



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I**  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

August 9, 2012

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

**SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 2 – NRC INTEGRATED  
INSPECTION REPORT 05000247/2012003**

Dear Mr. Ventosa:

On June 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 2. The enclosed integrated inspection report documents the inspection results, which were discussed on August 2, 2012, with you and other members of your staff.

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

This report documents one self-revealing finding of very low safety significance (Green) and one NRC-identified Severity Level IV violation. These findings were determined to involve violations of NRC requirements. Additionally, licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance, and because they are entered into your corrective action program (CAP), the NRC is treating these findings as non-cited violations (NCVs), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any NCVs in this report, 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, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Senior Resident Inspector at Indian Point Nuclear Generating Unit 2. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Senior Resident Inspector at Indian Point Nuclear Generating Unit 2.

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,

**/RA/**

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

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

Enclosure: Inspection Report 05000247/2012003  
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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**U.S. NUCLEAR REGULATORY COMMISSION****REGION I**

Docket No.: 50-247

License No.: DPR-26

Report No.: 05000247/2012003

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 2

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

Dates: April 1, 2012, through June 30, 2012

Inspectors: O. Ayegbusi, Acting Senior Resident Inspector – Indian Point 2  
M. Catts, Senior Resident Inspector – Indian Point 2  
R. Montgomery, Acting Resident Inspector – Indian Point 2  
J. Furia, Senior Health Physicist – Region I  
S. McCarver, Project Engineer – Region I

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

Enclosure

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## SUMMARY OF FINDINGS

IR 05000247/2012003; 4/01/12 – 6/30/12; Indian Point Nuclear Generating (Indian Point) Unit 2; Maintenance Effectiveness and Surveillance Testing.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified one finding of very low safety significance (Green) and one Severity Level IV violation, which were NCVs. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspect for the finding was determined using IMC 0310, "Components Within the Cross-Cutting Areas." Findings for which the 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.

### Cornerstone: Initiating Events

- Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified because Entergy personnel did not follow procedure 0-PMP-401-RCS, Reactor Coolant Pump Seal Package Inspection, to prevent foreign material from entering the 21 reactor coolant pump (RCP) seal package. Specifically, during the March 2010 refueling outage, Entergy personnel did not follow procedure 0-PMP-401-RCS and implement the foreign material exclusion procedural controls which resulted in a degraded 21 RCP seal package. Entergy personnel subsequently replaced the 21 RCP seal package and entered this issue into the CAP as condition report (CR)-IP2-2011-5052.

The performance deficiency associated with this finding was that Entergy staff did not follow procedure 0-PMP-401-RCS to prevent foreign material from entering the 21 RCP seal assembly. This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the foreign material introduced into the 21 RCP seal package resulted in an increase in the likelihood of tripping the 21 RCP due to further potential for degradation of the 21 RCP seal package. Additionally, if left uncorrected, the foreign material had the potential to further damage the seal package and result in a more significant safety concern. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding would not result in exceeding the technical specification limit for RCS leakage and would not have affected other mitigation systems resulting in a total loss of their safety function. The finding has a cross-cutting aspect in the area of human performance associated with the work practices attribute because Entergy personnel did not define and effectively communicate expectations regarding procedural compliance and personnel following procedures. [H.4(b) per IMC 0310]

**Cornerstone: Mitigating Systems**

- SL-IV. The inspectors identified a Severity Level IV, NCV of 10 CFR 50.73(a)(2)(i)(B), because Entergy personnel did not provide a written licensee event report (LER) to the NRC within 60 days of identifying during testing that MS-46D, main steam line safety valve, was inoperable and in a condition prohibited by the plant's Technical Specification (TS). Entergy personnel adjusted the valve's lift setpoint to within the TS operability limit, repaired and tested the valve before plant startup. Entergy staff entered this issue into the CAP as CR-IP2-2012-3320 and CR-IP2-2012-4153.

The inspectors determined that the failure to provide a written LER within 60 days was a performance deficiency that was reasonably within Entergy's ability to foresee and correct, and should have been prevented. This violation involved not making a required report to the NRC and is considered to impact the regulatory process. Such violations are dispositioned using the traditional enforcement process instead of the Significance Determination Process. Using the NRC Enforcement Policy Section 6.9, "Inaccurate and Incomplete Information or Failure to Make a Required Report," example (d)(9), the NRC determined this violation is more than minor and is categorized as a Severity Level IV violation. Because this violation involves the traditional enforcement process with no underlying technical violation that would be considered more than minor in accordance with IMC 0612, a cross-cutting aspect is not assigned to this violation. (Section 1R22)

**Other Findings**

Violations of very low safety significance that were identified by Entergy were reviewed by the inspectors. Corrective actions taken or planned by Entergy staff have been entered into Entergy's corrective action program. The violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Indian Point Unit 2 began the inspection period near the end of a planned refueling outage (2R20). On April 1, 2012, with the unit at or near 5 percent power, operators shut the plant down to hot standby conditions (Mode 3) to repair a main generator exciter system component. Following repairs, on April 1, operators synchronized the generator to the grid completing the planned refueling outage (2R20) and continued reactor power ascension. On April 7, with the unit at or near 90 percent power, operators reduced power to approximately 51 percent to repair speed oscillations on the 22 main boiler feed pump. Following repairs, operators resumed power ascension and achieved full reactor power on April 8. On June 6, the reactor tripped from 100 percent power due to a turbine trip that resulted from a main generator exciter problem. Following repairs, operators returned the unit to 100 percent on June 8. 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)

##### Summer Readiness of Offsite and Alternate Alternating Current (AC) Power Systems

##### a. Inspection Scope

The inspectors performed a review of plant features and procedures for the operation and continued availability of the offsite and alternate AC power system to evaluate readiness of the systems prior to seasonal high grid loading. The inspectors reviewed Entergy's procedures affecting these areas and the communications protocols between the transmission system operator and Entergy. This review focused on changes to the established program and material condition of the offsite and alternate AC power equipment. The inspectors assessed whether Entergy personnel established and implemented appropriate procedures and protocols to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system. The inspectors evaluated the material condition of the associated equipment by interviewing the responsible system engineer, reviewing condition reports and open work orders, and walking down portions of the offsite and alternate AC power systems including portions of the offsite Buchanan switchyard as well as onsite 138 kV switchyard areas and components.

##### b. Findings

No findings were identified.



1R04 Equipment Alignment (71111.04Q – 4 samples)Partial System Walkdownsa. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 21 emergency diesel generator (EDG) while 23 EDG was out of service on April 10, 2012
- Appendix R EDG after a cooling valve was left in closed position on April 12, 2012
- 22 auxiliary feed water pump while 23 auxiliary feed pump was out of service on June 5, 2012
- 21 containment spray pump (CSP) following quarterly testing on June 20, 2012

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 updated final safety analysis report (UFSAR), technical specifications, work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order 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 the 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 Protection (71111.05Q – 5 samples)Resident Inspector Quarterly Walkdownsa. 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.

- Pre-fire plan (PFP)-258 (fire zone (FZ) 10): Diesel Generator Building – Electrical Tunnel Exhaust Fans on April 10, 2012

- PFP-255 (FZ 16, 17, 18, 19, 20, 21, 43A, 44A, 45A, 46A, 47A, 48A, 64A): Turbine Building – General Area on April 11, 2012
- PFP-251 (FZ 14): Control Building – 480 Volt Switchgear Room on April 11, 2012
- PFP-264 (FZ 22, 63A, 66A): Exterior Buildings – Intake Structure on April 12, 2012
- PFP-207 (FZ 9, 12A, 13A): General Floor Plan – Primary Auxiliary Building on May 2, 2012

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 2 samples)

Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the corrective action program to determine if Entergy personnel identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors also focused on the cable spreading room and emergency diesel generator building to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on April 17, 2012, which included a simulated reactor coolant system leak leading to a large break loss of coolant accident and the failure of select components to automatically start as required. 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.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed and reviewed a reactor shutdown from five percent power and subsequent reactor startup on April 1, 2012. The inspectors observed infrequently performed test or evolution briefings, pre-shift briefings, and reactivity control briefings to verify that the briefings met the criteria specified in Entergy's Operations Section Expectations Handbook and Entergy Administrative Procedure OP-AA-329, "Conduct of Infrequently Performed Tests and Evolutions." Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 4 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 staff 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.

- Weld channel and pressurization system zone 3 leaks resulting in control room alarms on December 23, 2011
- 21 reactor coolant pump (RCP) seal degradation resulting in a reactor shutdown on January 10, 2012
- Service water relief valves 42-1, 42-2, and 42-5 failed the as-found set pressure tests on March 15 - 18, 2012
- Pressurizer safety valve 468 leaking from its inlet flange resulting in mode change from Mode 3 to Mode 5 to replace the valve on March 24, 2012

b. Findings

Introduction: A self-revealing NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified because Entergy personnel did not adequately implement procedure 0-PMP-401-RCS, Reactor Coolant Pump Seal Package Inspection, to prevent foreign material from entering the 21 RCP seal package. Specifically, during the March 2010 refueling outage, Entergy personnel did not adequately implement foreign material exclusion procedural controls which resulted in a degraded 21 RCP seal package.

Description: On October 11, 2011, the 21 RCP exhibited temporary increased seal return flow (No. 1 seal) from 2.3 gallons per minute (gpm) to 3.1 gpm. Seal return flow range is acceptable between 1 and 5 gpm, and is normally around 2 gpm. Entergy staff entered this condition into their operational decision making process (ODMI). The purpose of the ODMI was to provide operations with guidance to monitor and advise Entergy's management team of any anomalies with respect to the seal return flow for RCP-21 while within normal operating parameters and outside the entry conditions of 2-AOP-RCP-1, Reactor Coolant Pump Malfunction. Over the next couple of months several increases in seal return flow followed by subsequent returns to expected nominal, stable conditions occurred until December 30, 2011. At that time, operators identified an increase in seal return flow which did not return to the lower stable value. Seal return flow continued to increase until the alarm setpoint was received at 5 gpm. On January 10, 2012, when seal flow exceeded 5 gpm, operations personnel implemented the alarm response procedure and procedure 2-AOP-RCP-1, Reactor Coolant Pump Malfunction, and implemented a controlled shutdown of the reactor. During the maintenance outage, the 21 RCP seal package was replaced and the operators returned the unit to service on January 19, 2012.

The inspectors reviewed Entergy's apparent cause evaluation (ACE) that documented the direct cause of the degraded 21 RCP seal package condition as observed by seal return flow perturbations. The evaluation documented there was a degraded seal ring of the 21 RCP Double Delta Channel Seal (DDCS) and associated o-ring. The degradation allowed the seal ring to behave erratically due to frictional effects between the DDCS o-ring and the insert. The eventual failure of the o-ring allowed bypass leakage via the ring/insert interface which caused the increased seal return flow. Entergy personnel determined that the apparent cause of the degraded seal package was foreign material debris found downstream of the No. 1 seal assembly. This material intruded under the sealing surface of the DDCS causing degradation and eventual failure around the balance diameter of the insert. The inspectors noted that Entergy personnel determined the foreign material was likely introduced into the seal package when the seal package was open for maintenance during the March 2010 refueling outage. Entergy staff reviewed the seal maintenance instructions in 0-PMP-401-RCS and determined that the documentation for seal maintenance was incomplete with regard to procedural controls of foreign material. Entergy procedure 0-PMP-401-RCS, Reactor Coolant Pump Seal Package Inspection, step 4.6 requires foreign material exclusion control (Attachment 5) must be established prior to removal of seal assemblies. Attachment 5 requires an access list (Attachment 6) shall be maintained to restrict access to the exclusion area. Access shall be controlled by a monitor stationed in a low radiation area. Only workers briefed on tool and material control for the seal package work and on the Authorized Access List will be permitted to enter the exclusion area. Procedure 0-PMP-401-RCS, step 4.12.2 documented that 10 individuals were involved in the work. However,

Attachment 6, RCP Seal Package RCS Exclusion Area Access List, indicated that only one individual properly signed onto the access list.

The inspectors determined that Entergy personnel did not properly implement foreign material exclusions procedure controls which would have likely mitigated or prevented foreign material from entering the 21 RCP seal package. Entergy sent samples of the foreign material to Westinghouse for analysis, but the source of the material could not be identified. The inspectors noted that Entergy staff, based upon post-inspection results of the 21 RCP seal package, determined that the degraded condition that occurred had not impacted the 21 RCP sealing surfaces or pump seal function. Additional corrective actions by Entergy staff included revising procedure 0-PMP-401-RCS to include the 21 RCP issue for operating experience, and discussing the event and importance of foreign material control with plant personnel.

Analysis: The performance deficiency associated with this finding was that Entergy staff did not follow procedure 0-PMP-401-RCS to prevent foreign material from entering the 21 RCP seal assembly. This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the foreign material introduced into the 21 RCP seal package resulted in an increase in the likelihood of tripping the 21 RCP due to further potential for degradation of the 21 RCP seal package. Additionally, if left uncorrected, the foreign material had the potential to further damage the seal package and result in a more significant safety concern. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding would not result in exceeding the technical specification limit for RCS leakage and would not have affected other mitigation systems resulting in a total loss of their safety function.

The finding has a cross-cutting aspect in the area of human performance associated with the work practices attribute because Entergy personnel did not define and effectively communicate expectations regarding procedural compliance and personnel following procedures. [H.4(b) per IMC 0310]

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Entergy procedure 0-PMP-401-RCS, Reactor Coolant Pump Seal Package Inspection, step 4.6 requires foreign material exclusion control (Attachment 5) must be established prior to removal of seal assemblies. Attachment 5 states an access list (Attachment 6) shall be maintained to restrict access to the exclusion area. Access shall be controlled by a monitor stationed in a low radiation area. Only workers who have been briefed regarding tool and material control and on the Authorized Access List will be permitted to enter the exclusion area. Procedure 0-PMP-401-RCS, step 4.12.2 indicated that 10 individuals were involved in the work. However, Attachment 6, RCP Seal Package RCS Exclusion Area Access List, documented only one individual properly signed in the access list. Contrary to the above, during the March 2010 refueling outage, Entergy personnel did not follow procedure 0-PMP-401-RCS, including not completing and establishing adequate foreign

material exclusion procedural controls, resulting in foreign material and subsequent degradation of the 21 RCP No. 1 seal. Entergy's initial corrective actions included replacing the 21 RCP seal package. Because this finding is of very low safety significance and was entered into Entergy's CAP as CR- IP2-2011-5052, consistent with Section 2.3.2 of the NRC Enforcement Policy, this violation is being treated as a NCV. **(NCV 05000247/2012003-01, Foreign Materials Control Procedure Not Followed Resulting in Degraded 21 Reactor Coolant Pump Seal Package)**

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 operators 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.

- 24 static inverter out of service for unplanned maintenance and planned calibration of nuclear instrumentation on April 3, 2012
- 23 EDG and 25 circulating water pump out of service for planned maintenance and 22 charging pump out of service for corrective maintenance on April 10, 2012
- 138 kV feeder 96951 out of service for planned maintenance and reactor protection logic channel B testing on April 23, 2012
- 22 heater drain tank pump discharge flow transmitter unplanned maintenance during 480V under-voltage testing on May 9, 2012
- Emergent work to determine the cause of the turbine generator trip and subsequent reactor trip on June 6, 2012

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 3 samples)

a. Inspection Scope

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

- 24 static inverter transfer to alternate power source on April 3, 2012
- 23 static inverter transfer function failure on April 9, 2012
- 21 CSP discharge valve (MOV-866B) missing limiter plate on June 19, 2012

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)

Temporary Modification

a. Inspection Scope

The inspectors reviewed the temporary modifications listed below to determine whether the modifications affected the safety functions of systems that are important to safety. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results and conducted field walkdowns of the modifications to verify that the temporary modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

- Installed jumper on 24 static inverter frequency detector board to defeat optical relay function on April 4, 2012

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 7 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.

- Letdown valve 200C after fuse replacement on January 10, 2012
- 24 static inverter after fuse and oscillator board replacement on March 19, 2012
- 24 static inverter after static switch board replacement on April 4, 2012
- 23 static inverter after fuse and static switch board replacement on April 9, 2012
- 23 service water pump (SWP) after packing replacement on April 10, 2012
- 22 atmospheric dump valve after instrument air regulator, bistable and positioner replacement on April 19, 2012
- VCT pressure alarm after bistable replacement on June 14, 2012

a. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

a. Inspection Scope

Entergy continued its refueling outage (2R20) activities which began March 5 and ended on April 1, 2012. NRC Inspection Report 05000247/2012002 (section 1R20) documents the majority of the NRC's inspection activities conducted during the refueling outage. The inspectors also observed portions of the heat-up and reactor start-up processes. In addition, the inspectors reviewed troubleshooting and repairs performed to resolve main generator excitation issues during plant start-up. The inspectors reviewed CRs to determine if conditions adverse to quality were entered for resolution.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 6 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:



- 2-PT-R006, Main Steam Safety Valve Setpoint Determination on March 2, 2012
- 2-PT-V024Q, CD-109 Condensate Storage Tank Inlet Header Check Valve Inservice Closure Test, on March 6, 2012
- 2-PT-2Y008C, 23 Emergency Diesel Generator Mechanical Overspeed Trip, on April 11, 2012
- 2-PT-Q034, 22 Auxiliary Feed Water Pump, on May 3, 2012
- 2-PT-V-63A, Reactor Protection Logic Train "A" Partial Functional Test, on June 6, 2012
- 2-PT-V-63B, Reactor Protection Logic Train "B" Partial Functional Test, on June 6, 2012

a. Findings

Introduction: The inspectors identified a Severity Level IV, NCV of 10 CFR 50.73(a)(2)(i)(B), because Entergy did not provide a written LER to the NRC within 60 days of identifying a condition prohibited by the plant's TS. Specifically, Entergy personnel did not report the inoperability of a steam generator main steam safety valve for greater than its TS allowed outage time (AOT) to the NRC.

Description: On March 2, 2012, during performance of procedure 2-PT-R006, Main Steam Safety Valve Setpoint Determination, MS-46D, one of five main steam safety valves on the 24 steam generator, lifted outside the TS required range. TS 3.7.1, "Main Steam Safety Valves," requires that MSSV's be operable in accordance with TS Table 3.7.1-1 and Table 3.7.1-2. MS-46D lifted at 1136.9 psig, which is outside +/-3% from the TS setpoint of 1080 psig. Entergy operators declared the valve inoperable and entered the applicable action statement. The lift setpoint was subsequently adjusted to within +/-3% of the desired setpoint and the action statement was exited. Entergy personnel entered the issue in its CAP as CR-IP2-2012-01311 to perform a reportability evaluation, an apparent cause evaluation and initiate corrective actions.

On March 11, 2012, MS-46D was disassembled and inspected as part of preventive maintenance, during which Entergy personnel identified the failure mechanism to be a valve spring skew. On March 15, 2012, Entergy's reportability evaluation determined that the as-found condition was not reportable because the safety valve failure did not impact the accident analyses as described in the UFSAR. On March 25, 2012, Entergy's ACE documented that the valve failure was due to internal spring skew determined to be as a result of line vibrations and steam flow in the main steam line over time. On March 28, 2012, Entergy personnel completed corrective actions and closed the condition report requiring no further evaluations.

The inspectors reviewed CR-IP2-2012-01311 and procedure 2-PT-R006, and noted that the spring skew failure mechanism occurred over time, which Entergy staff determined rendered the valve inoperable for greater than its AOT in TS 3.7.1 prior to the valve being tested. Considering NUREG-1022, section 3.2.2, the inspectors determined that MS-46D lifting outside the TS setpoint range was reportable because the failure mechanism was known and the valve was determined to be inoperable for greater than its TS AOT. Inspector questions caused Entergy staff to re-evaluate reportability. Entergy staff initiated CR-IP2-2012-3320 to submit a 60-day LER and CR-IP2-2012-4153 to document the incorrect reportability determination on March 15, 2012. Entergy's

corrective actions included the initiation of CR-IP2-2012-3320 and CR-IP2-2012-4153, and the submittal of LER 2012-005-00 to the NRC on May 24, 2012.

Analysis: The inspectors determined that the failure to provide a written LER within 60 days was a performance deficiency that was reasonably within Entergy's ability to foresee and correct, and should have been prevented. This violation involved not making a required report to the NRC and is considered to impact the regulatory process. Such violations are dispositioned using the traditional enforcement process instead of the Significance Determination Process. Using the Enforcement Policy, Section 6.9, "Inaccurate and Incomplete Information or Failure to Make a Required Report," example (d)(9), which states "A licensee fails to make a report required by 10 CFR 50.72 or 10 CFR 50.73," the NRC determined this violation is more than minor and is categorized as a Severity Level IV violation (very low safety significance).

Because this violation involves the traditional enforcement process with no underlying technical violation that would be considered more than minor in accordance with IMC 0612, a cross-cutting aspect is not assigned to this violation.

Enforcement: 10 CFR 50.73(a)(2)(i)(B) requires, in part, that licensees submit a LER for any operation or condition which was prohibited by the plant's Technical Specifications, within 60 days of discovering the event. Contrary to the above, Entergy failed to submit a report within 60 days of March 2, 2012, when Entergy personnel identified during testing, an inoperable steam generator main steam safety valve; a condition which was determined to be prohibited by the plant's Technical Specification. Because this violation was of very low safety significance and was entered into Entergy's corrective action program, this violation is being treated as an NCV, consistent with section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000247/2012003-02, An LER for an Inoperable Main Steam Safety Valve Was Not Submitted When Required)**

### **Cornerstone: Emergency Preparedness**

#### 1EP6 Drill Evaluation (71114.06 – 1 sample)

##### Emergency Preparedness Drill Observation

##### a. Inspection Scope

The inspectors evaluated the conduct of a routine Entergy emergency drill on May 3, 2012, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, technical support center, and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by Entergy staff in order to evaluate Entergy's critique and to verify whether the Entergy staff was properly identifying weaknesses and entering them into the corrective action program.

##### b. Findings

No findings were identified.

## 2. RADIATION SAFETY

### Cornerstone: Occupational/Public Radiation Safety

#### 2RS7 Radiological Environmental Monitoring Program (71124.07 – 1 sample)

##### a. Inspection Scope

The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendix A, Criterion 60 - Control of Release of Radioactivity to the Environment; 10 CFR Part 50, Appendix I, Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion As Low As is Reasonably Achievable for Radioactive Material in Light-Water – Cooled Nuclear Power Reactor Effluents; 40 CFR Part 190, Environmental Radiation Protection Standards for Nuclear Power Operations; 40 CFR Part 141, Maximum Contaminant Levels for Radionuclides; the guidance in Regulatory Guides 1.23, 4.1 and 4.15, NUREG 1301 and/or 1302, as well as, applicable industry standards and licensee procedures as criteria for determining compliance.

The inspectors reviewed the annual radiological environmental operating reports, and the results of any licensee assessments since the last inspection, to verify that the radiological environmental monitoring program (REMP) was implemented in accordance with the plant TS and the offsite dose calculation manual (ODCM). The inspectors reviewed the report for changes to the ODCM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, inter-laboratory comparison program, and analysis of data.

The inspectors reviewed the annual effluent release report and the 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," report, to determine if Entergy staff were sampling, as appropriate, for the predominant and dose-causing radionuclides likely to be released in effluents.

The inspectors walked down air sampling stations and thermo-luminescence dosimeter (TLD) monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition. For the air samplers and TLDs selected above, the inspectors reviewed the calibration and maintenance records to verify that they demonstrate adequate operability of these components. Additionally, the inspector reviewed the calibration and maintenance records of composite water samplers as available.

The inspectors verified that Entergy had initiated sampling of other appropriate media upon loss of a required sampling station.

The inspectors observed the collection and preparation of environmental samples from different environmental media as available. Sampling observed included river water, seaweed, and river sediment. The inspectors verified that environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were in accordance with procedures.

Based on direct observation and review of records, the inspectors verified that the meteorological instruments were operable, calibrated, and maintained in accordance

with guidance contained in the UFSAR, NRC Regulatory Guide 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants," and Entergy's procedures. The inspector verified that the meteorological data readout and recording instruments in the control room and at the tower were operable.

The inspectors verified that missed and or anomalous environmental samples were identified and reported in the annual environmental monitoring report. The inspectors reviewed the licensee's assessment of any positive sample results. The inspectors reviewed the associated radioactive effluent release data that was the source of the released material.

The inspectors selected SSCs that involved or could reasonably involve licensed material for which there is a credible mechanism for licensed material to reach groundwater, and verified that the Entergy had implemented a sampling and monitoring program sufficient to detect leakage of these SSCs to groundwater.

The inspectors verified that records, as required by 10 CFR 50.75(g), Reporting and Recordkeeping for Decommissioning Planning, of leaks, spills, and remediation since the previous inspection were retained in a retrievable manner.

The inspectors reviewed any significant changes made by Entergy to the ODCM as the result of changes to the land census, long-term meteorological conditions (3-year average), or modifications to the sampler stations since the last inspection. The inspectors reviewed technical justifications for any changed sampling locations. The inspectors verified that the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

The inspectors verified that the appropriate detection sensitivities with respect to TS/ODCM were used for counting samples. The inspectors reviewed quality control charts for maintaining radiation measurement instrument status and actions taken for degrading detector performance.

The inspectors reviewed the results of Entergy's inter-laboratory comparison program to verify the adequacy of environmental sample analyses performed by Entergy. The inspectors verified that the inter-laboratory comparison test included the media/nuclide mix appropriate for the facility.

The inspectors verified that problems associated with the REMP are being identified by Entergy staff at an appropriate threshold and were properly addressed for resolution in Entergy's corrective action program. The inspectors verified the appropriateness of the corrective actions for a selected sample of problems documented by Entergy staff that involved the REMP.

The inspectors reviewed CR-IP3-2012-01507, which identified elevated concentrations of radioisotopes in monitoring wells at Indian Point during quarterly sampling. The sampling took place in February 2012. Results for tritium ranged between 2000 pCi/liter to 7000 pCi/liter, which is below the EPA drinking water standard (NOTE: water from these wells is not drinking water). One well showed between 12.6 and 16.8 pCi/liter for cesium-137, slightly above the minimum detectable concentration of 9.17 pCi/liter. This

spike in results appears to be the result of normal groundwater flow from areas of higher concentration upstream, and not due to any new source of groundwater contamination.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151 – 2 samples)

a. Inspection Scope

The inspectors sampled Entergy's submittals for the below listed performance indicators (PIs) for Unit 2 for the period of April 1, 2011, through March 31, 2012. To determine the accuracy of the PI data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." As applicable, the inspectors reviewed Entergy's operator narrative logs, condition reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

- Safety System Functional Failures (MS05)
- Mitigating Systems Performance Indicator (MSPI) – Emergency AC Power System (MS06)

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 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 Semi-Annual Trend Review

### a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Entergy outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or corrective action program backlogs. The inspectors also reviewed Entergy's corrective action program database for the third and fourth quarters of 2011 to assess condition reports written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily condition report review (Section 4OA2.1). The inspectors reviewed the Entergy quarterly trend report for the fourth quarter of 2011, conducted under LO-IP3LO-2011-00173 to verify that Entergy personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

### b. Findings and Observations

No findings were identified.

The inspectors evaluated a sample of departments that are required to provide input into the quarterly trend reports, which included maintenance and instrumentation and controls departments. This review included a sample of issues and events that occurred over the course of the past two quarters to determine whether issues were appropriately considered or ruled as emerging or adverse trends, and in some cases, verified the appropriate disposition of resolved trends. The inspectors verified that these issues were addressed within the scope of the corrective action program, or through department review and documentation in the quarterly trend report for overall assessment. For example, the inspectors noted that consistent with the onset of additional safety-related control room ventilation fan failures that have occurred over the past several months, Entergy personnel had appropriately identified "fan failure due to belts" as a monitored trend with ongoing corrective actions to address this issue. In other cases, the inspectors verified for resolved trends, such as vendor oversight, that applicable success criteria was identified to ensure successful resolution of adverse trends had been appropriately dispositioned.

## 4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 5 samples)

### .1 Plant Events

#### a. Inspection Scope

For the plant event 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 made appropriate

emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Entergy's follow-up actions related to the event to assure that Entergy implemented appropriate corrective actions commensurate with their safety significance.

- Main generator trip and subsequent reactor trip on June 6, 2012

b. Findings

No findings were identified.

.2 (Closed) LER 05000247/2011-003-00: Technical Specification (TS) Violation for Entry into TS 3.0.3 for 3 Inoperable Fan Cooler Unit Trains and Failure to Correct Condition Within 1 Hour and Actions Taken for Plant Shutdown

On October 3, 2011, at 3:45 am, during a quarterly surveillance test, all five fan cooler units (FCUs) failed to meet minimum flow requirements with the essential service water (SW) header supplied by the 22 and 23 SWPs. Operations personnel declared all three trains of FCUs inoperable in accordance with TS 3.6.6.F and entered TS 3.0.3. In accordance with TS 3.0.3, Entergy operators initiated actions at 4:38 am to place the plant in Mode 3 within seven hours. Operations personnel, at 04:43 am initiated a turbine load reduction by approximately 5 MWs and swapped the essential SW header to the other header, the 4/5/6 header. TS 3.0.3 action statement was exited at 5:32 am after recovery of SW flow to required values, and power ascension to full power was commenced at 5:54 am. Entergy staff determined that the direct cause of the event was excessive accumulation of silt or debris in the SW bay which resulted in a change to the SWP inlet conditions. Entergy determined the root cause of the event was ineffective barriers established to monitor and remove silt accumulations that would affect SWP net positive suction head margin. Specifically, Entergy staff determined that the monitoring plans could have been enhanced to include predictive elements that account for changing environmental conditions. Entergy's corrective actions include: performing sonar mapping and de-silting of the SW bay to identify and remove silt accumulation impeding SWP performance, the sonar mapping frequency will be increased from a 2-year to a 3-month frequency, the SW system monitoring plan will be revised to include alert and action levels for silt buildup, a comprehensive silt monitoring and mitigation plan will be developed to include predictive trending and monitoring methods, to provide early indication of influences from natural events. Entergy staff entered this issue into the CAP as CR-IP2-2011-4894.

The inspectors did not identify a violation of TS 3.0.3 or related performance deficiencies. Specifically, the inspectors determined that Entergy operators implemented appropriate actions as prescribed by TS 3.6.6.F which directed entry into TS 3.0.3. The inspectors affirmed that Entergy personnel reported the condition consistent with guidance in NUREG-1022, "Event Reporting Guidelines." This guidance indicates that if the condition that directed entry into TS 3.0.3 is not corrected in the first hour, the condition should be reported. This LER is closed.

.3 (Closed) LER 05000247/2012-001-00: Technical Specification (TS) Prohibited Condition Caused by an Inoperable 23 Emergency Diesel Generator Fuel Oil Storage Tank Due to Fuel Oil Below TS Limit

On February 8, 2012, during performance of a special log set up to verify 23 Fuel Oil Storage Tank (FOST) level during routine rounds and following completion of a diesel run, an operator discovered that the useable fuel oil in the tank was below the TS 3.8.3 required level. The special log was initiated after the tanks level indicator LI-1135 was declared inoperable on July 22, 2011. At the time the 23 FOST condition was identified, the tank had been inoperable for 12 hours, which is longer than the allowed outage time of 2 hours. Entergy staff entered this issue into the CAP as CR-IP2-2012-0821. Entergy staff determined the apparent cause was due to a lack of questioning attitude and understanding by operations watch personnel of out of service equipment (LI-1135) and the requirements of the special log in effect for LI-1135. Entergy's corrective actions included coaching on management's expectations on the use of human performance tools, initiation of a shift order on requirements for hanging deficiency tags in the field, and update of the pre-job brief database.

The inspectors reviewed the LER and the associated apparent cause evaluation to verify Entergy staff adequately evaluated the TS violation and developed appropriate corrective actions. The enforcement aspects of this licensee-identified violation are discussed and documented in Section 4OA7. The inspectors did not identify any additional findings during the review of the LER. This LER is closed.

.4 (Closed) LER 05000247/2012-005-00: Technical Specification Prohibited Condition Caused by a Main Steam Safety Valve Outside its As-Found Lift Setpoint Test Acceptance Criteria Due to Spring Skew/Spindle Wear

On March 2, 2012, during the performance of surveillance procedure 2-PT-R006, main steam safety valve MS-46D failed its as-found lift setpoint pressure test. Valve MS-46D lifted at 1136.9 psig, 24.9 psig outside its acceptance range of 1048 to 1112 psig. TS 3.7.1, "Main Steam Safety Valves," requires that MSSV's be operable in accordance with TS Table 3.7.1-1 and Table 3.7.1-2. MS-46D was declared inoperable since it lifted outside its acceptance range which resulted in the valve failing the as-found test. Entergy staff entered this issue into the CAP as CR-IP2-2012-1311. Entergy staff determined the apparent cause was internal friction caused by spring skew and spindle wear. Entergy's corrective actions included immediately adjusting the valve to within its operable limits and repairing the valve to within the TS operability setpoint band. In addition, Entergy plans to install a bronze wear sleeve along the inner diameter of the spindle contact points.

The inspectors identified a SL-IV NCV, as documented in Section 1R22 of this report. The inspectors did not identify any additional findings during the review of the LER. This LER is closed.

4OA6 Meetings, Including Exit

On August 2, 2012, the inspectors presented the inspection results to Mr. John Ventosa, 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.



#### 4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by Entergy and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as NCVs.

- Technical Specification 3.8.3, Diesel Fuel Oil and Starting Air, requires, in part, that one diesel generator with usable fuel oil in its associated diesel generator fuel oil storage tank less than 6334 gallons, declare the associated diesel generator inoperable within two hours. Contrary to the above, on February 8, 2012, the 23 EDG fuel oil storage tank was inoperable for 12 hours before the 23 EDG was declared inoperable by operators. Specifically, an operator did not use compensatory measure for a failed level indicator, to determine the 23 FOST level after a monthly test of the 23 EDG. Entergy staff entered this issue into the CAP as CR-IP2-2012-0821. Entergy's corrective actions included coaching on management's expectations on use of human performance tools, initiation of a shift order on requirements for hanging deficiency tags in the field, and update of the pre-job brief database. This licensee-identified violation is associated with the Mitigating Systems Cornerstone. Using IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined that this finding is of very low safety significance (Green) because the finding did not represent a loss of the emergency AC power system safety function and there was not an actual loss of the 23 EDG safety function.

ATTACHMENT: SUPPLEMENTARY INFORMATION

## SUPPLEMENTARY INFORMATION

### KEY POINTS OF CONTACT

#### Entergy Personnel

J. Ventosa, Site Vice President  
R. Allen, Technical Specialist IV, Code Programs  
N. Azevedo, Supervisor, Engineering  
J. Baker, Shift Manager  
T. Beasely, Engineering  
M. Burney, Nuclear Safety/License IV Specialist  
R. Burroni, Manager, System Engineering  
T. Cole, Project Manager, NUC  
P. Conroy, Director, Nuclear Safety Assurance  
L. Cossio-Gonzalez, Engineer, Code Programs  
L. Coyle, General Manager, Plant Operations  
G. Dahl, Nuclear Safety/License IV Specialist  
R. Daley, Engineer III, Nuclear  
G. Dean, Shift Manager  
D. Dewey, Assistant Operations Manager  
J. Dinelli, Manager, Operations  
R. Dolansky, Senior Lead Engineer  
J. Doroski, Plant Chemistry  
R. Drake, Supervisor, Engineering  
E. Firth, Manager, Corrective Action  
T. Flynn, Maintenance Inspection Coordinator  
E. Goethicus, Operations Instructor  
D. Gagnon, Manager, Security  
F. Inzirillo, Manager, IPEC Quality Assurance  
D. King, URS, NDE Project Manager  
J. Kirkpatrick, Assistant Plant Manager  
R. Lee, Lead Engineer, Buried Pipe and Tank Program  
J. Lijoi, Superintendent, I&C  
L. Lubrano, Senior Lead Engineer  
R. Mages, Senior HP/Chemical Specialist  
D. Mayer, Director, Unit 1  
T. McCaffrey, Manager, Design Engineering  
B. McCarthy, Assistant Operations Manager  
J. Miu, Engineer, Programs and Components  
N. Papaiya, Auditor, Quality Assurance  
E. Primrose, Shift Manager  
S. Prussman, Nuclear Safety/License IV Specialist  
J. Reynolds, Work Week Manager  
R. Robenstein, Superintendent, Simulator  
T. Salentino, Superintendent, Dry Fuel Storage  
S. Sandike, Senior HP/Chemical Specialist  
A. Singer, Superintendent, Licensed Operator Requalification Training  
D. Smith, Technical Specialist IV  
B. Sullivan, Superintendent, Training-Nuc Ops  
R. Tagliamonte, Manager, Radiation Protection  
M. Tesoriero, Manager, Programs and Components  
J. Thaliath, Engineer II, Nuclear

M. Troy, Manager, Engineering  
 R. Vogle, Senior Emergency Planner  
 R. Walpole, Manager, Licensing  
 D. Williams, Manager, Maintenance  
 M. Wilson, Manager, Emergency Planning  
 W. Wittich, Supervisor, Design Engineering  
 M. Woodby, Director, Engineering

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

#### Opened/Closed

05000247/2012-003-01	NCV	Foreign Materials Control Procedure Not Followed Resulting in Degraded 21 Reactor Coolant Pump Seal Package (Section 1R12)
05000247/2012-003-02	NCV	An LER for an Inoperable Main Steam Safety Valve Was Not Submitted When Required (Section 1R22)

#### Closed

05000247/2011-003-00	LER	Technical Specification (TS) Violation for Entry into TS 3.0.3 for 3 Inoperable Fan Cooler Unit Trains and Failure to Correct Condition Within 1 Hour and Actions Taken for Plant Shutdown (4OA3)
05000247/2012-001-00	LER	Technical Specification (TS) Prohibited Condition Caused by an Inoperable 23 Emergency Diesel Generator Fuel Oil Storage Tank Due to Fuel Oil Below TS Limit
05000247/2012-005-00	LER	Technical Specification Prohibited Condition Caused by a Main Steam Safety Valve Outside its As-Found Lift Setpoint Test Acceptance Criteria Due to Spring Skew/Spindle Wear

### LIST OF DOCUMENTS REVIEWED

#### Common Documents Used

Indian Point Unit 2, Updated Final Safety Analysis Report  
 Indian Point Unit 2, Individual Plant Examination  
 Indian Point Unit 2, Individual Plant Examination of External Events  
 Indian Point Unit 2, Technical Specifications and Bases  
 Indian Point Unit 2, Technical Requirements Manual  
 Indian Point Unit 2, Control Room Narrative Logs  
 Indian Point Unit 2, Plan of the Day  
 Indian Point Critical Evolution Meeting Agenda

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

IP-SMM-OP-104, Offsite Power Continuous Monitoring and Notification, Revision 13

IP-SMM-LI-108, Event Notification and Reporting, Revision 14

Condition Reports (CR-IP2-)

2011-0164	2011-0558	2011-1108	2011-1419	2011-3319	2011-6239
2012-2239	2012-2821				

Maintenance Orders/Work Orders

282627	299184	307563	312660	318152
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**Section 1R04: Equipment Alignment**Procedures

2-COL-10.0, Locked Safeguards Valve, Revision 40

2-COL-10.2.1, Containment Spray System, Revision 19

2-COL-21.3, Steam Generator Water Level, Revision 31

2-COL-27.3.1, Diesel Generators, Revision 26

2-COL-27.6, Unit 2 Appendix R Diesel Generator, Revision 1

Condition Reports (CR-IP2-)

2012-2309	2012-4146
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Drawings

207698, Flow Diagram Lube Oil for Diesel Generators 21, 22, and 23, Revision 26

9321-2018, Flow Diagram Condensate and Boiler Feed Pump Suction

9321-F-2019, Flow Diagram Boiler Feedwater

9321-2028, Flow Diagram Jacket Water to Diesel Generators, Revision 37

9321-2029, Flow Diagram Starting Air to Diesel Generators, Revision 52

9321-2030, Flow Diagram Fuel Oil to Diesel Generators, Revision 40

9321-F-2735, Flow Diagram Safety Injection System, Revision 140

**Section 1R05: Fire Protection**Procedures

EN-DC-161, Control of Combustibles, Revision 6

IP2-RPT-03-00015, Unit 2 Fire Hazards Analysis Report, Revision 5

PFP-207 (FZ 9, 12A, 13A): General Floor Plan – Primary Auxiliary Building, Revision 0

PFP-251 (FZ 14): Control Building – 480 Volt Switchgear Room, Revision 0

PFP-255 (FZ 16, 17, 18, 19, 20, 21, 43A, 44A, 45A, 46A, 47A, 48A, 64A): Turbine Building –  
General Area, Revision 11

PFP-258 (FZ 10): Diesel Generator Building / Electrical Tunnel Exhaust Fans, Revision 5

PFP-264 (FZ 22, 63A, 66A): Exterior Buildings – Intake Structure, Revision 0

Condition Reports (CR-IP2-)

2012-098	2012-520	2012-2602	2012-2645
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**Section 1R06: Flood Protection Measures**

Procedures

2-PT-A023, Fire Main Booster Pump Capacity Test, Revision 10  
2-PT-A040, Diesel Driven Fire Pump Capacity, Revision 7  
PT-SA11, Diesel Generator Building Fire Detection System, Revision 5

Condition Reports (CR-IP2-)

2005-4868    2011-6041

Maintenance Orders/Work Orders

51676242    52356131

Drawings

9321-4946, Diesel Generator Building, Floor Drains and Ventilation Control Air Piping Plans and Sections, Revision 6

Miscellaneous

Calculation FMX-00188-00, EDG Containment Pit Volume and Drainage Capability, November 22, 2000  
Individual Plant Examination of External Events for Indian Point Unit 2, December 1995  
IP-RPT-04-00230, Indian Point Unit 2 Probabilistic Safety Assessment, Revision 1  
IP-RPT-09-00026, Indian Point Unit 2 Probabilistic Safety Assessment, Internal Flooding Analysis, Revision 0  
Letter from NRC to Mr. William J Cahill, Jr. on January 31, 1979  
NL-72-1313, Letter from Mr. William J Cahill, Jr. to NRC on December 18, 1972  
Safety Evaluation Report, Susceptibility to Flooding From Failure of Non-Category I Systems For Indian Point Unit 2, December 18, 1980

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

Procedures

0-NF-206, Initial Criticality, Revision 5  
2-AOP-CVCS-1, Chemical and Volume Control System Malfunctions, Revision 7  
2-AOP-INST-1, Instrument/Controller Failures, Revision 6  
2-AOP-LEAK-1, Sudden Increase in Reactor Coolant System Leakage, Revision 7  
2-E-0, Reactor Trip or Safety Injection, Revision 5  
2-E-1, Loss of Reactor or Secondary Coolant, Revision 3  
2-ES-1.3, Transfer to Cold Leg Recirculation, Revision 7  
2-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, Revision 2  
2-POP-1.2, Reactor Startup, Revision 57  
2-POP-1.3, Plant Startup from Zero to 45% Power, Revision 82  
2-POP-2.1, Operation at Greater Than 45% Power, Revision 57  
2-POP-4.2, Operation Below 20% Pressurizer Level with Fuel in the Reactor / Refueling, Attachment 13, Containment Closure Log, Revision 4  
EN-LI-102, Corrective Action Process, Revision 17  
EN-MA-118, Foreign Material Exclusion, Revision 4

Condition Reports (CR-IP2-)

2012-2505    2012-2506    2012-2516    2012-2519    2012-2528    2012-2529

Miscellaneous

Form EP-4, Central Control Room Initial Notification Checklist, April 17, 2012  
 Form EP-5, Upgrade/Update Notification – Alert/SAE/GE Checklist, April 17, 2012  
 IPEC Simulator Evaluated Scenario LRQ-SES-22, April 17, 2012  
 Radiological Emergency Data Form, Part 1, April 17, 2012

**Section 1R12: Maintenance Effectiveness**Procedures

0-PFM-110, Relief Valve Bench Test, Revision 3  
 0-VLV-453-GEN, Crosby Style HB-BP Safety Relief Valve, Remove/Reinstall Pressurizer Safety Valves, Revision 1  
 2-AOP-RCP-1, Reactor Coolant Pump Malfunction, Revision 11  
 2-E-0, Reactor Trip or Safety Injection, Revision 4  
 2-ES-0.1, Reactor Trip Response, Revision 4  
 2-PT-M58, Central Control Room Ventilation Area Radiation Monitors and Control, Revision 40  
 EN-LI-102, Corrective Action Process, Revision 19  
 SOP 1.1.1, Vacuum Filling and Degassing the Reactor Coolant System, Revision 30  
 TOI-271, Reactor Coolant System Depressurization for Reseating of Leaking Pressurizer Safety Valves, Revision 2

Condition Reports (CR-IP2-)

2003-3310	2004-5204	2008-1049	2010-4316	2010-5361	2010-5959
2011-0015	2011-1334	2011-3533	2011-5052	2011-5466	2011-5640
2011-5874	2011-6044	2011-6200	2011-6541	2012-0286	2012-0322
2012-1664	2012-1838	2012-1839	2012-2007	2012-2295	2012-2360
2012-2417	2012-2596				

Maintenance Orders/Work Orders

256833	302971	302975	311202	52251773
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9321-3126, Central Control Room Air Conditioning Evaporator Fan Control and Indication, Sheet 6, Revision 24  
 IP2-S-000258, Control Room Back-Up vent Fan Power and Control, Revision 11

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Design Basis Document – Central Control Room Heating, Ventilation, and Air Conditioning System, Revision 1  
 Engineering Change 34276, Lower Trip Setpoint of Central Control Room HVAC Fan Unit 21 Outlet Flow Switch  
 Event Notification 47582, Plant Shutdown Due to Increased Leakage from 21 RCP Seal Return, January 10, 2012  
 Graph of 21 RCP Seal Return Flow, October 9, 2011 – January 9, 2012  
 Instrument Calibration Data Sheet, FC-6830-S, January 19, 2012-02-18  
 IP-2 Maintenance Rule Basis Document for Reactor Coolant System, Revision 2  
 Setpoint Device Data Form, FC-6830-S, October 31, 2002  
 Setpoint Device Data Form, FC-6830-S, April 21, 2005  
 System Health Report – Weld Channel Pressurization System, 4Q11

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

Procedures

EN-WM-104, On Line Risk Assessment, Revision 6  
IP-SMM-WM-101, Online Risk Assessment, Revision 3

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312633      312634

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Operator Narrative Logs, April 3, 2012  
Operator Narrative Logs, April 12, 2012  
Operator Narrative Logs, April 23, 2012  
Operator Narrative Logs, May 9, 2012  
Operator's Risk Report, April 3, 2012  
Operator's Risk Report, April 12, 2012  
Operator's Risk Report, April 23, 2012  
Operator's Risk Report, May 9, 2012  
Plant Status/Integrated Work Schedule for June 6, 2012

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

Procedures

2-PT-W020, Electrical Verification – Inverters and DC Distribution in Modes 1 to 4, Revision 3

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2012-2557    2012-2560    2012-2573    2012-2583    2012-2584    2012-2661  
2012-3773

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310918

Miscellaneous

Task Interface Agreement (TIA) – Evaluation of Application of Technical Specification (TS)  
4.0.3, "Surveillance Requirement Applicability," at Pilgrim (TIA2008-004)  
TSTF-IG-06-01, Implementation Guidance for TSTF-358, "Missed Surveillance Requirements,"  
Revision 6

**Section 1R18: Plant Modifications**

Procedures

EN-DC-136, Temporary Modifications, Revision 6

Condition Reports (CR-IP2-)

2012-2586

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310918

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015C13786, Static Switch 10kVA, 1phase, 60 Hz, 120 VAC, Revision A

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EC 36188, Install Temporary Jumper on 24 Static Inverter Frequency Detector Board  
Terminals TS2-2 and TS2-5, April 9, 2012

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

Procedures

2-PT-W020, Electrical Verification – Inverters and DC Distribution in Modes 1 to 4, Revision 3  
EN-MA-125, Troubleshooting Control of Maintenance Activities, Revision 9  
EN-WM-105, Planning, Revision 10  
EN-WM-105, Planning – Instrumentation & Control – Replace PC-139, Revision 06/21/2011  
EN-WM-107, Post Maintenance Testing, Revision 4

Condition Reports (CR-IP2-)

2011-3061	2012-0043	2012-0132	2012-0808	2012-2013	2012-2323
2012-2557	2012-2560	2012-2573	2012-2583	2012-2584	2012-2586
2012-2660	2012-2706	2012-2878	2012-2895	2012-3956	

Maintenance Orders/Work Orders

143376	281489	282952	301705	302331	307902
310918	311440	317949	52248704	5229365	

Drawings

D262140-01, Loop Diag. CVCS VCT Press. Temp LOOP NOS. 139. 268, Revision 1

Miscellaneous

EN-FAP-WM-002, Critical Evolutions for WO 317949, Revision 0  
IP2-DBD-207, Design Basis Document for 118V AC Electrical System, Revision 2  
Maintenance Rule (A) (1) Action Plan Chemical and Volume Control Systems, March 3, 2012  
Regulatory Guide 1.93, Availability of Electric Power Sources, Revision 1

**Section 1R20: Refueling and Other Outage Activities**

Procedures

2-AOP-TURB-1, Main Turbine Trip Without a Reactor Trip, Revision 5  
2-POP-1.2, Reactor Startup, Revision 57  
2-POP-1.3, Plant Startup from Zero to 45% Power, Revision 84  
2-POP-3.2, Plant Recovery from Trip, Hot Standby, Revision 38

Condition Reports (CR-IP2-)

2012-2505	2012-2519	2012-2533
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268137	310688
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A225096-21, Logic Diagrams Turbine Trip Signals, Revision 21



**Section 1R22: Surveillance Testing**

Procedures

2-PT-2Y008C, 23 Emergency Diesel Generator Mechanical Overspeed Trip, Revision 3  
2-PT-V024Q, CD-109 Closure Test, Revision 0  
2-PT-V63A, Reactor Protection Logic Train "A" Partial Functional Test, Revision 4  
2-PT-V63B, Reactor Protection Logic Train "B" Partial Functional Test, Revision 5  
SOP-27.3.1.3, 23 Emergency Diesel Generator Manual Operation, Revision 20

Condition Reports (CR-IP2-)

2012-1380    2012-1444    2012-2105

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52246192    52318051

Drawings

9321-2018, Flow Diagram Condensate and Boiler Feed Pump Suction, Revision 146  
IP3V-91-0058, General Plan (Condensate Storage Tank), Revision 3

Miscellaneous

Con Edison Memorandum from R.J. Doyle, Senior System Engineer, Emergency Diesel  
Generator Set Points, July 26, 1993  
SEP-IP2-IST-2, Indian Point 2 Fourth Ten-Year Interval Inservice Testing Program Plan,  
Revision 0

**Section 1EP6: Drill Evaluation**

Procedures

2-AOP-INST-1, Instrument/Controller Failures, Revision 6  
2-AOP-SG-1, Steam Generator Tube Leak, Revision 13  
2-E-0, Reactor Trip or Safety Injection, Revision 5  
IP-EP-AD13, IPEC Emergency Plan Administrative Procedures, Revision 11

Condition Reports (CR-IP2-)

2012-3181    2012-3228    2012-3231    2012-3233    2012-3234    2012-3235

Miscellaneous

Radiological Emergency Data Form – Part 1, May 3, 2012

**Section 2RS7: Radiological Environmental Monitoring Program**

Procedures

3PT-SA37, Meteorological Tower Semi-Annual Sensor Calibration (calibration performed on  
10/20/11 and 6/1/12), Revision 8

Condition Reports (CR-IP2-)

2012-0253    2012-0904    2012-1507    2012-2690    2012-3230    2012-3790

Miscellaneous

2011 Land Use Census  
2011 Radiological Environmental Monitoring Report  
IPEC Snapshot Assessment Reports: IP3LO-2012-0014, Annual REMP Report;  
IP3LO-2011-00058, Air Particulate and Iodine Sampling

**Section 40A1: Performance Indicator Verification**Procedures

EN-LI-114, Performance Indicator Process, Revision 5

Completed Procedures

EN-LI-114, Performance Indicator Process, Revision 1, Emergency AC Power,  
2<sup>nd</sup> Quarter 2011 – 1<sup>st</sup> Quarter 2012

Condition Reports (CR-IP2-)

2011-1583	2011-4579	2011-6087	2012-883	2012-1066	2012-1095
2012-1386	2012-1574				

Miscellaneous

IP-RPT-09-00026, Indian Point Unit 2 Probabilistic Safety Assessment, Revision 0

Mitigating System Performance Indicator Basis Document, Revision 9

Mitigating System Performance Indicator Derivation Reports, Emergency AC Power System,  
June 2011 – March 2012

Mitigating System Performance Indicator Derivation Reports, Safety System Unavailability /  
Safety System Functional Failures, June 2011 – March 2012

Operator Logs, Emergency Diesel Generators, April 2011 – March 2012

System Health Report, Emergency Diesel Generators, 4<sup>th</sup> Quarter 2011

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

EN-FAP-OM-001, Leadership Forums for Continuous Improvement, Revision 8

EN-LI-102, Corrective Action Process, Revision 17

EN-LI-121, Trend Analysis, Revision 11

EN-LI-121-01, Entergy Trend Codes, Revision 2

Condition Reports (CR-IP2-)

2011-3843	2011-4324	2012-0625
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Miscellaneous

Condition Reports for the Instrumentation and Controls Department, July 1, 2011 –  
December 31, 2011

Condition Reports for the Maintenance Department, July 1, 2011 – December 31, 2011

Department Performance Review Meeting Agenda, July 1, 2011 – December 31, 2011

Human Performance Scorecard Maintenance Department, July 1, 2011 – December 31, 2011

LO-IP3LO-2011-00154, Maintenance Department Quarterly Trend Report, 3<sup>rd</sup> Quarter 2011

LO-IP3LO-2011-00173, Indian Point Entergy Center Quarterly Trend Report, 4<sup>th</sup> Quarter 2011

Maintenance Department Fundamentals Windows, July 1, 2011 – December 31, 2011

**Section 40A3: Follow-up of Events and Notices of Enforcement Discretion**Procedures

0-NF-203, Internal Transfer of Fuel Assemblies and Inserts, Revision 8  
 2-ARP-003, Low Fuel Level, Revision 5  
 2-POP-1.2, Reactor Startup, Revision 57  
 2-POP-1.3, Plant Startup from Zero to 45% Power, Revision 84  
 2-POP-3.2, Plant Recovery from Trip, Hot Standby, Revision 38  
 2-PT-Q016, Containment Fan Cooler Unit Cooling Water Flow Test, Revision 3  
 2-PT-V053E, Mode Change Checklist, Mode 3 to Mode 2, Revision 8  
 EN-LI-119, Apparent Cause Evaluation (ACE) Process, Revision 15  
 ES-0.1, Reactor Trip Response, Revision 45

Condition Reports (CR-IP2-)

2007-4447	2010-1059	2011-4893	2011-4894	2011-4958	2012-0821
2012-1019	2012-3812	2012-3813	2012-3818	2012-3819	2012-3820
2012-3821	2012-3822	2012-3823	2012-3825	2012-3826	2012-3827
2012-3829	2012-3830	2012-3831	2012-3834	2012-3835	2012-3844
2012-3845	2012-4133	2012-4551			

Drawings

A225096-21, Logic Diagrams Turbine Trip Signals, Revision 21  
 9321-LL-3130, Generator Backup Lockout Relay 86BU

Maintenance Orders/Work Orders

251337      317229

Miscellaneous

EN-LI-118, Attachment 9.2, Failure Mode Analysis Worksheet, Revision 0  
 Fuel Transfer Form 2-TF-2011-060, December 13, 2011  
 Fuel Transfer Form 2-TF-2012-004, January 20, 2012  
 Fuel Transfer Form 2-TF-2011-052, February 22, 2012  
 LER 2011-003-00, Technical Specification (TS) Violation for Entry into TS 3.0.3 for 3 Inoperable Fan Cooler Unit Trains and Failure to Correct Condition Within 1 Hour and Actions Taken for Plant Shutdown  
 LER 2012-001-00, Technical Specification (TS) Prohibited Condition Caused by an Inoperable 23 Emergency Diesel Generator Fuel Oil Storage Tank Due to Fuel Oil Below TS Limit  
 LER 2012-002-00, Technical Specification Prohibited Condition Caused by New Fuel Assemblies Stored in a Configuration Prohibited by the Technical Specifications, April 13, 2012  
 LER 2012-005-00, Technical Specification Prohibited Condition Caused by a Main Steam Safety Valve Outside its As-Found Lift Setpoint Test Acceptance Criteria Due to Spring Skew/Spindle Wear  
 NRC Event Notification 47999  
 NUREG-1022, Event Reporting Guidelines: 10 CFR 50.72 and 50.73, Revision 2  
 Operator Narrative Logs, February 8, 2012

**Section 40A7: Licensee-Identified Violations**

Procedures

0-NF-203, Internal Transfer of Fuel Assemblies and Inserts, Revision 8

Condition Reports (CR-IP2-)

2012-1019

Miscellaneous

Fuel Transfer Form 2-TF-2011-060, December 13, 2011

Fuel Transfer Form 2-TF-2012-004, January 20, 2012

Fuel Transfer Form 2-TF-2011-052, February 22, 2012

**LIST OF ACRONYMS**

AC	alternating current
ACE	apparent cause evaluation
ADAMS	Agency wide Document Access and Management System
AOT	allowed outage time
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
CSP	containment spray pump
DDCS	double delta channel seal
EC	engineering change
EDG	emergency diesel generator
ENTERGY	Entergy Nuclear Northeast
FCU	fan cooler unit
FOST	Fuel Oil Storage Tank
FZ	fire zone
GPM	gallons per minute
IMC	Inspection Manual Chapter
IPEC	Indian Point Energy Center
IR	inspection report
LER	Licensee Event Report
MSPI	mitigating systems performance indicator
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
ODCM	offsite dose calculation manual
PFP	pre-fire plan
PI	performance indicator
RCP	reactor coolant pump
RCS	reactor coolant system
REMP	radiological environmental monitoring program
SDP	significance determination process
SFP	spent fuel pool
SSC	structure, system, and component
SW	service water
SWP	service water pump
TLD	thermo luminescence dosimeter
TS	technical specification
UFSAR	Updated Final Safety Evaluation Report
WO	work order