-96-83054
IP2-00-18332 IP2-02-32987 IP2-02-32833

Miscellaneous

Report ER-85-7182, "RCFC and Motor Cooling Coils for Consolidated Edison Company Indian Point 2 N.G.S."
PR No. 21-50, "Preliminary Report – Fan Cooler Unit 25"
PM Task N0.: SWN-132, Preventive Maintenance Task Form

Section 1R12: Maintenance Effectiveness

Condition Reports

IP2-2007-00013 IP2-2006-00405

Procedures

EN-DC-203, "Maintenance Rule Program," Revision 0
EN-DC-204, "Maintenance Scope and Basis," Revision 0

EN-DC-205, "Maintenance Rule Monitoring," Revision 0
EN-DC-324, "Preventive Maintenance Process," Revision 3
EN-LI-102, "Corrective Action Process," Revision 10
SEP-SW-001, "Generic Letter 89-13 Service Water Program," Revision 1

Miscellaneous

IP2 Maintenance Rule Basis Document for HVAC-CCR, Revision 2

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

IP-SMM-WM-101, "On-Line Risk Assessment," Revision 2
EN-MA-125, "Troubleshooting Control of Maintenance Activities," Revision 3
OAP-030, "Infrequently Performed Tests and Evolutions," Revision 1
2-PT-M022, "Station Battery Surveillance," Revision 31

Work Orders

00126720-02

Section 1R15: Operability Evaluations

Procedures

EN-OP-104, "Operability Determinations," Revision 2
EN-MA-118, "Foreign Material Exclusion," Revision 2
IP-SMM-AD-102, "IPEC Implementing Procedure Preparation, Review, and Approval,"
Revision 2
0-GNR-406-ELC, "Emergency Diesel Generator 6-Year Inspection," Revision 0
3-GNR-022-ELC, "Emergency Diesel Generator 6-Year Inspection," Revision 2
0-MD-402, "Maintenance Procedure Development and Feedback Administrative Directive,"
Revision 4

Condition Reports

IP2-2007-03812	IP2-2007-04008	IP2-2007-02865	IP2-2007-4518
IP3-2007-04411	IP3-2001-00107	IP2-2007-04142	IP2-2007-04905

Miscellaneous

IP2-SOD-014, "RCP Seal Package," Revision 1

Section 1R17: Permanent Modifications

Drawings

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Section 1R19: Post-Maintenance Testing

Procedures

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0-VLV-413-MOV, "Motor Operated Valve Minor Preventive Maintenance," Revision 2
2-PC-R14, "Containment Pressure Instruments – CCR," Revision 12

2-DCS-026-GEN, "FSB 110 Ton X-SAM Gantry Crane Operations," Revision 3
ISP-3.3, "Overhead and Gantry Cranes," Revision 2

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Section 1R22: Surveillance Testing

Procedures

0-SOP-LEAKRATE-001, "RCS Leakage Surveillance, Evaluation and Identification," Revision 0
2-PT-Q35B, "22 Containment Spray Pump Test," Revision 14
2-PT-SA067, "Main Turbine Stop and Control Valve Exercise Test," Revision 4
0-OSP-TG-001, "Main Turbine Stop and Control Valve Contingency Actions," Revision 0
2-PT-Q61, "Main Steam Line Pressure Bistables," Revision 12
2-PT-Q026C, "23 Service Water Pump," Revision 12

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

Procedures

IP-EP-AD14, "Maintenance of the Indian Point Siren Electro-Mechanical System," Revision 1
IP-EP-AD15, "ANS Siren System Administration," Revision 1
MP-26-EPA-FAP10, "Public Alerting System Test and Repair," Revision 000

Miscellaneous

"Alert and Notification Systems Design Report," August 1984
Maintenance Logs 2006 & 2007
Sample of Corrective Actions related to the sirens

Section 1EP3: Emergency Response Organization (ERO) Staffing and Augmentation System

Procedures

IP-EP-AD9, "Notification Systems Testing and Maintenance," Revision 6
IP-SMM-TQ-110, "Emergency Response Organization (ERO) Training Program," Revision 2

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Training Program Curriculum, Revision 21
Off Hours Notification Drill Report, October 3, 2006
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Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes

Procedures

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EN-LI-100, "Process Applicability Determination," Revision 4

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IP-EP-330	IP-EP-240

Section 1EP5: Correction of Emergency Preparedness Weaknesses

Miscellaneous

Sample of EP Related CRs from January 2006 – September 2007

All EP CRs related to actual events in 2006 & 2007

50.54(t) Audits from 2006 and 2007

EP self-assessments from 2006 and 2007

All Drill Reports from 2006 & 2007

Section 2OS3: Radiation Monitoring Instrumentation and Protective Equipment

Procedures

IP-EP-AD6, Rev. 11, Emergency Facilities and Equipment

IP-EP-AD6-20, Rev. 1, Respiratory Protection Monthly Equipment Inventory

IP-EP-AD6-21, Rev. 2, Respiratory Protection Quarterly Equipment Inventory

RE-INS-7CH-3, Rev. 10, Calibration of the Merlin-Gerin CDM-21 Electronic Dosimeter
Calibrator Using WCDM 2000

RE-INS-7CH-4, Rev. 5, Characterization of the J.L. Shepherd 81-12, 142-10 and 149 Sources

RE-INS-7CH-12, Rev. 10, Beam Source Check Sheet

HP-3.202, Rev. 9, Calibration of Standard Radiation Sources

HP-SQ-3.701, Daily Response Checks

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EN-RP-304, Operation of Radiation Protection Counting Equipment

O-RP-IC-102, Calibration of the Eberline ASP-1 with Neutron Detector

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2-PC-R25, Rev. 12, Main Steam Line Radiation Monitors Radiation Calibration

2-PC-R38, Rev. 2, High Range Containment Area Radiation Monitor

2-PC-R15B, Rev. 15, Seal Table Area Radiation Monitor

3-PC-R40, Rev. 7, Main Steam Line Radiation Monitor Calibration (R-62)

3-PC-OL-48, Rev. 3, Fuel Storage Building Radiation Monitor Calibration (R-5)

3-PC-R46A&B, Rev. 14, Containment High Range Radiation Monitor Calibration (R-25, R-26)

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3-PC-R14, Rev. 20, Process Radiation Monitor R-14 Calibration

3-PC-OL-49A, Rev. 1, Steam Generator Blowdown Radiation Monitor Calibration (R-19)

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Section 2PS2: Radioactive Material Processing and Transportation

Procedures

RW-SQ-4.007, "Process Control Program," Revision 9

RE-PCP, "Solid Radioactive Waste Process Control Program," Revision 7

EN-RW-102, "Radioactive Shipping Procedure," Revision 4

EN-RW-104, "Scaling Factors," Revision 3

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Section 40A1: Performance Indicator VerificationProcedures

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 EN-LI-114, "Performance Indicator Process," Revision 2
 NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5
 MSPI Basis Document, Revision 7

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 Public Notification System PI data, October 2006 - September 2007
 DEP PI data, October 2006 - September 2007
 MSPI Heat Removal System Derivation Report August 2007
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Section 40A2: Identification and Resolution of ProblemsProcedures

EN-OP-104, "Operability Determinations," Revision 2
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 2-SOP-RC-ROD-001, "Rod Control and RPI System Operation," Revision 0
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 0-MD-402, "Maintenance Procedure Development and Feedback Administrative Directive,"
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 2-SOP-21.3, "Auxiliary Feedwater System Operation," Revision 36
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IP3-APL-02-005, "Service Water System Piping Corrosion Concerns," Revision 0 – action plan dated September 29, 2002

Section 40A3: Event Followup

Procedures

2-PT-M58, "CCR Ventilation Area Radiation Monitors and Control," Revision 34

Work Orders

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Section 40A5: Other Activities

Procedures

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NUREG-0654 FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants"
Indian Point Unit 2 Technical Requirements Manual
Indian Point Unit 3 Technical Requirements Manual
SMM-DC-901, "Fire Protection Program Plan," Revision 2
SAO-711, "Quality Assurance Requirements for Fire Protection Systems," Revision 0
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OAP-115, "Operations Commitments and Policy Details," Revision 6

Condition Reports

CR-IP2-2007-05189

LIST OF ACRONYMS

ADAMS	Agency-wide Document and Management System
ALARA	as low as reasonable achievable
ANS	alert and notification system
BTR	Branch Technical Position
CAP	corrective action program
CFR	Code of Federal Regulations
CRVS	control room ventilation system
CR	condition report
CRVS	Control Room Ventilation System
DAW	Dry Active Waste
DEP	Drill and Exercise Performance
DOT	U. S. Department of Transportation
EAL	Emergency Action Level
ECCS	emergency core cooling system
EDG	emergency diesel generator
EDO	Executive Director for Operations
EP	Emergency Preparedness
ERO	Emergency Response Organization
ESSAP	Environmental Site Survey and Assessment Program
FCU	fan cooler unit
FEMA	Federal Emergency Management Agency
FSAR	Final Safety Analysis Report
°F	Fahrenheit
gpm	gallons per minute
IMC	Inspection Manual Chapter
IST	inservice testing
IPEC	Indian Point Energy Center
LERF	large early release frequency
LER	Licensee Event Report
Mrem	millirem
NCV	non-cited violation
NEI	Nuclear Energy Institute
NIST	National Institute of Science and Technology
NRC	Nuclear Regulatory Commission
OA	Other Activities
ORISE	Oak Ridge Institute for Science and Education
PARS	Publicly Available Records System
PCP	Process Control Program
PI	performance indicator
PI&R	problem identification and resolution
PM	preventive maintenance
PS	Public Radiation Safety
RHR	residual heat removal
RP	radiation protection
SCBA	self contained breathing apparatus
SCWE	safety conscious work environment
SDP	significance determination process
SER	Safety Evaluation Report
SFP	spent fuel pool
SI	safety injection
SSC	structures, systems, or components

SWP
TS
UFSAR
USGS
WO

service water pump
Technical Specifications
Updated Final Safety Evaluation Report
U.S. Geological Survey
work order