



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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May 12, 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 05000247/2011002

Dear Mr. Pollock:

On March 31, 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 April 18, 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 two NRC-identified findings of very 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.

In accordance with Title 10 of the Code of Federal Regulations (10 CFR) Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room of from the Publicly Available Records component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

A handwritten signature in black ink, appearing to read "Mel Gray". The signature is written in a cursive style with a large, looped "M" and "G".

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000247/2011002
w/ Attachment: Supplemental Information

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Sincerely,

/RA/

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

Docket No. 50-247
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Enclosure: Inspection Report No. 05000247/2011002
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.: 05000247/2011002

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 2

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

Dates: January 1, 2011 through March 31, 2011

Inspectors: M. Catts, Senior Resident Inspector – Indian Point 2
O. Ayegbusi, Resident Inspector – Indian Point 2
J. Noggle, Senior Health Physicist – Region I
A. Rao, Project Engineer – Region I
J. Richmond, Senior Reactor Inspector – Region I

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

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SUMMARY OF FINDINGS

IR 05000247/2011002; 01/01/2011 – 03/31/2011; Indian Point Nuclear Generating (Indian Point) Unit 2; Equipment Alignment and Post-Maintenance Testing.

This report covered a three-month period of inspection by resident and region based inspectors. Two NCVs of very low safety significance (Green) were identified. These findings were also determined to be violations 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 aspects for the findings were determined using IMC 0310, "Components within the Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Entergy procedure 2-COL-18.1, "Main Steam and Reheat System," was not adequate to ensure closure of main steam isolation valve (MSIV) bypass stop valve MS-55D. Specifically, between April 10, 2010 and September 12, 2010, procedure 2-COL-18.1 did not provide adequate instructions to operators to ensure MS-55D was closed, which resulted in MS-55D being left partially open, and unable to isolate the 24 steam generator (SG) during accident conditions. Entergy personnel took immediate corrective actions to close MS-55D. This issue was entered into Entergy's CAP as condition reports (CRs) IP2-2010-05694 and IP2-2010-06745.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the inadequate procedure resulted in the manual 3-inch MSIV bypass stop valve MS-55D for the 24 SG being left partially open for approximately five months. Based on NRC senior reactor analyst review, it was determined that operators could have isolated the other three SGs with their MSIVs and steamed them to remove decay heat and depressurize the plant using their atmospheric dump valves, while isolating the 24 SG further down the main steam system at the turbine bypass and stop valves. Therefore, 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 result in a loss of the safety function given the operator's ability to isolate the other SGs and the 24 SG with the turbine bypass and stop valves. Additionally, the finding was not potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The inspectors determined there was no cross-cutting issue associated with the finding because the performance deficiency did not reflect Entergy's current performance. Specifically, the procedure change occurred more than three years ago and was outside the current assessment period. (Section 1R04)

Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy personnel did not promptly identify and correct an adverse condition related to a service water (SW) pipe leak. Specifically, on October 29, 2010, NRC inspectors identified a leak on the base weld of the 25 SW pipe vacuum breaker which required subsequent evaluation and repair by Entergy personnel to restore operability of the 25 service water pump (SWP). This issue was entered into Entergy's CAP as CR IP2-2010-6620.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the 25 SW pipe weld leak challenged the capability and the reliability of the SWP, and the pump was declared inoperable by Entergy personnel to conduct repairs. Using IMC 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have 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, and the finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

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 implement a CAP with a low threshold for identifying issues, specifically, identifying a leak on the 25 SWP piping. [P.1(a) per IMC 0310] (Section 1R19)

REPORT DETAILS

Summary of Plant Status

Indian Point Unit 2 began the inspection period operating at full reactor power (100%) 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 – 1 sample)Readiness for Seasonal Extreme Weather Conditionsa. Inspection Scope

The inspectors performed a review of Entergy procedures to address seasonal cold weather conditions. This review included an evaluation of deficiencies identified by Entergy personnel during the current seasonal preparations, and that adverse conditions were being adequately addressed to ensure the cold weather conditions would not have significant impact on plant operation and safety. The inspectors conducted plant and system walkdowns of the refueling water storage tank, the auxiliary feedwater building, SW intake structure, and the control building. Additionally, the inspectors conducted the review to verify that the station's implementation of OAP-008, "Severe Weather Preparations," and OAP-048, "Seasonal Weather Preparation," appropriately maintained systems required for normal operation and safe shutdown conditions.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment.1 Partial System Walkdowns (71111.04Q – 3 samples)a. Inspection Scope

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

- January 19, 2011, 21 containment spray (CS) pump after breaker replacement;
- March 15, 2011, 24 main steam line after November outage; and
- March 15, 2011, 13.8 kV circuit after a loss of the 138 kV circuit.

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, updated final safety evaluation report (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 three partial system walkdown samples as defined in NRC IP 71111.04.

b. Findings

Main Steam System Configuration Control Procedure not Adequate to Ensure Closure of MS-55D

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Entergy procedure 2-COL-18.1, "Main Steam and Reheat System," was not adequate to ensure closure of MSIV bypass stop valve MS-55D. Specifically, between April 10, 2010 and September 12, 2010, procedure 2-COL-18.1 did not provide adequate instructions to operators to ensure MS-55D was closed, which resulted in MS-55D being left partially open.

Description: On September 12, 2010, during plant heat up coming out of a maintenance outage, operations personnel were not able to obtain the desired pressurization of the main steam line from the 24 SG. During investigation Entergy personnel determined MSIV bypass stop valve MS-55D was not fully closed as required by 2-COL-18.1, "Main Steam and Reheat System." Operations personnel tried to close the manual valve using the reach rod, but no movement was observed. Entergy staff then applied a torque amplifying device, and the valve closed one additional turn. Maintenance personnel lubricated the valve stem and the valve closed approximately four more turns.

The main steam line from the 24 SG has a MSIV MS 1-24, and MSIV bypass stop valve MS-55D, that are required to close or be closed during a design basis accident. Valve MS-55D is manually opened during plant startup to warm the main steam header and to equalize the pressure on either side of MS 1-24. When no longer needed for steam line warming, valve MS-55D is manually closed and is required to remain closed while the plant is operating. Valve MS-55D is required to be closed during plant operation to mitigate the following postulated accident scenarios: main steam line break, locked rotor

of reactor coolant pump (RCP), small break loss-of-coolant accident, rod ejection accident, and steam generator tube rupture (SGTR).

Entergy personnel initiated CR-IP2-2010-05694 to address valve MS-55D being identified partially open out of position and took corrective actions to increase the lubrication preventative maintenance (PM) from four years to two years. Entergy staff determined valve MS-55D was last operated on April 10, 2010, when Unit 2 was starting up from refueling outage 2R19, and had been left partially open since then. However, Entergy staff determined this valve being left partially open was not a maintenance rule functional failure and that the valve would have performed its safety function during a design basis accident.

The inspectors reviewed procedure 2-COL-18.1 and walked down valve MS-55D. The inspectors determined that valve MS-55D had no control room or local position indication for operations personnel to determine if the valve is closed. The inspectors determined 2-COL-18.1 did not provide guidance to aid in operations personnel determining if valve MS-55D is closed. Further, the inspectors determined procedure 2-COL-18.1 did not provide adequate guidance to ensure MS-55D was closed considering that there was no control room or local valve position indication.

The inspectors reviewed CR-IP2-2010-05694 to assess whether valve MS-55D would have performed its safety function to mitigate an accident, because the valve was left open approximately five turns and required lubrication to close the valve fully. The inspectors determined that during an accident with this valve partially open, that operations personnel would not have been able to isolate the 24 SG with valve MS-55D if the 24 SG was subject to a steam line break or tube rupture condition. Based on inspector questions, Entergy personnel re-evaluated the maintenance rule functional failure determination and subsequently determined that the valve being left partially open was a maintenance rule functional failure and would not have been able to perform its function to be closed during a design basis accident.

The inspectors also determined that for the period this valve was partially open, that the dose consequences for design basis accidents were not addressed in Entergy's CR. Entergy personnel wrote CR-IP2-2010-06745 to address the dose consequence concerns raised by the inspectors. Entergy personnel evaluated the dose consequences and determined that the current accident analysis bounded this valve being partially open.

Analysis: The performance deficiency associated with this finding was that Entergy procedure 2-COL-18.1 was not adequate to ensure MSIV bypass stop valve MS-55D was closed on April 10, 2010. This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the inadequate procedure resulted in the manual 3-inch MSIV bypass stop valve MS-55D for the 24 SG being left partially open for approximately five months.

Neither the MSIVs nor their bypass valves are directly modeled in either the Phase 2 or the Phase 3 SDP risk evaluations tools; therefore, a conservative analysis was

conducted to encompass the impact of this partially open 3-inch manual valve. Based on NRC senior reactor analyst review, if it was assumed that the partially open MS-55D would have been equivalent to the 24 SG MSIV not closing following a 24 SGTR, the operators, in accordance with emergency operating procedures, could have isolated the other three SGs with their MSIVs and steamed them to remove decay heat and depressurize the plant using their atmospheric dump valves while isolating the 24 SG further down the main steam system at the turbine bypass and stop valves. Therefore, 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 result in a loss of the safety function given the operator's ability to isolate the other SGs and the 24 SG with the turbine bypass and stop valves. Additionally, the finding was not potentially risk significant due to a seismic, flooding, or severe weather initiating event.

The inspectors determined there was no cross-cutting issue associated with the finding because the performance deficiency did not reflect Entergy's current performance. Specifically, the procedure change occurred more than three years ago and was outside the current assessment period.

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Instructions," 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 instructions, procedures, or drawings. Procedure 2-COL-18.1, "Main Steam and Reheat System," required that MS-55D be closed and locked. Contrary to the above, Entergy procedure 2-COL-18.1 was not adequate to ensure MS-55D was closed by operators, which resulted in MS-55D being left partially open between April 10, 2010 and September 12, 2010, and unable to provide its safety function to isolate the 24 SG during accident conditions. Entergy personnel took immediate corrective actions to close MS-55D. Because the violation was of very low safety significance and it was entered into Entergy's CAP as IP2-2010-05694 and IP2-2010-06745, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: **NCV 05000247/2011002-01, Main Steam System Configuration Control Procedure not Adequate to Ensure Closure of MS-55D.**

.2 Full System Walkdown (71111.04S – 1 sample)

a. Inspection Scope

On March 7 and 8, 2011, the inspectors performed a complete system alignment inspection of the emergency diesel generators (EDGs) to verify the functional capability of the system. The inspectors selected this system because it was considered both safety significant and risk significant in Entergy's probabilistic risk assessment. The inspectors inspected the system to review mechanical and electrical equipment line ups, electrical power availability, component lubrication, and equipment cooling, fuel oil supply, hanger and support functionality, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. In addition, the inspectors reviewed the CAP database to ensure that system adverse conditions were being identified and appropriately resolved.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one complete system walkdown sample as defined in NRC IP 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident 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) 252;
- PFP-255A;
- PFP-255B;
- PFP-255E;
- PFP-255C; and
- PFP-255D.

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 that 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 licensee's 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 IP 71111.05.

b. Findings

No findings were identified.

.2 Annual Fire Drill (71111.05A – 1 sample)

a. Inspection Scope

On February 10, 2011, the inspectors observed a fire brigade activation involving a simulated fire in the vicinity of the Appendix R / Station Black Out EDG, which is located in the turbine building. The observation involved an evaluation of the readiness of the plant fire brigade to fight fires. The inspectors reviewed whether Entergy staff identified performance deficiencies; openly discussed them in a critical manner at the drill debrief; and identified appropriate corrective actions. Specific attributes evaluated by the inspectors were (1) proper wearing of turnout gear and self contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one annual fire protection inspection sample as defined in NRC IP 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

Cables Located in Underground Manholes Inspection

a. Inspection Scope

The inspectors performed an inspection of underground Manhole 21, which contains safety related electrical cabling to the SWPs. The inspectors reviewed the UFSAR and related design basis documents to identify the requirements for the manhole design. The inspectors assessed the material condition of the support trays and cable insulation to verify there was no evidence of conditions that could challenge operability of the safety related pumps. The inspectors reviewed whether adverse conditions discovered during the manhole inspection, if applicable, were entered into Entergy's CAP.

Specific documents reviewed during this inspection are listed in the attachment. This inspection completes one of the two required manhole inspections in accordance with NRC IP 71111.06.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11Q – 1 sample)Quarterly Reviewa. Inspection Scope

On January 25, 2011, the inspectors observed a crew of licensed operators, responding to a simulated event involving a small break loss of coolant accident resulting in degraded core cooling and the failure of select components to automatically start as required. 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 station 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 IP 71111.11.

b. FindingsURI 05000247/2011002 - Notification Process for State/Local Authorities During a Simulator Scenario

Introduction: Based on a simulator drill scenario on January 25, 2011, 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, is 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 has opened an unresolved item (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.

Description: Following the emergency declaration of an Alert by operators during a simulator drill scenario on January 25, 2011, the operators entered emergency plan

implementing procedure IP-EP-210, "Central Control Room," Attachment 9.1, Shift Manager/Plant Operations Manager (Emergency Director) Checklist. 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 New York State and Westchester, Rockland, Putnam, and Orange Counties. The emergency plan implementing procedure checklist directs the Shift Manager to complete a New York State (NYS) Radiological Emergency Data Form and have a control room Offsite Communicator email and fax the data form to the offsite authorities. The Offsite Communicator must then confirm receipt of the information by offsite authorities. 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."

The drill scenario simulated one county not being present during the initial notification call via the radiological emergency communication system (RECS). The Offsite Communicator provided the event notification to NYS and the counties that were present on the line. The NRC inspectors observed that during the drill the Offsite Communicator did not implement additional communication measures to ensure the county, not present during the initial notification, received the event notification via fax. The inspectors observed that not affirming receipt of the notification by the county would not be consistent with IPEC Emergency Plan Section E in ensuring the licensee notifies all state and local authorities. The inspectors also observed that Entergy evaluators did not address this issue during the simulator scenario critique. The inspectors questioned Entergy personnel regarding their views during the simulator scenario and the expected operator response. The inspectors concluded additional information is required from Entergy staff related to their assessment regarding the adequacy of the procedure IP-EP-210, Attachment 9.1 and operator training with regard to the implementation of that procedure. Prior to completion of this inspection, Entergy personnel revised the Control Room Initial Notification Checklist (Form EP-4) to provide direction to operators in the event initial notifications are not able to be completed for required state and local authorities. **(URI 05000247/2011002-02, Notification Process for State/Local Authorities During a Simulator Scenario)**

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 basis documents to ensure performance problems were being identified and properly evaluated within the scope of the maintenance rule. For each sample selected, the inspectors reviewed whether the structure, system, and component (SSC) was properly scoped into the maintenance rule 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.

- Dual indication on 22 fan cooler unit coil outboard inlet stop valve SWN- 41-2B; and
- Chemical and volume control system charging flow from regenerative heat exchanger 21 to Loop 22 hot leg check valve 210A failed to stroke closed.

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

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities affecting risk significant and safety related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- January 5, 2011, with control rods in manual due to 480V undervoltage planned testing;
- January 31, 2011, with 24 rectifier, 21 instrument air dryer, and 22 charging pump out of service for unplanned maintenance and planned safety injection logic testing;
- February 1, 2011, with 24 rectifier, 21 instrument air dryer, and 22 charging pump out of service for unplanned maintenance, severe weather, and planned steam flow / feed flow mismatch testing;
- February 22, 2011; with 24 rectifier, 23 SWP, and PCV-1139 out of service for unplanned maintenance; and
- March 1, 2011, with loss of the normal offsite power 138 kV circuit and the back-up 13.8 kV circuit manually placed in service.

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 reviewed whether 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 TS 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 IP 71111.13.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15 – 5 samples)

a. Inspection Scope

The inspectors reviewed the following issues:

- January 3, 2011, 23 SG feed flow indicator FT-438B reading erratically;
- January 6, 2011, impact of unplanned control rod movement on Tavg;
- January 13, 2011, 22 RCP seal water delta temperature less than other RCPs;
- February 6, 2011, 22 SG alternate safe shutdown level indicator LI-5002-1 reading high; and
- March 2, 2011, 21 EDG jacket water pressure switch high resistance.

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 IP 71111.15.

b. Findings

No findings were identified.

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 April 6, 2010, Entergy staff implemented WO 231016 to block isolation valve 204A closed. Chemical and volume control system charging flow from regenerative heat exchanger 21 to Loop 22 hot leg check valve 210A was not functioning properly, and system design requires two valves in series to maintain reactor coolant system boundary integrity in the case of an accident. Valve 204A was blocked closed to provide for the two valves in series boundary. The modification is planned to be removed 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 TSSs, to verify 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 reviewed whether the temporary 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 temporary plant modifications as defined in NRC IP 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 January 13, 2011, Entergy staff implemented WO 250423 on the 23 RCP to increase the vibration setpoints from providing an alarm indication at 12 and 15 mils to providing an alarm indication at 15 and 20 mils. Work orders 224117, 224118, and 224119 were written to change the setpoints for 21, 22, and 24 RCPs.

The inspectors reviewed the permanent 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 operability and/or 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 reviewed whether 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 IP 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 7 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:

- November 25, 2010, 25 SWP after weld leak repair;
- January 13, 2011, 24 fan cooler unit vibration testing after fan bearing housing replacement;
- January 19, 2011, 21 CS pump after breaker replacement;
- January 29, 2011, 21 SG level indicator after associated bistable replacement;
- February 22, 2011, 22 auxiliary feedwater pump steam supply valve after valve positioner work;
- February 25, 2011, 23 SWP after maintenance including vacuum breaker replacement ; and
- March 21, 2011, 21 EDG after maintenance.

The inspectors selected these activities based upon the SSC'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 seven PMT inspection samples as defined in NRC IP 71111.19.

b. Findings

Entergy Personnel Did Not Identify a Leak on the 25 SWP Piping

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because Entergy personnel did not promptly identify and correct an adverse condition related to a SW pipe leak. Specifically, on October 29, 2010, inspectors identified a leak on the base weld of the 25 SW pipe vacuum breaker which required subsequent evaluation and repair by Entergy personnel to restore operability of the 25 SWP.

Description: On October 29, 2010, during a walkdown of the SWP pit, the inspectors identified a leak on the 25 SWP 14" discharge pipe vacuum breaker base weld and staining on the piping where the leak occurred. Entergy personnel initiated CR-IP2-2010-6620, performed an operability determination, but could not perform an ultrasonic test (UT) of the leakage area due to the irregular surface configuration of the weld. Entergy personnel determined the pipe was structurally sound; however, with the estimated hole size, the flow out of the pipe exceeded the capability of the strainer pit sump pump and could flood the pit, resulting in the inoperability of the SW system, so the pump was declared inoperable. The pipe was repaired with an ASME Section XI repair. A UT was performed on the removed section of pipe and found two rejectable linear indications, one was 3/8" in length, and the other, which was the source of the leak, was 1.25" in length.

The inspectors visually identified that the leak was occurring from the weld between the discharge piping and the vacuum breaker. The inspectors also concluded that the leak existed for at least a couple days based on engineering judgment with regard to observable pipe staining indications. The inspectors also noted this leak was at eye level and should have been readily visible to Entergy personnel entering the pit area for operator rounds.

The inspectors reviewed operations procedure OAP-017, "Plant Surveillance and Operator Rounds," specifically step 1.2, which states "Management expectations concerning rounds are operators should always be alert for the following: obvious leakage." Procedure EN-LI-102, "Corrective Action Process," Step 5.2(e) states, in part, that "Employees are required to initiate CRs for adverse conditions." Per EN-LI-102, an adverse condition is defined in part as "A defect, characteristic, state or activity that prohibits or detracts from safe, efficient nuclear plant operation or a condition that could credibly impact nuclear safety, personnel safety, plant reliability...Adverse conditions include non-conformances, conditions adverse to quality...Examples of adverse conditions are contained in Attachment 9.2." Attached 9.2 gives examples of an adverse condition including: "Chemical or other leaks that could potentially impact plant operations or the environment." The inspectors determined operations personnel should have identified the SW leak consistent with expectations in procedures OAP-017 and

EN-LI-102 to identify the stained piping and the leakage from the 25 SWP discharge piping and write a CR, so that the operability of the SW system could be evaluated.

Analysis: The performance deficiency associated with this finding was that Entergy personnel did not promptly identify and correct an adverse condition related to a SW pipe leak. This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the 25 SW pipe weld leak challenged the reliability and the capability of the SWP, and the pump was declared inoperable by Entergy personnel to conduct repairs. Using IMC 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to have 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, and the finding did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

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 implement a CAP with a low threshold for identifying issues specific to identification of a leak on the 25 SWP piping. [P.1(a) per IMC 0310]

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action Program," requires, in part, that the licensee assure that conditions adverse to quality, such as deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Entergy operations procedure OAP-017, "Plant Surveillance and Operator Rounds," specifically step 1.2 states "Management expectations concerning rounds are operators should always be alert for the following: obvious leakage." Procedure EN-LI-102, "Corrective Action Process," Step 5.2(e) states, in part, that "Employees are required to initiate CRs for adverse conditions." Per EN-LI-102, an adverse condition is defined in part as "A defect, characteristic, state or activity that prohibits or detracts from safe, efficient nuclear plant operation or a condition that could credibly impact nuclear safety, personnel safety, plant reliability...Adverse conditions include non-conformances, conditions adverse to quality...Examples of adverse conditions are contained in Attachment 9.2." Attached 9.2 gives examples of an adverse condition including: "Chemical or other leaks that could potentially impact plant operations or the environment." Contrary to the above, on October 29, 2010, inspectors identified a leak on the base weld of the 25 SW pipe vacuum breaker and staining on the piping where the leak occurred, which resulted in the inoperability of the 25 SWP. Because this finding was of very low safety significance and was entered into Entergy's CAP as CR-IP2-2010-6620, consistent with Section 2.3.2 of the Enforcement Policy, this violation is being treated as a NCV: **NCV 05000247/2011002-03, Entergy Personnel Did Not Identify a Leak on the 25 Service Water Pump Piping.**

1R22 Surveillance Testing (71111.22 – 8 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 met TSs, UFSAR, technical requirements manual, and Entergy procedure requirements. The inspectors reviewed whether the 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:

- January 4, 2011, 2-PT-A035C, 23 Station Battery Intercell Resistance Check;
- January 5, 2011, 2-PT-2Y008A, 21 EDG Mechanical Overspeed Trip;
- January 10, 2011, 2-PT-Q28A, 21 Residual Heat Removal Pump Inservice Test;
- January 31, 2011, 2-PT-2M4, Safety Injection System Train A Actuation Logic and Master Relay Test;
- March 8, 2011, 2-PT-Q013-DS139, 22 Fan Cooler Unit SW Valves Inservice test;
- March 8, 2011; 2-PT-M108, Residual Heat Removal, Safety Injection, and Containment Spray System Venting;
- March 10, 2011, 2-PT-Q17F, Alternate Safe Shutdown Supply Verification to 21 Safety Injection Pump / Residual Heat Removal Pump; and
- March 26, 2011, 0-SOP-Leakrate-001, RCS Leakrate Surveillance, Evaluation and Leak Identification.

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness1EP6 Drill Evaluation (71114.06 – 1 sample)EP Drill Observationa. Inspection Scope

The inspectors evaluated the conduct of a routine Entergy emergency drill on February 3, 2011, to identify 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 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 IP 71114.06.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational/Public Radiation Safety (PS)

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01 – 1 sample)

a. Inspection Scope

Radiological Hazard Assessment

The inspectors reviewed changes to plant operations that may result in a significant new radiological hazard for onsite workers or members of the public since the last inspection. The inspectors reviewed whether Entergy personnel have assessed the potential impact of these changes and have implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

Recent radiological surveys from more than six plant areas were reviewed by the inspector to evaluate the thoroughness and frequency of the surveys and that they were appropriate based on the radiological hazards.

The inspectors conducted walkdowns and performed independent radiation surveys of the facility, including radioactive waste processing, storage, handling areas; and inside the Unit 3 containment, primary auxiliary building and spent fuel storage building, to evaluate the existing radiological conditions and the efficacy of the associated radiological postings and controls.

The inspectors observed and evaluated the following radiological risk-significant work activities:

- Bullet nose repositioning on the Unit 3 reactor upper internals;
- Unit 3 reactor head shielding and established access controls;
- 32 reactor coolant pump seal replacement;
- Unit 3 reactor defueling activities; and
- Unit 3 spent fuel building fuel movement.

With respect to the above work activities, the inspectors reviewed whether appropriate pre-work surveys were performed and were sufficient to identify and quantify the

radiological hazards and to establish adequate protective measures. In addition, the inspectors reviewed applicable radiological surveys associated with these work activities to determine if hazards were properly identified, including the following: identification of hot particles, the presence of alpha emitters, the potential for airborne radioactive materials, the hazards associated with work activities that could negatively affect the radiological conditions, and any significant radiation field dose gradients that could result in non-uniform exposures of the body.

The inspectors selected at least five air sample survey records during refueling outage conditions and verified that the samples were collected and counted in accordance with licensee procedures. The inspectors observed work in potential airborne areas to evaluate if applicable air monitoring was representative of the breathing air zone of the workers. The inspector also reviewed the use of continuous air monitors (CAMs) to monitor real-time airborne conditions in accordance with Entergy procedures. The inspectors verified that Entergy's program for monitoring loose surface contamination in areas of the plant was adequate to assess the potential for airborne contamination conditions.

Instructions to Workers

The inspectors observed various radioactive material containers to verify that they were labeled and controlled in accordance with 10 CFR Part 20 requirements.

Radiation work permits (RWPs) associated with the radiological risk-significant work activities listed above, were evaluated by the inspectors to identify what work control instructions or control barriers were specified and that plant-specific TS high radiation area requirements were met, including the use of applicable electronic pocket dosimeter (EPD) alarm setpoints that were specified in conformance with survey indications and plant policy.

The inspectors reviewed one electronic personal dosimeter dose rate alarm occurrence that was documented in a CR. The inspectors verified that Entergy responded appropriately to the occurrence and that corrective actions and dose evaluations were adequate.

Contamination and Radioactive Material Control

The inspectors conducted observations at the Unit 2 and Unit 3 radiological controlled area (RCA) egress locations to observe the performance of personnel surveying and releasing material for unrestricted use to verify that those activities were performed in accordance with plant procedures and the procedures were sufficient to control the spread of contamination and prevent unintended release of radioactive materials from the site.

The inspectors reviewed Entergy's criteria for the survey and release of potentially contaminated material to verify that the radiation detection instrumentation was being used at its most effective sensitivity capability.

Radiological Hazards Control and Work Coverage

During tours of the facility and review of the work activities listed above, the inspectors evaluated the ambient radiological conditions to verify that existing conditions were consistent with posted surveys, RWPs, and worker briefings, as applicable.

During these work activity performance observations, the inspectors reviewed whether the adequacy of radiological controls, such as required surveys (including system breach radiation, contamination, and airborne surveys), radiation protection job coverage (including audio and visual surveillance for remote job coverage), contamination controls, and the station's means of using EPDs in high noise areas as high radiation area (HRA) monitoring devices.

The inspectors reviewed whether radiation monitoring devices were placed on the individual's body appropriately to monitor dose from external radiation sources. This review included high-radiation work areas with significant dose rate gradients.

The inspectors reviewed five RWPs for work within potential airborne radioactivity areas with the potential for individual worker internal exposures. The inspectors evaluated the airborne radioactivity controls and monitoring, including potentials for significant airborne radioactivity levels (e.g., grinding, grit blasting, system breaches, entry into tanks, cubicles, reactor cavities). For these selected potential airborne radioactive areas, the inspectors reviewed the use of high-efficiency particulate air (HEPA) ventilation system operation.

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within the Unit 2 and Unit 3 spent fuel pools to verify that appropriate controls were in place to preclude inadvertent removal of these materials from the pool.

Tours within the RCA of Units 2 and 3 were conducted by the inspectors to evaluate radiological postings and physical controls for HRAs and very high radiation areas (VHRAs) with respect to regulatory requirements.

Risk-Significant High Radiation Area and Very High Radiation Area Controls

The inspectors discussed with the Radiation Protection Manager and a first-line health physics supervisor, the controls and procedures for high-risk HRAs and VHRAs and actions to be taken during changing plant conditions.

Radiation Worker Performance

During observation of the work activities listed above, the inspectors observed radiation worker performance with respect to applicable radiation protection work requirements to determine if workers were aware of the significant radiological conditions in their workplace and their work performance was within the RWP control/limit requirements specified for the work performed.

The inspectors reviewed several radiological problem reports since the last inspection that identified the cause of the event to be human performance errors to determine if there was an observable pattern traceable to a similar cause and if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

Radiation Protection Technician Proficiency

During observation of the work activities listed above, the inspectors evaluated the performance of radiation protection technicians with respect to radiation protection work requirements and determined if technicians were aware of the radiological conditions in their workplace and the RWP controls/limits and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed several radiological problem reports since the last inspection that identified the cause of the event to be radiation protection technician error to determine if there was an observable pattern traceable to a similar cause and if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

Problem Identification and Resolution

The inspectors reviewed whether problems associated with radiation monitoring and exposure control were being identified by Entergy personnel at an appropriate threshold and were properly addressed for resolution in the licensee CAP.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one sample as defined in NRC IP 71124.01.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

Inspection Planning

The inspectors reviewed the plant UFSAR to identify areas of the plant designed as potential airborne radiation areas and any associated ventilation systems or airborne monitoring instrumentation and a description of the respiratory protection program to include the location and quantity of respiratory protection devices stored for emergency use.

The inspectors reviewed the reported PIs to identify any related to unintended dose resulting from intakes of radioactive materials.

Engineering Controls

During observation of the work activities listed in section 2RS1 of this report, the inspectors observed station personnel's use of ventilation systems as part of its engineering controls (in lieu of respiratory protection devices) to control airborne radioactivity. In addition the inspectors reviewed the ventilation controls for the Unit 3 spent fuel storage building and Unit 3 containment during refueling conditions.

The inspectors evaluated several temporary HEPA ventilation systems used to support work in contaminated areas to verify that the use of these systems was consistent with Entergy procedural guidance and as low as is reasonably achievable (ALARA).

The inspectors observed the use of several CAMs within the RCA that were being used to monitor and warn personnel of changing airborne concentrations in the plant. The inspectors reviewed whether the alarms and setpoints were sufficient to prompt licensee/worker action to ensure that doses are maintained within the limits of 10 CFR Part 20 and ALARA.

Use of Respiratory Protection Devices

During observation of the work activities listed in section 2RS1 of this report, the inspectors reviewed the use of respiratory protection devices and the use of engineering controls to limit the overall exposure of the workers. The inspectors verified that the respiratory protection devices used to limit the intake of radioactive materials were certified by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration. The inspectors reviewed the respiratory protection qualification records of three respirator users to verify that these individuals were medically certified, fit tested and appropriately trained in the respirators that had been used. During work activity observations, the inspectors assessed the workers use of respiratory protection devices in the field.

The inspectors verified respiratory protection equipment storage and controls for the equipment staged and ready for use in the plant and stocked for issuance. The inspectors observed the physical condition of the equipment and applicable maintenance and inspection records for selected equipment that was ready for use.

Problem Identification and Resolution

The inspectors reviewed problems associated with the control and mitigation of in-plant airborne radioactivity to verify issues were being identified by station personnel at an appropriate threshold, properly addressed for resolution in the CAP and that corrective actions were appropriate commensurate with the safety significance of the issues.

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

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 – 1 sample)b. Inspection ScopeInspection Planning

The inspectors reviewed the results of radiation protection program audits related to internal and external dosimetry (i.e., licensee's quality assurance (QA) audit).

The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program (NVLAP) report on the vendor's most recent results to determine the status of the vendor's external dosimetry program.

Entergy's procedures associated with dosimetry operations and dose evaluations were reviewed to verify that Entergy has established procedural requirements for determining when external and internal dosimetry is required.

External DosimetryNVLAP Accreditation

The inspectors reviewed whether Entergy's personnel dosimeters that require processing are NVLAP accredited. This review included the approved irradiation test categories for the type of personnel dosimeter used [optically stimulated luminescent (OSL)] that are consistent with the types and energies of the radiation present, and use of the dosimeters [e.g., to measure deep dose equivalent, shallow dose equivalent (SDE), and lens dose equivalent].

Passive Dosimeters (OSL)

The onsite storage of personnel dosimeters was evaluated by the inspectors to verify the appropriate background exposure monitoring of dosimeters was accounted for when not in use.

Active Dosimeters (Electronic Dosimeters)

The inspectors reviewed Entergy personnel's use of a "correction factor" to address the response of the electronic dosimeter (ED) as compared to OSL for situations when the ED must be used to assign dose.

Internal DosimetryRoutine Bioassay (in vivo)

Entergy personnel's use of passive monitoring using portal monitors for screening intakes was reviewed for adequacy to detect internally deposited radionuclides.

Positive whole body count records for 2010 were reviewed to verify that no detectable internal dose assessments were determined above 10 mrem.

Special Bioassay (in vitro)

During 2010, there were no internal dose assessments requiring in vitro monitoring for inspection review.

The inspectors reviewed and assessed the adequacy of Entergy's program for dose assessments based on airborne/derived airborne concentration (DAC) monitoring. This review was to verify that flow rates and/or collection times for fixed head air samplers or lapel breathing zone air samplers were adequate to ensure that appropriate lower limits of detection are obtained. The inspectors reviewed the adequacy of procedural guidance used to assess dose when, if using respiratory protection, station personnel applies protection factors. There were no dose assessments that used airborne/DAC monitoring for 2010 to review.

Special Dosimetric Situations

Declared Pregnant Workers

The inspectors reviewed whether Entergy informs workers of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for (voluntarily) declaring a pregnancy.

There was one individual who declared their pregnancy during the current assessment period, and their exposure monitoring records and the station's program for limiting exposure for the declared pregnant worker were reviewed in accordance with the requirements of 10 CFR Part 20.

Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

The inspectors reviewed the adequacy of Entergy's methodology for monitoring external dose in situations in which non-uniform fields are expected or large dose gradients will exist (e.g., diving activities and SG jumps) to include criteria for determining dosimetry placement or the use of multiple badges.

Shallow Dose Equivalent

During 2010, there were no SDE dose assessments for inspection review.

Neutron Dose Assessment

The inspectors reviewed the station's neutron dosimetry program, including dosimeter type(s) and/or neutron survey instrumentation.

Problem Identification and Resolution

The inspectors verified that problems associated with occupational dose assessment are being identified by Entergy personnel at an appropriate threshold and are properly addressed for resolution in the licensee CAP.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one sample as defined in NRC IP 71124.04.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05 – 1 sample)

Inspection Planning

The inspectors reviewed the plant UFSAR to identify radiation instruments associated with monitoring plant radiological conditions including airborne radioactivity, process streams, effluents, materials/articles, workers, and post-accident monitoring, including those instruments used for emergency assessment.

The inspector reviewed a Quality Assurance audit that included Entergy's onsite calibration facility.

The inspectors reviewed procedures specifying the methodology for performing instrument source checks and calibrations.

Walkdowns and Observations

Walkdowns of five effluent radiation monitoring systems (including liquid and airborne monitoring) were performed by the inspector. The inspectors reviewed whether the material condition of the radiation monitoring systems to verify that effluent/process monitor configurations were aligned in accordance with offsite dose calculation manual (ODCM) and UFSAR descriptions.

The inspectors selected 10 portable survey instruments; 5 area radiation monitors (ARMs) and CAMs; and 4 personnel contamination monitors that were in use or available for issuance. Calibration records for the selected instruments were reviewed as well as currency of source checks, and instrument operability.

Calibration and Testing Program

Process and Effluent Monitors

The inspectors selected five effluent monitor instruments (including both liquid and gaseous monitors) and verified calibration and functional tests were performed consistent with radiological effluent TS/ODCM and that the licensee calibrates its monitors with a transfer standard instrument that is traceable to National Institute of

Standards and Technology (NIST). In addition, the inspectors reviewed whether selected effluent monitor alarm setpoints were established as provided in the ODCM and station procedures.

Laboratory Instrumentation

The inspectors selected one of each type of laboratory analytical instrument used for radiological analyses (e.g., gross alpha, gross beta, proportional counters, gamma spectroscopy and liquid scintillation counters) to verify that daily performance checks and calibration data indicate that the frequency of the calibrations is adequate and there are no indications of degraded instrument performance.

Whole Body Counter

Whole body counter calibration and functional check records were reviewed by the inspectors.

Post-accident Monitoring Instrumentation

The inspectors selected the containment high-range monitors for both Units 2 and 3 and reviewed the calibration documentation since the last inspection for adequacy.

Contamination Monitors

In-service personnel contamination monitors and small article monitors located in the Unit 2 and Unit 3 radiological controlled area egress point were selected to verify current calibration records and to verify that the alarm setpoint values are reasonable to ensure that licensed material is not released from the site.

Portable Survey Instruments, ARMs, Electronic Dosimetry, and Air Samplers/CAMs

The inspectors reviewed calibration documentation for at least one of each type of instrument. For portable survey instruments and ARMs, the inspectors reviewed detector measurement geometry and calibration methods for each, which included the use of its instrument calibrators.

During review of calibration records of portable survey instruments, the inspectors screened astound calibration results and corresponding station technician actions for instruments found significantly out of calibration (greater than 50 percent).

Instrument Calibrator

The inspectors reviewed the basis for instrument calibrations and that the instrument calibrators used were calibrated using calibration transfer instruments traceable to NIST.

Calibration and Check Sources

The inspectors reviewed Entergy's 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," source term to determine if the calibration sources used were representative of the types and energies of radiation encountered in the plant.

Problem Identification and Resolution

As documented in Section 4OA2 of this report, the inspectors verified that problems associated with radiation monitoring instrumentation are being identified Entergy personnel at an appropriate threshold and are properly addressed for resolution in the licensee CAP.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one sample as defined in NRC IP 71124.05.

b. Findings

No findings were identified

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 4 samples)

a. Inspection Scope

The inspectors sampled Entergy submittals for the below listed performance indicators (PIs) for the period from January 2010 through December 2010. To determine the accuracy of the PI data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) 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.

- Unplanned Scrams per 7000 Critical Hours (IE01)
- Unplanned Power Changes per 7000 Critical Hours (IE03)
- Unplanned Scrams with Complications (IE04)
- Reactor Coolant System Activity (BI01)

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

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152 – 1 sample)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by IP 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 Annual Sample: Individual Rod Position Indication (RPI) System Problems

a. Inspection Scope

The inspectors performed an in-depth review of Entergy's evaluations and corrective actions associated with repetitive control RPI problems. Specifically, in 2006, Entergy personnel placed the RPI system in a Maintenance Rule (a)(1) status as a result of multiple failures of rod bottom bistables. Additional bistable failures occurred in 2007, 2008, and 2009. Failures of additional components, other than bistable, and repetitive instrument drift were also documented in various CRs by Entergy personnel.

The inspectors assessed Entergy's problem identification threshold, problem analysis, extent of condition reviews, compensatory actions, and the prioritization and timeliness of Entergy's corrective actions to determine whether Entergy personnel were appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken in accordance with the requirements of Entergy's CAP and 10 CFR 50 Appendix B. The inspectors performed field walkdowns, and interviewed plant operators and engineering personnel to assess the effectiveness of the implemented corrective actions, the reasonableness of the planned corrective actions, and to evaluate the extent of any on-going RPI problems. In addition, the inspectors

reviewed operating procedures, operating logs, and interviewed licensed operators to assess operator response to RPI problems, including incorrect analog RPIs or loss of rod bottom lights, which occurred or might occur during reactor trip events. Specific documents reviewed are listed in the attachment to this report.

b. Findings and Observations

No findings were identified. Entergy personnel determined that the most probable cause of rod bottom bistable failures was age related degradation. In addition, Entergy personnel determined that electrolytic capacitors in the RPI circuitry were also susceptible to age related degradation, while the repetitive instrument drift was most probably related to analog circuitry design and calibration techniques. Entergy's corrective actions included a modification, completed in 2010, that replaced the original equipment bistables with new style bistables, revisions to instrument and control calibration procedures, and initiation of a corrective action to establish a PM task to periodically replace RPI electrolytic capacitors.

The inspectors determined Entergy's overall response to the issue was commensurate with the safety significance and included appropriate compensatory actions. The inspectors determined that the actions taken or planned were reasonable to resolve the bistable failure issue and improve RPI system performance. The inspectors identified a weakness in Entergy's evaluation of RPI problems because Entergy assumed the repetitive instrument drift was not due to any degraded material condition, but did not evaluate whether electrolytic capacitor degradation could also result in repetitive instrument drift. Entergy personnel entered the inspector's observations into their CAP as CR IP2-2011-00619.

Specific documents reviewed are described in the attachment to this report. These activities constitute completion of one identification and resolution of problems sample as defined in NRC IP 71152.

b. Findings

No findings were identified.

.3 Radiation Safety Cornerstone

a. Inspection Scope (71124.01)

The inspectors reviewed one CR that was initiated between December 1, 2010 and January 10, 2011, CR IP2-2010-7316, that was associated with the radiation protection program. The inspectors reviewed whether problems identified by this CR was properly characterized in the station's event reporting system, and that applicable causes and corrective actions were identified commensurate with the safety significance of the radiological occurrence.

The inspectors reviewed eight corrective action CRs initiated between January and March 2011 that were associated with the radiation protection program. The inspector verified that problems identified by this CR were properly characterized in the licensee's

event reporting system, and that applicable causes and corrective actions were identified commensurate with the safety significance of the radiological occurrence.

b. Findings

No findings were identified.

4OA3 Event Follow-Up (71153 – 1 sample)

Loss of the Normal Offsite Power Source

a. Inspection Scope

The inspectors reviewed the below listed event for plant status and mitigating actions to evaluate Entergy personnel performance and confirm that Entergy operators implemented actions and notifications (if required) in accordance with station procedures. The inspectors also reviewed Entergy's emergency response actions to evaluate Entergy staff performance and confirm that Entergy staff implemented actions and notifications in accordance with station procedures.

At 1100 hours on March 1, 2011, Unit 2 experienced a loss of offsite power from the 138 kV circuit. The loss of the 138 kV circuit resulted in power loss to the station auxiliary transformer. The loss of the station auxiliary transformer de-energized 6.9 kV busses 5 and 6 and safety-related 480V buses 5A and 6A. All three EDGs automatically started as required and supplied power to buses 5A and 6A. No emergency action levels were entered because the second, independent offsite circuit, 13.8 kV, remained available throughout the event.

Operations personnel entered abnormal operating procedures 2-AOP-480V-1, "Loss of Normal Power to any 480v Bus," and 2-AOP-138KV-1, "Loss of Power to 6.9kv Bus 5 and/or 6," and transferred the power supply for buses 5A and 6A from EDGs to the safety-related 13.8kv offsite circuit. Entergy personnel performed an investigation and determined the loss of the 138kV circuit was the result of Con Edison work on feeder 95332 metering circuit test switch, when a small arc occurred causing an imbalance in the protective circuit which resulted in breakers isolating the 138 kV circuit. The operators terminated the event at 16:52 when the station auxiliary transformer was placed back in service and the normal 138 kV power was restored to all 480V buses. Entergy personnel made a non-emergency 8-hr report to the NRC in accordance with 10 CFR 50.72(b)(3)(iv) for the actuation of the EDGs and will provide a written follow-up 60 day Licensee Event Report in accordance with 10 CFR 50.73(a)(2)(iv).

The inspectors evaluated the response of control room personnel following the loss of the 138 kV circuit. The inspectors reviewed plant computer data, including evaluating plant data summary, plant parameter traces, personnel reports, and discussed the event with plant personnel to verify that plant equipment responded as expected and to ensure that operating procedures were appropriately implemented. The inspectors also reviewed whether Entergy's post trip review group (PTRG) identified the most probable cause(s) of the loss of the 138 kV circuit to facilitate corrective actions prior to swapping

the 480V buses from the 13.8 kV to the 138 kV circuit. This event and the PTRG report were entered into Entergy's CAP as CR IP2-2011-1108.

The inspectors also reviewed station actions and decision making to verify decisions were consistent with a conservative approach to assessing the condition and in accordance with the site emergency plan. The inspectors reviewed logs and records from the event, interviewed operational and emergency planning staff, and reviewed corrective action documentation.

Specific documents reviewed during this inspection are listed in the attachment. These activities constitute completion of one event follow-up sample as defined in IP 71153.

b. Findings

No findings were identified associated with the operational response to the loss of the 138kV offsite circuit. The inspectors will conduct further review of the cause evaluation and associated corrective actions in conjunction with review of the Licensee Event Report to be submitted by Entergy personnel.

4OA5 Other Activities

.1 (Closed) Temporary Instruction 2515/179, "Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System (NSTS) Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)"

a. Inspection Scope

The inspectors verified the information listed on Entergy's inventory record by performing a physical inventory and visually identified each item listed on Entergy's inventory. The inspectors verified the presence of the nationally tracked sources with an appropriate radiation survey instrument. During the physical inventory, the inspectors examined the physical condition of the shield devices containing nationally tracked sources, and evaluated the effectiveness of the licensee's procedures for secure storage and handling of nationally tracked sources. The inspectors also verified that appropriate leak tests had been performed and determined that the posting and labeling of nationally tracked sources were adequate.

There had been no transfers or receipts of NSTS tracked sources from the licensee's NSTS inventory since initial registration.

The inspectors reviewed the administrative information listed in the NSTS inventory for Indian Point Unit 2 and Unit 1 to ensure that the information was up to date. This information includes, but is not limited to:

- Mailing address;
- Physical or shipping address (for transmitting information via non-postal methods that cannot use a post office box);

- Telephone number, FAX number, and e-mail address for primary technical point of contact;
- Telephone number, fax number, and e-mail address for primary management point of contact; and
- The license numbers of NRC licenses that authorize the possession of nationally tracked source(s).

b. Findings

No findings were identified.

.2 Institute of Nuclear Power Operations (INPO) Plant Assessment Report Review

a. Inspection Scope

The inspectors reviewed the October 2009 final report for the INPO plant assessment of the Indian Point Nuclear Generating Station. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC's perspectives of licensee performance and to identify significant safety issues that required further NRC follow-up.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 18, 2011, the inspectors presented an exit meeting of the inspection results of the integrated inspection to Mr. Joseph Pollock, Site Vice President, and other members of the 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
J. Abisamra	Echelon Chief Engineer
R. Allen	NDE Level III, Code Programs
H. Anderson	Specialist – Nuclear Safety/License IV
N. Azevedo	Supervisor – Engineering
J. Baker	Shift Manager
S. Beagles	Echelon Manager – Fleet Operations
M. Burney	Specialist – Nuclear Safety/License IV
R. Burroni	Manager – System Engineering
C. Childress	Manager – Dry Cask Project
T. Cole	Project Manager – NUC
G. Dahl	Specialist – Nuclear Safety/License IV
R. Daley	Engineer III – Nuclear
K. Davison	Assistant Plant Manager
G. Dean	Shift Manager
J. Dent	Echelon General Manager – Plant Operations, Fleet Operations Support
D. Dewey	Shift Manager
J. Dinelli	Manager - Operations
B. Ford	Echelon Senior Manager – Nuclear Safety and Licensing
T. Flynn	Maintenance Inspection Coordinator
D. Gagnon	Manager – Security
E. Harris	Echelon Manager – Quality Assurance
G. Hocking	Supervisor – Radiation Protection
F. Inzirillo	Manager – IPEC Quality Assurance
D. Jacobs	Echelon Senior Vice President – Planning, Development and Oversight
R. Lee	Lead Engineer – Buried Pipe and Tank Program
J. Lijoi	Superintendent – I&C
L. Lubrano	Senior Lead Engineer
R. Magez	Specialist – Senior HP/Chemical
T. McCaffrey	Manager – Design Engineering
B. McCarthy	Assistant Operations Manager
P. Morris	Echelon Senior Staff Engineer
T. Motko	System Engineer
T. Orlando	Director – Engineering
T. Palmisano	Echelon Vice President – Oversight
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

T. Tankersly	Echelon Director – Oversight
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

Opened and Closed

05000247/2011002-01	NCV	Main Steam System Configuration Control Procedure Not Adequate to Ensure Closure of MS-55D (Section 1R04)
05000247/2011002-03	NCV	Entergy Personnel Did Not Identify a Leak on the 25 Service Water Pump Piping (Section 1R19)

Opened

05000247/2011002-02	URI	Notification Process for State/Local Authorities During a Simulator Scenario (Section 1R11)
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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-COL-11.5, Space Heating and Winterization, Rev. 28
 2-SOP-11.5, Space Heating and Winterization, Rev. 32
 2-SOP-20.2, Condensate System Operation, Rev. 44
 2-SOP-30.1, Electric Heat Tracing, Rev. 25
 OAP-008, Severe Weather Preparations, Rev. 7
 OAP-048, Seasonal Weather Preparation, Rev. 7

Condition Reports (CR-IP2-)

2010-05998 2010-06120 2010-06799 2010-07162 2010-07449 2010-07558

Section 1R04: Equipment AlignmentProcedures

0-LUB-401-GEN, Lubrication of Plant Equipment, Rev. 8
 2-COL-18.1, Main Steam and Reheat System, Rev. 38
 2-COL-10.2.1, Containment Spray System, Rev. 19
 2-COL-27.3.1, Diesel Generators, Rev. 25
 2-E-3, Steam Generator Tube Rupture, Rev. 1
 2-POP-1.3, Plant Startup from Zero to 45% Power, Rev. 82
 2-PT-Q035A, 21 Containment Spray Pump Test, Rev. 16
 2-SOP-27.1.3, Operation of 13.8 KV System, Rev. 37
 EN-DC-153, Preventative Maintenance Component Classification, Rev. 5
 OAP-009, EOP Writers Guide, Rev. 0
 OAP-115, Operations Commitments and Policy Details, Rev. 11

Condition Reports (CR-IP2-)

2001-10724	2008-00663	2009-00528	2009-05300	2010-03117	2010-05694
2010-06178	2010-06539	2010-06745	2010-07764	2011-01348	

Condition Reports (CR-IP3-)

2005-05289

Work Orders

52259429-04

Drawings

9321-2735, Safety Injection System, Rev. 140
 9321-F-2017, Main Steam, Rev. 84
 9321-F-2028, Jacket Water to Diesel Generator, Rev. 36
 9321-H-2029, Starting Air to Diesel Generators, Rev. 52
 9321-F-2030, Fuel Oil to Diesel Generators, Rev. 40

Miscellaneous

Design Basis Document, Main Steam System, Rev. 1
 Maintenance Rule Basis Document, Main Steam

Section 1R05: Fire ProtectionProcedures

2-SOP-29.6, Fire Protection System, Rev. 23
 EN-DC-161, Control of Combustibles, Rev. 4
 EN-TQ-125, Fire Brigade Drills, Rev. 1
 IP2-RPT-03-00015, IP2 Fire Hazards Analysis, Rev. 3

Condition Reports (CR-IP2-)

2011-00860

Pre-Fire Plans

PFP-160, Unit 2 Appendix R/SBO EDG, Rev. 10
 PFP-252, Control Building – Cable Spreading Room, Rev. 11

PFP-255A, Turbine Building – Hydrogen Seal Oil Unit, Rev. 11
PFP-255B, Turbine Building – 6.9 KVA Switchgear, Rev. 10
PFP-255C, Turbine Building – Condenser, Rev. 10
PFP-255D, Turbine Building – Boiler Feed Pump, Rev. 10
PFP-255E, Turbine Building – Turbine Oil Reservoir, Rev. 3

Section 1R06: Flood Protection Measures

Procedures

0-MS-412, Inspection and Cleaning of Bus Bars, Contacts, Ground Connections, Wiring and Insulators, Rev. 1
2-AOP-FLOOD-1, Flooding, Rev. 6
OAP-008, Severe Weather Preparations, Rev. 7

Condition Reports (CR-IP2-)

2010-07046

Work Orders

52297570

Section 1R11: Licensed Operator Regualification Program

Procedures

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

Condition Reports (CR-IP2-)

2010-07563

Miscellaneous

IPEC Simulator Evaluated Scenario, LRQ-SES-02, January 25, 2001
Simulator Initial Notification Checklist – Alert and Site Area Emergency, January 25, 2011

Section 1R12: Maintenance Effectiveness

Procedures

2-AOP-CVCS, Chemical and Volume Control System Malfunctions, Rev. 6
2-AOP-SSD-1, Control Room Inaccessibility Safe Shutdown Control, Rev. 17
2-ARP-SFF, Chemical and Volume Control System, Rev. 26
2-COL-3.1, Chemical and Volume Control System, Rev. 40
2-PT-V024I, Pressurizer Aux Spray and Charging Check Valves, Rev. 7

2-PT-Q013, Inservice Valve Tests, Rev. 45
2-PT-Q013-DS139, 22 Fan Cooler Unit Service Water Valves Inservice Test Data Sheet,
Rev. 27
IP-RPT-07-00018, Inservice Testing Program, Rev. 0

Condition Reports (CR-IP2-)

2010-02117 2010-02134 2010-02909 2010-05940 2010-06134 2010-06343
2010-07585 2011-01167 2011-01168 2011-01247

Work Orders

231016 52269036 52290312 52303015 52319895 52322023

Drawings

9321-2736, Chemical and Volume Control System, Rev. 128
A208168, Chemical and Volume Control System, Rev. 53

Miscellaneous

EC-20987, Temporary Modification to Block Valve 204A Closed, Rev. 1
Maintenance Rule Basis Document, Vapor Containment Supersystem, Rev. 5

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

EN-WM-104, On Line Risk Assessment, Rev. 2
IP-SMM-WM-101, Online Risk Assessment, Rev. 3
OAP-008, Severe Weather Preparations, Rev. 7

Condition Reports (CR-IP2-)

2011-01112

Miscellaneous

Operator Narrative Logs, January 5, 2011
Operator Narrative Logs, January 31, 2011
Operator Narrative Logs, February 1, 2011
Operator Narrative Logs, February 22, 2011
Operator Narrative Logs, March 1, 2011
Operator's Risk Report, January 5, 2011
Operator's Risk Report, January 31, 2011
Operator's Risk Report, February 1, 2011
Operator's Risk Report, February 22, 2011
Operator's Risk Report, March 1, 2011

Section 1R15: Operability Evaluations

Procedures

EN-OP-104, Operability Determination Process, Rev. 5

Condition Reports (CR-IP2-)

2010-07738 2011-00081 2011-00213 2011-00716 2011-01138

Condition Reports (CR-IP3-)

2011-00851

Work Orders

51555151 51555181

Drawings

262425, Loop Diagram – Reactor Coolant Pump 22 Seal Water, Rev. 4

Section 1R18: Plant ModificationsProcedures

2-AOP-CVCS, Chemical and Volume Control System Malfunctions, Rev. 6

2-AOP-RCP-1, Reactor Coolant Pump Malfunction, Rev. 11

2-AOP-SSD-1, Control Room Inaccessibility Safe Shutdown Control, Rev. 17

2-ARP-SFF, Chemical and Volume Control System, Rev. 26

2-COL-3.1, Chemical and Volume Control System, Rev. 40

2-PT-V024I, Pressurizer Aux Spray and Charging Check Valves, Rev. 7

IP-RPT-07-00018, Inservice Testing Program, Rev. 0

Condition Reports (CR-IP2-)

2010-02117 2010-02134 2010-05566 2010-06134 2011-00216 2011-00287

Work Orders

224117 224118 224119 231016 250423

Drawings

9321-2736, Chemical and Volume Control System, Rev. 128

A208168, Chemical and Volume Control System, Rev. 53

D252385-1, RCP Vibration Monitor and Winding Motor Temperature, Rev. 1

Miscellaneous

EC-20987, Temporary Modification to Block Valve 204A Closed, Rev. 1

I&C Preventative Maintenance Package 399, Reactor Coolant System/Reactor Coolant Pump
Vibration Monitors & Recorders, Rev. 2NSD-TB: 75-3, Reactor Coolant Pump Vibration Limits for Type 93 & 93A Pumps,
February 27, 1975Setpoint Change Number SCR-05-2-104, Reactor Coolant Pump High Vibration Alarms,
March 13, 2006**Section 1R19: Post-Maintenance Testing**Procedures0-HTX-405-EDG, Emergency Diesel Generator Lube Oil and Jacket Water Heat Exchanger
Maintenance, Rev. 2

2-COL-10.2.1, Containment Spray System, Rev. 19

2-PT-M021A, Emergency Diesel Generator 21 Load Test, Rev. 19

2-PT-Q026C, 23 Service Water Pump, Rev. 15

2-PT-Q035A, 21 Containment Spray Pump Test, Rev. 16

EN-LI-102, Corrective Action Process, Rev. 16

OAP-017, Plant Surveillance and Operator Rounds, Rev. 6

Condition Reports (CR-IP2-)

2008-00552	2008-00554	2010-01235	2010-03684	2010-03728	2010-05790
2010-06148	2010-06251	2010-06620	2010-06696	2011-00525	2011-01135
2011-01138	2011-01298				

Condition Reports (CR-IP3-)

2005-05289

Work Orders

00132339	00180591	00187201	00255350	00255619	52232052
52259429	52272989	52283884-03	52284068-03		

Drawings

9321-2722, Flow Diagram – Service Water System, Rev. 125

9321-2735, Safety Injection System, Rev. 140

Miscellaneous

Operator Rounds, Service Water Zurn Pit, October 2010

System Engineering – Unit 2 Service Water System Walkdowns, October 2, 2010

System Health Report – Service Water, 2nd Quarter 2010

Section 1R22: Surveillance Testing

Procedures

0-SOP-Leakrate-001, RCS Leakrate Surveillance, Evaluation and Leak Identification, Rev. 1

2-AOP-SSD-1, Control Inaccessibility Safe Shutdown Control, Rev. 17

2-PT-2M4, Safety Injection System Train A Actuation Logic and Master Relay Test, Rev 19

2-PT-M108, Residual Heat Removal / Safety Injection / Containment Spray System Venting,
Rev. 8

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

2-PT-Q017F, Alternate Safe Shutdown Supply Verification to 21 Safety Injection Pump /
Residual Heat Removal Pump, Rev. 6

2-PT-Q028A, 21 Residual Heat Removal Pump, Rev. 18

2-SOP-27.1.15, 480 Volt Supply, Rev. 42

IP-RPT-07-00018, Inservice Testing Program, Rev. 0

Completed Procedures

0-SOP-Leakrate-001, RCS Leakrate Surveillance, Evaluation and Leak Identification, Rev. 1,
March 26, 2011

2-PT-2Y008A, 21 EDG Mechanical Overspeed Trip, Rev. 3, January 5, 2011

2-PT-A035C, 23 Station Battery Intercell Resistance Check, Rev. 6, December 29, 2010

2-PT-2M4, Safety Injection System Train “A” Actuation Logic and Master Relay Test, Rev. 19,
January 31, 2011

Condition Reports (CR-IP2-)

2010-02909	2010-05940	2010-06343	2010-07585	2010-07775	2011-00547
2011-01167	2011-01168	2011-01247			

Work Orders

52269036 52286578 52290312 52303015 52319895 52322023

Drawings

9321-2735, Flow Diagram Safety Injection System, Rev. 0

Miscellaneous

IP-CALC-07-00184, Safety Injection System Vent Valve Operation Inside the Vapor Containment, Rev. 0

Maintenance Rule Basis Document, Vapor Containment Supersystem, Rev. 5

NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems, January 11, 2008

Section 1EP6: Drill EvaluationProcedures

0-CY-2765, Coolant Activity Limits-Dose Equivalent Iodine/Xenon, Rev. 3

2-AOP-INST-1, Instrument/Controller Failures, Rev. 6

2-AOP-SG-1, Steam Generator Tube Leak, Rev. 11

2-E-0, Reactor Trip or Safety Injection, Rev. 3

2-E-3, Steam Generator Tube Rupture, Rev. 1

2-ECA-3.1, SGTR with Loss of Reactor Coolant-Subcooled Recovery Desired, Rev. 1

2-SOP-27.1.5, 480 volt System, Rev. 41

Form EP-4, Initial Alert/ Site Area Emergency/ General Emergency Checklist, Rev. 13

Form EP-5, Upgrade/Update Alert/ Site Area Emergency/ General Emergency Checklist, Rev. 11

IP-EP-AD13, IPEC Emergency Plan Administrative Procedures, Rev. 8

Condition Reports (CR-IP2-)

2011-00624 2011-00627 2011-00628 2011-00665 2011-00670 2011-00671

2011-00672 2011-00673 2011-00693 2011-00703 2011-00704

Drawings

9321-F-2017, Main Steam Flow Diagram, Rev, 84

Section 2RS1/2RS3: Radiological Hazard Assessment and Exposure Controls Procedures and In-Plant Airborne Radioactivity Control and Mitigation

EN-RP-101, Access Control for Radiological Controlled Areas, Rev. 5

EN-RP-105, Radiological Work Permits, Rev. 9

EN-RP-204, Special Monitoring Requirements, Rev. 3

O-CY-1420, Radiological Quality Assurance Program, Rev. 3

Condition Reports (CR-IP2-)

2010-2817 2011-0091 2011-0560 2011-0947

Condition Reports (CR-IP3-)

2011-0707 2011-0992 2011-1040 2011-1136

Section 2RS4/2RS5: Occupational Dose Assessment/Radiation Monitoring Instrumentation

Procedures

EN-RP-101, Access Control for Radiological Controlled Areas, Rev. 5
EN-RP-105, Radiological Work Permits, Rev. 9
EN-RP-303, Source Checking of Radiation Protection Instrumentation
O-CY-1420, Radiological Quality Assurance Program, Rev. 3
2-PC-EM29, Wide Range Gas Effluent Radiation Monitor R-27 Transfer Calibration, Rev. 9
2-PC-EM30, Process Radiation Monitor R-41/42 Calibration, Rev. 12
2-PC-EM31, Effluent Radiation Monitor R-43/44 Calibration, Rev. 10
2-PC-2Y23-54, Liquid Radiation Monitor Calibration, Rev. 10
3-PC-OL58A, Process Radiation Monitor R-11/12 Calibration, Rev. 2
3-PC-R14, Process Radiation Monitor R-14 Calibration, Rev. 23
3-PC-OL58G, Waste Radiation Monitor R-18 Calibration, Rev. 5
3-PC-OL36, Wide Range Gas Monitor R-27 Channel Calibration, Rev. 4
3-PC-OL52, Sanitary Sewer System Radiation Monitor Calibration R-56, Rev. 4

Miscellaneous

QA-14/15-2009-IP-1, Quality Assurance Audit of IPEC Radiation Protection and Radwaste
QS-2010-IP-006, Quality Surveillance Evaluation of Corrective Actions for QA Audit
(QA-14/15-2009-IP-1)

Section 4OA1: Performance Indicator Verification

Procedures

0-CY-2380, Primary Sampling System, Rev. 4
0-CY-2765, Coolant Activity Limits – Dose Equivalent Iodine/Xenon, Rev. 3
EN-LI-114, Performance Indicator Process, Rev. 4

Completed Procedures

EN-LI-114, Performance Indicator Process, April 5, 2010
EN-LI-114, Performance Indicator Process, July 7, 2010
EN-LI-114, Performance Indicator Process, October 12, 2010
EN-LI-114, Performance Indicator Process, January 5, 2011
EN-LI-114, Performance Indicator Process, January 7, 2011

Condition Reports (CR-IP2-)

2011-00743

Miscellaneous

Chemistry Gamma Spectroscopy System – Reactor Coolant System 24 Hour Delay of Dose
Equivalent Iodine, February 9, 2011

Section 4OA2: Identification and Resolution of Problems

Procedures

2-AOP-ROD-1, Rod Control and Indication Systems Malfunctions, Rev. 6
2-E-0, Reactor Trip or Safety Injection Emergency Operating Procedure, Rev. 3

- 2-E-0 BG, Reactor Trip or Safety Injection Emergency Operating Procedure Basis Document, Rev. 3
- 2-ES-0.1, Reactor Trip Response Emergency Operating Procedure, Rev. 3
- 2-ES-0.1 BG, Reactor Trip Response Emergency Operating Procedure Basis Document, Rev. 3
- 2-FR-S.1, Response to Nuclear Power Generation / Anticipated Transient Without Scram Emergency Operating Procedure, Rev. 1
- 2-PC-R6A, Rod Position Indication System Mode 5 or 6 Calibration, Rev. 10
- 2-PC-R6B, Rod Position Indication System Hot Zero Verification, Rev. 11
- 2-PC-R6C, Rod Position Indication System Hot Span Verification, Rev. 7
- 2-PT-M7, Analog Rod Position Functional, Rev. 30
- 2-SOP-3.2, Reactor Coolant Boron Concentration Control, Rev. 37

Completed Surveillance Test Procedures

- 2-PC-R6A, Rod Position Indication System Mode 5 or 6 Calibration, April 9, 2010
- 2-PC-R6B, Rod Position Indication System Hot Zero Verification, May 16, 2008
- 2-PC-R6C, Rod Position Indication System Hot Span Verification, January 7, 2010
- 2-PT-M7, Quarterly Analog Rod Position Functional, November 30, 2010
- 2-PT-M7, Annual Analog Rod Position Functional, March 30, 2010

Condition Reports (CR-IP2-)

2007-01046	2009-03635	2009-03640	2009-04532	2010-00157	2010-00162
2010-01183	2010-04524	2010-05496	2010-05601	2010-05687	2010-05699
2010-05718	2010-05763	2010-05770	2010-05910	2010-06766	2010-07163
2010-07207	2010-07269	2011-00137	2011-00187	2011-00502	2011-00505
2011-00619					

Condition Reports

LO-OLI-2010-00139

Drawings

B237142-02, Rod Position Schematic, Rev. 2

Miscellaneous

- AR-95477, PM Change Request for Capacitor Replacement in RPI Cards, August 19, 2010
- IP2-10212 [Operations Document Feedback Form]
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Section 40A3: Event Follow-up

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LIST OF ACRONYMS

ADAMS	Agency-wide Document and Management System
ALARA	As Low As Is Reasonably Achievable
ARM	Area Radiation Monitor
CAM	Continuous Air Monitor
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
CS	Containment Spray
DAC	Derived Airborne Concentration
DRA	Deputy Regional Administrator
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
ED	Electronic Dosimeter
EDG	Emergency Diesel Generator
ENTERGY	Entergy Nuclear Northeast
EOP	Emergency Operating Procedure
EP	Emergency Preparedness
EPD	Electronic Pocket Dosimeter
EPIP	Emergency Plan Implementing Procedure
HEPA	High-Efficiency Particulate Air
HRA	High Radiation Area
I&C	Instrument and Control
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IP	[NRC] Inspection Procedure
IPEC	Indian Point Energy Center
LOOP	Loss of Offsite Power
MSIV	Main Steam Isolation Valve
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NIST	National Institute of Standards and Technology
NRC	Nuclear Regulatory Commission
NSTS	National Source Tracking System
NVLAP	National Voluntary Laboratory Accreditation Program
ODCM	Offsite Dose Calculation Manual
OSL	Optically Stimulated Luminescence
PFP	Pre-Fire Plan
PI	Performance Indicator
PM	Preventative Maintenance
PMT	Post-Maintenance Test
PTRG	Post Trip Review Group
QA	Quality Assurance
RA	Regional Administrator
RCA	Radiological Controlled Area
RCP	Reactor Coolant Pump
RECS	Radiological Emergency Communication System
RI	Resident Inspector
RI OEDO	Region I Office of the Executive Director for Operations

RPI	Rod Position Indication
RWP	Radiation Work Permit
SDE	Shallow Dose Equivalent
SDP	Significance Determination Process
SG	Steam Generator
SGTR	Steam Generator Tube Rupture
SRI	Senior Resident Inspector
SSC	Structure, System, and Component
SW	Service Water
SWP	Service Water Pump
TS	Technical Specification
UFSAR	Updated Final Safety Evaluation Report
UT	Ultrasonic Test
VHRA	Very High Radiation Area
WO	Work Order