



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
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KING OF PRUSSIA, PA 19406

February 5, 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 3 – NRC INTEGRATED INSPECTION
REPORT 05000286/2007005**

Dear Mr. Pollock:

On December 31, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 3. 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 two NRC-identified findings of very low safety significance (Green). These findings were also determined to be violations of NRC requirements. 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, DC 20555-0001; 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 3.

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

Records System (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket No. 50-286
License No. DPR-64

Enclosure: Inspection Report No. 05000286/2007005
w/ Attachment: Supplemental Information

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U.S. Nuclear Regulatory Commission

Region I

Docket No.: 50-286

License No.: DPR-64

Report No.: 05000286/2007005

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 3

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

Dates: October 1, 2007 through December 31, 2007

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SUMMARY OF FINDINGS

IR 05000286/2007-005; 10/01/07 – 12/31/07; Indian Point Nuclear Generating Unit 3; Operability Determinations; Identification and Resolution of Problems.

This report covered a three-month period of inspection by resident and region based inspectors. Two findings of very low significance were identified. These findings were determined to be non-cited violations. 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: Mitigating Systems

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Entergy did not provide an adequate procedure that assured emergency diesel generator (EDG) operability when it eliminated two unit-specific EDG maintenance procedures, 2-GNR-017-ELC (Unit 2), "Emergency Diesel Generator 6-Year Inspection," and 3-GNR-022-ELC (Unit 3), "Emergency Diesel Generator 6-Year Inspection," and created a new site-wide EDG maintenance procedure, 0-GNR-406-ELC, "Emergency Diesel Generator Six-Year Inspection," on April 26, 2006. Specifically, Entergy translated incorrect jacket water temperature control element information from the previous Unit 3 procedure and made it applicable to both Unit 2 and Unit 3 without performing an adequate technical review. Subsequently, on December 20, 2006, using the new procedure, Entergy installed the wrong temperature control elements on 33 EDG. Entergy entered the issue into the corrective action process, revised the maintenance procedure, and initiated actions to install the correct temperature control elements prior to service water temperatures exceeding 85 degrees Fahrenheit (°F) in the summer of 2008.

The inspectors determined this finding was more than minor because it was associated with the procedure quality 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. Specifically, the incorrect temperature control elements that were installed in the 33 EDG using the new procedure would not support EDG operability for service water temperatures above 85°F. This finding was evaluated using Phase 1 of Inspection Manual Chapter (IMC) 0609 Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors determined that this issue was of very low safety significance (Green) because it was not a design or qualification deficiency, it did not represent a loss of safety function for a train or system, and it did not screen as potentially risk significant due to seismic, flooding or severe weather initiating events. The inspectors noted that although the 33 EDG would not be operable at the design basis service water temperature of 95°F, actual service water temperatures since December 20, 2006, did not exceed 85°F.

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance because Entergy did not ensure that EDG maintenance procedure 0-GNR-406-ELC was accurate when it was developed in April 2006. (H.2(c)) (Section 1R15)

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy did not promptly identify a degraded area of Unit 3 service water piping during review of radiographs performed in refueling outage 3R13 (March 2005) that subsequently leaked on September 18, 2007. The inspectors determined that degradation on the radiograph was readily apparent and should have been identified by the Level III engineer during 3R13. However, Entergy did not identify the degraded piping during the radiograph review. In addition, on March 26, 2007, a pin-hole leak occurred at weld PAB-90 that provided Entergy a second opportunity to identify the missed area of degradation on the 3R13 radiograph. However, Entergy did not review previous inspection results at PAB-90 when the pin-hole leak occurred. Entergy placed this issue in the corrective action program and repaired the leak.

The inspectors determined that this finding was more than minor, because if left uncorrected, it would become a more significant safety concern. Specifically, if the piping degradation was left uncorrected, the structural integrity of the safety-related service water piping would have been challenged. In addition, degradation above the weld indicated that loss of the internal protective concrete lining was occurring. Pieces of concrete-lining that break away from the pipe wall could adversely impact structural integrity or result in partial clogging of components located downstream, such as the fan-cooler units, which are located downstream of weld PAB-90. The inspectors evaluated this finding using Phase 1 of IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors determined this finding was of very low safety significance (Green), because it was not a design or qualification deficiency, it did not represent a loss of safety function for a train or system, and it did not screen as potentially risk significant due to seismic, flooding or severe weather initiating events. The degraded service water pipe never resulted in system inoperability. The inspectors did not observe degraded flow conditions to the downstream fan-cooler units as a result of concrete liner degradation at PAB-90. In addition, despite the pinhole leaks, the service water piping remained structurally adequate under postulated design basis seismic conditions.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy did not identify issues completely, accurately, and in a manner commensurate with their safety significance. Specifically, Entergy did not completely identify the degradation at weld PAB-90 during the review of the radiographs in 3R13, or following the pin-hole leak that occurred on March 26, 2007. (P.1(a)) (Section 4OA2)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary Of Plant Status

Indian Point Generating Unit 3 operated at full power throughout the inspection period.

1. REACTOR SAFETY**Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**1R01 Adverse Weather Protection (71111.01 – 1 sample)a. Inspection Scope

The inspectors performed a detailed review of Entergy's procedures to address cold weather conditions. The inspector's evaluated Entergy's preparation and readiness for cold weather conditions, evaluated applicable compensatory measures, conducted walk downs of plant equipment, and verified that cold weather deficiencies from previous years have been addressed. In addition, the inspectors reviewed the status of deficiencies identified during the current seasonal preparations, and verified that adverse conditions were being adequately addressed. The documents reviewed during this inspection are listed in the Attachment. This review of cold weather preparations represented one inspection sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment.1 Partial System Walk downs (71111.04Q – 1 sample)a. Inspection Scope

The inspectors performed a partial system walk down to verify the operability of redundant or diverse trains and components during periods of system train unavailability. 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 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 this inspection are listed in the Attachment. The inspectors performed a partial walk down on the following system, which represented one inspection sample.

- Service water supply to the 31 and 32 emergency diesel generators (EDGs) while the 33 EDG was out-of-service on November 20, 2007.

b. Findings

No findings of significance were identified.

.2 Full System Walk down (71111.04S – 1 sample)

a. Inspection Scope

The inspectors performed a complete system walk down of accessible portions of the boric acid system to identify any discrepancies between the existing equipment lineup and the required lineup. The inspectors reviewed operating procedures, surveillance tests, piping and instrumentation drawings, equipment lineup check-off lists, and the UFSAR to determine if the system was aligned to perform its required safety functions. The inspectors reviewed a sample of condition reports and work orders 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 walk down of the boric acid system represented one inspection sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Protection Tours (71111.05Q – 8 Samples)

a. Inspection Scope

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

- Fire Zone 7A;
- Fire Zone 22;
- Fire Zone 35A;
- Fire Zone 60A;
- Fire Zone 64A;
- Fire Zone 73A;
- Fire Zone 74A; and
- Fire Zone 622.

b. Findings

No findings of significance were identified.

.2 Fire Protection (71111.05A – 1 Sample)

Inspection Scope

The inspectors observed and evaluated the readiness and response of Entergy's on-site fire brigade during an event on October 3, 2007, which involved fire damage to an on-site emergency propane generator. This evaluation included an assessment of the following aspects associated with the fire brigade and the fire protection program:

- Donning of protective clothing/turnout gear by fire brigade members;
- Proper use of self-contained breathing apparatus equipment (SCBA);
- Timely arrival at the scene by fire brigade members by an appropriate route;
- Command and control by the Fire Brigade Leader, establishment of a Command Post, and establishment of communications;
- Sufficient fire-fighting equipment appropriate for the circumstance available at the scene;
- Effective smoke and toxic gas removal operations were employed;
- Appropriate medical assistance was employed to affected personnel;
- Control room personnel follow appropriate procedures to address sounding fire alarms, dispatching the fire brigade to the appropriate location, and review of Emergency Plan Emergency Action Levels for appropriate declarations and notifications; and
- Adverse conditions were entered into the corrective action program for resolution.

The documents reviewed during this inspection are listed in the Attachment. This inspection that evaluated the fire brigade response to an actual event represented one annual inspection sample.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

a. Inspection Scope

The inspectors reviewed Entergy's relevant design basis documentation that addressed internal flooding events for the Unit 3 service water valve room located in the diesel generator building. The inspectors evaluated this area for potential susceptibilities to internal flooding and verified associated assumptions and conditions contained within the current licensing and design basis. The inspector also evaluated the condition and adequacy of flood mitigation equipment to verify the efficacy of flood protection design features. The inspectors also reviewed relevant abnormal operating and emergency plan procedures, as well as the corrective action program to verify that flood-related issues in the area of interest had been appropriately evaluated and resolved. The

documents reviewed during this inspection are listed in the Attachment. This inspection represented one internal flooding inspection sample.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07 – 1 sample)

a. Inspection Scope

The inspectors evaluated maintenance activities and reviewed performance data associated with the 31 instrument air compressor closed cooling heat exchanger. The inspectors reviewed applicable design basis information and commitments associated with Entergy's Generic Letter 89-13 program to validate that 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.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Quarterly Resident Inspector Baseline Inspection (1 Sample)

a. Inspection Scope

The inspectors observed site-wide licensed operator requalification training provided on November 8, 2007. The inspectors assessed the scope and breadth of the training, which included both discussions and reviews of emergency procedures utilized by control room operators at both units to respond to, and mitigate the effects of, various security and reactor-related events at the site. The inspectors reviewed the lesson plan, and verified that appropriate aspects of the topics provided during the training was appropriate for the circumstance. In addition, the inspector reviewed a sample of the training material to verify that lessons learned and previously identified adverse conditions had been identified and dispositioned. Documents reviewed during this inspection are listed in the Attachment. This review represented one quarterly inspection sample for licensed operator requalification training.

b. Findings

No findings of significance were identified.

.2 Biennial Regional Inspector Requalification Inspection (1 Sample)

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program," NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)," and 10 CFR 55.46, "Simulator Rule" as acceptance criteria.

The inspectors reviewed documentation of operating history since the last requalification program inspection. The inspectors also discussed facility operating events with the resident staff. Documents reviewed included NRC inspection reports, licensee condition reports (CRs), and assignment requests (ARs) that involved human performance issues for licensed operators to ensure that operational events were not indicative of possible training deficiencies. The documents reviewed are listed in the Attachment to this report.

The inspectors reviewed two sets of 2005 comprehensive biennial written exams, and three sets of scenarios and job performance measures (JPMs) administered during this current exam cycle to ensure the quality of these exams met or exceeded the criteria established in the examination standards and 10 CFR 55.59.

During the inspection, the inspectors observed the administration of operating examinations to one operating crew. The operating examinations consisted of five crew simulator scenarios and one set of five JPMs administered to each individual. On October 9, 2007, one of the inspectors observed the administration of four crew scenarios to another shift.

Conformance with Simulator Requirements

For the site-specific simulator, the inspectors observed simulator performance during the conduct of the examinations and reviewed discrepancy reports to verify compliance with the requirements of 10 CFR 55.46. The inspectors reviewed a sample of simulator tests including transients, normal, steady state, malfunction, as well as core performance tests. The inspectors also verified that a sample of completed simulator work requests (SWRs) from the past two-year period effectively addressed the described issue. The documents reviewed during this inspection are listed in the Attachment.

Conformance with Operator License Conditions

The inspectors reviewed a sample of available records to verify compliance with the license conditions contained in 10 CFR 55.54.

- The inspectors reviewed eight medical records and confirmed all records were complete, that restrictions noted by the doctor were reflected on the individual's license, and that the exams were given within 24 months.
- The inspectors examined proficiency watch-standing and reactivation records. A sample of nine licensed-operator reactivation records were reviewed, as well as

a 100 percent sample of non-shift licensed personnel watch-standing documentation for time-on-shift, to verify currency and conformance with the requirements of 10 CFR 55.

- The inspectors reviewed six records of remediation training for the past two-year training cycle.

Licensee's Feedback System

The inspectors interviewed instructors, training/operations management personnel, and four licensed operators for feedback regarding the implementation of the licensed-operator requalification program, to ensure the requalification program was meeting their needs and responsive to their noted deficiencies/recommended changes.

Between October 24 and December 20, 2007, the inspectors conducted an in-office review of the 2007 requalification exam results for Unit 3, which included the annual operating tests and the comprehensive written exams. The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process." The inspectors verified that for Unit 3:

- Crew failure rate on the dynamic simulator was less than 20 percent (failure rate was 0.0 percent);
- Individual failure rate on the dynamic simulator test was less than or equal to 20 percent (failure rate was 0.0 percent);
- Individual failure rate on the walkthrough test (JPMs) was less than or equal to 20 percent (failure rate was 0.0 percent);
- Individual failure rate on the comprehensive biennial written exam was less than or equal to 20 percent (failure rate was 0.0 percent); and
- More than 75 percent of the individuals passed all portions of the exam (100 percent of the individuals passed all portions of the exam).

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Resident Inspector Baseline Inspection (2 Samples)

a. Inspection Scope

The inspectors reviewed performance-based problems that involved selected structures, systems, or 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;
- System and component unavailability;
- 10 CFR 50.65(a)(1) and (a)(2) classifications;
- Identifying and addressing common cause failures;
- Trending of system performance parameters;
- 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 Systems were reviewed and represented two inspection samples:

- Central control room air conditioning system; and
- Control rod drive system.

b. Findings

No findings of significance were identified.

.2 Periodic Evaluation (71111.12B – 5 Samples)

a. Inspection Scope

The inspector reviewed the two most recent 10 CFR 50.65 (a)(3) periodic evaluations to verify that Entergy adequately balanced the reliability and unavailability for SSCs contained within the scope of the Maintenance Rule. The inspector also reviewed the resultant Entergy Maintenance Rule Program adjustments and corrective actions since the last inspection. The inspector reviewed the following risk significant SSCs with degraded performance and/or conditions to assess the effectiveness of Entergy's Maintenance Rule (a)(3) activities:

- Control rod drive system, which was in (a)(1) status;
- Service water system, which was in (a)(1) status;
- 125V direct current (DC) power system, which was returned to (a)(2) status in April 2006;
- Emergency diesel generators, which were in (a)(2) status; and
- Residual heat removal system, which was in (a)(2) status.

The inspector walked down accessible portions of the above SSCs with system engineers to evaluate the effectiveness of Entergy's maintenance efforts. The inspector also reviewed a sample of problems that Entergy identified and entered into the corrective action program. The inspector reviewed these issues to verify that Entergy had an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions related to the Maintenance Rule Program. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 4 samples)a. Inspection Scope

The inspector reviewed 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. The documents reviewed during this inspection are listed in the Attachment. The following activities represented four inspection samples:

- Service water valve SWN-38 downstream piping plate repair, conducted on October 15, 2007, under engineering change request (ECR)-2532;
- Main turbine stop valve testing, conducted on October 25, 2007, under work order 124247;
- Planned “Yellow” risk for reactor protection system testing, conducted on November 26, 2007; and
- Planned “Yellow” risk during refueling water storage tank level instrumentation maintenance, conducted on November 29, 2007.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 – 3 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 three inspection samples:

- CR IP3-2007-03630, pinhole leak downstream of service water valve SWN-38;
- CR IP3-2007-03676, 32 auxiliary boiler feed pump control valve bent stem; and
- CR IP3-2007-04411, emergency diesel generator temperature control valve design issues.

b. Findings

Introduction: The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Entergy did not provide an adequate procedure that assured emergency diesel generator (EDG) operability when it eliminated two unit-specific EDG maintenance procedures and created a new site-wide EDG maintenance procedure on April 26, 2006.

Description: The original EDG design required 170°F temperature control elements in the jacket water system, but was subsequently modified in 1990 requiring 180°F temperature control elements to account for a 10°F increase in design basis ultimate heat sink temperatures from 85°F to 95°F. On April 26, 2006, Entergy created a new site-wide EDG maintenance procedure that replaced existing site-specific EDG maintenance procedures, 2-GNR-017-ELC (Unit 2), "Emergency Diesel Generator 6-Year Inspection," Revision 0, and 3-GNR-022-ELC (Unit 3), "Emergency Diesel Generator 6-Year Inspection," Revision 2. The new procedure, 0-GNR-406-ELC, "Emergency Diesel Generator Six-Year Inspection," directed maintenance personnel to install 170°F temperature control elements in the jacket water temperature control valve instead of the 180°F control elements. The incorrect 170°F information was likely obtained from the superseded Unit 3 maintenance procedure and was applied to both units under the new 0-GNR-406-ELC procedure. IP-SMM-AD-102, "IPEC [Indian Point Energy Center] Implementing Procedure Preparation, Review, and Approval," requires performance of a technical review for new procedures. In addition, IP-SMM-AD-102, section 5.6, requires technical reviewers to, "review procedure activities to verify procedural integrity, adequacy, completeness, and technical accuracy."

Notwithstanding that the superseded Unit 3 maintenance procedure specified an incorrect temperature control element, the inspectors determined it was reasonable for the required technical review of the new procedure to identify the incorrect 170°F control element information because the Unit 3 design basis document, Unit 3 modification package, Unit 2 vendor technical manual, Unit 2 design basis document, Unit 2 modification package, and Unit 2 equipment database all identified the correct 180°F control element information.

The inspectors determined that Entergy's failure to provide an adequate EDG maintenance procedure when it created a new site-wide EDG maintenance procedure on April 26, 2006, was a performance deficiency. Entergy implemented the new six-year EDG maintenance procedure, 0-GNR-406-ELC, for the first time on December 20, 2006, and installed the wrong control elements on the 33 EDG. The maintenance procedure had not yet been performed on the remaining Unit 2 and Unit 3 EDGs.

This finding was identified as a result of inspector questioning during the Component Design Bases Inspection (CDBI) conducted in the fourth quarter of 2007, and documented in NRC Inspection Report 05000286/2007006. Although related to CDBI finding 05000286/2007006-04, the performance deficiency for this finding is a recent issue associated with the adequacy of a procedure upgrade; whereas, the performance deficiency for the CDBI finding is associated with an historical design control problem. Therefore, the current issue is being treated as a separate performance deficiency.

Analysis: Entergy's failure to provide an adequate EDG maintenance procedure when it created a new site-wide EDG maintenance procedure on April 26, 2006, was a

performance deficiency. This finding is more than minor because it was associated with the procedure quality 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. Specifically, the incorrect 170°F temperature control elements that were installed in the 33 EDG would not support EDG operability for service water temperatures above 85°F. This finding was evaluated using Phase 1 of IMC 0609 Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors determined that this issue was of very low safety significance (Green) because it was not a design or qualification deficiency, it did not represent a loss of safety function for a train or system, and it did not screen as potentially risk significant due to seismic, flooding or severe weather initiating events. The inspectors noted that although the 33 EDG would not be operable at the design basis service water temperature of 95°F, actual service water temperatures since December 20, 2006, did not exceed 85°F.

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance because Entergy did not ensure that EDG maintenance procedure 0-GNR-406-ELC was accurate when it was developed in April 2006. (H.2(c))

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances. Contrary to this, on April 26, 2006, Entergy created a new site-wide EDG maintenance procedure that directed personnel to install 170°F temperature control elements in the jacket water temperature control valve instead of the correct 180°F control elements. Subsequently on December 20, 2006, the new procedure was used on the 33 EDG, resulting in the wrong 170°F control elements being installed. Entergy initiated CR IP3-2007-04411, revised the maintenance procedure, and has initiated actions to install the correct temperature control elements prior to service water temperatures exceeding 85°F in the summer of 2008. Because the violation was of very low safety significance and entered into the CAP, this violation is being treated as an NCV per Section VI.A of the NRC Enforcement Policy: **NCV 05000286/2007005-01, Failure to Provide An Adequate EDG Maintenance Procedure.**

1R19 Post-Maintenance Testing (71111.19 – 5 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, tests demonstrated operational readiness and were consistent with design basis documentation; test instrumentation had current calibrations, and appropriate range and accuracy for the application; and tests were performed as written, and that applicable prerequisites were satisfied. Upon completion of the tests, the inspectors verified that equipment was returned to the proper alignment necessary to perform its safety function. Post-maintenance testing was evaluated against the requirements of 10 CFR 50, Appendix B, Criterion XI, "Test Control." The following post-maintenance activities were reviewed and represented five inspection samples:

- 32 boric acid transfer pump post-work test conducted on October 10, 2007, following motor replacement mechanical seal maintenance;
- 36 service water pump post-work test conducted on November 6, 2007, following motor replacement and pump overhaul;
- 33 service water Zurn strainer post-work test conducted on November 29, 2007, following maintenance and inspection;
- 3-PT-Q97 conducted on October 11, 2007, following replacement of failed 31 steam generator low-low level bistable, and;
- 3-PT-M62A conducted on December 6, 2007, following replacement of a failed Bus 3A Agastat undervoltage relay.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – 4 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 Specification, UFSAR, Technical Requirements Manual, and Entergy procedure requirements. The inspectors verified that: test acceptance criteria were clear; tests demonstrated operational readiness, and were consistent with design basis documentation; test instrumentation had accurate calibrations, and appropriate range and accuracy for the application; tests were performed as written; and applicable prerequisites were satisfied. Following the test, the inspectors verified that the equipment was capable of performing the required safety functions. The documents reviewed during this inspection are listed in the Attachment. The following surveillance tests were reviewed and represented four inspection samples, one of which was an In-service Inspection activity:

- 3-PT-M108, "RHR/SI [residual heat removal/safety injection] System Venting," Revision 7
- 3-PC-OL45A, "Calibration Procedure for Channel N38 Gamma-Metrics Excore Nuclear Instrumentation," Revision 0
- 3-PT-Q016, "EDG and Containment Temperature service water Valves SWN-1176 & 1176A and SWN-TCV-1104 & 1105," Revision 20
- 3-PT-M62A, "480V Undervoltage/Degraded Grid Protection System Bus 2A and 3A Functional," Revision 2

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness**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 Changesa. 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 Weaknessesa. 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.

2. Radiation Safety**Cornerstone: Occupational Radiation Safety**2OS3 Radiation Monitoring Instrumentation and Protective Equipmenta. 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

.1 Resident Inspector Baseline Inspection (71151 – 1 sample)

a. Inspection Scope

The inspectors reviewed performance indicator (PI) data for the cornerstone 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 documented in the Attachment.

Barrier Integrity Cornerstone

- Reactor Coolant System Leakage – July 2006 – September 2007

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

b. Findings

No findings of significance were identified.

.2 Security Inspector Baseline Inspection (71151 – 3 samples)

a. Inspection Scope

The inspectors reviewed 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, and to verify the PIs had been properly reported.

Physical Protection Cornerstone

- Fitness-for-Duty;
- Personnel Screening; and
- 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.

.3 Occupational Exposure Control Effectiveness (71151 – 1 sample)

a. Inspection Scope

The inspector reviewed implementation of Entergy'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 that involved locked high radiation areas, very high radiation areas, and unplanned exposures, against the criteria specified in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, to verify that all occurrences that met the NEI criteria were appropriately identified and reported.

b. Findings

No findings of significance were identified.

.4 Emergency Preparedness Cornerstone (71151 - 3 Samples)

a. Inspection Scope

The inspector reviewed data for the EP PIs which are: (1) Drill and Exercise Performance; (2) ERO Drill Participation; and (3) ANS Reliability. The inspector reviewed supporting documentation from drills and tests from October 2006 to September 2007, to verify the accuracy of the reported data. The acceptance criteria used for the review were 10 CFR 50.9 and NEI 99-02, Revision 5, "Regulatory Assessment Performance Indicator Guidelines."

b. Findings

No findings of significance were identified.

.5 RETS/ODCM Radiological Effluent Occurrences (IP 71151 – 1 sample)

a. Inspection Scope

The inspector reviewed a listing of relevant effluent release reports for the past four calendar quarters, for issues related to the public radiation safety performance indicator, 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 millirads/quarter beta air dose, and 7.5 millirads/quarter for organ dose for gaseous effluents.

The inspector reviewed the following documents to ensure Entergy 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; and
- Dose assessment procedures.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Routine Problem Identification and Resolution (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 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, 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 Annual Sample: Service Water System Piping Leaks (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

Introduction: The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy did not promptly identify and correct a degraded area of Unit 3 service water piping which subsequently leaked.

Description: On March 8, 2005, Entergy identified a portion of service water pipe during review of a radiography test in refueling outage 3R13 that was below the minimum wall thickness at weld PAB-90. PAB-90 is a weld located in one of two service water supply headers to the containment fan cooler units and is the weld immediately downstream of valve SWN-38, an eighteen inch butterfly valve. Entergy did not identify any other areas of pipe during the radiograph review that required repairs at this location. On March 26, 2007, during plant heat-up following refueling outage 3R14, a pin-hole leak developed at PAB-90 on the opposite side of the pipe from where the weld repair was made in 2005. This area was identified during 3R13 but was not repaired because it was still above the calculated minimum wall thickness. However, the degraded area was not entered into the corrective action process for follow-up inspections and

subsequently leaked in 3R14. The leak was located 1 inch above the weld in an area that is normally protected from corrosion by the concrete liner. Entergy performed localized ultrasonic testing (UT) to determine the extent of the flaw, and based on the UT results, performed a weld repair of the pin-hole leak. Entergy subsequently planned to replace the entire piping segment during the next scheduled refueling outage in 2009. On September 18, 2007, two pin-hole leaks were identified at PAB-90, several inches above the weld located directly above the repair that was performed six months earlier. The inspectors reviewed the weld repair documents for PAB-90, as well as previous ultrasonic testing results and the radiography test that was performed during 3R13 that was originally reviewed by Entergy Level III inspectors on March 8, 2005. Upon review of the 3R13 radiographs, the inspectors identified an area of piping with greater than 60 percent loss of wall thickness at the same location that developed two pin-hole leaks on September 18, 2007.

The inspectors determined that the degradation on the radiograph was readily apparent to NRC inspectors and should have been identified by the Level III engineer during 3R13. However, Entergy did not identify the degraded piping during the radiograph review. The inspectors determined that this was a performance deficiency because Entergy should have identified the degraded condition during 3R13 and initiated corrective actions to address the degraded condition.

In addition, the March 26, 2007, pin-hole leak that developed at PAB-90 provided Entergy with a second opportunity to identify the missed area of degradation on the 3R13 radiograph. However, Entergy did not review previous inspection results at PAB-90 when the pin-hole leak occurred. The inspectors determined that Entergy should have reviewed previous inspection results at PAB-90 for two reasons: to understand the rate of degradation given inspections at PAB-90 during 3R13 had not resulted in repairs prior to a leak developing; and to understand why the March 26, 2007, pin-hole leak had occurred in an uncommon area above the weld that should have been protected from corrosion by the internal concrete liner. A review of the 3R13 radiograph would have revealed the degraded area that subsequently developed two pin-hole leaks on September 18, 2007, because it was located only a few inches directly above the location that leaked on March 26, 2007.

Analysis: The inspectors determined that this finding was more than minor because if left uncorrected, it would become a more significant safety concern. Specifically, if the piping degradation was left uncorrected, the structural integrity of the safety-related service water piping would have been challenged. In addition, degradation above the weld indicated that loss of the internal protective concrete lining was occurring. Pieces of concrete lining that break away from the pipe wall could adversely impact structural integrity or result in partial clogging of components located downstream, such as the fan-cooler units, which are located downstream of weld PAB-90. The inspectors evaluated this finding using Phase 1 of IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors determined this finding was of very low safety significance (Green), because it was not a design or qualification deficiency, it did not represent a loss of safety function for a train or system, and it did not screen as potentially risk significant due to seismic, flooding or severe weather initiating events. The degraded service water pipe never resulted in system inoperability. The inspectors did not observe degraded flow conditions to the downstream fan-cooler units as a result of concrete liner degradation at PAB-90. In

addition, despite the pinhole leaks, the service water piping remained structurally adequate under postulated design basis seismic conditions.

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution because Entergy did not identify issues completely, accurately, and in a manner commensurate with their safety significance. Specifically, Entergy did not completely identify the degradation at weld PAB-90 during the review of the radiographs in 3R13, or following the pin-hole leak that occurred on March 26, 2007. (P.1(a))

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 this, Entergy did not promptly identify a degraded portion of safety-related service water piping during radiograph reviews on March 8, 2005, that subsequently developed two pin-hole leaks on September 18, 2007. The cause of the degraded piping was due to loss of the internal, protective concrete liner that resulted in elevated local corrosion of the carbon steel pipe in contact with the brackish, Hudson river water. The loss of concrete liner was determined to be a result of turbulent flow downstream of a butterfly valve located immediately upstream of weld PAB-90. Entergy requested and was granted a relief from code requirements to perform a plate repair at PAB-90, which was successfully performed on October 12, 2007. Entergy plans on replacing the entire portion of affected piping in 3R15 (March 2009). Because of the very low safety significance of this finding and because the finding was entered into the corrective action program as CR-IP3-2007-03630, this violation is being treated as an NCV, consistent with section VI.A.1 of the NRC Enforcement Policy: **NCV 05000286/2007005-02, Failure to Identify and Correct Degraded Service Water Piping that Subsequently Leaked.**

Observations

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 makes 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.

.3 Annual Sample: 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 condition reports, 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.

.4 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 normal corrective action program (CAP), such as trend reports, performance indicators, major equipment problem lists, maintenance rule assessments, and maintenance or CAP backlogs.

The inspectors reviewed Entergy's CAP database for the third and fourth quarters of 2007 to assess the total number and significance of condition reports written in various subject areas, such as individual department-generated CRs, or for particular equipment, such as emergency diesel generators, to identify notable trends, if applicable. The inspectors also reviewed Entergy's CAP 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.

.5 Annual Sample: Operator Workarounds Review (71152 – 1 sample)

a. Inspection Scope

The inspectors conducted a review of the aggregate impact of operator burdens and operator workarounds. The inspectors reviewed Entergy's implementation of procedures OAP-45, "Operator Burden Program, Revision 1, and PL-163, "Operations Expectations and Standards", Revision 2. The inspectors conducted control board walk downs, and discussed burdens with operators to determine the overall impact the deficiencies would have on operator response to plant events.

b. Findings and Observations

No findings of significance were identified.

The inspectors observed that operator workarounds and burdens were appropriately entered into the corrective action program and dispositioned commensurate with the safety significance.

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.

4OA6 Meetings, including Exit

Exit Meeting Summary

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

J. Pollock, Site Vice President
A. Vitale, General Manager, Plant Operations
D. Gagnon, Manager, Security
J. Janicki, Superintendent, Dry Cask Storage
T. Jones, Assistant to Vice President
R. Martin, Project Manager, Emergency Planning
R. Walpole, Manager, Licensing
B. Beckman, Manager, Maintenance
J. Dinelli, Assistant Operations Manager, Unit 3
F. Lord, Superintendent, Mechanical Maintenance
V. Cambigianis, Supervisor, Mechanical Design Engineering
R. Christman, Manager, Training and Development
A. Singer, Superintendent, Operations Training
D. Huntington, Senior Operations Instructor
T. Orlando, Engineering Director
B. Sullivan, Manager – Emergency Preparedness, Indian Point

LIST OF ITEMS OPEN, CLOSED, AND DISCUSSED

Open and Closed

05000286/2007005-01	NCV	Failure to Provide An Adequate EDG Maintenance Procedure
05000286/2007005-02	NCV	Failure to Identify and Correct Degraded Service Water Piping that Subsequently Leaked

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

OAP-048, "Seasonal Weather Preparation," Revision 4

Condition Reports

IP3-2007-04527

Section 1R04: Equipment Alignment

Procedures

3-OSP-CVCS-008, "Support Procedure – Boric Acid System Operation," Revision 0
3-COL-CVCS-1, "Chemical and Volume Control System," Revision 26
3-PT-Q132, "Emergency Boration Flow Path Valve CH-MOV-333," Revision 2

3-PT-2Y010, "Emergency City Water to Charging and Boric Acid Transfer Pumps," Revision 1
ENN-EE-S-007-IP, "Electrical Equipment Installation Standard," Revision 0
3-PMP-016-CVCS, "Inspection, Overhaul, Repair, or Replacement of Boric Acid Transfer
Pumps," Revision 12
3-COL-EL-005, "Diesel Generators," Revision 32
3-SOP-EL-001, "Diesel Generator Operation," Revision 38
3-COL-RW-2, "Service Water System," Revision 42

Drawings

9321-F-27363, "Flow Diagram Chemical & Volume Control System, Sheet 1" Revision 51
9321-F-27223, "Flow Diagram Service Water System," Revision 42

Other Documents

Work Request 00112194

Section 1R05: Fire Protection

Procedures

ENN-DC-161, "Transient Combustible Program," Revision 11
SMM-DC-901, "IPEC Fire Protection Program," Revision 2
Pre-Fire Plans 351A, 352, 355, 356, 357, 358, 380, and 385

Condition Reports

IP3-2007-03940

Section 1R06: Flood Protection Measures

Calculations

Vectra 0090-00066-C-004, "NYPA Indian Point Unit 3 Nuclear Power Plant – Fire Suppression
Effects Analysis," Revision 0

Other Documents

UE&C Letter IUP-3507, dated December 1, 1980, regarding 24 Inch Drains in the Diesel
Compartments
Westinghouse Plant Manual, Volume 1, Part 2, Page 3-220
Con Edison Letter dated January 23, 1973, service water piping ruptures in the Diesel
Generator Building

Drawings

9321-F-27363, "Flow Diagram Chemical & Volume Control System, Sheet 1," Revision 51

Section 1R07: Heat Sink Performance

Condition Reports

IP3-2002-02640 IP3-2004-00355 IP3-2005-05761

Work Orders

51434862 51466749 01638346 IP3-03-11101 IP3-02-20961

Procedures

0-SYS-409-GEN, "Belzona and Enecon Metal Repair Applications," Revision 0
HTX-006-IAC, "Instrument Air Compressor Closed Cooling Water Heat Exchanger
Maintenance," Revision 1

Miscellaneous

PR-32-115 PR-32-193 PD-04605 PD-04926 EPRI TR-110392

Section 1R11: Licensed Operator Requalification

Other Documents

Instructor Lesson Plan, 10LP-LOR-AOP021, "Security AOPs," Revision 2

Training Procedures

0AP-032, "Operations Training Program," Revision 8

Operating Procedures

3-AOP-INST-1, "Instrument/Controller Failure," Revision 4
3-AOP-SG-1, "Steam Generator Tube Leak," Revision 6
3-ECA-3.3, "SGTR Without Pressurizer Pressure Control," Revision 0
3-E-0, "Reactor Trip or Safety Injection," Revision 0
3-E-3, "Steam Generator Tube Rupture," Revision 0
3-AOP-CVCS-1, "Chemical and Volume Control System Malfunction," Revision 3
3-E-2, "Faulted Steam Generator Isolation," Revision 0
3-LOOP-1, "Loss of Offsite Power After SI," Revision 0
3-AOP-AIR-1, "Air Systems Malfunction," Revision 2
3-FR-S.1, "Response to Nuclear Power Generation/ATWS," Revision 0
3-AOP-LEAK-1, "Sudden Increase in RCS Leakage," Revision 4
3-AOP-FW-1, "Loss of Feedwater," Revision 6
3-RO01, "BOP Operator Actions During Use of EOPs," Revision 0
3-AOP-RCP-1, "Reactor Coolant Pump Malfunction," Revision 4
3-E-1, "Loss of Reactor or Secondary Coolant," Revision 0
3-ES-1.2, "Post LOCA Cooldown and Depressurization," Revision 0

Simulator Procedures

0-TQ-SM-101, Revision 2, "Simulator Modification Identification and Analysis"
0-TQ-SM-102, Revision 2, "New Training Load Validation, Review and Approval"
0-TQ-SM-103, Revision 3, "Simulator Deficiency Reporting"
0-TQ-SM-104, Revision 0, "Simulator Performance Test Program"
0-TQ-SM-105, Revision 0, "Simulator Software Control"
0-TQ-SM-106, Revision 1, "Core Performance Test"

Transient Tests:

(See Table)

Malfunction/Transient Tests:

(See Table)

Steady State Tests

(See Table)

Normal Evolution Tests:
(See Table)

Core Performance Tests (BOC)
(See Table)

Condition Reports/ Work Requests
CR-IP3-2007-03721

Completed Simulator Performance Tests

Type of Test	Title	Date(s) Performed
Malfunction	Loss of Instrument Air	4/17/07
Normal	Plant Shutdown From 100% to 0% Power	8/17/07
Steady-State	Mass Balance For Small Break LOCA	8/25/06
Steady-State	Steady State Operability Test	5/18/07
Malfunction	Loss of Condenser Vacuum	6/1/05
Malfunction	Failure of Automatic Rod Speed Control	6/6/05
Malfunction	Letdown Line Leak Inside Containment	5/16/05
Malfunction	Charging Pump Speed Control Failure	5/30/06, 6/26/02
Malfunction	Pressurizer Pressure Transmitter Failure	6/13/06, 8/9/02
Malfunction	Loss of Offsite Power	5/18/07
Malfunction	Pressurizer Pressure Control Failure (Low)	7/12/05
Malfunction	RCP Number 1 Seal Failure	1/25/06
Malfunction	Steam Line Break Inside Containment	9/24/07, 12/15/03
Malfunction	Gland Seal Regulator Failure	7/12/02, 9/26/07
Malfunction	Steam Generator Level Transmitter Failure (High)	11/23/03
Malfunction	Service Water Leakage to Containment	5/20/05
Malfunction	MBFP Turbine Speed Oscillation	11/19/06, 6/26/02
Malfunction	RCS Leak	5/31/07
Malfunction	Turbine Vibration	9/20/07
Transient	Simultaneous Trip of all Feedwater Pumps	5/22/07

Malfunction	RHR Pump Suction Line Break	12/7/05
Transient	Trip of a Single RCP	7/15/05
Transient	100% RCS Rupture With a Loss of Offsite Power	11/22/06
Malfunction	RCP Trip < P-8	11/18/05
Transient	Turbine Trip; Power < P-8	3/20/06
New Core	Core Performance Test	4/6/07
New Core	Reactor Startup	3/20/07
New Core	Initial Criticality	3/20/07
New Core	Zero Power Physics Testing	3/21/07

Section 1R12: Maintenance Effectiveness

Procedures

IP3-DBD-315, "Design Basis Document for the Heating, Ventilation and Air Conditioning Systems," Revision 1

Other Documents

Action Plan ISYS-APL-06-002, "Maintenance Rule (a)(1) Status of Unit 3 Control Room HVAC System"

EN-MA-125 Troubleshooting Plan, 32 CCRAC Unit Trips for CRs IP3-2007-04063, 04117, 04133, 04135

IP3-RPT-HVAC-01904, Maintenance Rule Basis Document, "Control Room HVAC Systems," Revision 0

Work Requests

00112192	00129212	00129487	IP3-05-15378
IP3-05-15380	IP3-05-15379	IP3-05-15377	IP3-06-21668
IP3-06-21669	IP3-06-21671	IP3-06-21672	

Condition Reports (CR-IP3)

2007-03613	2007-03818	2007-03577	2007-03603	2007-04135	2007-04133
2007-04115	2007-04117	2007-04152	2007-04162	2006-01895	2007-02534
2004-03163	2007-00794				

Audits and Self-Assessments

IP3LO-2005-00208, Maintenance Rule Self-Assessment, June 2005

IP3LO-2007-00226, Maintenance Rule Self-Assessment, June 18 - 21, 2007

QS-2005-IP-26, IPEC Maintenance Rule, dated 11/21/05

QS-2006-IP-25, IPEC Maintenance Rule, dated 10/4/06

Condition Reports (Biennial Inspection) (CR-IP3-)

2003-04727	2005-04077	2005-04118	2005-04595	2005-04620	2006-00013
2006-00023	2006-00024	2006-00095	2006-00096	2006-00229	2006-00254
2006-00396	2006-01116	2006-01423	2006-01590	2006-01665	2006-01707

2006-01726	2006-01816	2006-01921	2006-02152	2006-02232	2006-02590
2006-03293	2006-03520	2006-03562	2006-03701	2006-03973	2007-00104
2007-00289	2007-00506	2007-00631	2007-00839	2007-00916	2007-01084
2007-01482	2007-01532	2007-01801	2007-01818	2007-01861	2007-01891
2007-01994	2007-02040	2007-02293	2007-02621	2007-02686	2007-02724
2007-02788	2007-03014	2007-03086	2007-03135	2007-03211	2007-03411
2007-03412	2007-03413	2007-03416	2007-03865	2007-03957	2007-04153
2007-04168	2007-04485				

Maintenance Rule Monitoring Documents

Indian Point Energy Center Maintenance Rule Program Quarterly Report, First Quarter 2007
 IPEC Maintenance Rule Basis Document for 125V DC Power System, Revision 0
 IPEC Maintenance Rule Basis Document for CRD, Revision 1
 IPEC Maintenance Rule Basis Document for EDG, Revision 1
 IPEC Maintenance Rule Basis Document for RHR, Revision 1
 IPEC Maintenance Rule Basis Document for SW, Revision 0
 Maintenance Rule Action Plan - 31 Battery Charger (IP3-2005-05586), Revision 0
 Maintenance Rule Action Plan - CRD (IP3-2005-05167), Revision 1
 Maintenance Rule Expert Panel Meeting Minutes, dated 4/8/06 (2006-04), 6/12/07 (2007-03),
 8/14/07 (2007-04), 10/2/07 (2007-05), 11/13/07 (2007-06)
 Maintenance Rule Quarterly Report, 3rd Quarter 2007
 Maintenance Rule/System Health Matrix Unit 3, 3rd Quarter 2007
 NRC Regulatory Guide 1.160, Monitoring the Effectiveness of Maintenance at Nuclear Power
 Plants, Revision 2
 NUMARC 93-01, Industry Guideline For Monitoring the Effectiveness of Maintenance at Nuclear
 Power Plants, Revision 3

Miscellaneous

3-PT-M079C, "33 EDG Functional Test," dated 11/20/07
 3PT-Q01A, "#31 Station Battery Surveillance," dated 9/24/07
 3PT-Q092C, "33 Service Water Pump Train Operational Test," dated 11/29/07
 3PT-Q125, "Full Length Rods Movement Exercise," dated 8/17/07
 3PT-Q134A, "31 RHR Pump Functional Test," dated 11/6/07
 3Q/2007 Performance Summary - Indian Point 3
 CR-IP3-2003-04727 CA-1, Root Cause Analysis Report, Control Rod Drive Butt Splice Failures,
 dated 9/10/03
 EC #4078 Process Applicability Determination Form, dated 11/16/07
 Indian Point Energy Center Preventive Maintenance IP3 Performance Indicators, 1/07 - 11/07
 IPEC Top Ten Equipment Reliability Issues List, dated 12/12/07
 DER-00-01707
 TE-00-001215
 IPEC Maintenance Rule Basis Document for HVAC-CRDF, Revision 0

Procedures

3-PT-M108, "RHR/SI System Venting," Revision 8
 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-206, "Maintenance Rule (a)(1) Process," Revision 0
 EN-DC-207, "Maintenance Rule Periodic Assessment," Revision 0
 ENN-DC-150, "Condition Monitoring of Maintenance Rule Structures," Revision 1

ENN-MS-S-008, "Action Plans," Revision 2

System Health Reports & Trending

IP3 EDG Fuel Oil Water and Sediment Analysis, dated 1/12/06 - 12/12/07
No. 34 SI Accumulator Leak Rate Trending, 7/3/07 - 12/10/07
Unit 3 AFW System, 3rd Quarter 2007
Unit 3 CRD System, 3rd Quarter 2007
Unit 3 DC Power, 3rd Quarter 2007
Unit 3 EDG System, 3rd Quarter 2007
Unit 3 Residual Heat Removal System, 3rd Quarter 2007
Unit 3 Service Water System, 3rd Quarter 2007

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

Procedures

IP-SMM-WM-101, "On-Line Risk Assessment," Revision 2
Work Week Managers Operator's Risk Report, Work Week 0747
3-PT-M13A1, "Reactor Protection Logic Channel Functional Test (Reactor Power Greater Than 35% - P8)," Revision 7
3-PT-SA045, "Main Turbine Stop and Control Valves Exercise Test," Revision 4
ENN-DC-3000, "General Welding Procedure," Revision 1
SPO-SD-09, "On-Line Risk Assessment Process," Revision 0
EN-WM-101, "On-Line Work Management Process," Revision 1
3-PT-Q083, "RWST Instrument Check and Calibration," Revision 27

Work Orders

00124247 00123409 IP3-06-18139

Condition Reports

IP3-2007-03630 IP3-2007-03802

Section 1R15: Operability Evaluations

Procedures

EN-OP-104, "Operability Determinations," Revision 2
0-VLV-404-AOV, "Use of Air-Operated Valve Diagnostics," Revision 3
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
2-GNR-017-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
3-PT-R90E, "32 ABFP Local Operation Verification Test," Revision 11
3-PT-Q120B, "32 ABFP (Turbine Driven) Surveillance and IST," Revision 10

Condition Reports

IP3-2007-03630 IP3-2007-03802 IP3-2007-03676 IP3-2007-04411
IP3-2001-00107 IP3-2005-05779 IP3-2005-05352 IP3-2007-01713

Work Orders

51475514 00123786 IP3-02-20707

Calculations

INT-89-867

IP3-CALC-SWS-327, "EDG Run Time Without Service Water," Revision 0

Miscellaneous

DER-01-00107

MOD-90-03-158

Section 1R19: Post-Maintenance Testing

Procedures

0-STR-401-SWS, "Service Water Pump Strainers Inspection/Overhaul," Revision 2

3-PMP-012-SWS, "Service Water Pump Removal and Installation," Revisions 16 & 17

PMP-028-SWS, "Service Water Pump Inspection, Repair, and Overhaul," Revision 5

3-PT-V059F, "36 SWP Reference Test," Revision 0

ENN-EE-S-007-IP, "Electrical Equipment Installation Standard," Revision 0

3-PMP-016-CVCS, "Inspection, Overhaul, Repair, or Replacement of Boric Acid Transfer Pumps," Revision 12

3-PT-M62A, "480V Undervoltage/Degraded Grid Protection System Bus 2A and 3A Functional," Revision 2

3-PT-Q-97, "Steam Generator Analog Functional," Revision 12

Other Documents

Material Issue Ticket 80510000

Tagout 3-SW-015-36 SW Pump, Clearance No. 3C15-1

Procurement Engineering Technical Evaluation No. 99-002438, Revision 2

Chesterton Seal Drawing No. 33667, 35495

Work Orders

51478105 00126788 0018975 00109767 00125880 00129977

Condition Reports

IP3-2007-04415 IP3-2007-03820 IP3-2007-03773 IP3-2007-04333

IP3-2007-04585 IP3-2007-03864 IP3-2007-04210

Section 1R22: Surveillance Activities

3-PT-M108, "RHR/SI System Venting," Revision 7

3-PC-OL45A, "Calibration Procedure for Channel N38 Gamma-Metrics Excore Nuclear Instrumentation," Revision 0

3-IC-SI-18, "Full Power Alignment for the Gamma-Metrics Excore Nuclear Instrumentation System," Revision 4

3-PT-Q016, "EDG and Containment Temperature SW Valves SWN-1176 & 1176A and SWN-TCV-1104 & 1105," Revision 20

3-PT-M62A, "480V Undervoltage/Degraded Grid Protection System Bus 2A and 3A Functional," Revision 2

Condition Reports

IP3-2007-03865 IP3-2007-02724 IP3-2007-02059

Calculations

IP3-CALC-SWS-327, "EDG Run Time Without Service Water," Revision 0

Drawings

9321-F-27503 9321-F-27353 9321-LL-31173

Work Orders

51476670 51476671 51487189

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

"Alert and Notification Systems Design Report," August 1984
 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 0
 Maintenance Logs 2006 & 2007
 Sample of Corrective Actions related to the sirens

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

Table B-1
 ERO Roster, October 30, 2007
 Travel Time Study, April 2005
 IP-EP-AD9, "Notification Systems Testing and Maintenance," Revision 6
 IP-SMM-TQ-110, "Emergency Response Organization (ERO) Training Program," Revision. 2
 Off Hours Notification Drill Report, October 3, 2006
 Off Hours Notification Test Reports, 2006 & 2007

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

EN-EP-305, "Emergency Planning 10 CFR 50.54(q) Review Program," Revision 1
 EN-LI-100, "Process Applicability Determination," Revision 4

Review Numbers

IP-EP-AD13	IP-EP-360	EP-07-0011	IP-EP-430	IP-EP-120	IP-EP-241
IP-EP-250	IP-EP-210	IP-EP-260	IP-EP-220	IP-EP-310	IP-EP-230
IP-EP-330	IP-EP-240				

Section 1EP5: Correction of Emergency Preparedness Weaknesses

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 & 2007
 EP self-assessment from 2006 & 2007
 All Drill Reports from 2006 & 2007

Section 2OS3: Radiation Monitoring Instrumentation and Protective EquipmentProcedures

IP-EP-AD6, "Emergency Facilities and Equipment," Revision 11
 IP-EP-AD6-20, "Respiratory Protection Monthly Equipment Inventory," Revision 1
 IP-EP-AD6-21, "Respiratory Protection Quarterly Equipment Inventory," Revision 2
 RE-INS-7CH-3, "Calibration of the Merlin-Gerin CDM-21 Electronic Dosimeter Calibrator Using WCDM 2000," Revision 10
 RE-INS-7CH-4, "Characterization of the J.L. Shepherd 81-12, 142-10 and 149 Sources," Revision 5
 RE-INS-7CH-12, "Beam Source Check Sheet," Revision 10
 HP-3.202, "Calibration of Standard Radiation Sources," Revision 9
 HP-SQ-3.701, Daily Response Checks
 EN-RP-301, Radiation Protection Instrumentation Controls
 EN-RP-303, Source Checking of Radiation Protection Instrumentation
 EN-RP-304, Operation of Radiation Protection Counting Equipment
 O-RP-IC-102, Calibration of the Eberline ASP-1 with Neutron Detector
 PT-SA51, "Main Steam Line/High Range Containment Radiation Monitor Functional Test," Revision 1
 2-PC-R25, "Main Steam Line Radiation Monitors Radiation Calibration," Revision 12
 2-PC-R38, "High Range Containment Area Radiation Monitor," Revision 2
 2-PC-R15B, "Seal Table Area Radiation Monitor," Revision 15
 3-PC-R40, "Main Steam Line Radiation Monitor Calibration (R-62)," Revision 7
 3-PC-OL-48, "Fuel Storage Building Radiation Monitor Calibration (R-5)," Revision 3
 3-PC-R46A&B, "Containment High Range Radiation Monitor Calibration (R-25, R-26)," Revision 14
 3-PC-OL-53A, "Process Radiation monitors R11/12 Calibration," Revision 2
 3-PC-R14, "Process Radiation Monitor R-14 Calibration," Revision 20
 3-PC-OL-49A, "Steam Generator Blowdown Radiation Monitor Calibration (R-19)," Revision 1

Condition Reports:

IP2-2007-3055	IP2-2007-3187	IP2-2007-3381	IP2-2007-3617
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 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

Other Documents

Quality Assurance Audit No. QA-15-2005-IP-1, "IPEC Radiological Waste Program"
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Condition Reports:

IP2-2005-0482	IP2-2005-1153	IP2-2005-3617	IP2-2005-4365
IP2-2006-0928	IP3-2006-0727	IP3-2006-2062	IP2-2007-2843

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Procedures

EN-EP-201, "Performance Indicators," Rev. 6
EN-LI-114, "Performance Indicator Process," Revision 2
0-SOP-LEAKRATE-001, "RCS Leakrate Surveillance, Evaluation and Leak Identification,"
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Other Documents

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Public Notification Systems PI data, October 2006 – September 2007
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Section 4OA2: Problem Identification and Resolution

Procedures

EN-LI-121, "Energy Trending Process," Revision 6
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IP3-99-03483	IP3-05-10292	IP3-07-17850	IP3-02-20085
IP3-05-14121			

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RT-05R046
UT-05UT210
IP3-UT-07-049
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IP-CALC-07-00083, "Weld Repair for Leak u/s of SWN-38, Line 408," Revision 0
TS-MS-027, "Specification for Service Water Piping & Piping Components," Revision 3
Unit 3 Service Water System Health Report - Second Quarter 2007
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Section 40A5: Other ActivitiesProcedures

IPEC-EP, "Emergency Plan," Revision 5
 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
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 ENN-HR-132, "Exempt Overtime," Revision 0
 EN-OP-115, "Conduct of Operations," Revision 3
 OAP-115, "Operations Commitments and Policy Details," Revision 6

Condition Reports

CR-IP2-2007-05189

LIST OF ACRONYMS

ABFP	Auxiliary Boiler Feedwater Pump
AFW	Auxiliary Feedwater
ANS	Alert and Notification System
AR	Assignment Request
CAP	Corrective Action Program
CDBI	Component Design Bases Inspection
CFR	Code of Federal Regulations
CR	Condition Report
CRD	Control Rod Drive
DAW	Dry Active Waste
DC	Direct Current
DEP	Drill and Exercise Performance
DOT	U.S. Department of Transportation
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EDO	Executive Director of Operations
EP	Emergency Preparedness
ERO	Emergency Response Organization
°F	Fahrenheit
FSAR	Final Safety Analysis Report
JPM	job performance measures
IMC	Inspection Manual Chapter
IPEC	Indian Point Energy Center
IP2	Indian Point Unit 2
IP3	Indian Point Unit 3
MR	Maintenance Rule
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NIST	National Institute of Standards and Technology

NRC	Nuclear Regulatory Commission
OA	Other Activities
PARS	Publicly Available Records System
PCP	Process Control Program
PI	Performance Indicator
PI&R	Problem Identification and Resolution
RHR	Residual Heat Removal
RP	Radiation Protection
SCBA	Self-Contained Breathing Apparatus
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
SI	Safety Injection
SSCs	Structures, Systems, and Components
SW	Service Water
SWR	Simulator Work Request
UFSAR	Updated Final Safety Analysis Report