



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406

November 9, 2007

Mr. Fred R. Dacimo  
Site Vice President  
Entergy Nuclear Operations, Inc.  
Indian Point Energy Center  
450 Broadway, GSB  
P.O. Box 249  
Buchanan, NY 10511-0249

**SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 3 - NRC INTEGRATED  
INSPECTION REPORT 05000286/2007004**

Dear Mr. Dacimo:

On September 30, 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 October 3, 2007, 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 one NRC-identified inspection finding of very low safety significance (Green). The finding was also a violation of NRC requirements. However, because of the very low safety significance, and because it was entered into your corrective action program, the NRC is treating the finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 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 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of

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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. 05000286/2007004  
w/Attachment: Supplemental Information

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**SUNSI Review Complete: BDW (Reviewer's Initials)**

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**U.S. NUCLEAR REGULATORY COMMISSION**

REGION I

Docket No.: 50-286

License No.: DPR-64

Report No.: 05000286/2007004

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 3

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

Dates: July 1, 2007 through September 30, 2007

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## SUMMARY OF FINDINGS

IR 05000286/2007-004; 07/01/2007 - 09/30/2007, Indian Point Nuclear Generating Unit 3; Maintenance Effectiveness.

The report covered a three-month period of inspection by resident and region-based inspectors. One Green finding was identified. 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 the 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 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Entergy did not monitor the performance or condition of the emergency lighting system against licensee-established goals, in a manner sufficient to provide reasonable assurance that the system was capable of fulfilling its intended function. Specifically, in January 2007, Entergy returned the emergency lighting system to a 10 CFR 50.65(a)(2) status without taking appropriate corrective action when established goals were not met in accordance with its action plan. Entergy entered this issue into their corrective action program, and is performing a 10 CFR 50.65(a)(1) evaluation for the emergency lighting system. Entergy also plans to review system performance over the last two years to ensure previous functionality determinations have appropriate engineering bases.

The inspectors determined that this finding was more than minor because it was similar to Example 7.a in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues." Specifically, Entergy failed to take appropriate corrective action when established goals were not met in accordance with its Maintenance Rule (a)(1) action plan for the emergency lighting system. The inspectors evaluated the significance of this finding using Phase 1 of IMC 0609, Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that this finding was of very low safety significance because the degradation of safe shutdown functions was low, since the majority of emergency lights were available to support safe-shutdown operator actions in the event of a fire and loss of normal lighting. In addition, backup portable emergency lights and flashlights were available to operators. The inspectors determined this finding had a cross-cutting aspect in the area of human performance because Entergy did not use conservative assumptions when determining the functionality of degraded emergency lights and whether identified emergency light functional failures were maintenance preventable. (H.1(b)) (Section 1R12)

B. Licensee-Identified Violations

None.

## REPORT DETAILS

### Summary of Plant Status

Indian Point Nuclear Generating Unit 3 began the inspection period at full power and remained at or near full power for the entire 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 reviewed Entergy's adverse weather procedures, operating experience, corrective action program, Updated Final Safety Analysis Report (UFSAR), Technical Specifications, operating procedures, and applicable plant documents to determine the types of adverse weather challenges to which the site is susceptible.

The inspectors performed plant walkdowns and reviews to verify that plant features and procedures for operation and continued availability of the ultimate heat sink during adverse weather were appropriate including equipment availability for performance of the reactor shutdown function under the weather conditions assumed prior to shutdown. The documents reviewed during this inspection are listed in the Attachment. The auxiliary feedwater system, offsite power system, and emergency diesel generators are risk-significant systems that are required to be protected from adverse weather conditions and were selected for inspection. Collectively, this inspection represented one inspection sample of risk-significant systems.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment

##### .1 Partial Walkdown (71111.04Q - 5 samples)

##### a. Inspection Scope

The inspectors performed five partial system walkdowns to verify the operability of redundant or diverse trains and components during periods of system train unavailability or following periods of maintenance. The inspectors referenced the system procedures, the 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 these inspections are listed in the Attachment. The inspectors performed the following partial walkdowns:

- 31 and 33 emergency diesel generators (EDGs) during 32 EDG maintenance activities;
- 31 charging pump during 32 charging pump maintenance activities;
- 33 residual heat removal pump following testing activities;
- 33 EDG following testing activities; and
- Mini-containment system for residual heat removal valve 885A.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 10 samples)

a. Inspection Scope

The inspectors conducted a tour of several fire areas to assess the material condition and operational status of fire protection features. The inspectors verified, consistent with applicable administrative procedures, that: combustibles and ignition sources were adequately controlled; passive fire barriers, manual fire-fighting equipment, and suppression and detection equipment were appropriately maintained; and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with Entergy's fire protection program. The inspectors evaluated the fire protection program against the requirements of Licensee Condition 2.H. The documents reviewed are listed in the Attachment. This inspection represented 10 inspection samples for fire protection tours and were conducted in the following areas:

- Fire Zone 9;
- Fire Zones 5, 6, 7, 8;
- Fire Zones 10, 36A, 101A, 102A;
- Fire Zones 1, 1A;
- Fire Zones 2, 2A;
- Fire Zone 58A;
- Fire Zone 23;
- Fire Zone 52A;
- Fire Zone 57A; and
- Fire Zone 65A.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (IP 71111.07B - 3 samples)

a. Inspection Scope

Based on a plant specific risk assessment, past inspection results, recent operational experience, and resident inspector input, the inspectors selected the following heat exchangers (HXs) for review:

- "A" component cooling water heat exchanger;
- "B" emergency diesel generator jacket water and lube oil coolers;
- "B" high head safety injection pump coolers.

The inspectors reviewed Entergy's inspection, maintenance, chemical control, and performance monitoring methods and frequency for the selected components and systems to determine whether potential deficiencies could mask degraded performance, and to assess the capability of the HXs to perform their design functions. The inspectors evaluated the associated Indian Point Unit 3 programs to assess whether they conformed to Entergy's commitments to NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment." In addition, the inspectors evaluated whether any potential common cause heat sink performance problems could affect multiple HXs in mitigating systems or result in an initiating event.

The inspectors reviewed system health reports, HX and service water (SW) pipe inspection records, eddy current test results, performance and surveillance test results, as-left HX tube plugging, and design specifications and calculations. The inspectors compared as-found HX inspection results, and performance and surveillance test results to established acceptance criteria to determine whether the as-found conditions were acceptable and conformed to design basis assumptions for heat transfer capability. The inspectors evaluated performance trends to assess whether the inspection and test frequencies were adequate to identify degradation prior to loss of heat removal capabilities below their design requirements. In addition, the inspectors assessed Entergy's methods to monitor and control bio-fouling, corrosion, erosion, and silting to verify whether Entergy's methodology and acceptance criteria, as-implemented, were adequate.

The inspectors performed field walkdowns of the selected HXs, portions of the SW system piping, selected SW valve pits, and the intake structure to independently assess the material condition of these systems and components. In addition, the inspectors viewed several SW buried piping inspection videos from refueling outage 3R13, reviewed work order history, and discussed system health with the respective system engineers. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Inspection (71111.11Q - 1 sample)a. Inspection Scope

On September 17, 2007, the inspectors observed a licensed-operator simulator evaluation to verify that operator performance was adequate and that evaluators were identifying and documenting crew performance problems. The inspectors evaluated the performance of risk-significant operator actions, including the use of emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operation and manipulation, and the oversight and direction provided by the shift manager. The inspectors also reviewed simulator fidelity with respect to the actual plant. Licensed operator training was evaluated against the requirements of 10 CFR Part 55, "Operators' Licenses." The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 3 samples)a. Inspection Scope

The inspectors reviewed performance-based problems associated with the structures, systems, or components (SSCs) listed below, to assess the effectiveness of the maintenance program:

- 34 fan cooler unit cable splice failure extent of condition;
- Emergency lighting system; and
- Service water system leaks.

The inspectors reviewed system health reports, maintenance backlogs, and Maintenance Rule basis documents, and evaluated the maintenance program against the requirements of 10 CFR 50.65. The documents reviewed are listed in the Attachment.

In addition, reviews focused on:

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

b. Findings

Introduction: The inspectors identified a Green, non-cited violation (NCV) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Entergy did not monitor the performance or condition of the emergency lighting system against licensee-established goals in a manner sufficient to provide reasonable assurance that the system was capable of fulfilling its intended function.

Description: The emergency lighting system consists of 157 emergency lights and provides battery backup lighting during a 10 CFR 50, Appendix R fire event for access to and egress from locations of alternate safe shutdown equipment and instruments. The system was initially placed in 10 CFR 50.65 (a)(1) status in April 2004, when Entergy determined that 59 maintenance preventable functional failures (MPFF) had occurred over the previous three years, predominantly due to premature battery failures. Entergy developed an action plan to improve performance of the system, which included replacement of all batteries on a periodic basis not to exceed 5 years. Entergy continued to experience premature battery failures in 2005 and attributed the majority of failures to high temperature environments. Subsequently, Entergy developed two technical evaluations to address premature battery failures for two models of emergency lights. Technical evaluation TE-06-002150 addressed the use of high temperature sealed batteries, and technical evaluation TE-06-001454 addressed the use of high temperature charge cards. Entergy identified that the new high temperature batteries of TE-06-002150 had a shorter life expectancy than the originally installed batteries and elected to perform replacements of these new batteries every two years. Entergy updated the emergency lighting action plan to switch the TE-06-002150 emergency lights to the high temperature battery as each light reached its 5-year replacement schedule, followed by new battery replacements every two years. No formal plan was created for installing high temperature charge cards in the emergency lights affected by TE-06-001454.

The emergency lighting 10 CFR 50.65 (a)(1) action plan required that the emergency lighting system be monitored for three consecutive one-month periods with no additional MPFFs prior to returning the system to 10 CFR 50.65 (a)(2) status. In January 2007, Entergy determined that this requirement had been met and returned the emergency lighting system to 10 CFR 50.65 (a)(2) status.

The inspectors reviewed condition reports on the emergency lighting system that were generated during the three-month monitoring period discussed above and determined that the Maintenance Rule (a)(1) action plan performance goals were not met. The inspectors identified that two MPFFs occurred during the months of October and December 2006. These two functional failures involved premature failures of batteries, because the corrective actions identified in the technical evaluations had not been implemented. Additionally, the inspectors noted that Maintenance Rule applicability and functionality determinations performed by licensee personnel for the condition reports did not consistently provide complete engineering bases for functionality.

The inspectors determined that returning the emergency lighting system to 10 CFR 50.65 (a)(2) status without meeting the Maintenance Rule (a)(1) action plan performance goals was a performance deficiency. Entergy did not meet the requirements of 10 CFR

50.65(a)(1), which specifies, in part, that when the performance or condition of a structure, system, or component does not meet established goals, appropriate corrective action shall be taken. The inspectors concluded that the cause of this deficiency was within Entergy's ability to foresee and correct and should have been prevented. Traditional enforcement does not apply because there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements or Entergy's procedures.

Analysis: The inspectors determined that this finding was more than minor because it was similar to Example 7.a in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues." Specifically, Entergy failed to take appropriate corrective action when established goals were not met in accordance with its Maintenance Rule (a)(1) action plan for the emergency lighting system. The inspectors evaluated the significance of this finding using Phase 1 of IMC 0609, Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that this finding was of very low safety significance because the degradation of safe shutdown functions was low, since the majority of emergency lights were available to support safe-shutdown operator actions in the event of a fire and loss of normal lighting. In addition, backup portable emergency lights and flashlights were available to operators.

The inspectors determined that this finding had a cross-cutting aspect in the area of human performance because Entergy did not use conservative assumptions when determining functionality of degraded emergency lights and whether the identified functional failures were maintenance preventable. Specifically, Entergy assumed the degraded emergency lights were functional without a complete engineering basis, and incorrectly determined that functional failures were not maintenance preventable. (H.1(b))

Enforcement: 10 CFR 50.65(a)(1) requires, in part, that licensees monitor the performance or condition of SSCs within the scope of the rule as defined by 10 CFR 50.65(b) against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. When the performance or condition of a structure, system, or component does not meet established goals, appropriate corrective action shall be taken. Contrary to the above, during the three months prior to January 2007, Entergy failed to take appropriate corrective action when the established goals of the Maintenance Rule (a)(1) action plan were not met. Specifically, inspectors identified MPFFs in condition reports in October 2006 and December 2006 where Entergy inappropriately determined that degraded emergency lights were functional. As a result, these functional failures were not identified or evaluated to determine if they were maintenance preventable, and Entergy did not take appropriate corrective action. Entergy entered this issue into the corrective action program (CR IP2-2007-03543) and is performing a 10 CFR 50.65 (a)(1) evaluation for the emergency lighting system and developing a new (a)(1) action plan to address system performance. In addition, Entergy plans to review condition reports over the last two years to determine if additional functional failures should have been identified and whether functional failures that were maintenance preventable were appropriately classified. Because this issue is of very low safety significance and is entered into the corrective action program, this violation is being treated as an NCV consistent with

Section VI.A.1 of the NRC Enforcement Policy: **(NCV 05000286/2007004-01, Failure to Monitor Emergency Lighting System in accordance with 10 CFR 50.65 (a)(1) Action Plan).**

1R13 Maintenance Risk Assessment and Emergent Work Control (71111.13 - 6 samples)

a. Inspection Scope

The inspectors reviewed maintenance activities to verify that the appropriate risk assessments were performed prior to removing equipment for work. The inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. For emergent work, 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 were reviewed:

- Work order (WO) IP3-05-22103, auxiliary feedwater room temperature sensor calibration;
- WO IP3-06-20475, safety injection logic testing;
- WO 51478748, flow control valve FCV-1113 leakby;
- WO 51475514, reactor protection logic testing;
- WO 00122244, 32 charging pump degraded suction check valve; and
- WO 00123786, 32 auxiliary boiler feedwater pump loss of speed control.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 6 samples)

a. Inspection Scope

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

- CR IP3-07-02789, 32 auxiliary boiler feedwater pump steam supply leakby;
- CR IP3-07-02724, residual heat removal system gas voids;
- CR IP3-07-03275, residual heat removal system suction valve differential pressure;
- CR IP3-07-03130, 33 safety injection pump degraded agastat relay;
- CR IP3-07-03318, auxiliary feedwater suction piping seismic interaction; and
- CR IP3-07-03515, control room ventilation during damper F-2 failure.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 6 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 Entergy. 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, with applicable prerequisites satisfied. Upon completion, 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 Part 50, Appendix B, Criterion XI, "Test Control." The documents reviewed during this inspection are listed in the Attachment. The inspectors reviewed the following post-maintenance activities:

- WO 51477467, 32 boric acid transfer pump following maintenance;
- WO 51487533, pressure control valve PCV-1139 following maintenance;
- WO IP3-06-19882, 32 emergency diesel generator following maintenance;
- WO IP3-05-22103, 32 auxiliary boiler feedwater pump following maintenance;
- WO 00120465, 'A' steam generator water level bistable following repairs; and
- WO 51467706, 32 charging pump following suction valve repairs.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 7 samples)

a. Inspection Scope

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

surveillance tests (one RCS leakage rate sample, one inservice testing sample, and five other surveillance tests):

- 3-PT-M13B1, "Reactor Protection Logic Channel Functional Test," Revision 12;
- 3-PT-M14B, "Safety Injection System Logic Functional Train B," Revision 3;
- 3-PT-Q062C, "33 Charging Pump Operability Test," Revision 9;
- 0-SOP-Leakrate-001, "Reactor Coolant System (RCS) Leakrate Surveillance, Evaluation, and Leak Identification," Revision 0;
- 3-PT-Q116C, "33 Safety Injection Pump Functional Test," Revision 12;
- 3-PT-Q97, "Steam Generator Level Analog Functional," Revision 11; and
- 3-PC-OLOIC1, Reactor Coolant Loop Narrow Range Temperature Instrument Calibration (Loop 1)," Revision 3.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 1 sample)

a. Inspection Scope

The inspectors evaluated activities associated with the leak repair conducted on the 34 main steam isolation valve in accordance with work order 00119847 on September 13, 2007. The inspectors verified that the installation was consistent with the modification documentation, the drawings and procedures were updated as applicable, and the post-installation testing was adequate. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness (EP)**

1EP2 Alert and Notification System Evaluation (IP 71114.02 - 1 sample)

a. Inspection Scope

A region-based specialist inspector reviewed Entergy's activities related to the existing Indian Point alert and notification system (ANS), and reviewed the progress made in the design and installation of a new siren system. This 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.

The new siren system 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. In January 2007,

Entergy requested an extension of the deadline for completing the ANS project as described in the Confirmatory Order. The Confirmatory Order set a January 30, 2007, deadline for completing installation. Entergy's extension request cited several issues that were beyond their control, as the basis for the delay. On January 23, 2007, the NRC granted Entergy's extension request and established April 15, 2007, as the new installation completion date. The licensee conducted a full-system demonstration test of the new ANS on April 12, and the results of that test failed to meet the acceptance criteria for the new system. On April 13, 2007, Entergy requested another extension which was subsequently denied. On April 23, 2007, the NRC issued a Notice of Violation (NOV) and civil penalty for Entergy's failure to comply with the siren operability date in the Confirmatory Order. On May 23, 2007, Entergy responded to the NOV and committed to August 24, 2007, as the latest date anticipated for declaring the new ANS operable.

On August 30, the NRC issued a NOV to Entergy due to its failure to take timely and necessary actions to ensure the Federal Emergency Management Agency's (FEMA) approval for the use of the ANS by August 24, 2007. On September 12, 2007, FEMA issued a letter indicating that the new ANS was not adequate in the areas of acoustics, sound blockage from foliage, and control systems. In a letter dated September 21, 2007, Entergy requested a meeting with FEMA to discuss the technical aspects of Entergy's proposed plans and determine a mutually acceptable schedule for resolving the open items.

The inspectors conducted the following onsite inspection activities during this quarter:

- Observed the full-volume sounding to obtain far-field acoustical data (August 9, 2007); and
- Met with Entergy representatives to discuss and obtain complete back-up battery testing results (August 13 - 14, 2007).

The inspectors also inspected the status of and corrective actions for the current ANS to assure that Entergy was appropriately maintaining the system, including the quarterly full-system growl test of the current ANS to demonstrate its functionality. Inspectors were on site on September 12, 2007, to observe and verify the performance of the current ANS during the annually-conducted full-volume test of the current ANS.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 - 1 sample)

a. Inspection Scope

The inspectors observed an emergency preparedness drill conducted on September 17, 2007. The inspectors used NRC Inspection Procedure 71114.06, "Drill Evaluation," as guidance and criteria for evaluation of the drill. The inspectors observed

the drill and critiques that were conducted from the participating facilities onsite, including the Indian Point Unit 2 plant simulator, and the emergency operations facility. The inspectors focused the reviews on the identification of weaknesses and deficiencies in classification and notification timeliness, quality, and accountability of essential personnel during the drill. The inspectors observed Entergy's critique and compared Entergy's self-identified issues with the observations from the inspectors' review to ensure that performance issues were properly identified.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety (OS)**

2OS1 Access Control to Radiologically Significant Areas (71121.01 - 14 samples)

a. Inspection Scope

During July 16 through 19, 2007, the inspectors conducted the following activities to verify that the licensee was properly implementing physical, engineering, and administrative controls for access to high radiation areas, and other radiologically controlled areas, and that workers were adhering to these controls when working in these areas. Implementation of the access control program was reviewed against the criteria contained in 10 CFR 20, Technical Specifications, and the licensee's procedures.

- (1) There were no occupational exposure cornerstone performance indicator incidents during the current assessment period.
- (2) The inspectors walked down exposure significant work areas of the plant (both Units 2 and 3) and reviewed licensee controls and surveys to determine if licensee surveys, postings, and barricades were acceptable and in accordance with regulatory requirements.
- (3) The inspectors walked down exposure significant work areas of the plant (both Units 2 and 3) and conducted independent surveys to determine whether prescribed radiation work permit and procedural controls were in place and whether licensee surveys and postings were complete and accurate.
- (4) There were no internal dose assessments greater than 50 mrem during 2007.
- (5) The licensee's physical and programmatic controls for highly activated materials stored underwater in the Unit 2 and Unit 3 spent fuel pools were reviewed and evaluated through observation and a review of the applicable access control procedure.

- (6) A review of licensee radiation protection program self-assessments and audits during 2007 was conducted to determine if identified problems were entered into the corrective action program for resolution.
- (7) Seven condition reports associated with the radiation protection access control and ALARA areas between March 2007 and July 2007, were reviewed and discussed with licensee staff to determine if the follow-up activities were being conducted in an effective and timely manner commensurate with their safety significance.
- (8) Based on the condition reports reviewed, repetitive deficiencies were screened to determine if the licensee's self-assessment activities were identifying and addressing these deficiencies.
- (9) There were no Occupational Exposure Performance Indicator incidents reported during the current assessment period.
- (10) Changes to the high radiation area and very high radiation area procedures since the last inspection in this area were reviewed and management of these changes were discussed with the Radiation Protection Manager.
- (11) Controls associated with potential changing plant conditions to anticipate timely posting and controls of radiation hazards was discussed with a radiation protection supervisor.
- (12) All accessible locked high radiation area entrances in both Units 2 and 3 were verified to be locked through challenging the locks or doors.
- (13) Several radiological condition reports were reviewed to evaluate if the incidents were caused by radiation worker errors and determine if there were any trends or patterns and if the licensee's corrective actions were adequately addressing these trends.
- (14) Several radiological condition reports were reviewed to evaluate if the incidents were caused by radiation protection technician errors and determine if there were any trends or patterns and if the licensee's corrective actions were adequately addressing these trends.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02 - 2 samples)

a. Inspection Scope

During July 16 through 19, 2007, the inspectors conducted the following activities to verify that the licensee was properly maintaining individual and collective radiation

exposures as low as is reasonably achievable (ALARA). Implementation of the ALARA program was reviewed against the criteria contained in 10 CFR 20.1101(b) and the licensee's procedures.

- (1) The procedure and methodology for adjusting work activity exposure estimates was evaluated to include revisions for emergent work and unexpected radiological conditions. The methodology for the exposure estimate adjustments was evaluated with respect to sound radiation protection and ALARA principles and to ensure the revised exposure estimates provided an effective ALARA performance measure.
- (2) Based on the condition reports reviewed, repetitive deficiencies in the ALARA program were screened to determine if the licensee's self-assessment activities were identifying and addressing these deficiencies.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES (OA)**

4OA1 Performance Indicator Verification (71151 - 5 samples)

a. Inspection Scope

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

Mitigating Systems Cornerstone

- Mitigating Systems Performance Index – RHR (October 2006 – June 2007)
- Mitigating Systems Performance Index – HPI (October 2006 – June 2007)
- Mitigating Systems Performance Index – AFW (October 2006 – June 2007)
- Mitigating Systems Performance Index – EAC (October 2006 – June 2007)
- Mitigating Systems Performance Index – CW (October 2006 – June 2007)

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

b. Findings

No findings of significance were identified.

#### 4OA2 Identification and Resolution of Problems

##### .1 Routine Problem Identification and Resolution (PI&R) Program Review

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help 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 (CAP). The review was accomplished by accessing Entergy's computerized database for condition reports (CRs) and attending CR screening meetings.

Additionally, In accordance with the baseline inspection modules, the inspectors selected CAP items across the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for additional follow-up and review. The inspectors assessed Entergy's threshold for problem identification, the adequacy of the cause analyses, extent of condition review, and operability determinations, and the timeliness of the specified corrective actions. The CRs reviewed are listed in the Attachment.

#### 4OA5 Other Activity

##### Groundwater Contamination Investigation

###### a. Inspection Scope

Continued inspection of Entergy's plans, procedures, and characterization activities affecting the contaminated groundwater condition at Indian Point, relative to NRC regulatory requirements, was authorized by the NRC Executive Director of Operations in a Reactor Oversight Process deviation memorandum dated October 31, 2005 (ADAMS Accession Number ML053010404) and renewed on December 11, 2006 (ADAMS Accession Number ML063480016). Accordingly, continuing oversight of licensee progress has been conducted throughout this quarterly inspection report period, which included: onsite review of licensee performance, progress, and achievements; independent split sample analyses of selected monitoring wells; expanded sampling of the edible portions of various fish collected from multiple locations in the Hudson River; review of an onsite underground auxiliary steam pipe leak; and frequent communication of NRC observations with interested Federal, State, and local government stakeholders.

In July and August 2007, NRC staff and U.S. Geological Survey (USGS) scientists, in consultation with representatives of New York State Department of Environmental Conservation (DEC), conducted an independent assessment of selected data and information developed by Entergy and its geophysical contractor relative to fracture flow modeling, and groundwater characterization relative to flow and transport.

The methodology applied by USGS utilized data collected from downhole geophysical and flow logs conducted by Geophysical Applications, Inc, under the direction of the Entergy's principal contractor for the groundwater investigations, GeoEnvironmental, Inc. (GZA). The geophysical data (i.e., caliper, optical and acoustic televiwer, fluid resistivity and temperature logs), fracture mapping and flow logs were processed and visualized

with a computer-based system, WELLCAD. The method permitted a systematic mapping of fracture orientations, density, associated flow conditions and properties using composite portrayals of vertical plots of the geophysical logs and hydraulic test data and analyses. These composite portrayals facilitated comparisons and analyses of selected IPEC monitoring wells for the determination of the location and direction of discrete high flow zones, including associated flux and transmissivity. It is expected that the information and analyses will aid the NRC and USGS staff in evaluations of GZA's conceptual groundwater flow and transport model that was derived from previous hydraulic pump and tracer tests conducted on selected monitoring wells.

b. Findings and Observations

No findings of significance were identified.

The fracture flow assessment provided an effective means of visualizing fracture zones and properties of certain IPEC monitoring wells; and provided an enhanced conceptualization of groundwater flow and transport characteristics which is important to the NRC's overall assessment of the licensee's groundwater modeling and characterization. The NRC and USGS will apply the knowledge gained from this assessment for independent review of Entergy's characterization of groundwater behavior, its selection of monitoring locations and performance indicators for long-term site groundwater monitoring, and its determination of remediation strategies, as appropriate. This assessment provides another tool to be used to effectively verify and validate that Entergy's groundwater modeling and dose assessment methods continue to assure that public health and safety, and protection of the environment is maintained.

During this period, the NRC continued split sampling of selected monitoring wells for independent analysis by the Oak Ridge Institute for Science and Education, Environmental Site Survey and Assessment Program (ORISE/ESSAP) radioanalytical laboratory. The NRC's assessment of the licensee's sample analytical results data indicated that the licensee's analytical contractor reported final sample results that were comparable with the NRC's analytical results.

Fish samples were also split and independently analyzed during this period. The samples were collected from three separate locations on the Hudson River (i.e., an area in the near vicinity of the plant, the Roseton control location (20-30 miles, up river), and the Catskills region (about 80 to 90 miles, up river)). The NRC analyzed edible portions of the fish samples, commensurate with the requirements of the environmental monitoring program and the existing pathway for exposure from liquid radiological releases to the Hudson River. None of the 18 samples indicated any detectable radioactivity distinguishable from background (i.e., all samples were less than the Minimum Detectable Activity established by ORISE for gamma and strontium-90 radionuclides).

The NRC's ORISE/ESSAP sample results are available in ADAMS under the following Accession Numbers: ML072840255, ML072840278, ML072840292, ML072840312, ML072840323, ML072840334, ML072840357. To date, plant-related radioactivity has not been detected in any of the site's southern boundary wells or offsite environmental

groundwater monitoring locations. Information collected and assessed to-date, continues to support that the estimated radiological release fraction through groundwater is negligible relative to NRC regulatory limits.

On April 7, 2007, two separate underground steam leaks were detected emanating through the asphalt surfaces west and north of Unit 3. The affected 8" auxiliary steam line was isolated on April 23, 2007, and subsequently excavated and replaced. As expected, a very low tritium concentration was detected in the area, likely due to normal tritium diffusion or deposition onsite, Condition Report No. CR-IP3-2007-1852 pertains. Entergy performed a very conservative bounding evaluation of the resulting ground and air releases that indicated approximately  $1\text{E-}8$  mrem/yr and  $2\text{E-}6$  mrem/yr due to the liquid and air release pathways, respectively. Such releases are not considered significant and are below reporting requirements.

#### 4OA6 Meetings, including Exit

##### Exit Meeting Summary

On October 3, 2007, the inspectors presented the inspection results to Mr. Anthony Vitale and other Entergy staff members, who acknowledged the inspection results presented. Entergy did not identify any material as proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**ATTACHMENT**

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

F. Dacimo, Site Vice President  
A. Vitale, General Manager Plant Operations  
P. Conroy, Director, Nuclear Safety Assurance  
T. Orlando, Director, Engineering  
J. Donnelly, Manager, Site Operations  
D. Gagnon, Manager, Security  
S. Verrochi, Manager, System Engineering  
R. Walpole, Manager, Licensing  
R. Burroni, Manager, Engineering Programs and Components  
B. Sullivan, Manager, Emergency Planning  
S. Davis, Superintendent, Operations Training  
R. Christman, Manager, Training  
R. Beckman, Manager, Maintenance  
L. Lee, Supervisor, System Engineering  
P. Cloughhessy, Maintenance Rule Program Coordinator  
N. Azevedo, Supervisor, Code Programs  
S. Joubert, Supervisor, Training  
R. Drake, Supervisor, Design Engineering

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened and Closed

05000286/2007004-01	NCV	Failure to Monitor Emergency Lighting System in accordance with 10 CFR 50.65(a)(1) Action Plan
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## **LIST OF DOCUMENTS REVIEWED**

### **Section 1R01: Adverse Weather Protection**

#### Procedures

OAP-008, "Severe Weather Preparations," Revision 2  
OAP-48, "Seasonal Weather Preparation," Revision 4  
TSP-011, "Environmental Qualification Program Harsh Area and Service Condition," Revision 9

#### Calculations

ICDE-89-6054-C-2, Revision 0  
IP3-CALC-AFW-00418, Revision 1  
IP3-CALC-HVAC-00408, Revision 0

#### Condition Reports

IP3-2007-03080      IP3-2007-03187

### **Section 1R04: Equipment Alignment**

#### Procedures

3-COL-RHR-1, "Residual Heat Removal System," Revision 25  
COL-CB-2, "Weld Channel and Containment Penetration Pressurization System," Revision 16  
3-PT-R035G, "Leakage Test for SI-MOV-885A Valve Container (Mini-Containment)," Revision 3  
3-SOP-EL-001, "Emergency Diesel Generator Electrical System," Revision 8  
3-SOP-CVCS-002, "Charging Seal Water and Letdown Control," Revision 0

#### Drawings

9321-F-27513, Sheet Nos. 1 and 2  
9321-F-27353, Sheet No. 1  
9321-F-27503, Sheet No. 2  
9321-F-27363, Sheet No. 1

### **Section 1R05: Fire Protection**

#### Procedures

ENN-DC-161, "Transient Combustible Program," Revision 1  
SMM-DC-901, "IPEC Fire Protection Program," Revision 2

### **Section 1R07: Heat Sink Performance**

#### Procedures

0-HTX-405-EDG, Revision 0, "EDG Lube Oil & Jacket Water HX Maintenance,"  
3-COL-RW-2, "SW System Check-off List," Revision 42  
3-PT-2Y013A, "SW Manual Isolation Valves Test," Revision 1  
3-PT-Q058, "Back-Up Service Water Pump Test" Revision 15  
3-SOP-CC-001B, "Component Cooling System Operation," Revision 33

3-SOP-RW-007, "Sodium Hypochlorite Injection System," Revision 32  
HS-HT-01, "Installation Procedure for Hydra-tight Seals," Revision 1  
HTX-004-CCW, "Component Cooling Water HX Maintenance," Revision 1  
PFM-22E, "Inservice Testing Program Basis Document," Revision 1  
SEP-SW-001, "Generic Letter 89-13 Service Water Program," Revision 1  
EN-DC-147, "Indian Point Units 2 & 3 Eddy Current Program," Revision 2  
0-HTX-400-GEN, "Eddy Current Inspection of Heat Exchanger Tubes," Revision 1

Design & Licensing Basis, Calculations, and Analyses

6604.003-8-SW-140, "EDG Jacket Water Tube Plugging Limit," Revision 0  
6604.219-8-SW-024, "EDG Lobe Oil Cooler Tube Plugging Limit," Revision 2  
DC-3-352-SI, "Safety Injection Pump Mechanical Seal HX Replacement," Revision 0  
ECN-3-352-005, "Safety Injection Pump Mechanical Seal HX Replacement," Revision 0  
EN-NE Specification TS-MS-027, "SW Piping and Components," Revision 3  
EN-S Standard on IST, Attachment 2, "IST Position No. 1, Category A Valves," Revision 1  
IP3-CALC-07-00150, "Evaluation of SW Pipe Leak at PCV-1179," Revision 0  
IP3-CALC-CCW-02487, "CCW HX Tube Plugging Limit," Revision 0  
IP3-CALC-MULT-00734, "Minimum Thread Engagement for Bolted Connections," Revision 0  
IP3-RPT-UNSPEC-03499, "Eddy Current Program," Revision 1

Drawings

9321-F-27513, "Auxiliary Coolant System in Primary Auxiliary Building," Revision 29  
ISI-20333, "SW System Flow Diagram," Revision 13  
ISI-27223, "SW System Flow Diagram," Revision 18

Condition Reports

IP3-2002-03936	IP3-2002-04094	IP3-2005-01102	IP3-2005-03566
IP3-2005-05294	IP3-2007-00309	IP3-2007-00453	IP3-2007-02298
IP3-2007-02683	IP3-2007-02956	IP3-2007-02984	

Work Orders

IP3-95-01593	IP3-02-20499	IP3-02-23129	IP3-02-23130
IP3-02-23131	IP3-04-12766	IP3-04-18211	IP3-05-20192
IP3-06-13026	IP3-07-12092		

Completed Surveillances

3-PT-Q116B, "32 Safety Injection Pump Functional Test," on 04-11-2007  
3-PT-CS-032A, "SW Header Check Valves & Underground Line 409 Flow Test," on 04-01-2005  
3-PT-CS-032B, "SW Header Check Valves & Underground Line 408 Flow Test," on 04-02-2005  
IC-PC-I-F-1142, "SW Pump 33 Flow Test," on 01-23-2006  
PCA Job No. 26076, "IP3 Intake Bay Silt Survey," dated 03-22-2006

Heat Exchanger & Service Water Inspection Reports

PD04739, "Eddy Current Inspection of EDG 32 Jacket Water & Lube Oil Cooler," Revision 0  
PD04796, "Eddy Current Inspection of CCW HX 31," Revision 0

Self Assessments

IP3-LO-2005-00143, "IP3 Ultimate Heat Sink Focused Self-Assessment," dated 07-13-05  
IP3-LO-2007-00153, "IP3 Ultimate Heat Sink Snapshot Self-Assessment," dated 06-18-07

System Health Reports (SHRs)

SHR for Heat Exchangers, 2nd Quarter 2007  
SHR for Safety Injection, 1st Quarter 2007  
SHR for Service Water, 1st Quarter 2007

Miscellaneous

Letter IPN-92-040, "IP3 Response to NRC Generic Letter 89-13," dated 09-09-1992  
Letter No. 20407.002, from Normandeau Associates, to IP3, "Zebra Mussel Monitoring Program  
June Results," dated 06-22-2007  
Letter from Hunting Pipeline Services, to IP3, "Evaluation of As-found Condition of SW  
Mechanical Seals," dated 03-17-2005  
Video Inspection of buried SW Line 456 during 3R13, dated 03-2005  
Video Inspection of buried SW Line 408 during 3R13, dated 03-18-2005  
Video Inspection of buried SW Line 408 during 3R13, dated 03-19-2005

**Section 1R11: Licensed Operator Regualification Program**

IP-SMM-TQ-114, Attachment 10.9, "Simulator Examination Summary Sheet," Revision 6  
LRQ-SES-20, "Simulator Evaluated Scenario Lesson Plan," Revision 8  
E-0, "Reactor Trip or Safety Injection," Revision 0  
E-2, "Faulted Steam Generator Isolation," Revision 0  
E-3, "Steam Generator Tube Rupture," Revision 0  
FR-S.1, "Response to Nuclear Power Generation/ATWS," Revision 0  
EN-EP-201, "Performance Indicators," Revision 6  
EN-LI-114, "Performance Indicator Process," Revision 2

**Section 1R12: Maintenance Effectiveness**

Procedures

EN-DC-203, "Maintenance Rule Program," Revision 0  
EN-DC-204, "Maintenance Scope and Basis," Revision 0  
ENN-DC-205, "Maintenance Rule Monitoring," Revision 0  
AP-55, "Preventive Maintenance Program," Revision 5  
EN-DC-324, "Preventive Maintenance Process," Revision 3  
EN-LI-102, "Corrective Action Process," Revision 10  
EN-LI-119, "Apparent Cause Evaluation (ACE) Process," Revision 7  
0-ELC-406-FIR, "Appendix R Emergency Light Units Test, Inspect, Repair, and Replace,"  
Revision 1  
0-ELC-420-FIR, "Appendix R Emergency Light Unit Inspection, Battery Replacement, and Test,"  
Revision 0  
ELC-018-GEN, "Inspection, Repair, Replacement, and Semi-Annual Operability Testing of  
Appendix R Lighting Units," Revision 18  
3PT-R148, "Eight Hour Discharge Test for Appendix R Emergency Battery Lights," Revision 8

3PT-M80, "Monthly Emergency Battery Light Unit Functional Test," Revision 16  
 SEP-SW-001, "Generic Letter 89-13 Service Water Program," Rev 1

Condition Reports

IP3-2007-02826	IP3-1997-02025	IP3-2005-04271	IP3-2005-14493
IP3-2006-03070	IP3-2006-03109	IP3-2006-03115	IP3-2006-03180
IP3-2006-03340	IP3-2006-03425	IP3-2006-03547	IP3-2006-03761
IP3-2006-03799	IP3-2006-03885	IP3-2006-03933	IP3-2006-04069
IP3-2006-04073	IP3-2007-00013	IP3-2007-00082	IP3-2007-00336
IP3-2007-00547	IP3-2007-00709	IP3-2007-00744	IP3-2007-01645
IP3-2007-01705	IP3-2007-01711	IP3-2005-04711	IP3-2004-00378
IP3-2005-00987	IP3-2006-01250	IP3-2007-00898	IP3-2007-01630
IP3-2007-01704	IP3-2007-02683	IP3-2007-03630	

Work Orders

IP3-05-20557	IP3-05-25318	IP3-03-22781	IP3-06-20475
IP3-06-25865	IP3-06-25864	IP3-06-25960	IP3-06-02122
IP3-04-15778	IP3-05-00279	IP3-04-15762	I3-990260036
IP3-06-22951	I3-990260022	IP3-06-25860	IP3-05-10292
IP3-06-00216	IP3-06-12186	IP3-07-00007	IP3-07-14598
IP3-07-18399	IP3-07-00076	IP3-07-18188	IP3-07-17850

00107965

Miscellaneous

Emergency Lighting Action Plan dated February 26, 2007, Revision 0  
 Maintenance rule expert panel meeting minutes dated February 13, 2007  
 Maintenance rule expert panel meeting minutes dated January 19, 2005  
 Maintenance rule expert panel meeting minutes dated April 20, 2004  
 Maintenance rule basis document, "120 VAC Emergency Lighting System," Revision 0  
 Maintenance rule program report, first quarter 2007  
 Technical Evaluation 06-001454, Revision 0  
 Technical Evaluation 06-002150, Revision 0  
 Technical Evaluation 97-000014, Revision 4  
 IP3 Service Water System Health Report, 2nd Quarter 2007  
 Remote Visual Inspection of #1099 Service Water Pipe at IP3, Everest VIT, May 2, 2001  
 IP3 SW Pipe Inspection NDE Checklist, 3R13 (3/05)  
 IP3 SW Pipe Inspection NDE Checklist, 3R14 (3/07)  
 IPEC Maintenance Rule Basis Document, Service Water (SW) - Revision 0

**Section 1R13: Maintenance Risk Assessment and Emergent Work Control**

Procedures

IP-SMM-WM-101, "On-Line Risk Assessment," Revision 1  
 IP-SMM-WM-100, "Work Control Process," Revision 5  
 EN-MA-125, "Troubleshooting Control," Revision 2  
 0-PMP-4-CVCS, "Replacement of Fluid Cylinder Valves, Union Charging Pump," Revision 0

**Section 1R15: Operability Evaluations**Procedures

IP-SMM-AD-102, "IPEC Implementing Procedure Preparation, Review and Approval," Revision 4  
 EN-OP-104, "Operability Determinations," Revision 4  
 OAP-026, "Determination of Operability," Revision 0  
 EN-LI-102, "Corrective Action Process," Revision 8  
 3-PT-M108, "RHR/SI System Venting," Revision 3  
 SI-SOP-SI-001, "Safety Injection System Operation," Revision 38  
 3-PT-OL3B19, "Safety Injection Pump #33 Load Sequencer Calibration," Revision 1  
 3-PT-R003B, "Safety Injection System Test Breaker Sequencing/Bus Stripping," Revision 25  
 EN-OP-111, "Operational Decision-Making Issue (ODMI) Process," Revision 2  
 0-VLV-404-AOV, "Use of Air-Operated Valve Diagnostics," Revision 3

Condition Reports

IP3-2007-03014      IP3-2005-01971      IP3-2007-02854      IP3-2007-03515  
 IP3-2007-02789

Drawings

9321-F-41813      9321-F-41943      9321-F-22433

Calculations

IP-CALC-07-00180, Revision 0  
 CD-R-1080-5/6/7-R  
 IP3-CALC-ED-01131, Revision 1  
 IP3-CALC-SI-01374

Miscellaneous

WO 00118307      WO 51487533

**Section 1R19: Post-Maintenance Testing**Procedures

OAP-024, "Operations Testing," Revision 2  
 3-SOP-FW-004, "Auxiliary Feedwater System Operation," Revision 26  
 0-VLV-412-MOV, "Use of Motor Operated Valve Diagnostics," Revision 2  
 3-PT-Q062B, "32 Charging Pump Operability Test," Revision 8  
 EN-WM-100, "Work Request (WR) Generation, Screening and Classification," Revision 2  
 0-TUR-403-AFP, "Worthington Auxiliary Boiler Feed Pump Turbine Preventive Maintenance,"  
 Revision 2  
 0-LUB-401-GEN, "Lubrication of Plant Equipment," Revision 6  
 3-PT-R20B, "Auxiliary Boiler feed Pump Room Temperature Sensors (TC-1113A, TC1113S),"  
 Revision 7  
 ENN-DC-117, "Post Modification Testing and Special Testing Instructions," Revision 4  
 3-PT-Q038B, "Boric Acid Transfer Pump Functional Test," Revision 0  
 3-PT-M079B, "32 EDG [emergency diesel generator] Functional Test," Revision 36

Work Orders

IP3-04-20639      WO 51477467      WO 51474671      WO 51474608  
 WO 51462867      WO 51487533      WO 51467706  
 Minor Maintenance Work Orders for WRT-IP3-07-22862 and 22863

Condition Reports

IP3-2007-03001      IP3-2007-03560      IP3-2007-03639      IP3-2006-03307  
 IP3-2007-03019      IP3-2006-03310      IP2-2004-00085

Misc.

Trico® Opto-Matic Oilers Instructions, Type LS or SS, Glass  
 VTM #451-100000596, "Instructions For Installation, Operation, Maintenance and List Of Parts  
 For WT Pumps," Revision 2

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Miscellaneous:

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 MSPI High Pressure Injection System Derivation Report June 2007  
 MSPI Residual Heat Removal System Derivation Report June 2007  
 MSPI Auxiliary Feedwater System Derivation Report June 2007  
 MSPI Cooling Water System Derivation Report August 2007

**LIST OF ACRONYMS**

ADAMS	agency-wide documents and management system
ALARA	as low as is reasonably achievable
ANS	alert notification system
AFW	auxiliary feed water
CAP	corrective action program
CCW	component cooling water
CFR	Code of Federal Regulations
CR	condition report
DEC	Department of Environmental Conservation
EDG	emergency diesel generator
EDO	Executive Director of Operations
EP	Emergency Preparedness
ESSAP	Education, Environmental Site Survey and Assessment Program
GL	generic letter
GZA	GeoEnvironmental, Inc.

HX	heat exchanger
IMC	inspection manual chapter
IP2	Indian Point Nuclear Generating Unit 2
IP3	Indian Point Nuclear Generating Unit 3
IPEC	Indian Point Energy Center
IST	inservice test
LER	licensee event report
MPFF	maintenance preventable functional failures
mrem	millirem
MSPI	mitigating system performance index
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NYSDEC	New York State Department of Environmental Conservation
OA	other activities
ORISE	Oak Ridge Institute for Science and Education
OS	Occupational Radiation Safety
PARS	publicly available records
PI	performance indicator
PI&R	Problem Identification and Resolution
RHR	residual heat removal
RP	radiation protection
RW	recovery well
SDP	significance determination process
SI	safety injection
SHR	system health report
SSC	systems, structures, components
SW	service water
TS	technical specifications
UFSAR	updated final safety analysis report
WO	work order