

August 8, 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 2 – NRC INTEGRATED
INSPECTION REPORT 05000247/2011003

Dear Mr. Pollock:

On June 30, 2011, 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 July 20, 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.

This report documents four NRC-identified findings of low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they are entered into your corrective action program (CAP), the NRC is treating these as non-cited violations (NCVs) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest these NCVs, 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 1; 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 the findings 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 1, and the NRC Senior Resident Inspector at Indian Point Nuclear Generating Unit 2.

J. Pollock

2

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Sincerely,

/RA/

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000247/2011003
w/ Attachment: Supplemental Information

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U.S. Nuclear Regulatory Commission

Region I

Docket No.: 50-247

License No.: DPR-26

Report No.: 05000247/2011003

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 2

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

Dates: April 1, 2011 through June 30, 2011

Inspectors: M. Catts, Senior Resident Inspector – Indian Point 2
O. Ayegbusi, Resident Inspector – Indian Point 2
S. Barr, Senior Emergency Preparedness Specialist – Region I
J. Lilliendahl, Reactor Inspector – Region I
K. Mangan, Senior Reactor Inspector – Region I
S. McCarver, Project Engineer – Region I

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

TABLE OF CONTENTS

SUMMARY OF FINDINGS	3
1. REACTOR SAFETY	6
1R01 Adverse Weather Protection.....	6
1R04 Equipment Alignment	8
1R05 Fire Protection.....	9
1R06 Flood Protection Measures.....	9
1R07 Heat Sink Performance	10
1R11 Licensed Operator Requalification Program	10
1R12 Maintenance Effectiveness.....	13
1R13 Maintenance Risk Assessments and Emergent Work Control	16
1R15 Operability Evaluations	17
1R18 Plant Modifications	19
1R19 Post-Maintenance Testing.....	21
1R20 Refueling and Outage Activities.....	21
1R22 Surveillance Testing	22
1EP6 Drill Evaluation	23
4. OTHER ACTIVITIES	23
4OA1 Performance Indicator Verification.....	23
4OA2 Identification and Resolution of Problems.....	24
4OA3 Event Follow-Up.....	27
4OA5 Other Activities	28
4OA6 Meetings, Including Exit.....	32
ATTACHMENT: SUPPLEMENTAL INFORMATION	32
SUPPLEMENTAL INFORMATION	A-1
KEY POINTS OF CONTACT	A-1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED.....	A-2
LIST OF DOCUMENTS REVIEWED	A-3
LIST OF ACRONYMS	A-14

SUMMARY OF FINDINGS

IR 05000247/2011003; 04/01/2011 – 06/30/2011; Indian Point Nuclear Generating (Indian Point) Unit 2; Licensed Operator Requalification Program, Maintenance Effectiveness, Operability Evaluations, and Identification and Resolution of Problems.

This report covered a three-month period of inspection by resident and region-based inspectors. Four NCVs of very low significance (Green) were identified. These findings were also determined to be NCVs of NRC requirements. 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 significance determination process does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Initiating Events

- Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V "Instructions, Procedures, and Drawings," because Entergy personnel did not adequately implement Procedure EN-OP-104 "Operability Determination Process," to assess the operability of the pressurizer modulating heater group. Specifically, Entergy personnel did not adequately evaluate a degraded condition identified with the modulating heater group controller and the impact on the modulating heater group operability. This resulted in the modulating heater being inoperable between August 18, 2010 and January 19, 2011, and an unplanned entry into a Technical Specification (TS) limiting condition for operation (LCO) 3.4.9, "Pressurizer." This issued was entered into Entergy's corrective action program (CAP) as CR-IP2-2011-3493.

This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and affects 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 inadequate procedure implementation resulted in the pressurizer modulating heater group being inoperable for approximately five months and an unplanned entry into a TS LCO. 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 did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available.

The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the CAP attribute because Entergy personnel did not thoroughly evaluate the problems associated with the pressurizer modulating heater group controller such that the resolutions address causes and extent of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. [P.1(c) per IMC 0310] (Section 1R15)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green NCV of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Entergy personnel did not monitor the performance or condition of structures, systems, or components, against licensee-established goals, in a manner sufficient to provide reasonable assurance that these structures, systems, and components, as defined in paragraph (b) of 10 CFR 50.65, are capable of fulfilling their intended functions. Specifically, between August 25, 2004 and May 19, 2011, Entergy personnel did not monitor the condition of the service water pump (SWP) and circulating water pump (CWP) bays in a manner sufficient to provide reasonable assurance that the SWP and CWP bays remained capable of fulfilling their intended function. This issue was entered into Entergy's CAP as CR-IP2-2011-2006.

This finding is more than minor because if left uncorrected, the condition could have resulted in the loss of function due to degrading concrete material properties of structures and systems designed to mitigate design basis events. This finding is associated with the Mitigating Systems cornerstone. Entergy personnel evaluated the condition of the SWP and CWP bays and determined these structures continued to meet the licensing basis requirements, with reduced margin, and thus remained operable for design loads inclusive of site extreme environmental conditions. 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 was not a design or qualification deficiency, did not result in an actual loss of safety function, was not a loss of barrier function, and was not potentially risk significant for external events.

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 follow procedures when Entergy staff documented a preventive maintenance (PM) task as complete when the work had not been performed. [H.4(b) per IMC 0310] (Section 1R12)

- Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XI, "Test Control," because Entergy personnel did not assure that adequate test instrumentation was available and used for 21 inverter surveillance tests. Specifically, between April 4, 2010, and July 13, 2011, the 21 inverter alternating current (AC) output voltage meter was used for TS surveillance tests without adequately addressing its degraded condition, which resulted in recording inaccurate and non-conservative TS surveillance test results. This issue was entered into Entergy's CAP as CR IP2-2011-03468.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the degraded meter resulted in inaccurate and nonconservative TS surveillance results from April 4, 2010, to July 13, 2011. 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 was not related to a design or qualification deficiency, did not represent a loss of system safety function because the control room instrument bus provided reasonable assurance that the requirements of the TS surveillance tests were met, and the finding did not screen as potentially risk significant due to external events.

The finding has a cross-cutting aspect in the area of human performance associated with the decision making attribute because Entergy personnel did not use conservative assumptions in decision making. Specifically, Entergy personnel did not use appropriate assumptions regarding the inverter performance expectations during the 2010 to 2012 cycle considering actual performance during the 2008 to 2010 cycle. [H.1(b) per IMC 0310] (Section 4OA2)

Cornerstone: Emergency Preparedness

- Green. The inspectors identified a Green NCV of 10 CFR 50.47, "Emergency Plan," paragraph (b)(14), because Entergy staff did not properly identify an emergency response deficiency which occurred during a drill. Specifically, during the operator training scenario conducted on January 25, 2011, the training staff did not identify that the Offsite Communicator had not contacted all offsite authorities, as required by the IPEC Emergency Plan (EP), thereby preventing the deficient performance from being placed in the corrective action program and remediated. This issue was entered into Entergy's CAP as CR-IP2-2011-3498.

This finding is more than minor because it affected the Emergency Response Organization attribute of the Emergency Preparedness cornerstone to ensure that Entergy personnel are capable of implementing adequate measures to protect the public health and safety in the event of a radiological emergency. In accordance with IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspectors determined the finding to be of very low safety significance (Green). Using IMC 0609, Appendix B, Section 4.14 and Sheet 1, "Failure to Comply," the inspectors determined that the failure to comply with an aspect of the Emergency Plan related to drill and exercise assessment (10 CFR 50.47(b)(14)) was a Planning Standard (PS) problem. Per Section 4.14.2.1 of Appendix B, states a critique that fails to identify any PS weakness during a limited facility interaction drill where there is a limited team of evaluators (e.g., facility table-top training drill, operator training simulator drill, individual facility training drill) is a green finding.

The finding has a cross-cutting aspect in the area of human performance associated with the decision making attribute because Entergy personnel did not communicate decisions and the basis for decisions to personnel who have a need to know the information in order to perform work safely, in a timely manner. [H.1(c) per IMC 0310] (Section 1R11)

REPORT DETAILS

Summary of Plant Status

Indian Point Unit 2 began the inspection period operating at full reactor power (100%). Unit 2 entered a maintenance outage on May 21, 2011 to replace the 22 main transformer bushings. Operators returned the reactor to full power on May 26, 2011 and remained at or near full power during the remainder of the inspection period.

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

1R01 Adverse Weather Protection (71111.01 – 4 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Entergy's readiness for the onset of seasonal high temperatures. The review focused on the main control room air conditioning and ventilation systems. The inspectors reviewed the Updated Final Safety Analysis Report (USFAR), TSs, control room logs, and the CAP to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Entergy personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Entergy's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during hot weather conditions.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one inspection sample as defined in NRC Inspection Procedure 71111.01.

b. Findings

No findings were identified.

.2 Summer Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

The inspectors performed a review of the station's onsite and offsite alternating current (AC) power systems and onsite AC power system readiness. The review included a walkdown to observe the material condition of the offsite Buchanan switchyard as well as onsite 138 kV switchyard areas and components. The inspectors reviewed completed and outstanding work orders for the AC power systems and components, and assessed the adequacy of corrective actions for identified, degraded conditions.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one inspection sample as defined in NRC Inspection Procedure 71111.01.

b. Findings

No findings were identified.

.3 Readiness to Cope with External Flooding

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving external flooding; reviewed the CAP to determine if Entergy personnel identified and corrected flooding problems; and verified whether operator actions for coping with flooding are adequate. The inspectors also focused on the intake structure including the SWP bays and service water zurn strainer pit to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one inspection sample as defined in NRC Inspection Procedure 71111.01.

b. Findings

No findings were identified.

.4 Impending Adverse Weather

a. Inspection Scope

Because severe weather was forecast in the vicinity of the facility for June 9, 2011, the inspectors reviewed Entergy's overall preparations/protection for the expected 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. During the inspection, 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 identify loose debris that could become projectiles during high wind conditions. The inspectors' evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the 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 CAP items to verify that the licensee identified adverse weather impact issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one inspection sample as defined in NRC Inspection Procedure 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns (71111.04Q – 4 samples)

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk significant systems:

- April 13, 2011, 24 SWP after surveillance testing;
- May 3, 2011, 23 auxiliary boiler feed pump (ABFP) during testing of 21 ABFP;
- June 8, 2011, 21 instrument air system following return from maintenance; and
- June 23, 2011, 23 emergency diesel generator (EDG) after surveillance testing.

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors focused on those conditions that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, TSs, work orders (WOs), CRs, 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 inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and 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 and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of four partial system walkdown samples as defined in NRC Inspection Procedure 71111.04.

b. Findings

No findings were identified.

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

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk significant plant areas:

- Pre-Fire Plan (PFP)-168;
- PFP-217;
- PFP-265;
- PFP-256;
- PFP-256A; and
- PFP-256B.

The inspectors reviewed areas to assess if Entergy personnel implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the station's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk and their potential to affect equipment that could initiate or mitigate a plant transient. Using the documents listed in the attachment, the inspectors reviewed whether fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also reviewed whether issues identified during the inspection were entered into the CAP.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of six quarterly fire protection inspection samples as defined in NRC Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 2 samples)Internal Flooding Reviewa. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the CAP to determine if the licensee identified and corrected flooding problems; and verified whether operator actions for coping with flooding are adequate. The inspectors also focused on the ABFP and 480 volt switchgear rooms to verify the adequacy of equipment seals located below the flood line,

floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of two internal flood protection measures inspection samples as defined in NRC Inspection Procedure 71111.06.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07A – 1 sample)

a. Inspection Scope

The inspectors selected for review the 21 EDG jacket water heat exchanger to determine its readiness and availability to perform its safety functions. 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 previous inspections of the 21 EDG jacket water heat exchanger and similar heat exchangers. The inspectors discussed the results of the most recent inspection performed on March 2, 2011, with engineering and reviewed pictures of the as-found and as-left conditions. The inspectors reviewed whether appropriate corrective actions were initiated for deficiencies identified by Entergy personnel. The inspectors also reviewed whether the number of tubes plugged within the heat exchanger was within the maximum amount allowed by design.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one heat sink performance inspection sample as defined in NRC Inspection Procedure 71111.07A.

b. Findings

No findings were identified.

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

Quarterly Review

a. Inspection Scope

On May 3, 2011, the inspectors observed a crew of licensed operators, responding to a simulated event involving operating experience similar to issues experienced in the nuclear industry, which involved a fire in the safety-related 480 V switchgear room resulting in a loss of bus 3A and a loss of non-safety related 6.9 kV bus 3; several significant equipment and indication challenges including a reactor coolant pump trip and a reactor trip with two stuck out control rods. The inspectors observed the scenario in the plant simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and that training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas regarding crew and operator performance:

- Clarity and formality of communications;
- Implementation of timely actions;
- Prioritization, evaluation, and verification of annunciator alarms;
- Usage and implementation of abnormal and emergency procedures;
- Control board operations;
- Identification and implementation of TS actions and emergency plan actions and notifications; and
- Oversight and direction from control room supervisors.

The inspectors compared the crew's performance in these areas to critical task completion requirements.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one quarterly licensed operator requalification program sample as defined in NRC Inspection Procedure 71111.11.

b. Findings

Entergy Did Not Identify and Correct a Performance Deficiency During an Emergency Preparedness Drill

Introduction: The inspectors identified a Green NCV of 10 CFR 50.47, "Emergency Plan," paragraph (b)(14), because Entergy staff did not properly identify an emergency response deficiency which occurred during a drill. Specifically, during the operator training scenario conducted on January 25, 2011, the training staff did not identify that the Offsite Communicator had not contacted all offsite authorities as required by the IPEC Emergency Plan, thereby preventing the deficient performance from being placed in the corrective action program and remediated.

Description: Following the declaration of the Alert emergency during a drill scenario on January 25, 2011, the operators in the simulator entered emergency plan implementing procedure (EPIP) IP-EP-210, "Central Control Room." Attachment 9.1, Shift Manager/Plant Operations Manager (Emergency Director) Checklist, of the EPIP directs the Shift Manager to complete a New York State (NYS) Radiological Emergency Data Form, Part 1 (Form EP-1), and then have the central control room Offsite Communicator email and fax the form to offsite authorities. Using the radiological emergency communication system (RECS) and Form EP-4, the Offsite Communicator confirms receipt of Form EP-1 by offsite authorities. A note in Attachment 9.1 requires that notification of state and local authorities shall be initiated within 15 minutes of an Alert declaration. The IPEC Emergency Plan, Section E, Notification Methods and Procedures, paragraph 1.b.5, requires, in part, that an immediate notification (within 15 minutes) of an Alert is made by the Shift Manager or his designee to the NYS and Westchester, Rockland, Putnam, and Orange Counties. NRC regulations, specifically, 10 CFR 50.47(b)(5), require, in part, that "procedures have been established for notification, by the licensee, of State and local response organizations."

During the scenario, when the Offsite Communicator attempted, via RECS, to confirm receipt of the Form EP-1, the training supervisor running the scenario simulated that one of the four counties was not on the RECS. The Offsite Communicator provided the event notification to NYS and the counties that were on the line, but did not ensure the remaining county not on the RECS line got the event notification. The inspectors determined the licensee did not address in their simulator scenario critique that one county had not been notified.

During this inspection, the inspectors determined that Form EP-4 provided adequate guidance to the Offsite Communicator when a county or the state is not on RECS. The inspectors' interviews of operators who filled the emergency response role of Offsite Communicator or Emergency Director, and the review of recent drill/exercise evaluation documentation, identified that the requirement to notify NYS and the four surrounding counties was a commonly known requirement. That conclusion notwithstanding, Entergy personnel created a corrective action in CR-IP2-2010-07563 to modify Form EP-4 to add additional guidance that when a county or the state does not respond on RECS, that the county or state be called directly and notified. Form EP-4 was revised to address this issue and the new Form EP-4 went into effect February 1, 2011.

As a result of reviewing the scenario package for the January 25, 2011 drill, and through interviewing EP and Operator Training personnel, the inspectors determined that the simulation of a county not responding on the RECS was an impromptu addition to the scenario by the training supervisor. The primary purpose of that scenario addition had been to ensure that the Offsite Communicator did not fail to notify those offsite authorities who had responded on the RECS, and the Communicator was successful in that aspect. The Offsite Communicator, however, failed to implement any backup measures to contact the absent county for the Alert declaration, and this failure was not identified or documented for corrective action by the trainers, as required by NRC regulations.

Analysis: The performance deficiency associated with this finding was that Entergy personnel did not identify that the Offsite Communicator did not meet the requirement to make emergency notifications to NYS and the counties for the Alert declaration in the January 25, 2011, licensed operator requalification drill. Entergy staff did not comply with the requirement to identify all deficiencies which occurred in that drill and take steps to correct them. This finding is more than minor because it affected the Emergency Response Organization attribute of the Emergency Preparedness cornerstone to ensure that Entergy personnel are capable of implementing adequate measures to protect the public health and safety in the event of a radiological emergency. In accordance with IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspectors determined the finding to be of very low safety significance (Green). Using IMC 0609, Appendix B, Section 4.14 and Sheet 1, "Failure to Comply," the inspectors determined that the failure to comply with an aspect of the Emergency Plan related to drill and exercise assessment (10 CFR 50.47(b)(14)) was a Planning Standard (PS) problem. Per Section 4.14.2.1 of Appendix B, states a critique that fails to identify any PS weakness during a limited facility interaction drill where there is a limited team of evaluators (e.g., facility table-top training drill, operator training simulator drill, individual facility training drill) is a green finding.

The finding has a cross-cutting aspect in the area of human performance associated with the decision making attribute because Entergy personnel did not communicate decisions and the basis for decisions to personnel who have a need to know the information in order to perform work safely, in a timely manner. [H.1(c) per IMC 0310]

Enforcement: 10 CFR 50.47, "Emergency Plans," paragraph (b)(14) requires, in part, that "periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected." Contrary to the above, on January 25, 2011, a Unit 2 Offsite Communicator performing in a licensed operator drill failed to comply with the IPEC Emergency Plan, in that the communicator did not notify all required offsite authorities of an Alert declaration, and the drill evaluators did not identify the deficient

performance and place it in the licensee corrective action program. The failure to identify this performance deficiency and subsequently correct it, placed Entergy in violation of 10 CFR 50.47(b)(14) for not properly conducting and assessing an emergency response drill. Entergy personnel initiated corrective actions to correct the expectations for operator trainers that EP performance deficiencies observed in licensed operator requalification drills are required to be documented and corrected. Because this finding is of very low safety significance and was entered into Entergy's CAP as CR-IP2-2011-3498, consistent with Section 2.3.2 of the NRC Enforcement Policy, this violation is being treated as a NCV. **NCV 005000247/2011003-01, Entergy Did Not Identify and Correct a Performance Deficiency During an Emergency Preparedness Drill**

1R12 Maintenance Effectiveness (71111.12Q – 2 samples)

a. Inspection Scope

The inspectors reviewed the following areas to assess the effectiveness of maintenance activities on system performance and reliability. The inspectors reviewed, when applicable, system health reports, CAP documents, maintenance WOs, and maintenance rule (MR) basis documents to ensure performance problems were being identified and properly evaluated within the scope of the MR. For each sample selected, the inspectors reviewed whether the structure, system, and component (SSC) was properly scoped into the MR in accordance with 10 CFR 50.65 and reviewed whether the (a)(2) performance criteria established by Entergy staff were appropriate. 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 determined if Entergy staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- 23 charging pump low flow during comprehensive flow test due to recirculation line valve leak-by; and
- Maintenance rule structural monitoring inspection for the SWP and CWP bays.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of two quarterly maintenance effectiveness samples as defined in NRC Inspection Procedure 71111.12.

b. Findings

Inadequate Monitoring of Maintenance Rule In-Scope Service Water Pump and Circulating Water Pump Bay Structures

Introduction: The inspectors identified a Green NCV of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," paragraph (a)(1) because Entergy personnel did not monitor the performance or condition of structures, systems, or components, against licensee-established goals, in a manner sufficient to provide reasonable assurance that these structures, systems, and components, as defined in paragraph (b) of 10 CFR 50.65, are capable of fulfilling their intended functions. Specifically, between August 25, 2004 and May 19, 2011, Entergy personnel did not monitor the condition of the SWP and CWP bays in a manner sufficient to provide reasonable assurance that the SWP and CWP bays remained capable of fulfilling their intended function.

Description: During the inspection conducted for NRC Temporary Instruction 2515/183 – Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event in April 2011, the inspectors reviewed the MR inspection of the intake structure to ensure the structure would perform its function during an external flooding event. The inspectors noted the purpose of Procedure EN-DC-150, “Condition Monitoring of Maintenance Rule Structures,” is to establish a baseline condition of the MR Structures and perform follow-up inspections at five year intervals for High Risk Significant structures. Engineering Report No. IP-RPT-09-00032, establishes the five year interval inspection results for monitoring Structural Systems, Structures, or Components of structures to ensure they fulfill their intended function in accordance with Part 50.65 of Title 10 of the Code of Federal Regulation. This is a “predictive condition monitoring program” to identify early signs of structural degradation, establishing periodic monitoring of minor structural degradation, and to perform preventive maintenance activities to minimize degradation due to environmental condition and aging.

The inspectors determined the inspection of the CWP and the SWP bays are to be performed every 5 years in accordance with these procedures, but was last performed August 25, 2004. During the Temporary Instruction 2515/183 inspection, the inspectors opened unresolved item (URI) 05000247/2011009-02 to determine if not performing this inspection is a more than minor issue. The work order to perform the inspection was scheduled for June 1, 2009; however, the engineers noticed the bays were confined space and work was stopped because additional resources were not available to support confined space entries at that time.

On June 10, 2009, engineering personnel brought the tasks in WO 51663261 to complete status to maintain the PM frequency. The completion notes stated the CWP and SWP bays inspections were to be completed under WO 51642653 during diver inspections of the intake structure. On August 13, 2009, WO 51642653 was cancelled. On August 16, 2010, the incomplete intake inspection PM exceeded the one year grace period allotted by EN-DC-150. The closure of the original WO and the diver WO removed all PM tracking capability.

The inspectors identified that the inspection was not performed within the five year inspection interval or the one year grace period. After the inspectors identified this issue, Entergy personnel initiated CR-IP2-2011-2006 and performed a structural monitoring inspection on May 19, 2011. Entergy staff evaluated the deficiencies identified in the CWP and SWP bays, and determined the material conditions were acceptable with deficiencies as defined by Procedure EN-DC-150. Entergy staff identified evidence of spalling, rebar corrosion and leaching in the CWP bays and identified rust bleeding from cracks and light to heavy corrosion in the SWP bays. Entergy staff evaluated the degradations as “acceptable with deficiencies,” because the structures were determined to be capable of performing their structural functions, including the protection and/or support of safety-related systems or components. Entergy staff determined the deficiencies were acceptable until the next inspection, but needed additional monitoring.

The inspectors reviewed 10 CFR 50.65(a)(1) which requires that licensees monitor the performance or condition of structures, systems, or components in a manner sufficient to provide reasonable assurance that these structures, systems, and components are capable of fulfilling their intended functions. Although 10 CFR 50.65(a)(2) provides an exception to this rule, this exception applies only where the licensee has demonstrated that the performance or condition of a structure is being effectively controlled through performance of appropriate preventive maintenance. The inspectors concluded that Entergy’s evaluation of the material conditions as identified on May 2011 of the bays were adequate; however, the

inspectors determined Entergy staff did not monitor or perform appropriate preventative maintenance on the SWP and CWP bays between August 25, 2004 and May 19, 2011, such that 10 CFR 50.65(a)(2) did not apply. The inspectors observed that Entergy staff took additional corrective actions including scheduling future monitoring inspections of the bay and reinforced with the staff regarding the station expectations regarding the closure of WOs. As discussed in Section 4OA5 of this report, (URI) 05000247/2011009-02 is closed.

Analysis: The performance deficiency associated with this finding was that Entergy staff did not monitor the condition of the SWP and CWP bays in a manner sufficient to provide reasonable assurance that the SWP and CWP bays remained capable of fulfilling their intended maintenance rule function. This finding is more than minor because if left uncorrected, the condition could have resulted in the loss of function due to degrading concrete material properties of structures and systems designed to mitigate design basis events. This finding is associated with the Mitigating Systems cornerstone. Entergy staff evaluated the condition of the SWP and CWP bays and determined these structures continued to meet the licensing basis requirements, with reduced margin, and thus remained operable for design loads inclusive of site extreme environmental conditions. 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 was not a design or qualification deficiency, did not result in an actual loss of safety function, was not a loss of barrier function, and was not potentially risk significant for external events.

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 follow procedures when Entergy staff documented a PM task as complete when the work had not been performed. [H.4(b) per IMC 0310]

Enforcement: 10 CFR 50.65 (a)(1), requires, in part, that the holders of an operating license shall monitor the performance or condition of structures, systems, or components (SSCs) within the scope of the rule as defined by 10 CFR 50.65 (b), against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions. 10 CFR 50.65 (a)(2) states, in part, that monitoring as specified in 10 CFR 50.65 (a)(1) is not required where it has been demonstrated that the performance or condition of an SSC is being effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function.

Contrary to the above, between August 25, 2004 and May 19, 2011, Entergy staff did not monitor the condition of the SWP and CWP bays in a manner sufficient to provide reasonable assurance that the SWP and CWP bays remained capable of fulfilling their intended maintenance rule function. 10 CFR 50.65(a)(1) applies because Entergy staff had not demonstrated that the performance of the SWP and CWP bays was being effectively controlled through appropriate preventive maintenance. Specifically, Entergy staff did not perform periodic inspections of the SWP and CWP bays to determine the extent and rate of degradation to the structure. Degradation which reduced the concrete strength of the SWP and CWP bays, and which could potentially have caused the structures to not have met its design basis function, was not identified or evaluated by Entergy personnel. Because the violation was of very low safety significance and it was entered into Entergy's CAP as CR-IP2-2011-02006, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: **NCV 05000247/2011003-02, Inadequate Monitoring of**

Maintenance Rule In-Scope Service Water Pump and Circulating Water Pump Bay Structures.

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 affecting risk significant and safety related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- April 18, 2011, with 21 rectifier out of service and 22 atmospheric dump valve out of service for planned testing;
- April 21, 2011, with 21 rectifier out of service and 23 charging pump out of service for planned testing;
- April 26, 2011, with 23 EDG out of service for planned maintenance, 21 rectifier out of service, and 23 charging pump out of service for unplanned maintenance;
- May 3, 2011, with 21 rectifier out of service and 21 ABFP out of service for planned maintenance; and
- May 26, 2011, with control rods in manual due to planned 480V undervoltage testing, 22 instrument air compressor, and EDG wall fan 322 out for service for planned maintenance.

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 or shift technical advisor, 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.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of five maintenance risk assessments and emergent work control inspection sample as defined in NRC Inspection Procedure 71111.13.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15 – 5 samples)Resident Quarterly Reviewa. Inspection Scope

The inspectors reviewed the following issues:

- January 19, 2011, inoperable pressurizer modulating heater while 23 pressurizer backup heater was taken out of service for planned maintenance;
- April 16, 2011, main steam atmospheric dump valve PCV-1135 failed stroke time on backup nitrogen during surveillance testing;
- April 20, 2011, leak on service water piping by the component cooling water heat exchanger outlet service water valve SWN-35-1;
- April 23, 2011, 21 and 23 component cooling water pump starting due to mis-operation of spent fuel pool heat exchanger outlet stop valve; and
- April 25, 2011, 23 EDG trouble alarm due to low starting air pressure.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to assess whether TS 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 TSs 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. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that Entergy personnel were identifying and correcting any deficiencies associated with operability evaluations.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of five operability evaluations inspection samples as defined in NRC Inspection Procedure 71111.15.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V "Instructions, Procedures, and Drawings," because Entergy personnel did not adequately implement Procedure EN-OP-104 "Operability Determination Process," to assess the operability of the pressurizer modulating heater group. Specifically, Entergy personnel did not adequately evaluate a degraded condition identified with the modulating heater group controller and the impact on the modulating heater group operability.

Description: On January 19, 2011, operations personnel removed the 23 pressurizer backup heater group from service to perform preventive maintenance on its supply breaker. During that maintenance activity, operations personnel also identified an issue with the pressurizer modulating heater group and determined that the modulating heater group was inoperable due to an issue with the controller where the heater was not indicating full range. Additionally, Entergy staff identified that WO 247824, initiated in November 2010, was found

to have documented a previous issue with the modulating heater when placed to the full on position, producing 60 amps output as compared to the 330 amps design output. Operations personnel subsequently entered TS Limiting Condition of Operation (LCO) 3.4.9 "Pressurizer," which required that one heater group be returned to service in 72 hours. The 21 and 22 pressurizer backup heater groups powered from the same safeguards bus remained operable and unaffected. Subsequently, Entergy staff re-installed the 23 pressurizer backup heater group supply breaker, declared it operable and exited the TS LCO.

TS 3.4.9 requires that two groups of pressurizer heaters shall be operable with the capacity of each group $\geq 150\text{kW}$ ($\sim 180\text{amp}$) with each group powered from a different safeguards power train. The pressurizer system design includes three backup heater groups and one modulating heater group. The modulating heater and the 23 backup heater are powered from safeguard bus 6A and 5A respectively, while the 21 and 22 backup heaters are powered from a cross-connected safeguard bus 2A/3A. The safeguards buses are independently powered by three EDGs when normal power is unavailable. During normal plant operations, one backup heater group is full on while the modulating heater group delivers between 100 – 150 amps to maintain reactor pressure within 2235 and 2250 psig.

Based on the unexpected modulating heater controller issue and resulting unplanned TS 3.4.9 LCO entry impact, Entergy personnel initiated CR-IP2-2011-00309, performed a human performance error review and an apparent cause evaluation (ACE). Entergy staff determined that the apparent cause was due to a lack of questioning attitude by operations personnel when troubleshooting the modulating heater controller in November 2010 under WO 247824. Entergy's ACE also determined that CRs IP2-2010-05492 and IP2-2010-05846, both written in September 2010, documented issues with the modulating heater output and were missed opportunities by the station to address and correct the degraded controller. As a result, Entergy staff took corrective actions to coach the on duty operations personnel who did not recognize the potential impact of the troubleshooting results.

The inspectors' review identified another prior opportunity, in addition to Entergy's documented apparent cause, where operations personnel did not identify and properly evaluate a degraded condition for operability associated with the modulating heater group. Specifically, the inspectors identified that CR-IP2-2010-05180 documented a condition on August 18, 2010, that described a condition where the modulating heater group was not cycling on/off as per design. The inspectors' review of CR-IP2-2010-05180 determined that the CR was not screened for an operability evaluation by either the CR initiator or the Condition Review Group (CRG) as required by EN-LI-102, "Corrective Action Process." Further, the inspectors noted that this CR was closed to WO 247824 to perform troubleshooting of the modulating heater controller. The subsequent troubleshooting performed in November 2010 identified that the controller was degraded with an output of ~ 60 amps. The inspectors determined that Entergy staff did not initiate a CR to document for review the results of the troubleshooting and did not perform an operability evaluation using the new information gathered as required by EN-LI-102.

The inspectors reviewed procedure EN-OP-104 and concluded that operations personnel did not perform an adequate operability evaluation when the degraded modulating heater output was identified in August 2010 and after troubleshooting was performed using WO 247824 in November 2010. The inspectors also concluded Entergy's ACE associated with CR-IP2-2011-00309 did not fully consider or evaluate applicable causal aspects as documented in

CR-IP2-2010-05180. Entergy staff wrote CR-IP2-2011-3493 to address the operability evaluation and procedural adherence concerns raised by the inspectors.

Analysis: The performance deficiency associated with this finding was that Entergy did not adequately implement EN-OP-104 "Operability Determination Process," to assess the operability of the pressurizer modulating heater group on August 18, 2010 and November 10, 2010. This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and 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 inadequate procedure implementation resulted in the pressurizer modulating heater group being inoperable for approximately five months (August 18, 2010 to January 19, 2011). 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 did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available.

The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the CAP attribute because Entergy personnel did not thoroughly evaluate the problems associated with the pressurizer modulating heater group controller such that the resolutions address causes and extent of conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. P.1(c) per IMC 0310]

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures. Procedure EN-OP-104, "Operability Determination Process," requires that an operability evaluation be performed for degraded systems, structures and components. Contrary to the above, Entergy procedure EN-OP-104 was not adequately implemented to assess the operability of the pressurizer modulating heater group, which resulted in the modulating heaters being inoperable between August 18, 2010 and January 19, 2011 and an unplanned entry into a TS LCO. Because the violation was of very low safety significance and it was entered into Entergy's CAP as CR-IP2-2011-3493, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: **NCV 05000247/2011003-03, Inadequate Operability Evaluation for Degraded Pressurizer Modulating Heater Group Controller.**

1R18 Plant Modifications (71111.18 – 2 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed the following temporary modification to verify that the safety functions of affected safety systems were not degraded:

On May 23, 2011, Entergy staff completed WO 274072 to repair the 22, 23, and 24 Unit 2 Generex Excitation System rectifier circuit cooling piping. A carbon fiber reinforced polymer wrap was applied to the cooling water piping in the rectifier cabinets to address leaks on the

copper piping caused by flow accelerated corrosion. The modification is planned to be permanently repaired during the next refueling outage.

The inspectors reviewed the temporary modification and the associated safety evaluation screening against the system design bases documentation, including the UFSAR and the TSs, to verify that the modification did not adversely affect the system or upset the stability of the plant. The inspectors also reviewed whether the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors reviewed whether the temporary modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and Entergy personnel evaluated the installation of the temporary modification effects on initiating events.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one sample for temporary plant modifications as defined in NRC Inspection Procedure 71111.18.

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors reviewed the following permanent modification to verify that the safety functions of affected safety systems were not degraded:

On May 26, 2011, Entergy staff completed EC 28212 to replace the 22 Main Transformer high voltage bushings. The bushings were replaced with new similar style bushings, designed with aluminum conductors to address the design deficiency identified with the old bushings after the 21 Main Transformer B phase bushing failure.

The inspectors reviewed the permanent modification and the associated safety evaluation screening against the system design bases documentation, including the UFSAR and the TSs, and verified that the modification did not adversely affect the system operability/availability. The inspectors also reviewed whether the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the permanent modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and Entergy personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one sample for permanent plant modifications as defined in NRC Inspection Procedure 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 5 samples)a. Inspection Scope

The inspectors reviewed the following post-maintenance tests (PMTs) to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- March 9, 2011, EDG wall fan 318 after failure to operate satisfactorily during testing;
- April 12, 2011, steam generator feedwater flow indicator 418A after current to current converter replacement;
- April 13, 2011, main steam line low pressure safety injection bistable PC-419G after trip setpoint adjustment;
- April 19, 2011, atmospheric dump valve 1135 after backup nitrogen regulator replacement; and
- May 31, 2011, fan cooler unit 22 service water inlet block valve 41-2B after close light indication adjustment.

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities to determine (as applicable) the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; and that test instrumentation was appropriate. The inspectors evaluated the activities against the TSs, the UFSAR, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with PMTs to determine whether Entergy personnel were identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of five PMT inspection samples as defined in NRC Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R20 Refueling and Outage Activities (71111.20 – 1 sample)a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 maintenance outage to replace the 22 main transformer bushings, conducted May 21-26, 2011. The inspectors' review considered whether Entergy personnel appropriately considered risk, industry experience, and previous site performance in developing and implementing a plan that assured maintenance of defense in depth with regards to reactor safety. During the maintenance outage, the inspectors observed portions of the shutdown and monitored Entergy operator controls over the outage activities listed below:

- Configuration management, including maintenance of defense in depth, commensurate with the outage safety plan for key safety functions and compliance with the applicable TSs when taking equipment out of service;
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- Status and configuration of electrical systems to ensure that TSs and outage planning requirements were met, and controls over switchyard activities were appropriate;
- Monitoring of decay heat removal processes, systems, and components;
- Controls over activities that could affect reactivity;
- Startup and ascension to full power operation, tracking of startup prerequisites;
- Station personnel identification and resolution of problems related to maintenance outage activities; and
- Work hours for fatigue concerns.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one other outage inspection sample as defined in NRC Inspection Procedure 71111.20.

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 TSs, UFSAR, technical requirements manual (TRM), and Entergy procedure requirements. The inspectors verified that test acceptance criteria were sufficiently clear; tests demonstrated operational readiness and were consistent with design basis documentation; test instrumentation had accurate calibrations and appropriate range and accuracy for the application; tests were performed as written; and applicable test prerequisites were satisfied. Following the tests, the inspectors considered whether the test results supported conclusions that equipment was capable of performing the required safety functions. The following surveillance tests were reviewed:

- April 6, 2011, 2-PT-Q029B, 22 Safety Injection Pump;
- April 11, 2011, 2-PT-Q026D, 24 Service Water Pump;
- April 22, 2011, PT-R022A, 22 Steam Driven ABFP Full Flow; and
- May 20, 2011, 2-PT-Q013, Inservice Valve Tests, Valve 885A.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of four surveillance testing inspection samples as defined in NRC Inspection Procedure 71111.22.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluation (71114.06 – 1 sample)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated operator performance during a simulator scenario conducted on May 3, 2011, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator 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 CAP.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one sample as defined in NRC Inspection Procedure 71114.06.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 2 samples)

a. Inspection Scope

The inspectors sampled Entergy submittals for the below listed performance indicators (PIs) for the period from April 2010 through March 2011. 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." As applicable, the inspectors reviewed operator narrative logs, issue reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors also reviewed Entergy's issue report database to determine if problems had been identified with the PI data collected or transmitted for these indicators.

- Safety System Functional Failures (MS05); and
- Emergency AC Power System (MS06)

Specific documents reviewed are described in the attachment to this report. These activities constitute completion of two PI samples as defined in NRC Inspection Procedure 71151.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152 – 2 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that issues were being entered into Entergy's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. 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 CAP. The inspectors reviewed attributes that included: (1) complete and accurate identification of the problem; (2) timely correction, commensurate with the safety significance; (3) evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and (4) classification, prioritization, focus, and timeliness of corrective actions.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter. Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, to identify trends that might indicate the existence of more significant safety issues, as required by Inspection Procedure 71152, "Identification and Resolution of Problems." The inspectors included in this review, repetitive or closely related issues that may have been documented by Entergy outside of the CAP, such as trend reports, PIs, major equipment problem lists, system health reports, MR assessments, and maintenance or CAP backlogs. The inspectors also reviewed the Entergy CAP database for the third and fourth quarters of 2010, to assess CRs written in various subject areas (equipment problems, human performance issues), as well as individual issues identified during the NRCs daily CR review (Section 4OA2.1). The inspectors reviewed the Entergy quarterly trend report for the fourth quarter of 2010, conducted under LO-IP3LO-2011-00003 to verify that Entergy personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one in-depth problem identification and resolution sample of trends as defined in NRC Inspection Procedure 71152.

b. Findings and Observations

No findings of significance were identified.

The inspectors evaluated a sample of departments that are required to provide input into the quarterly trend reports, which included design engineering and training departments. This review included a sample of issues and events that occurred over the course of the past two quarters to objectively determine whether issues either were appropriately considered or identified 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 CAP, or through department review and documentation in the quarterly trend report for overall assessment. For example, the inspectors noted that consistent with an increase in protective tagging errors, Entergy personnel had appropriately identified "Protective Tagging" as an adverse trend with ongoing corrective actions to address this issue. In other cases, the inspectors verified a new adverse trend was identified for "Security Force Member Call-Outs Impacting Shift Operations," and that actions were appropriately taken to identify the causes so that success criteria can be established.

Additionally, the inspectors noted an apparent increase in the CRs associated with protective tagging issues. The inspectors reviewed the trend and determined Entergy personnel had appropriately written condition reports and developed corrective actions to address this issue.

The inspectors also observed an apparent increase in the number of condition reports associated with dual position indication (open and closed) on fan cooler unit 22 service water inlet block valve 41-2B during testing. Valve 41-2B did stroke open and closed within the required time, but with dual indication, the valve is considered a maintenance rule functional failure for containment isolation. Entergy staff initiated CRs on the individual dual indication issues, but did not identify the trend associated with the dual indication, and did not perform an apparent cause evaluation on the valve having dual indication. After the inspector's questions, Entergy personnel initiated CR-IP2-2011-2378 to perform an apparent cause. Entergy personnel determined the cause of the dual indication was adjusting the limit switch setting closer to the seat, within 1-2%, in refueling outage 2R19. Prior to the apparent cause, the station personnel implemented WO 233356 to adjust the limit switch setting to 3-4%, and the valve retested satisfactorily with no dual indication. Since there was only dual indication and no equipment was inoperable, no appreciable reduction in safety margin, no additional work was required, and not performing the apparent cause was an administrative issue, the inspectors determined this issue is minor.

.3 Review of Performance of Safety Related Inverters

a. Inspection Scope

The inspectors performed a focused review of the performance and maintenance of safety related inverters. The inspectors interviewed the responsible system engineer and instrumentation and control maintenance personnel to understand the history of issues with the safety related inverters particularly involving the inverters swapping to their alternate

power sources. The inspectors reviewed completed work orders and test results to verify that testing and maintenance are being performed in accordance with vendor recommendations and to verify that the results demonstrate that the equipment is being properly maintained. The inspectors also reviewed condition reports (CRs) and work orders to verify the adequacy of corrective actions and the proper application of operating experience. Documents reviewed for this inspection activity are listed in the Attachment.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XI, "Test Control," because Entergy personnel did not assure that adequate test instrumentation was available and used for 21 inverter surveillances. Specifically, between April 4, 2010, and July 13, 2011, the 21 inverter AC output voltage meter was used for TS surveillances without adequately addressing its degraded condition, which resulted in recording inaccurate and non-conservative TS surveillance results.

Description: On March 14, 2010, during the calibration of the 21 inverter AC output voltmeter, Entergy personnel identified the meter was not functioning as expected on decreasing values and consequently could not be calibrated in accordance with 2-IC-PC-I-E-Static Inverter-21, "No. 21 Static Inverter Maintenance Procedure." CR-IP2-2010-01436 was initiated by Entergy technicians to document the condition because no spare voltmeters were available.

With direction from engineering staff, the meter was optimized to read as accurately as possible and a work order was created to replace the meter during the next refueling outage in 2012. The calibration documentation records that the meter was still 'sticking' on decreasing values. Although the meter was calibrated for the range of values needed to support TS surveillance test requirement 3.8.7.1, the meter could not be brought within tolerance for values below the required range.

The inspectors questioned whether the meter would remain accurate for two years after having identified the degradation in 2010. In response to inspectors' questions, Entergy staff reviewed the weekly TS surveillance 3.8.7.1 results for the 21 inverter from April 4, 2010, to June 14, 2011. The recorded data documented the inverter output as 122V every week, while the control room instrument bus voltage fluctuated between 118V and 120V. Because of voltage drop between the inverter and the instrument bus, it is expected that the instrument bus voltage would be less than the inverter output but by no more than approximately 0.5V. Because of the large voltage differences found in the surveillance test results, Entergy technicians measured the voltage at the inverter AC output voltmeter with a calibrated digital voltmeter. These results showed that although the inverter AC output voltmeter read 2.4V higher than the bus voltage, the actual difference was 0.3V. This confirmed that the meter was either reading higher than the acceptable tolerance or stuck at the high value.

Entergy personnel initiated CR-IP2-2011-03468 to address the inaccuracy of the 21 inverter AC output voltmeter. Entergy staff took corrective action to implement a temporary procedure change to use a portable calibrated digital voltmeter until the installed voltmeter can be replaced. The inspectors concluded that although the 21 inverter AC output voltmeter was inaccurate, the data from the control room instrument bus provided reasonable assurance that the requirements of TS surveillance 3.8.7.1 were met from April 4, 2010 to July 13, 2011, and therefore the instrument bus was operable. The inspectors

reviewed Entergy's evaluation and concluded that use of a calibrated digital voltmeter was an adequate corrective action.

Analysis: The performance deficiency associated with this finding was that Entergy personnel did not assure that adequate test instrumentation was available and used for 21 inverter surveillance tests. This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the degraded meter resulted in inaccurate and non-conservative TS surveillance test results from April 4, 2010, to July 13, 2011. 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 was not related to a design or qualification deficiency, did not represent a loss of system safety function because the control room instrument bus provided reasonable assurance that the requirements of the TS surveillance tests were met, and the finding did not screen as potentially risk significant due to external events.

The finding has a cross-cutting aspect in the area of human performance associated with the Decision-Making attribute because Entergy personnel did not use conservative assumptions in decision making. Specifically, Entergy did not use appropriate assumptions regarding the inverter performance expectations during the 2010 to 2012 cycle considering actual performance during the 2008 to 2010 cycle. [H.1(b) per IMC 0310]

Enforcement: 10 CFR 50, Appendix B, Criterion XI, "Test Control," requires, in part, that test procedures shall include provisions for assuring that adequate test instrumentation is available and used. Contrary to the above, Entergy used a degraded voltmeter for the 21 inverter AC output voltmeter from April 4, 2010, to July 13, 2011, which resulted in recording inaccurate and non-conservative TS surveillance test results. Because the violation was of very low safety significance and it was entered into Entergy's CAP as IP2-2011-03468, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: **NCV 05000247/2011003-04, Inaccurate 21 Inverter AC Output Voltmeter.**

40A3 Event Follow-Up (71153 – 1 sample)

.1 (Closed) Licensee Event Report (LER) 05000247/2010-006-00, Safety System Functional Failure Due to Inoperable Reactor Loop 21 and 22 Hot Leg Wide Range Temperature Indicators Credited for Remote Shutdown per Technical Specification 3.3.4

a. Inspection Scope

On September 1, 2010, during the performance of 2-PT-Q017C (Alternate Safe Shutdown Supply Verification to 23 CCP), the reactor coolant system wide range hot leg temperature instruments Temperature Indicators TI-5139 and TI-5141 test readings were found out of specification. The test was subsequently performed satisfactorily and the instruments declared functional. Entergy's apparent cause evaluation required additional testing of the temperature instruments to determine the cause of the failure, however the failure could not be replicated. Entergy's corrective actions include replacing the temperature indicators and revising the test procedure to increase the wait time after energizing the alternate safe shutdown panel. The inspectors reviewed the LER, condition reports, apparent cause evaluations, completed testing and maintenance procedures, corrective actions and interviewed Entergy staff to determine whether Entergy adequately evaluated the condition.

Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified and no violation of NRC requirements occurred. This LER is closed.

4OA5 Other Activities

.1 (Closed) NRC Temporary Instruction 2515/177 – Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems

a. Inspection Scope

The inspectors performed the inspection in accordance with Temporary Instruction (TI) 2515/177, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems.” The NRC staff developed TI 2515/177 to support the NRC’s confirmatory review of licensee responses to NRC Generic Letter (GL) 2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems.” The Office of Nuclear Reactor Regulation (NRR) reviewed Entergy’s GL 2008-01 response and based on this review the NRR staff provided guidance on TI inspection scope to the regional inspectors. The inspectors used this inspection guidance along with the TI to verify that Entergy implemented or was in the process of acceptably implementing the commitments, modifications, and programmatically controlled actions described in their GL 2008-01 response. The inspectors verified that the plant-specific information (including licensing basis documents and design information) was consistent with the information that Entergy submitted in their GL 2008-01 response.

The inspectors reviewed a sample of isometric drawings, piping and instrumentation diagrams, and conducted selected system piping walkdowns to verify that Entergy’s drawings reflected the subject system configurations and UFSAR descriptions. Specifically, the inspectors verified the following related to a sample of isometric drawings for the high pressure injection, containment spray, and residual heat removal systems:

- High point vents were identified;
- High points that did not have vents were recognized and evaluated with respect to their potential for gas buildup;
- Other areas where gas could accumulate and potentially impact subject system operability, such as orifices in horizontal pipes, isolated branch lines, heat exchangers, improperly sloped piping, and under closed valves, were acceptably evaluated in engineering reviews or had ultrasonic testing (UT) points which would reasonably detect void formation; and,
- For piping segments reviewed, branch lines and fittings were clearly shown.

The inspectors conducted walkdowns of portions of the above systems to assess the acceptability of the drawings Entergy used during its review of GL 2008-01. The inspectors verified that Entergy personnel conducted walkdowns of the applicable systems to confirm that the combination of system orientation, vents, instructions and procedures, and testing, would ensure that each system was sufficiently full of water to assure operability. The inspectors reviewed Entergy’s methodology used to determine system piping high points,

identification of negative sloped piping, and calculations of void sizes based on UT equipment readings, to ensure the methods were reasonable.

The inspectors also observed a field UT measurement in the residual heat removal system discharge piping to assess the adequacy of the monitoring techniques used to ensure system operability. In addition, the inspectors verified that Entergy personnel identified and evaluated all systems within the scope of the GL.

The inspectors reviewed a sample of Entergy's procedures used for filling and venting the identified GL 2008-01 systems to verify that the procedures were effective in venting or reducing voiding to acceptable levels. The inspectors verified that Entergy's surveillance test frequencies were consistent with the TSs and associated bases, and the UFSAR. The inspectors reviewed a sample of system venting surveillance results to ensure proper implementation of the surveillance program and that the existence of unacceptable gas accumulation was evaluated within the CAP, as necessary. The inspectors reviewed CAP documents to verify that selected actions described in Entergy's nine-month and supplemental response submittals were acceptably documented including completed actions and implementation schedule for incomplete actions, and to verify that commitments made in the response were included the CAP. Additionally, the inspectors reviewed evaluations and corrective actions for issues Entergy staff identified during their GL 2008-01 review. The inspectors performed this review to ensure Entergy staff appropriately identified and corrected gas voiding issues. Finally, the inspectors verified the training program included training on gas voiding issues for operators and engineers.

Specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

The inspectors identified a discrepancy between Entergy's GL response and existing plant procedures regarding the techniques used to verify the systems full of water. The inspectors reviewed plant procedures to verify their adequacy and discussed the issue with NRC staff from the Office of Nuclear Reactor Regulation (NRR). The inspectors determined the issue was minor because actions implemented were adequate to verify the systems were full of water. Entergy personnel planned actions to change the plant procedure to correct the discrepancy. This completes the inspection requirements for TI 2515/177.

.2 (Closed) NRC Temporary Instruction 2515/183 – Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event

a. Inspection Scope

The inspectors assessed the activities and actions taken by the licensee to assess their readiness to respond to an event similar to the Fukushima Daiichi nuclear plant fuel damage event. This included (1) an assessment of the licensee's capability to mitigate conditions that may result from beyond design basis events, with a particular emphasis on strategies related to the spent fuel pool, as required by NRC Security Order Section B.5.b issued February 25, 2002, as committed to in severe accident management guidelines, and as required by 10 CFR 50.54(hh); (2) an assessment of the licensee's capability to mitigate station blackout conditions, as required by 10 CFR 50.63 and station design bases; (3) an

assessment of the licensee's capability to mitigate internal and external flooding events, as required by station design bases; and (4) an assessment of the thoroughness of the walkdowns and inspections of important equipment needed to mitigate fire and flood events, which were performed by the licensee to identify any potential loss of function of this equipment during seismic events possible for the site.

b. Findings

No findings were identified.

Inspection Report 05000247/2011009 (ML111320311) documented detailed results of this inspection activity. Following issuance of the report, the inspectors conducted detailed follow-up inspections on unresolved items 05000247/2011009-01 and 05000247/2011009-02. Unresolved item 05000247/2011009-01, for Entergy not ensuring the operability of the containment hydrogen recombiners as required in Technical Requirements Manual Section 3.7.F, "Post Accident Containment Venting System," remains under review and will be closed in a subsequent report. Unresolved item 05000247/2011009-02 is closed in Section 4OA5 of this report.

.3 (Closed) NRC Temporary Instruction 2515/184 – Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)

a. Inspection Scope

On May 19, 2011, the inspectors completed a review of Entergy's SAMGs, implemented as a voluntary industry initiative in the 1990's, to determine (1) whether the SAMGs were available and updated, (2) whether the licensee had procedures and processes in place to control and update its SAMGs, (3) the nature and extent of the licensee's training of personnel on the use of SAMGs, and (4) licensee personnel's familiarity with SAMG implementation.

b. Findings

No findings were identified.

The results of this review were provided to the NRC task force chartered by the Executive Director for Operations to conduct a near-term evaluation of the need for agency actions following the Fukushima Daiichi fuel damage event in Japan. Plant-specific results for Indian Point Unit 2 were provided in an Attachment to a memorandum to the Chief, Reactor Inspection Branch, Division of Inspection and Regional Support, dated May 27, 2011 (ML111470361).

.4 (Closed) Unresolved Item 05000247/2011-009-02, Intake Structure Maintenance Rule Inspection

a. Inspection Scope

The inspectors completed an evaluation of unresolved item (URI) 05000247/2011-009-02 regarding an issue with the frequency of performance of the structural inspection for the intake structure, which includes the CWP and the safety-related SWP bays. Specifically, a portion of the structural maintenance rule inspection for the intake structure, the CWP bays

and the safety related SWP bays, was not performed within the 5 year required interval or within the grace period, and there was no planned date for this inspection. After the inspectors identified this issue, Entergy staff initiated CR-IP2-2011-2006, and performed the inspection on May 19, 2011. The inspectors visually inspected accessible portions of the CWP and the SWP bays to examine the material condition of the structures and components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Entergy staff had properly identified and evaluated any deficiencies that could cause initiating events or impact the capability of mitigating systems and entered them into the CAP with the appropriate significance characterization.

b. Findings

One Green NCV was identified as described in Section 1R12. This URI is closed.

.5 (Closed) Unresolved Item 05000247/2011-002-02, Notification Process for State/Local Authorities During a Simulator Scenario

a. Inspection Scope

The inspectors completed an evaluation of URI 05000247/2011-002-02 regarding a simulator drill scenario on January 25, 2011, where the inspectors identified an issue of concern regarding whether Entergy procedure IP-EP-210, "Central Control Room." Attachment 9.1, Shift Manager/Plant Operations Manager (Emergency Director) Checklist, was adequate to ensure proper notification of state and local authorities as required by IPEC Emergency Plan Section E. Additionally, the inspectors questioned whether operator training with regard to implementation of this procedure checklist is adequate and consistent amongst operator crews. As a result, the NRC had opened an URI requiring further information from Entergy regarding their review of the adequacy of the procedure including an assessment of operator training specific to implementation of that procedure checklist.

On May 24-25, 2011, the Region I senior emergency preparedness inspector conducted an on-site inspection to follow up on this URI. The inspector reviewed CR-IP2-2010-07563 and the corrective action written to address the NRC concern; interviewed several Control Room Offsite Communicators and Shift Managers; interviewed the training supervisor who was responsible for administering the scenario on January 25, 2011; reviewed documentation of all IPEC EP drills and exercises since June 2010; assessed the training lesson plans for Offsite Communicators; and, reviewed applicable EP procedures. The focus of the inspection was to determine if a performance deficiency was associated with Entergy performance regarding the January 25 drill.

b. Findings

One Green NCV was identified as described in Section 1R11. This URI is closed.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On July 20, 2011, the inspectors presented the inspection results to Mr. Joseph Pollock, Site Vice President and other members of Entergy staff. The licensee acknowledged the results of the inspection. No proprietary information was retained.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION**KEY POINTS OF CONTACT****Entergy Personnel**

J. Pollock	Site Vice President
R. Allen	NDE Level III, Code Programs
H. Anderson	Specialist – Nuclear Safety/License IV
V. Andreozzi	Supervisor - Engineering
N. Azevedo	Supervisor – Engineering
J. Baker	Shift Manager
M. Burney	Specialist – Nuclear Safety/License IV
R. Burroni	Manager – System Engineering
T. Chan	Supervisor – Nuclear Steam Supply Systems
C. Childress	Manager – Dry Cask Project
T. Cole	Project Manager – NUC
P. Conroy	Director – Nuclear Safety and Assurance
G. Dahl	Specialist – Nuclear Safety/License IV
R. Daley	Engineer III – Nuclear
G. Dean	Shift Manager
D. Dewey	Shift Manager
J. Dinelli	Manager - Operations
T. Flynn	Maintenance Inspection Coordinator
D. Gagnon	Manager – Security
G. Hocking	Supervisor – Radiation Protection
F. Inzirillo	Manager – IPEC Quality Assurance
R. Lee	Lead Engineer – Buried Pipe and Tank Program
J. Lijoi	Superintendent – I&C
L. Lubrano	Senior Lead Engineer
R. Magee	Specialist – Senior HP/Chemical
T. McCaffrey	Manager – Design Engineering
B. McCarthy	Assistant Operations Manager
D. Morales	Electrical System Engineer
T. Motko	System Engineer
T. Orlando	Director – Engineering
E. Primrose	Shift Manager
S. Prussman	Specialist – Nuclear Safety/License IV
J. Reynolds	Specialist – Corrective Action
R. Robenstein	Superintendent – Simulator
T. Salentino	Superintendent – Dry Fuel Storage
S. Sandike	Specialist – Senior HP/Chemical
P. Santini	Senior Reactor Operator
A. Singer	Superintendent – Licensed Operator Requalification Training
D. Smith	Technical Specialist IV
B. Sullivan	Manager - Emergency Preparedness
M. Tesoriero	Manager – Programs and Components
A. Vitale	General Manager – Plant Operations
R. Walpole	Manager – Licensing
A. Williams	Assistant General Manager – Plant Operations

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Open and Closed

05000247/2011-003-01	NCV	Entergy Did Not Identify and Correct a Performance Deficiency During an Emergency Preparedness Drill (Section 1R11)
05000247/2011-003-02	NCV	Inadequate Monitoring of Maintenance Rule In-Scope Service Water Pump and Circulating Water Pump Bay Structures (Section 1R12)
05000247/2011-003-03	NCV	Inadequate Operability Evaluation for Degraded Pressurizer Modulating Heater Group Controller (Section 1R15)
05000247/2011-003-04	NCV	Inaccurate 21 Static Inverter AC Output Voltmeter (Section 4OA2)

Closed

05000247/2010-006-00	LER	Safety System Functional Failure Due to Inoperable Reactor Loop 21 and 22 Hot Leg Wide Range Temperature Indicators Credited for Remote Shutdown per Technical Specification 3.3.4 (Section 4OA3)
05000247/2515/177	TI	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (Section 4OA5)
05000247/2515/183	TI	Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event (Section 4OA5)
05000247/2515/184	TI	Availability and Readiness Inspection of Severe Accident Management Guidelines (Section 4OA5)
05000247/2011-009-02	URI	Intake Structure Maintenance Rule Inspection (Section 4OA5)
05000247/2011-002-02	URI	Notification Process for State/Local Authorities During a Simulator Scenario (Section 4OA5)

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

Section 1R01: Adverse Weather Protection

Procedures

2-AOP-FLOOD-1, Flooding, Rev. 7
 2-SOP-11.1, Ventilation System Operation, Rev. 52
 IP-SMM-LI-108, Event Notification and Reporting, Rev. 12
 IP-SMM-OP-104, Offsite Power Continuous Monitoring and Notification, Rev. 12
 OAP-008, Severe Weather Preparations, Rev. 8
 OAP-048, Seasonal Weather Preparation, Rev. 7

Condition Reports (CR-IP2-)

2011-00290	2011-01102	2011-01104	2011-01393	2011-01564	2011-01689
2011-01715	2011-02194	2011-02621	2011-02652	2011-02739	2011-02863
2011-02868	2011-02876	2011-02889	2010-07162		

Miscellaneous

IP-RPT-04-00230, Indian Point Unit 2 Probabilistic Safety Assessment, Rev. 1
 Operator Control Room Logs, June 9-10, 2011

Section 1R04: Equipment Alignment

Completed Procedures

2-PT-M021C, Emergency Diesel Generator 23 Load Test, Rev. 17, June 23, 2011
 2-PT-R035-DS067, PCV-1187 and FCV-1205A IST Data Sheet, Rev. 1, April 7, 2010
 2-PT-SA069, City Water Backup Cooling Flow Test, February 5, 2011

Procedures

2-AOP-SSD-1, Control Room Inaccessibility Safe Shutdown Control, Rev. 17
 2-COL-21.3, Steam Generator Water Level and Auxiliary Boiler Feedwater, Rev. 30
 2-COL-24.1.1, Service Water System, Rev. 46
 2-COL-27.3.1, Diesel Generators, Rev. 25
 2-COL-29.2, Instrument Air System, Rev. 30
 2-SOP-27.3.1.3, 23 Emergency Diesel Generator Manual Operation, Rev. 19
 2-SOP-AFW-002, Auxiliary Feedwater System Support Procedure, Rev. 1
 2-SOP-ESP-001, Local Equipment Operation and Contingency Actions, Rev. 5

Condition Reports (CR-IP2-)

2005-00374 2011-00504 2011-02074 2011-02668 2011-02753

Drawings

9321-F-2126, Auxiliary Feedwater Pump Building, Sheet 1, Rev. 70
9321-F-2126, Auxiliary Feedwater Pump Building, Sheet 2, Rev. 46
9321-F-2235, Transformer Yard Piping Alterations, Rev. 4
9321-F-2237, Transformer Yard City Water Piping, Rev. 5
9321-F-2722, Service Water System Nuclear Steam Supply Plant, Sheet 1, Rev. 44

Section 1R05: Fire Protection

Procedures

EN-DC-161, Control of Combustibles, Rev. 4
IP2-RPT-03-00015, IP2 Fire Hazards Analysis, Rev. 3

Pre-Fire Plan

PFP-168, Utility Tunnel – Exterior Buildings, Rev. 5
PFP-217, General Floor Plan – Fuel Storage Building, 70’0”, 80’0”, and 95’0” Elevation, Rev. 11
PFP-256, General Area – Turbine Building, 36’9” Elevation, Rev. 10
PFP-256A, Lube Oil Separator – Turbine Building, 36’9” Elevation, Rev. 10
PFP-256B, Generator Mezzanine – Turbine Building, 30’6” Elevation, Rev. 10
PFP-265, Diesel Fire Pump House – Exterior Buildings, Rev. 0

Section 1R06: Flood Protection Measures

Procedures

2-AOP-FLOOD-1, Flooding, Rev. 7
2-PT-2Y017, Penetration Fire Barrier Seal Inspections, Rev. 1
OAP-008, Severe Weather Preparations, Rev. 8

Condition Reports (CR-IP2-)

2011-01625 2011-01628 2011-01871

Condition Reports (CR-IP3-)

2007-02301

Drawings

B228009, Plan view of Fire Barrier – Auxiliary Feedwater Building, Rev. 6
B228051, Fire Barrier Penetration Schedule Floor 60A/23, Sheet 1, Rev. 7

Miscellaneous

I2SG-LOR-AOP013, Unit 2 Licensed Operator Requalification on 2-AOP-LEAK-1, Rev. 3
IP-RPT-04-00230, Indian Point Unit 2 Probabilistic Safety Assessment, Rev. 1
NL-72-1313, Correspondence from Indian Point to NRC on December 18, 1972
NL-73-A45, Correspondence from Indian Point to NRC on April 9, 1973
NL-75-C, Correspondence from Indian Point to NRC on February 18, 1975
NL-85-A80, Correspondence from Indian Point to NRC on July 14, 1980

Section 1R07: Heat Sink Performance

Completed Procedures

0-HTX-405-EDG, EDG Lube Oil and Jacket Water Heat Exchanger Maintenance, Rev. 2, March 2, 2011

Procedures

SEP-SW-001, NRC Generic Letter 89-13 Service Water Program, Rev. 3

Condition Reports (CR-IP2-)

2011-01135

Work Orders

52283884-03

Miscellaneous

GL 89-13, Service Water System Problems Affecting Safety-related Equipment

Section 1R11: Licensed Operator Regualification Program

Procedures

2-AOP-480V-1, Loss of Normal Power to Any 480V Bus, Rev. 7
2-AOP-DC-1, Loss of a Battery Charger or Any 125V DC Panel, Rev. 4
2-E-0, Reactor Trip or Safety Injection, Rev. 3
2-ES-0.1, Reactor Trip Response, Rev. 3
2-ONOP-FP-001, Plant Fires, Rev. 7
2-SOP-3.2, Reactor Coolant System Boron Concentration Control, Rev. 37
AOP-INST-1, Instrument / Controller Failures, Rev. 6
AOP-LEAK-1, Sudden Increase in Reactor Coolant System Leakage, Rev. 7
EN-TQ-201, Systematic Approach to Training Process, Rev. 14
EN-TQ-202, Simulator Configuration Control, Rev. 7
EN-TQ-114, Licensed Operator Regualification Training Program Description, Rev. 5
EN-TQ-210, Conduct of Simulator Training, Rev. 5
EOP 2-E-0, Reactor Trip or Safety Injection, Rev. 3
EOP 2-E-1, Loss of Reactor or Secondary Coolant, Rev. 2
EOP 2-FR-C.2, Response to Degraded Core Cooling, Rev. 1
IP-EP-120, Emergency Classification, Rev. 5
OAP-032, Operations Training Program, Rev. 11
IP-EP-210, Central Control Room, Revision 8
Form EP-4, CCR Initial Notification Checklist – Alert/SAE/GE, Revisions 13 and 14

Condition Reports (CR-IP2-)

2010-07563 2011-03498

Miscellaneous

IPEC Simulator Evaluated Scenario, 12SX-LOR-OPS100, Rev. 1
Simulator Initial Notification Checklist – Alert and Site Area Emergency, May 3, 2011
IPEC Simulator Evaluated Scenario, LRQ-SES-02, January 25, 2001
Simulator Initial Notification Checklist – Alert and Site Area Emergency, January 25, 2011
Scenario and evaluation packages for EP drills conducted on:

June 10, 2010
August 12, 2010
September 1, 2010
September 14, 2010
February 3, 2011

Instructor Lesson Plan I0LP-ERT-EC001, Central Control Room Offsite Communicator
Instructor Lesson Plan I0LP-ILO-ERT004, Notification, Mobilization and Accountability

Section 1R12: Maintenance Effectiveness

Completed Procedures

2-PT-2Y022C, 23 Charging Pump Comprehensive Test, Rev. 0, October 10, 2010
2-PT-2Y022C, 23 Charging Pump Comprehensive Test, Rev. 1, November 4, 2010

Procedures

2-PT-2Y022C, 23 Charging Pump Comprehensive Test, Rev. 0
2-PT-2Y022C, 23 Charging Pump Comprehensive Test, Rev. 1
EN-DC-150, Condition Monitoring of Maintenance Rule Structures, Rev. 1

Condition Reports (CR-IP2-)

2010-06727 2011-00716 2011-02006 2011-02432 2011-02444 2011-02607
2011-02608 2011-02609

Drawings

9321-2736, Flow Diagram Chemical and Volume Control System, Sheet 1, Rev. 128

Miscellaneous

Charging Pump 23 Flow Graph, November 3-4, 2010
Charging Pump 23 RPM vs. Flow Trends, December 16, 2009; February 23, 2010, and July 29, 2010
EN 46392, November 4, 2010 Charging Pump 23 Safety System Functional Failure Event Retraction, December 20, 2010
Inservice Testing Program Basis Data Sheets – Pumps, 23 Charging Pump, Rev. 0
IP-CALC-05-01034, Appendix R Cooldown Benchmark and Sensitivity Analysis Using Retran-3D, Rev. 2
IP-RPT-05-00411, Maintenance Rule Structural Monitoring Inspection Report for the Intake Structure, Rev. 1, February 21, 2007
IP-RPT-09-00032, Maintenance Rule Structural Monitoring Inspection Report for the Intake Structure, Rev. 0, June 2, 2011
Union Pump Company, Power Pump Test Report, Charging Pump, December 11, 1981

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

EN-WM-104, On Line Risk Assessment, Rev. 4
IP-SMM-WM-101, Online Risk Assessment, Rev. 3

Miscellaneous

Operator Narrative Logs, April 18, 2011
Operator Narrative Logs, April 21, 2011

Operator Narrative Logs, April 26, 2011
Operator Narrative Logs, May 3, 2011
Operator Narrative Logs, May 26, 2011
Operator's Risk Report, April 18, 2011
Operator's Risk Report, April 21, 2011
Operator's Risk Report, April 26, 2011
Operator's Risk Report, May 3, 2011
Operator's Risk Report, May 26, 2011

Section 1R15: Operability Evaluations

Completed Procedures

2-PT-2Y046, Main Steam Atmospheric Dump Valves Backup N2 Supply, Rev. 0, April 20, 2011

Procedures

2-ARP-003, Diesel Generator, Rev. 9
EN-LI-102, Corrective Action Process, Rev. 16
EN-LI-119, Apparent Cause Evaluation (ACE) Process, Rev. 12
EN-OP-104, Operability Determination Process, Rev. 5

Condition Reports (CR-IP2-)

2010-05180 2010-05492 2010-05493 2010-05846 2011-00309 2011-01901
2011-01981 2011-02007

Work Orders

247824 273624 51305160

Miscellaneous

Regulatory Guide 1.147, Inservice Inspection Code Case Acceptability ASME Section XI,
Division 1, Rev. 16

Section 1R18: Plant Modifications

Completed Procedures

ECT-28994, Unit 2 Main Generator Modification of Rectifier Cooling Piping, Rev. 0, May 24,
2011

Procedures

2-COL-26.7, Stator Cooling Water System, Rev. 14
2-SOP-26.7, Generator Stator Cooling Water System Operation, Rev. 28

Condition Reports (CR-IP2-)

2010-06801 2011-02513

Work Orders

266949 274072

Drawings

2006MD0095, IP2 Main Transformer 21 & 22 345KV Bus Welding Details, Rev. 0
228363, Flow Diagram Stator Winding Cooling Water System, Rev. 14

Miscellaneous

Engineering Change 28994, Rectifier Modification, Rev. 0
 Rectifier Cabinets Thermography Results, May 26, 2011
 Engineering Change 28212, 22 MT Bushing Replacement, Rev. 0

Section 1R19: Post-Maintenance TestingCompleted Procedures

2-PC-R32, Main Feedwater Flow –CCR, Rev. 13, May 5, 2010
 2-PT-2Y046, Main Steam Atmospheric Dump Valves Backup N2 Supply, Rev. 0, April 20, 2011
 2-PT-Q013, Inservice Valve Tests, Rev. 45, May 20, 2011
 2-PT-Q026D, 24 Service Water Pump, Rev. 11, April 11, 2011

Procedures

2-PT-Q013, Inservice Valve Tests, Rev. 45
 2-PT-Q026D, 24 Service Water Pump, Rev. 11
 2-PT-Q61, Main Steam Line Pressure Bistables, Rev. 12

Condition Reports (CR-IP2-)

2001-00170	2008-02181	2010-03274	2011-01197	2011-01425	2011-01736
2011-01718	2011-01822	2011-02463	2011-02466		

Work Orders

233356	268787	272816
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Drawings

9321-2722, Flow Diagram Service Water System Nuclear Steam Supply Plant, Sheet 1,
 Rev. 125
 D260515, F.W. S.G. #21 – Main Flow Loop Numbers: 417, 418, Rev. 3

Section 1R20: Refueling and Outage ActivitiesCompleted Procedures

EN-MA-118, Foreign Material Exclusion, Rev. 7, May 26, 2011

Procedures

2-POP-1.2, Reactor Startup, Rev. 55
 2-POP-1.3, Plant Startup from Zero To 45% Power, Rev. 82
 2-POP-2.1, Operation at Greater Than 45% Power, Rev. 57
 2-POP-3.1, Plant Shutdown from 45%Power, Rev. 54
 2-PT-V53E, Mode Change Checklist, Mode 3 to Mode 2, Rev. 7
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Condition Reports (CR-IP2-)

2011-02529	2011-02537
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Work Orders

232024	242477	266949	271017
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Miscellaneous

EmpCenter Fatigue Management Software
Outage Schedule for 22 Main Transformer Bushing Replacement, May 21, 2011

Section 1R22: Surveillance Testing

Completed Procedures

2-PT-Q013, Inservice Valve Tests, Rev. 45, May 20, 2011
2-PT-Q029B, 22 Safety Injection Pump, Rev. 18, April 5, 2011
2-PT-R022A, Steam Driven Auxiliary Feed Pump Full Flow, Rev. 15, April 8, 2010

Procedures

2-PT-Q013, Inservice Valve Tests, Rev. 45
2-PT-Q029B, 22 Safety Injection Pump, Rev. 18
2-PT-R022A, Steam Driven Auxiliary Feed Pump Full Flow, Rev. 15

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2010-07585	2011-01163	2011-01167	2011-01168	2011-01247	2011-01445
2011-02378					

Work Orders

233356	52193739	52326685
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Miscellaneous

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Procedures

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2-AOP-DC-1, Loss of a Battery Charger or Any 125V DC Panel, Rev. 4
2-E-0, Reactor Trip or Safety Injection, Rev. 3
2-ES-0.1, Reactor Trip Response, Rev. 3
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2-SOP-3.2, Reactor Coolant System Boron Concentration Control, Rev. 37

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EN-LI-114, Performance Indicator Process, April 12, 2011

Procedures

EN-LI-114, Performance Indicator Process, Rev. 4

Section 4OA2: Identification and Resolution of ProblemsProcedures

2-PT-Q013, Inservice Valve Tests, Rev. 45

Condition Reports

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LO-IP3LO-2010-00023	LO-IP3LO-2010-00081	

Condition Reports (CR-IP2-)

2010-00830	2010-01436	2010-02335	2010-04816	2010-05698	2010-05940
2010-06343	2010-07585	2011-01029	2011-01163	2011-01167	2011-01168
2011-01247	2011-01445	2011-01986	2011-02378	2011-03309*	2011-03414*
2011-03421*	2011-03468*				

*Identified as a result of this inspection

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LO-IP3LO-2011-00125, Training Department Quarterly Trend Report, First Quarter 2011

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2-PT-Q017C, Alternate Safe Shutdown Supply Verification to 23 CCP, Rev. 12

Condition Reports (CR-IP2-)

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Work Orders
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Drawings
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Rev. 4

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December 6, 2010, January 13, 2011, February 8, 2011, March 8, 2011 and April 7,
2011

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0-VLV-432-VCK, Generic Procedure for Testing Check Valves Using MOVATS Diagnostic Test
System, Rev. 1
2-ES-1.3, Transfer To Cold Leg Recirculation, Rev. 5
2-PT-M108, RHR/SI/CS System Venting, Rev. 9
2-PT-Q-029A, 21 Safety Injection Pump, Rev. 22
2-PT-Q-029C, 23 Safety Injection Pump, Rev. 20
2-SOP-10.1.1, Safety Injection Accumulators and Refueling Water Storage Tank Operations,
Rev. 54
2-SOP-10.2.1, Containment Spray System Operation, Rev. 15

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IP-CALC-05-00193, Operability Assessment of HHSI Piping with As-found Gas Voids in SI
Pump Suction and Discharge Piping – IPEC Unit 2, Rev. 1
IP-CALC-05-00193, Operability Assessment of HHSI Piping with As-found Gas Voids in SI
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IP-CALC-10-00114, Gas Void Size Criteria in ECCS Piping, Rev. 1
IP-CALC-10-00146, RHR Condition Analysis With Mode 3 or 4 LOCA, Rev. 0
IP-CALC-10-00151, Pipe Stress Evaluation of Safety Injection System Piping for Postulated
Voids, Rev. 0

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2010-00916	2010-01014	2010-01106	2010-01127	2010-01139	2010-01140
2010-01157	2010-01258	2010-01464	2010-01482	2010-01624	2010-01801
2010-01808	2010-01910	2010-01992	2010-02007	2010-02106	2010-02112
2010-02140	2010-02189	2010-02218	2010-02252	2010-02690	2010-03064
2010-03238	2010-03243	2010-03291	2010-03801	2010-04349	2010-04671
2010-05007	2010-05164	2010-05176	2010-05811	2010-06293	2010-06633
2010-06840	2010-07008	2010-07647	2011-00268	2011-00513	2011-00514
2011-00735	2011-00897	2011-01054	2011-01492	2011-01903	2011-02056
2011-02057	2011-02076	2011-02079			

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51285119 51285120

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 A251783, Auxiliary Coolant System Residual Heat Removal Pumps, Rev. 30
 B206667, Isometric of Auxiliary Coolant (RHR)-Line 9, Rev. 7
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 B206677, Isometric of Safety Injection-Line 15 Outside Containment, Sh. 1, Rev. 9
 B206678, Isometric of Safety Injection-Line 15 Outside Containment, Sh. 2, Rev. 7
 B206681, Isometric of Safety Injection-Line 16 Outside of Containment, Rev. 7
 B206682, Isometric of Safety Injection-Line 16 Inside Containment, Rev. 5
 B206683, Isometric of Safety Injection-Line 16 Inside Containment Building, Rev. 5
 B206695, Isometric of Safety Injection-Line 51 Outside Containment, Rev. 8
 B206698, Isometric of Safety Injection-Line 56 Inside Primary Aux. Bldg, Rev. 11
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 B206702, Isometric of Safety Injection-Line 56 Inside Containment, Rev. 5
 B206703, Isometric of Safety Injection-Line 57, Rev. 6
 B206704, Isometric of Safety Injection-Line 60 Inside Containment, Rev. 9
 B206705, Isometric of Safety Injection-Line 60 Outside Containment, Rev. 7
 B206706, Isometric of Safety Injection-Line 60 Primary Auxiliary Building, Rev. 8
 B206719, Isometric of Safety Injection-Line 93 Inside Containment, Rev. 7
 B206721, Isometric of Safety Injection-Line 94 Inside Containment, Rev. 5
 B206724, Isometric of Safety Injection-Line 155, Rev. 5
 B206725, Isometric of Safety Injection-Line 155, Rev. 6
 B206726, Isometric of Safety Injection-Line 181 Primary Auxiliary Building Containment Spray
 Suction, Rev. 8
 B206727, Isometric of Safety Injection-Line 189, Rev. 5
 B206728, Isometric of Safety Injection-Line 190, Rev. 4
 B206729, Isometric of Safety Injection-Line 199, Rev. 5
 B206730, Isometric of Safety Injection-Line 293 Inside Containment, Rev. 5
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 B206906, Isometric of Safety Injection-Line 355 Inside Containment, Rev.4
 B206907, Isometric of Safety Injection-Line 356 Inside Containment, Rev. 4
 B206908, Isometric of Safety Injection-Line 358 Inside Containment, Rev. 3
 B206910, Isometric of Safety Injection-Line 361 Inside Containment, Rev. 9
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 IP-RPT-08-00069, Summary Report Associated with NRC GL2008-01 Managing Gas
 Accumulation in ECCS, Decay Heat and Containment Spray Systems - Inside and
 Outside Containment, Rev. 1
 IP-RPT-08-00077, Summary of Activities Associated with the Resolution of GL 2008-01

IP-RPT-11-00017, Generic Letter GL 2008-01: Evaluation of Acceptable Void Sizes in ECCS, Decay Heat, and Containment Spray Systems, Rev. 0 and Rev. 1

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Vendor Manual NYPA #209-100000311, Installation, Operation and Maintenance Type “A” Overhung Process Pump – Containment Spray, Ingersoll-Rand Pumps, Rev. 3

LIST OF ACRONYMS

10 CFR	Title 10 of the Code of Federal Regulations
AC	Alternating Current
ADAMS	Agency-wide Document and Management System
ABFP	Auxiliary Boiler Feed Pump
ACE	Apparent Cause Evaluation
CAP	Corrective Action Program
CR	Condition Report
CWP	Circulating Water Pump
EDG	Emergency Diesel Generator
ENTERGY	Entergy Nuclear Northeast
EP	Emergency Plan
EPIP	Emergency Plan Implementing Procedure
GL	Generic Letter
IMC	Inspection Manual Chapter
LCO	Limiting Condition of Operation
LER	Licensee Event Report
MR	Maintenance Rule
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
NYS	New York State
PFP	Pre-Fire Plan
PI	Performance Indicator
PM	Preventative Maintenance
PMT	Post-Maintenance Test
PS	Planning Standard
RECS	Radiological Emergency Communication System
SSC	Structure, System, and Component
SWP	Service Water Pump
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Evaluation Report
URI	Unresolved Item
UT	Ultrasonic Test
WO	Work Order