



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

November 7, 2011

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 NUCLEAR GENERATING UNIT 3 – NRC INTEGRATED  
INSPECTION REPORT 05000286/2011004

Dear Mr. Pollock:

On September 30, 2011, 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 24, 2011, with you and other members of your staff.

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

Based on the results of this inspection, no findings were identified.

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

Sincerely,

Mel Gray, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Docket No. 50-286  
License No. DPR-26

Enclosure: Inspection Report 05000286/2011004  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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Sincerely,  
/RA/  
Mel Gray, Chief  
Reactor Projects Branch 2  
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## U.S. NUCLEAR REGULATORY COMMISSION

## REGION I

Docket No.: 50-286

License No.: DPR-26

Report No.: 05000286/2011004

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 3

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

Dates: July 1, 2011 through September 30, 2011

Inspectors: P. Cataldo, Senior Resident Inspector – Indian Point 3  
M. Halter, Resident Inspector – Indian Point 3  
S. Barr, Senior Emergency Preparedness Specialist – Region I  
S. McCarver, Project Engineer – Region I  
J. Noggle, Senior Health Physicist – Region I  
T. O'Hara, Reactor Inspector – Region I

Approved By: Mel Gray, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects



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**SUMMARY OF FINDINGS**

IR 05000286/2011004; 7/1/11 – 9/30/11; Indian Point Nuclear Generating (Indian Point) Unit 3; Resident Integrated Inspection Report.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by region inspectors. No findings of significance were identified. 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.

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**REPORT DETAILS**

Summary of Plant Status

Indian Point Unit 3 began the inspection period at 100 percent power. On August 19, 2011, Unit 3 experienced a loss of normal offsite power (138kV feeder 95331) during severe weather. This condition resulted in the loss of three circulating water pumps and subsequent degraded main condenser vacuum conditions that necessitated a load reduction by operators to approximately 74 percent power. Operators returned the unit to full power on August 20, following recovery of appropriate plant systems and equipment which were impacted by the loss of the 138kV normal offsite power. The unit remained at or near 100 percent power for the remainder of the inspection period.

**1. REACTOR SAFETY**

**Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

1R01 Adverse Weather Protection (71111.01 – 1 sample)

Impending Adverse Weather

a. Inspection Scope

Hurricane Irene was forecast in the vicinity of the facility for August 27–28, 2011. The inspectors reviewed Entergy staff's overall preparations/protection for the expected severe weather conditions. The inspectors walked down systems required for normal operation and shutdown conditions because their safety-related functions could be affected, or required, as a result of flooding. The inspectors evaluated the plant staff's preparations in accordance with site procedures to determine if actions were adequate. The inspectors focused on plant-specific design features and station procedures used to respond to adverse weather conditions. The inspectors also toured the site to determine whether Entergy staff had identified and secured loose debris that could become projectiles during the high winds usually associated with hurricanes. The inspectors evaluated the operator staffing plan and the accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for the systems selected for inspection, and reviewed whether operator actions were appropriate as specified by plant specific procedures. The inspectors also reviewed a sample of corrective action program (CAP) items to verify whether Entergy personnel identified adverse weather impact issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.



1R04 Equipment AlignmentPartial System Walkdowns (71111.04Q – 4 samples)a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 31 control room air conditioner (CCRAC) during 32 CCRAC out of service on August 3
- 31/33 emergency diesel generators (EDGs) during 32 EDG outage on August 9 - 10
- 32/33 auxiliary boiler feed pumps (ABFPs) during 31 ABFP maintenance on September 1
- 31/32 EDGs during 33 EDG outage on September 7 – 9

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, technical specifications (TS), work orders, condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment, to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Entergy staff had properly identified equipment issues and entered them into the corrective action program for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire ProtectionResident Inspector Quarterly Walkdowns (71111.05Q – 6 samples)a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Entergy staff controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.



- 31 EDG cubicle (FZ-10) in September 2011
- 32 EDG cubicle (FZ-101A) in September 2011
- 33 EDG cubicle (FZ-102A) in September 2011
- Control Building (CB) exhaust fan room (FZ-34A) in September 2011
- Atmospheric steam dumps (FZ-57A) on September 21, 2011
- Auxiliary feedwater building (FZ-23) on September 21, 2011

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07 – 1 sample)

a. Inspection Scope

The inspectors evaluated the 32 EDG jacket water heat exchanger to determine its readiness and availability to perform its required safety function. The inspectors reviewed the design basis for the component and verified Entergy's commitments to NRC Generic Letter 89-13. The inspectors reviewed the results of the most recent inspection, which was conducted on August 9. The inspectors discussed the results with engineering staff and reviewed pictures of the as-found and as-left conditions. The inspectors verified that Entergy personnel initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors observed licensed-operator simulator training on July 26, which included the loss of both main boiler feed pumps and a failure of the main turbine to auto trip, as well as other component failures, plant transients and upsets. The scenario ultimately required implementation of emergency operating procedures and the emergency plan. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 2 samples)a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, corrective action program documents, maintenance work orders, and maintenance rule basis documents to ensure that Entergy personnel were identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Entergy staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Entergy staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Appendix R Diesel Generator in August 2011
- Nuclear Instrumentation System in August 2011

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Entergy personnel performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Entergy personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Entergy personnel performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.



- Elevated risk due to 31 EDG, 13.8kV feeder 13W92, and MS-PCV-1135 out of service on July 14
- Elevated risk due to planned 22A reactor protection system (RPS) relay replacement on July 21
- Elevated risk as a result of solar flare activity on August 5 - 6,
- Elevated risk during 3-PT-M13A1 and Consolidated Edison activities in the 138kV switchyard on August 15
- Elevated risk during 32 ABFP maintenance as a result of solar flares on September 27

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 2 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- Loss of coolant accident calculation errors on July 26
- External corrosion on the 10-inch service water (SW) supply piping to EDGs on August 4

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and UFSAR to Entergy's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Entergy personnel. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 1 sample)Permanent Modificationa. Inspection Scope

The inspectors evaluated a modification to the 31 and 32 CCRAC units implemented by engineering change package 26365. The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with design change, including the removal of zinc anode plates from the reversing heads of the CCRAC condensers. The inspectors also reviewed the CCRAC preventative maintenance procedure to verify the procedure was appropriately revised to reflect the new equipment configuration.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- 31 EDG maintenance outage on July 14
- 33 steam generator low level mismatch bistable replacement on July 15
- RPS relay 22A replacement on July 21
- 32 EDG maintenance outage on August 10
- 32 CCRAC SW inlet strainer replacement on August 12
- RPS relay 21A replacement on August 25

b. Findings

No findings were identified.



1R22 Surveillance Testing (71111.22 – 4 samples)a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied technical specifications, the UFSAR, and Entergy procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- 3-PT-Q116B, 32 safety injection pump on July 12 (in-service test)
- 3-PT-Q83, refueling water storage tank level instrument check and calibration (LIC-921) on August 11
- 3-PT-Q94A, pressurizer level functional test – channel 1 on August 17
- 0-SOP-LEAKRATE-001, RCS leakrate surveillance, evaluation, and leak identification on September 11 (reactor coolant system)

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness (EP)**1EP2 Alert and Notification System (ANS) Evaluation (71114.02 – 1 sample)a. Inspection Scope

An onsite review was conducted to assess the maintenance and testing of the Indian Point Energy Center (IPEC) ANS. During this inspection, the inspectors interviewed Entergy and contractor staff responsible for implementation of the ANS testing and maintenance, and reviewed CRs pertaining to the ANS for causes, trends, and corrective actions. The inspectors reviewed the ANS procedures and the ANS design report to ensure Entergy's compliance with design report commitments for system maintenance and testing. The inspection was conducted in accordance with Inspection Procedure (IP) 71114, Attachment 02. Planning Standard, 10 CFR 50.47(b) (5) and the related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System  
(71114.03 – 1 sample)

a. Inspection Scope

The inspectors conducted a review of the IPEC ERO augmentation staffing requirements and the process for notifying and augmenting the ERO. This was performed to ensure the readiness of key Entergy staff to respond to an emergency event and to ensure Entergy staff's ability to activate their emergency facilities in a timely manner. The inspectors reviewed the IPEC ERO roster, training records, applicable procedures, drill reports for augmentation, quarterly EP drill reports, and CRs related to the ERO staffing augmentation system. The inspection was conducted in accordance with IP 71114, Attachment 03. Planning Standard, 10 CFR 50.47(b)(2) and related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04 – 1 sample)

a. Inspection Scope

Since the last NRC inspection of this program area in September 2010, Entergy staff have implemented various revisions of the different sections of the Indian Point Emergency Plan. Entergy staff had determined that, in accordance with 10 CFR 50.54(q), any change made to the Plan, and its lower-tier implementing procedures, had not resulted in any 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 Part 50. The inspectors reviewed EAL changes that had been made since September 2010, and conducted a sampling review of other Emergency Plan changes, including the changes to lower-tier emergency plan implementing procedures and EP-related equipment, to evaluate for any potential decreases in effectiveness of the Emergency Plan. However, this review was not documented in an NRC 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. The inspection was conducted in accordance with IP 71114, Attachment 04. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05 – 1 sample)a. Inspection Scope

The inspectors reviewed a sample of self-assessment procedures and reports to assess Entergy staff's ability to evaluate IPEC EP performance and programs. The inspectors reviewed a sample of CRs from October 2010 through August 2011, initiated by Entergy staff from drills, self-assessments, audits, and the November 7, 2010, Unit 2 transformer explosion which had resulted in an actual Alert declaration at Unit 2. Additionally, the inspectors reviewed Quality Assurance audits, including 10 CFR 50.54(t) audits, and several self-assessment reports. This inspection was conducted in accordance with IP 71114, Attachment 05. Planning Standard, 10 CFR 50.47(b) (14) and the related requirements of 10 CFR 50 Appendix E were used as reference criteria.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)Training Observationsa. Inspection Scope

The inspectors observed a simulator training evaluation for Unit 3 licensed operators on July 26, which required emergency plan implementation by an operations crew. Entergy planned for this evolution to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that Entergy evaluators noted the same issues and entered them into the corrective action program.

b. Findings

No findings were identified.



## 2. RADIATION SAFETY

### Cornerstone: Occupational/Public Radiation Safety

#### 2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 – 1 sample)

##### a. Inspection Scope

Entergy's program was evaluated against the requirement to provide adequate protection of the public from effluent releases resulting from normal operations of the plant by maintaining the dose to the maximally exposed member of the public as far below the dose limits in 10 CFR Part 20 and 40 CFR Part 190, as is reasonably achievable (ALARA). General Design Criterion 60 in 10 CFR 50 Appendix A requires the control and appropriate mitigation of radioactive materials released as plant effluents. In addition, Paragraph 50.34a (and the associated Appendix I) to 10 CFR Part 50 provide dose based design criteria to ensure the effectiveness of plant effluent processing systems in maintaining effluent releases to the plant environs ALARA.

##### Event Report and Effluent Report Reviews

The inspectors reviewed the IPEC 2009 and 2010 Annual Radiological Effluent Release Reports. Both of these reports included documentation of groundwater effluent releases to the Hudson River and commensurate doses to the maximally exposed member of the public with comparison to regulatory limits. The inspectors determined that the reports were submitted as required by the Off-site Dose Calculation Manual (ODCM)/Technical Specifications. The inspectors identified radioactive effluent monitor operability issues reported by the licensee as provided in effluent release reports, and determined that the issues were entered into the corrective action program and adequately resolved.

##### ODCM and FSAR Reviews

The inspectors reviewed changes to the ODCM made by the licensee since the last Inspection, against the guidance in NUREG-1301, 1302 and 0133, and Regulatory Guides 1.109, 1.21 and 4.1. The inspectors determined that Entergy staff had not identified any non-radioactive systems that had become contaminated as disclosed either through an event report or are documented in the ODCM since the last inspection.

##### Groundwater Protection Initiative (GPI) Program

The inspectors reviewed the reported groundwater monitoring results, and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater.

##### Walkdowns and Observations

The inspectors walked down selected components of the gaseous and liquid discharge systems to verify that equipment configuration and flow paths align with the UFSAR documented descriptions, and reviewed and assessed equipment material conditions. For equipment or areas associated with the systems cited above that were not readily accessible due to radiological conditions, the inspectors reviewed Entergy's material



condition surveillance records. The inspectors walked down those filtered ventilation systems whose test results were reviewed during the inspection. The inspectors verified that there were no conditions, such as degraded high efficiency particulate air (HEPA)/charcoal banks, improper alignment, or system installation issues that would impact the performance, or the effluent monitoring capability of the effluent system. The inspectors determined that Entergy staff had not made any significant changes to their effluent release points.

The inspectors observed the routine processing and discharge of effluents (including sample collection and analysis). The inspectors verified that appropriate effluent treatment equipment was being used and that untreated groundwater effluent was designated as an abnormal liquid effluent, and its discharge into the Hudson River was appropriately calculated and reported in accordance with ODCM specifications, and in accordance with 10 CFR 50, Appendix I regulatory limits.

### Sampling and Analyses

The inspectors selected effluent sampling activities and verified that adequate controls had been implemented to ensure representative samples are obtained (e.g., provisions for sample line flushing, vessel recirculation, composite samplers, etc.). The inspectors reviewed Entergy staff's use of compensatory sampling, in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the inter-laboratory comparison program to verify the quality of the radioactive effluent sample analyses. The inspectors verified that the inter-laboratory comparison program include hard-to-detect radioisotopes as appropriate.

### Instrumentation and Equipment

#### Effluent Flow Measuring Instruments

The inspectors reviewed the methodology that Entergy personnel use to determine the effluent stack and vent flow rates. The inspectors verified that the flow rates were consistent with radiological effluents technical specifications (RETS)/ODCM or FSAR values, and that differences between assumed and actual stack and vent flow rates do not affect the results of the projected public doses.

#### Air Cleaning Systems

The inspectors verified that surveillance test results since the previous inspection for technical specification required ventilation effluent discharge systems (HEPA and charcoal filtration) meet technical specification acceptance criteria.

### Dose Calculations

The inspectors reviewed three radioactive liquid waste discharge permits and three radioactive gaseous waste discharge permits from Unit 2; and five radioactive liquid waste discharge permits and four radioactive gaseous waste discharge permits from Unit 3. The inspectors verified that the projected dose to members of the public were accurate and based on representative samples of the discharge path. The inspectors evaluated the methods used to determine the isotopes in the source term to ensure applicable radionuclides were included, within detectability standards. The inspectors reviewed the current 10 CFR Part 61 analyses to ensure hard-to-detect radionuclides were included in the source term.

The inspectors reviewed changes in Entergy's offsite dose calculations since the last inspection. The inspectors verified that the changes were consistent with the ODCM and Regulatory Guide 1.109. The inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to ensure appropriate factors were being used for public dose calculations. The inspectors reviewed the latest Land Use Census and verified that changes have been factored into the dose calculations.

### GPI Implementation

The inspectors reviewed the identified leakage or spill events, and entries recorded in the station's decommissioning file as required by 10 CFR 50.75 (g). The inspectors verified that the recent soil excavation from the demolished Nuclear Environmental Monitoring Laboratory preliminarily indicated some trace cesium contamination, was being characterized and was documented in the decommissioning file.

The inspectors verified that onsite groundwater sample results and a description of any significant onsite leaks/spills into groundwater for each calendar year were documented in the Annual Radiological Environmental Operating Report (AREOR) for radiological environmental monitoring program (REMP) or the Annual Radiological Effluent Release Report (ARERR) for the RETS.

### Problem Identification and Resolution

The inspectors verified that problems associated with the effluent monitoring and control program were being identified by Entergy staff at an appropriate threshold and were properly addressed for resolution in the corrective action program.

#### b. Findings and Observations

No findings were identified.

### Groundwater Contamination

On June 27, 2011 while reviewing the second quarter 2011 groundwater monitoring well sample results, Entergy personnel identified an increase in tritium concentrations in Unit 1 monitoring wells MW-56 and MW-57 (76,000 pCi/L and 20,000 pCi/L, respectively). Subsequently, Entergy personnel conducted an investigation of this unexpected



condition. Previously, in 2008, the Unit 1 spent fuel was removed and the Unit 1 spent fuel pools were subsequently drained, which terminated the previously known source of groundwater contamination from the Unit 1 facility. Currently, the source of the contamination has not been identified; however, several possible causes are being evaluated by Entergy staff. This condition has been captured in CR-IP2-2011-3173. The inspectors determined there is no dose impact to the public based on the current scope of this groundwater contamination condition and will continue to follow-up the issue via normal baseline inspection modules.

#### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator (PI) Verification (71151)

##### .1 Mitigating Systems Performance Index (5 samples)

###### a. Inspection Scope

The inspectors reviewed Entergy's submittal of the Mitigating Systems Performance Index for the following systems for the period of July 1, 2010 through June 30, 2011:

- Unit 3 Emergency AC Power System
- Unit 3 High Pressure Injection System
- Unit 3 Heat Removal System
- Unit 3 Residual Heat Removal System
- Unit 3 Cooling Water System

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors also reviewed Entergy's operator narrative logs, CRs, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

###### b. Findings

No findings were identified.

##### .2 Emergency Preparedness (3 samples)

###### a. Inspection Scope

The inspectors reviewed data for the IPEC Emergency Preparedness Performance Indicators (EP PIs), which are: (1) Drill and Exercise Performance; (2) ERO Drill Participation; and (3) Alert and Notification System Reliability. The last NRC EP inspection at IPEC was conducted in the third quarter of 2010, so the inspectors reviewed supporting documentation from EP drills, training records, and equipment tests from July 2010 through June 2011, to verify the accuracy of the reported PI data. The review of these PIs was conducted in accordance with IP 71151, using the acceptance criteria documented in NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 6.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Entergy personnel entered issues into the corrective action program at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the corrective action program and periodically attended condition report screening meetings.

b. Findings

No findings were identified.

.2 Annual Sample: Review of Corrective Actions for Service Water (SW) Piping Leaks at Indian Point Unit 2 and Unit 3

a. Inspection Scope

From August 8 - 12, 2011, the inspectors reviewed several CRs for Indian Point Unit 2 and Unit 3 which documented leaks in the SW system piping of each unit.

The inspectors conducted a detailed review of CR-IP2-2010-06251, written October 12, 2010, which documents an adverse trend in the number of through wall SW piping leaks which occurred during the third quarter of 2010 at both Indian Point Unit 2 and Unit 3. This CR discusses SW system leaks with six occurring at Unit 2 and five at Unit 3. All 11 leaks had occurred during the third quarter of 2010. The inspectors also conducted a detailed review of the 11 CRs from the reported leaks. The inspectors conducted a walkdown of all accessible areas of the SW systems for Unit 2 and for Unit 3.

The inspectors also conducted a review of Entergy's apparent cause evaluation (ACE) of the increasing number of leaks reported in CR-IP2-2010-06251. The inspectors reviewed the operating experience contained in CR-IP2-2010-06251. Additionally, the inspectors reviewed the corrective actions implemented in CR-IP2-2010-06251 to address the increased occurrence of SW system piping leaks.

The inspectors also conducted a detailed review of CR-IP2-2010-05414, dated August 31, 2010, which documents the occurrence of pinhole, through wall, leaks in three EDG SW couplings. Additional EDG SW coupling leaks are described in CR-IP2-2010-05414, CR-IP2-2002-07051, and CR-IP2-2009-05169. The inspectors



interviewed system engineers and design engineers responsible for resolving the causes of the leaking couplings.

b. Findings and Observations

No findings were identified.

CR-IP2-2010-06251

Entergy conducted an ACE of the increasing number of leaks reported in CR-IP2-2010-06251 and determined that the direct cause was that "erosion and installation deficiencies have created gaps in the cement lining of SW pipe, leaving bare metal exposed to corrosive river water." The 11 identified leaks have either been evaluated as operable in accordance with American Society of Mechanical Engineers (ASME) Code Case N-513-2 or N-513-3, or the leaks have been repaired. Longer term corrective actions, aimed at correcting the cause of the through wall leaks, have not been completed but are in the planning stages.

CR-IP2-2010-05414

Because this CR was classified as a Category C, Non-Significant CR, Entergy staff did not conduct a cause determination on these coupling leaks. Rather, Entergy staff made modifications to the design of original couplings following Entergy engineering procedures. The primary design change was the addition of an epoxy coating to new stainless steel coupling bodies to prevent corrosive SW from contacting and degrading the stainless steel.

The inspectors reviewed the Entergy specification for the modified couplings and the Commercial Dedication Evaluation performed to support the coupling changes. The inspectors confirmed that Entergy personnel have replaced the originally affected couplings, including ones which had not leaked.

40A3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 4 samples)

.1 Plant Events

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Entergy personnel made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR 50.72 and 50.73. The inspectors reviewed Entergy staff's follow-up actions related to the events to assure that corrective actions commensurate with their safety significance were implemented.

- A seismic event and tremor were reported at Indian Point at 14:04 on August 23. Unit 3 operators entered 0-AOP-SEISMIC-1, Seismic Event, and ensured the plant continued to operate safely. Entergy personnel performed a site walkdown including containment and identified no damage or issues as a result of the earthquake. No peak shock annunciators alarmed as a result of the earthquake and Indian Point did not enter any emergency action levels. The inspectors performed an independent walkdown of safety related equipment and reviewed completed procedures to independently assess Entergy personnel conclusions that there was no damage or issues from the seismic event.
- Hurricane Irene was reported at Indian Point on August 27–28. Unit 3 operators entered OAP-008, Severe Weather Preparations, to monitor the changing weather conditions and take action as necessary. Entergy personnel performed a site walkdown of internal and external areas, updated plant risk status with a severe weather risk and verified the capability of safety systems to respond when needed. The inspectors performed an independent walkdown of safety related equipment and reviewed plant procedures to ensure Unit 3 was adequately prepared for the hurricane. The inspectors remained onsite assessing Hurricane Irene's impact on Unit 3; however, the hurricane was significantly downgraded on landing with heavy rains and mild winds. Entergy personnel documented issues identified for further follow-up.
- Unit 3 experienced a loss of normal 138kV offsite power during severe weather on August 19. Unit 3 control room operators implemented applicable steps of abnormal operating procedure 3-AOP-138kV-1, Loss of Power to 6.9kV Bus 5 and/or 6, to address the transient and to stabilize the plant. Additionally, control room operators performed a downpower to approximately 76 percent, due to degrading vacuum conditions following the loss of three circulating water pumps, as a direct result of the loss of power event. Entergy operators evaluated and entered applicable technical specifications, and appropriately reported the event to the NRC in accordance with 10 CFR 50.72, and entered the issue for evaluation within the corrective action program as CR-IP3-2011-04045. Equipment performance aspects with regard to the loss of the offsite power source will be subject to further baseline inspection during review of the root cause evaluation and subsequent Licensee Event Report (LER), as applicable.

b. Findings

No findings were identified.

.2 (Closed) LER 05000286-2010-002-00: Manual Reactor Trip Due to a Cooling Water Leak in the Main Generator Exciter Air Cooler

On September 9, 2010, Unit 3 control room operators initiated a manual reactor trip after operators observed a SW leak in the main generator exciter housing. Subsequently, Entergy personnel determined the leak was in the 31 exciter air cooler and was caused by the failure of an eroded and corroded Admiralty Brass tube. The issue was entered into the corrective action program as CR-IP3-2010-02682 and a root cause evaluation was performed. Entergy personnel repaired the leak, completed extent-of-condition inspections on all 31 and 32 exciter air cooler tubes, and installed new sleeves on both



ends of all unplugged tubes of both exciter air coolers. Additionally, the 31 and 32 exciter air cooler heat exchanger tube bundles were replaced during the Unit 3 refueling outage in the spring of 2011. The inspectors reviewed the LER and corrective action program documents to verify that the Entergy staff's evaluation and corrective actions were adequate. Additionally, the inspectors reviewed information obtained during the NRC's baseline inspection during the actual event from the 3rd quarter 2010. The inspectors did not identify any violations during the review of this LER; therefore, this LER is closed.

40A6 Meetings, Including Exit

On October 24, 2011, the inspectors presented the inspection results to Mr. Joseph Pollock, Site Vice President, and other members of the Entergy staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

**ATTACHMENT: SUPPLEMENTARY INFORMATION**



**SUPPLEMENTARY INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

J. Pollock, Site Vice President  
B. Allen, Engineering  
V. Andreozzi, Systems Engineering Supervisor  
N. Azevedo, Engineering Programs Manager  
T. Beasely, System Engineer  
R. Burroni, Systems Engineering Manager  
P. Cloughessy, Maintenance Rule Coordinator  
G. Dahl, Licensing Specialist  
M. DeChristopher, System Engineer  
J. Dinelli, Site Operations Manager  
B. Dolansky, In-Service Inspection Program Manager  
R. Drake, Design Engineering Supervisor  
M. Dries, System Engineer  
J. Lijoi, Instrument and Controls Superintendent  
T. Motko, System Engineer  
T. Orlando, Engineering Director  
C. Rokes, Licensing Specialist  
A. Singer, Training Superintendent  
M. Tesoriero, Programs and Components Engineering Manager  
M. Troy, Programs and Components Engineering Supervisor  
J. Ventosa, General Manager, Plant Operations  
B. Walpole, Licensing Manager  
C. Wilson, System Engineer  
W. Wittich, Engineering  
V. Meyers, Design Engineering Supervisor

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

Closed

05000286/2010-002-00      LER      Manual Reactor Trip Due to a Cooling Water Leak  
in the Main Generator Exciter Air Cooler  
(Section 4OA3)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R01: Adverse Weather Protection**

Procedures

3-AOP-Flood-1, Flooding, Revision 6  
OAP-008, Severe Weather Preparations, Revision 9

**Section 1R04: Equipment Alignment**

Procedures

3-COL-FW-2, Auxiliary Feedwater System, Revision 29  
3-COL-EL-005, Diesel Generators, Revision 36  
3-COL-RW-002, Service Water System, Revision 43

Miscellaneous

IP3V-6-6.27-0003, Flexmaster Pipe Joint, Revision 2

**Section 1R05: Fire Protection**

Procedures

EN-DC-161, Control of Combustibles, Revision 5

Completed Procedures

3-FIR-005-FIR, Inspection, Cleaning and Preventive Maintenance of IP3 Fire and Smoke  
Dampers, dated August 17, 2011  
3-PT-SA17, Fire Protection Ultra-Violet Flame Detectors, dated August 30, 2011

Condition Reports (CR-IP3-2011-)

04199

Drawings

9321-F-40483, Diesel Generator Building Heating & Ventilation Plan & Sections, Revision 9  
9321-F-40563, Control Building Ventilation Fan Room – EL 27'-0", Plans, Sections and Details,  
Revision 5  
9321-D-10685, Diesel Generator Building Fire Protection Upgrade of Wall Openings, Revision 2

Miscellaneous

PFP-354, Diesel Generators 31, 32 & 33, Revision 0  
PFP-354A, Control Building Exhaust Fan Room and DG Air Intake Enclosure, Revision 0  
PFP-367, Atmospheric Steam Dumps – Auxiliary Feedwater Building, Revision 5

PFP-367A, Auxiliary Feedwater Building, Revision 4  
IP3-ANAL-FP-02143, IP3 Fire Hazards Analysis Report, Revision 4  
Calculation IP3-CALC-FP-00901, New EDG Fire Barrier Design, Revision 0

**Section 1R07: Heat Sink Performance**

Procedures

SEP-SW-001, IPEC NRC G.L. 89-13 Service Water Program, Revision 4

Condition Reports (CR-IP3-2011-)

03925

Maintenance Orders/Work Orders

52310926-01

Miscellaneous

Preliminary Report of Eddy Current Inspection, dated August 10, 2011, for vendor inspection conducted on the 32 EDG Jacket Water Heat Exchanger

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

Procedures

TQF-210-DD03, LOR Simulator Crew Performance Evaluation Report, Revision 2

**Section 1R12: Maintenance Effectiveness**

Procedures

EN-DC-203, Maintenance Rule Program, Revision 1  
EN-DC-204, Maintenance Rule Scope and Basis, Revision 2  
EN-DC-205, Maintenance Rule Monitoring, Revision 3  
EN-DC-206, Maintenance Rule (a)(1) Process, Revision 1  
3-SOP-EL-013, Appendix R Diesel Generator Operation, Revision 25  
3-SOP-EL-014, Energization of the 480V Buses from the Appendix R Diesel Generator, Revision 10  
3-AOP-SSD-1, Control Room Inaccessibility Safe Shutdown Control, Revision 13  
3-PT-W012, Appendix R Diesel Support Systems Inspection, Revision 19  
OAP-008, Severe Weather Preparations, Revision 7  
OAP-008, Severe Weather Preparations, Revision 8  
OAP-008, Severe Weather Preparations, Revision 10

Condition Reports (CR-IP3-)

2010-00208	2010-00249	2010-00303	2010-00367	2010-00368	2010-00375
2010-02440	2010-03980	2011-02368	2011-02905	2011-03095	2011-03381
2011-04090	2011-04428				

Maintenance Orders/Work Orders

00279763    00279764    00260222



Drawings

9321-F-36033, Appendix "R" On-Site Alternate Power Source Diesel Generator Main One-Line Diagram, Revision 10

Miscellaneous

Indian Point Energy Center – IP2 and IP3 Maintenance Rule Basis Document Nuclear Instrumentation System, Revision 0

Maintenance Rule Basis Document for Appendix R Emergency Diesel Generator and Emergency Diesel Generators, Revision 0

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

Procedures

EN-WM-104, On Line Risk Assessment, Revision 4

OAP-008, Severe Weather Preparations, Revision 9

**Section 1R15: Operability Determinations and Functionality Assessments**

Procedures

EN-OP-104, Operability Determination Process, Revision 5

Condition Reports (CR-IP3-2011-)

03737            04087            03831

Maintenance Orders/Work Orders

166970

Miscellaneous

Nuclear Safety Advisory Letter NSAL-11-5, Westinghouse LOCA Mass and Energy Release Calculation Issues, dated July 7, 2011

Calculation IP-CALC-11-00056, Evaluation of Pipe Wall Thinning at Line 1093 and 1099, Revision 0

**Section 1R18: Plant Modifications**

Condition Reports (CR-IP3-)

2010-03776            2011-03776            2011-03809

Miscellaneous

DC-96-3-129, Control Room AC Unit Condenser Replacement, Revision 0

EC-26365, Removal of Zinc Anode in the Reversing Heads of 31 and 32 CCR AC Units, Revision 0

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

Completed Procedures

3-PT-M079A, 31 EDG Functional Test, dated July 14, 2011

3-PT-M13A1, Reactor Protection Logic Channel Functional Test (Reactor Power Greater Than 35% - P8), dated August 15, 2011

0-IC-SI-69, DAM502 Dual Alarm Module Replacement, dated July 15, 2011

3-PT-Q97, Steam Generator Level Analog Functional, dated July 15, 2011  
 3-PT-M079B, 32 EDG Functional Test, dated August 10, 2011  
 3-SOP-EL-001, Diesel Generator Operation, dated August 10, 2011.

Condition Reports (CR-IP3-2011-)

03776            03957            04181            03809            03908

Maintenance Orders/Work Orders

00287215    52338291    00285659    52309613    52324898    52309890  
 00278452    52309560    52309613

Drawings

113E301 Sheet 3, Reactor Protection System Schematic Diagram, Revision 10

Miscellaneous

Receipt Inspection No. 9988, Mueller Model 761-WE, 3" Y-Type Strainer, 150#  
 CGD Lab – Material Test Report, dated August 4, 2011  
 IP3 11N-0227, Commercial Grade Dedication Report, dated August 10, 2011  
 Procurement Engineering Evaluation 95408

**Section 1R22: Surveillance Testing**

Completed Procedures

3-PT-Q116B, 32 Safety Injection Pump, dated July 11, 2011  
 3-PT-Q116B, 32 Safety Injection Pump, dated July 12, 2011  
 3-IC-PC-I-P-923, Safety Injection Pump Discharge Pressure 4" Header, dated July 13, 2011  
 3-IC-PC-I-P-923, Safety Injection Pump Discharge Pressure 6" Header, dated July 13, 2011  
 IC-PC-I-F-950, Safety Injection Miniflow Indicator, dated November 30, 2009  
 3PT-Q94A, Pressurizer Level Functional Test – Channel I, dated August 16, 2011  
 3PT-Q94B, Pressurizer Level Functional Test – Channel II, dated August 16, 2011  
 3PT-Q94C, Pressurizer Level Functional Test – Channel III, dated August 16, 2011  
 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated August 11, 2011  
 0-SOP-LEAKRATE-001, dated September 11, 2100

Condition Reports (CR-IP3-2011-)

03559            03575            03944            03945

Maintenance Orders/Work Orders

52214696    52310135

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

Procedures

Entergy Indian Point Energy Center Alert and Notification System Design Report, Revision 4  
 IP-EP-AD20, Indian Point Energy Center Alert Notification System Test, Revision 4  
 IP-EP-AD30, IPEC ATI Siren System Administration, Revision 3  
 IP-EP-AD31, IPEC ATI Siren System Maintenance Administration, Revision 1  
 IP-EP-AD32, IPEC ATI Siren System Routine Polling and Testing, Revision 4  
 IP-EP-AD33, IPEC ATI Siren System Quarterly Preventive Maintenance, Revision 6  
 IP-EP-AD34, IPEC ATI Control Station Semi-Annual Preventive Maintenance, Revision 4



IP-EP-AD35, IPEC ATI Siren Site Annual Preventive Maintenance, Revision 4  
IP-EP-AD38, IPEC ATI Repeater Site Annual Preventive Maintenance, Revision 6  
IP-EP-AD39, IPEC ATI Control Station Annual Preventive Maintenance, Revision 4

Condition Reports (CR-IP2-)

2010-0078      2010-2449      2010-4455      2010-6106      2011-0065  
2011-1589

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

Procedures

Indian Point Energy Center Emergency Plan Table B -1, Revision 11-00  
EN-EP-801, Emergency Response Organization, Revision 2  
ENN-PL-140, Emergency Response Organization Respiratory Protection Guidelines, Revision 1  
EN-TQ-110, Emergency Response Organization Training, Revision 4  
IP-EP-AD9, Notification Systems Testing and Maintenance, Revision 8

Miscellaneous

IPEC Emergency Response Organization Roster, dated August 1, 2011  
Dialogics Drill Reports for: October 27, 2009, February 11, 2010, June 10, 2010, September 21, 2010, December 9, 2010, March 3, 2011, and June 30, 2011

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

Procedures

Indian Point Energy Center Emergency Plan, Revision 10  
EN-LI-100, Process Applicability Determination, Revision 10  
EN-EP-305, Emergency Planning 10 CFR 50.54(q) Review Program, Revision 2

Miscellaneous

50.54(q) Decrease In Effectiveness reviews for:  
IP-EP-120, Emergency Classification, Revisions 5 and 6  
IP-EP-320, Radiological Field Monitoring, Revision 5  
IP-EP-360, Core Damage Assessment, Revision 2  
IP-EP-410, Protective Action Recommendations, Revision 6  
IP-EP-430, Site Assembly, Accountability and Relocation of Personnel Offsite, Revision 6  
IP-EP-510, MRPDAS, Revision 5  
50.54Q-2011-0216, Implementation of the Security Owner Controlled Area Boundary  
50.54(q) Screenings conducted between November 2010 and July 2011

**Section 1EP5: Correction of Emergency Preparedness Weaknesses**

Condition Reports

IP3LO-2010-00016      LO-HQNLO-2010-00018

Miscellaneous

Quality Assurance Audit Report QA-07-2011-IP-1 (10 CFR 50.54(t) Report)  
Quality Assurance Surveillance Report QS-2010-IP-09 (Off-year 50.54(t) surveillance)



Emergency Preparedness Audit Record, to Extend the Emergency Preparedness Audit to a 24 Month Frequency as Allowed by EN-QV-109, Audit Process, and 10 CFR 50.54(t)(1)(ii), dated May 27, 2010

IPEC Unit 2 Alert Report for November 7, 2010, Transformer Explosion Event, dated November 7, 2010

IPEC Emergency Preparedness Drill Performance Reports for drills conducted on: June 2, 2010, August 12, 2010, September 1, 2010, September 14, 2010, December 7, 2010, February 3, 2011, June 9, 2011

**Section 1EP6: Drill Evaluation**

Procedures

IP-EP-210, Central Control Room, Revision 9

IP-EP-115, Emergency Plan Forms, Revision 31

IP-EP-120, Emergency Classification, Revision 6

Emergency Plan Form EP-4, CCR Initial Notification Checklist Alert/SAE/GE, Revision 15

Miscellaneous

TQF-210-DD03, LOR Simulator Crew Performance Evaluation Report, Revision 2

**Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment**

Procedures

IPEC I.E. Bulletin 80-10 Program

IP-SMM-CY-001, Radioactive Effluent Control Program, Revision 9

0-CY-2730, Airborne Radioactive Effluents, Revision 3,

0-CY-1320, Effluents Management System, Revision 1

2-SOP-5.1.5, Calculation and Recording of Radioactive Liquid Releases, Revision 37

2-SOP-5.2.4, Calculation and Recording of Radioactive Gaseous Releases, Revision 37

3-SOP-WDS-014, Liquid Waste Releases, Revision 25

3-SOP-WDS-013, Gaseous Waste Releases, Revision 28

Condition Reports (CR-IP3-)

2009-4430	2010-1703	2010-3795	2011-0738	2011-1312	2011-3479
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Condition Reports (CR-IP2-)

2010-0872	2010-2186	2010-3300	2010-4643	2010-7153	2011-0186
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2011-0463	2011-0960	2011-1613	2011-3173		
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Miscellaneous

Quality Assurance Audit Report No. QA-02-06-2009-IP-1

IPEC Snapshot Self-Assessment Report, IP3LO-2010-154, Groundwater Protection Initiative

IPEC Snapshot Self-Assessment Report, IP3LO-2007-149, IE Bulletin 80-10

2009 Annual Radioactive Effluent Release Report

2010 Annual Radioactive Effluent Release Report

Final Safety Analysis Report, Section 11, Waste Disposal and Radiation Protection

**Section 40A1: Performance Indicator Verification**

Procedures

EN-LI-114, Performance Indicator Process, Revision 4

Completed Procedures

- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator High Pressure Injection, dated October 13, 2010
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator High Pressure Injection, dated January 10, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator High Pressure Injection, dated April 13, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator High Pressure Injection, dated July 11, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Residual Heat Removal, dated October 13, 2010
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Residual Heat Removal, dated January 10, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Residual Heat Removal, dated April 13, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Residual Heat Removal, dated July 11, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Heat Removal, dated October 13, 2010
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Heat Removal, dated January 10, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Heat Removal, dated April 13, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Heat Removal, dated July 11, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Emergency AC Power, dated October 13, 2010
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Emergency AC Power, dated January 10, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Emergency AC Power, dated April 13, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Emergency AC Power, dated July 11, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Cooling Water Support (Component Cooling Water), dated October 13, 2010
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Cooling Water Support (Component Cooling Water), dated January 10, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Cooling Water Support (Component Cooling Water), dated April 13, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Cooling Water Support (Component Cooling Water), dated July 11, 2011
- EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Cooling Water Support (Service Water), dated October 13, 2010



EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Cooling Water Support (Service Water), dated January 11, 2011

EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Cooling Water Support (Service Water), dated April 13, 2011

EN-LI-114, Performance Indicator Process – Mitigating Systems Performance Indicator Cooling Water Support (Service Water), dated July 11, 2011

### **Section 40A2: Problem Identification and Resolution**

#### Procedures

EN-DC-315, Flow Accelerated Corrosion Program, Revision 5

EN-DC-184, NRC Generic Letter 89-13 Service Water Program, Revision 1

SEP-SW-001, NRC Generic Letter 89-13 Service Water Program, Revision 4

#### Completed Procedures

3PT-VO32S, Inservice Test of Service Water System Outside VC, dated March 25, 2009

3PT-VO32S, Inservice Test of Service Water System Outside VC, dated March 4, 2003

#### Condition Reports (CR-IP2-)

2002-07051 2008-04265 2009-03084 2009-05169 2010-03655 2010-04633

2010-04931 2010-05065 2010-05288 2010-05394 2010-05414 2010-05517

2010-05888 2010-06251 2011-01414 2011-01901 2011-02714 2011-03723

2011-04015

#### Condition Reports (CR-IP3-)

2009-04713 2010-02039 2010-02185 2010-02438 2010-02674 2011-03831

2009-04025 2010-02039 2010-02185 2010-02398 2010-02438 2010-02674

2010-02724 2011-00784

#### Maintenance Orders/Work Orders

00220134 01 00243476 01 00251249 01 00250166 01

#### Miscellaneous Documents

EC 24332, Engineering Evaluation of the Use of Enecon Ceramalloy CL+, CP+ Adhesive Coating for Stainless Steel Material in Service Water System

IP-CALC-11-00056, Evaluation of Pipe Wall Thinning at Line No. 1093 and 1099, dated August 8, 2011

IP3-UT-11-070, UT Erosion/Corrosion Examination of 10" SWN-1099

Indian Point Unit 2, Service Water System Health Report, Q1- 2011

Indian Point Unit 2, Service Water System Health Report, Q4- 2010

Indian Point Unit 3, Service Water System Health Report, Q1- 2011

Indian Point Unit 3, Service Water System Health Report, Q4- 2010

IP3 FSAR Update, Chapter 9, Page 111 of 182, 2009, Revision 3

American Society for Testing and Materials A513-94: Standard Specification for Electric-Resistance-Welded Carbon Steel and Alloy Steel Mechanical Tubing

United Engineers and Constructors Inc., Specification for Flexible Piping Connectors for Emergency Back-Up Diesel Generators, Westinghouse Electric Corporation

Indian Point Generating Station Unit No. 3, Consolidated Edison Company of New York; Specification No. 9321-05-248-62, November 30, 1970



American Society for Testing and Materials A 249/A 249M-94a: Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes  
Entergy Receipt Document 00006147; Joint, Pipe Restrained, SS, 4" X 8" Long, January 10, 2010

Material Procurement Dedication Plan, April 24, 1998, PO# 10262978, UTK# 470889  
Enecon North East letter dated August 16, 2011; Subject: Application of the Enecon CeramAlloy CL+ Coating System to the IP2 EDG Service Water Piping Flex Couplings

**Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion**

Procedures

3-PT-M032, Seismic Instrumentation Channel Check, Revision 21  
EN-LI-119, Apparent Cause Evaluation (ACE) Process, Revision 12  
EN-LI-102, Corrective Action Process, Revision 16  
0-BKR-406-ELC, Westinghouse 6900 Volt Breaker Inspection and Cleaning, Revision 11  
0-BKR-406-ELC, Westinghouse 6900 Volt Breaker Inspection and Cleaning, Revision 14

Completed Procedures

3-SOP-S-001, Seismic Monitoring Equipment Operation, dated August 23, 2011  
0-AOP-Seismic-1, Seismic Event, dated August 23, 2011

Condition Reports (CR-IP3-)

2005-00992    2009-03380    2010-02682    2010-02683    2010-02703    2011-03730  
2011-04371

Maintenance Orders/Work Orders

IP3-05-17643    52024157    00250188    00250184

Miscellaneous

PM Basis Template, Switchgear – Medium Voltage – 1KV to 7KV, Revision 3  
IP3-RPT-ED-01917, 13.8 kV, 138 kV, and 6.9 KV Distribution Systems Maintenance Rule Basis Document, Revision 1

### LIST OF ACRONYMS

ABFP	auxiliary boiler feed pump
ACE	apparent cause evaluation
ADAMS	Agencywide Document Management System
ALARA	as low as is reasonably achievable
ANS	alert and notification system
AREOR	annual radiological environmental operating report
ARERR	annual radiological effluent release report
ASME	American Society of Mechanical Engineers
CAP	corrective action program
CB	control building
CCRAC	control room air conditioner
CFR	Code of Federal Regulations
CR	condition report
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EAL	emergency action level
EDG	emergency diesel generator
ENTERGY	Entergy Nuclear Northeast
EP	emergency preparedness
ERO	emergency response organization
FZ	fire zone
GPI	ground water protection initiative
HEPA	high efficiency particulate air
IMC	Inspection Manual Chapter
IPEC	Indian Point Energy Center
IR	inspection report
LER	licensee event report
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	off-site dose calculation manual
OEDO	Office of the Executive Director for Operations (NRC)
pCi/L	picocurie per liter
PI	performance indicator
PM	preventive maintenance
REMP	radiological environmental monitoring program
RETS	radiological effluents technical specifications
RPS	reactor protection system
SSC	structure, system, and component
SW	service water
UFSAR	updated final safety analysis report