



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

April 30, 2012

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

**SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 2 – NRC INTEGRATED
INSPECTION REPORT 05000247/2012002**

Dear Mr. Ventosa:

On March 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 2. The enclosed integrated inspection report documents the inspection results, which were discussed on April 26, 2012, with you and other members of your staff.

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

This report documents two NRC-identified findings of very low safety significance (Green). One finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance, and because it was entered into your corrective action program (CAP), the NRC is treating this finding as a non-cited violation (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your 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 any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Senior Resident Inspector at Indian Point Nuclear Generating Unit 2.

J. Ventosa

2

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000247/2012002
w/ Attachment: Supplementary Information

cc w/ encl: Distribution via ListServ

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000247/2012002
w/ Attachment: Supplementary Information

cc w/ encl: Distribution via ListServ

Distribution w/encl:

W. Dean, RA
D. Lew, DRA
D. Roberts, DRP
J. Clifford, DRP
C. Miller, DRS
P. Wilson, DRS
M. McCoppin, RI OEDO
M. Gray, DRP
B. Bickett, DRP

S. McCarver, DRP
M. Jennerich, DRP
M. Catts, SRI
A. Ayegbusi, RI
D. Hochmuth, AA
RidsNrrPMIndianPoint Resource
RidsNrrDorLpl1-1 Resource
ROPreport Resource

DOCUMENT NAME: \\nrc.gov\nrc\R1\Office\DRP\BRANCH2\A - Indian Point 2\Inspection Reports\IP2 IR 2012-002\IP2 2012.002.r1.docx
ADAMS ACCESSION NUMBER: **ML12121A641**

☐ SUNSI Review		☒ Non-Sensitive ☐ Sensitive		☒ Publicly Available ☐ Non-Publicly Available	
OFFICE	RI/DRP	RI/DRP	RI/DRS	RI/DRP	
NAME	MCatts/via email	MJennerich	WSchmidt/via telecom	MGray	
DATE	04/30/12	04/25/12	04/30/12	04/30/12	

OFFICIAL RECORD COPY

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

Docket No.: 50-247

License No.: DPR-26

Report No.: 05000247/2012002

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 2

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

Dates: January 1, 2012, through March 31, 2012

Inspectors: M. Catts, Senior Resident Inspector – Indian Point 2
O. Ayegbusi, Resident Inspector – Indian Point 2
Jeff Laughlin, Emergency Preparedness Inspector, NSIR
J. Furia, Senior Health Physicist – Region I
E. Gray, Senior Reactor Inspector – Region I
M. Jennerich, Project Engineer – Region I
S. McCarver, Project Engineer – Region I

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

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS	3
1. REACTOR SAFETY	5
1R01 Adverse Weather Protection	5
1R04 Equipment Alignment	6
1R05 Fire Protection	7
1R06 Flood Protection Measures	8
1R07 Heat Sink Performance	8
1R08 Inservice Inspection Activities	9
1R11 Licensed Operator Requalification Program	10
1R12 Maintenance Effectiveness	11
1R13 Maintenance Risk Assessments and Emergent Work Control	16
1R15 Operability Determinations and Functionality Assessments	17
1R18 Plant Modifications	18
1R19 Post-Maintenance Testing	18
1R20 Refueling and Other Outage Activities	19
1R22 Surveillance Testing	21
1EP4 Emergency Action Level and Emergency Plan Changes	22
2. RADIATION SAFETY	22
2RS1 Radiological Hazard Assessment and Exposure Controls	22
2RS2 Occupational ALARA Planning and Controls	23
4. OTHER ACTIVITIES	24
4OA1 Performance Indicator Verification	24
4OA2 Problem Identification and Resolution	25
4OA3 Follow-Up of Events and Notices of Enforcement Discretion	26
4OA6 Meetings, Including Exit	27
ATTACHMENT: SUPPLEMENTARY INFORMATION	27
SUPPLEMENTARY INFORMATION	A-1
KEY POINTS OF CONTACT	A-1
LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED	A-2
LIST OF DOCUMENTS REVIEWED	A-2
LIST OF ACRONYMS	A-14

SUMMARY OF FINDINGS

IR 05000247/2012002; 1/1/12 – 3/31/12; Indian Point Nuclear Generating (Indian Point) Unit 2; Maintenance Effectiveness.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by region inspectors. The inspectors identified two findings of very low safety significance (Green), one of which was an NCV. 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 the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Initiating Events

- Green. The inspectors identified a finding of very low safety significance for Entergy staff not following Entergy Procedure EN-LI-102, Corrective Action Program. Specifically, between initial plant startup and January 17, 2012, Entergy staff did not follow Procedure EN-LI-102, to classify equipment failures of the drains in the 480 volt switchgear room as repetitive such that an apparent cause would have been performed, and corrective actions developed to address the blocked drain. This resulted in instances of the drains in the 480 volt switchgear room being clogged. Entergy personnel performed an apparent cause evaluation (ACE), cleaned out the drains, and developed a preventative maintenance (PM) schedule to keep the drains cleared. Entergy personnel entered this issue into the CAP as CR-IP2-2011-4324.

This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events Cornerstone and affects the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, water intrusion into the room with clogged drains could impact all four trains of 480 volt switchgear. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) using SDP Phases 1 and 3. Phase 1 screened this Initiating Event Cornerstone finding to Phase 3 because the finding increased the likelihood of a flood causing a loss of offsite power (LOOP) and station blackout (SBO), which would require use of the alternate safe shutdown system (ASSS). A Region I Senior Reactor Analyst (SRA) conducted the Phase 3 analysis and determined the finding was of very low safety significance. 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 periodically trend and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems associated with the drains. [P.1(b) per IMC 0310] (Section 1R12)

Cornerstone: Mitigating Systems

- Green. The inspectors identified an NCV of Technical Specification 5.4.1.a, "Procedures", because Entergy personnel did not follow Procedure 2-AOP-ANNUN-1, Failure of Flight or Supervisory Panel Annunciators, for an intermittent control room annunciator problem. Specifically, between January 18, 2012 and January 30, 2012, operations personnel did not enter Procedure 2-AOP-ANNUN-1 when the entrance criteria were satisfied for an intermittent problem that involved control room annunciator horns sounding but alarms not flashing on control room panels SAF-SCF. The procedure directed troubleshooting the problem, notifying the shift manager (SM) / control room supervisory (CRS) to determine methods of compensatory monitoring, initiating a work request (WR) to repair the problem, determining emergency action level applicability, and initiating a CR. After this issue was identified by NRC inspectors, Entergy personnel's corrective actions included troubleshooting the issue, developing a standing order for an extra operator to verify annunciators during a transient, and initiating a WR to fix the annunciator issue during the refueling outage in March 2012. Entergy personnel entered this issue into the CAP as CR-IP2-2012-595.

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 availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure of the control room annunciators to alert operators to changing plant conditions during a transient could delay or impact operators' ability to mitigate an accident. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not result in an actual loss of safety function, was not a loss of barrier function, and was not potentially risk significant for external events. The finding has a cross-cutting aspect in the area of human performance associated with decision making because Entergy personnel did not make safety-significant or risk-significant decisions using a systematic process including entering 2-AOP-ANNUN-1, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed and obtaining interdisciplinary input and reviews on safety-significant or risk-significant decisions. [H.1(a) per IMC 0310] (Section 1R12)

REPORT DETAILS

Summary of Plant Status

Indian Point Unit 2 began the inspection period at 100 percent power and operated at full power until January 10, 2012 when the unit commenced an unplanned maintenance outage to repair the 21 RCP seal. Operators returned the unit to 100 percent power on January 19. On March 5, operators commenced a shutdown for a planned refueling and maintenance outage (2R20). Following the completion of refueling and maintenance activities, operators commenced a reactor startup on March 30. Unit 2 ended the inspection period at 5 percent power.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Entergy's readiness for the onset of seasonal low temperatures. The review focused on the auxiliary boiler feed pump room, service water (SW) pumps and the emergency diesel generators (EDGs). The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications, control room logs, and the CAP to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Entergy personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Entergy's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions. Documents reviewed for each section of the inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q – 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- Weld channel on February 29, 2012
- 480V electrical bus 3A on March 28, 2012
- 21 residual heat removal on March 28, 2012

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, technical specifications, 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 performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Entergy staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

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

a. Inspection Scope

On February 23, the inspectors performed a complete system walkdown of accessible portions of the Unit 2 auxiliary feedwater system to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests, drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hangar and support functionality, and operability of support systems. The inspectors performed field walkdowns of 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. Additionally, the inspectors reviewed a sample of related CRs and work orders (WOs) to ensure Entergy appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

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

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

- Pre-fire plan (PFP)-252 (fire zone (FZ) 11, 12, 13, 14): Cable Spreading Room – Control Building on January 25, 2012
- PFP-259 (FZ 23, 62A): Auxiliary Feedwater Pump Room – Auxiliary Feedwater Building on February 22, 2012
- PFP-211 (FZ 5, 5A, 6, 6A, 7, 7A, 8, 8A, 9A, 10A, 11A): General Floor Plan – Primary Auxiliary Building on February 28, 2012
- Containment Building 95' Elevation on March 10, 2012
- Containment Building 68' Elevation on March 11, 2012
- Containment Building 46' Elevation on March 11, 2012

b. Findings

No findings were identified.

.2 Fire Protection – Drill Observation (71111.05A – 1 sample)a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on January 24 that involved a main turbine bearing fire in the turbine building. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that Entergy personnel identified deficiencies, openly discussed them in a self-critical manner at the debrief, and took appropriate corrective actions as required. The inspectors evaluated specific attributes as follows:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control

- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with Entergy's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could disable risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including manhole 21 and 24 containing offsite power cables from the start-up transformer, to verify that the cables were not submerged in water, that cables and/or splices appeared intact, and to observe the condition of cable support structures. When applicable, the inspectors verified proper sump pump operation and verified level alarm circuits were set in accordance with station procedures and calculations to ensure that the cables will not be submerged. The inspectors also ensured that drainage was provided and functioning properly in areas where dewatering devices were not installed.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07A – 2 samples)

a. Inspection Scope

The inspectors reviewed the 22 fan cooler unit motor heat exchanger and the 22 fan cooler unit main heat exchanger to determine their readiness and availability to perform safety functions. The inspectors reviewed the design basis for the components and verified Entergy's commitments to NRC Generic Letter 89-13. The inspectors discussed the results of the most recent inspection with engineering staff and reviewed pictures of the as-found and as-left conditions. The inspectors verified that Entergy initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchangers did not exceed the maximum amount allowed.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08P – 1 sample)

a. Inspection Scope

Activities inspected during the Unit 2 refueling outage 20 (2R20) included observations of ultrasonic testing (UT) calibration and component testing in-progress using manual and computer based UT techniques. The performance in the plant of UT on feedwater piping welds 3085D-FW-1-AA and FW-2-AA to steam generator 21 was observed. Manual UT preparation for welds on the pressurizer piping lines 61 and 70 per Procedure CEP-NDE-0423, Revision 5, were reviewed. The applicable UT test procedures, task WOs, and calibration setup for these ultrasonic examinations were reviewed against the American Society of Mechanical Engineers (ASME) Code requirements and confirmed to be evaluated by the licensee as part of the inservice inspection (ISI) process. The inspectors reviewed the UT procedure and computer modeling results that provide the dimensional parameters for doing UT examination of the steam generator lower head to primary nozzle inner radius. That information was compared to the geometry of the external lower head surfaces.

For UT of pipe segments within the scope of MRP-146, thermal fatigue of RCS branch lines, the inspectors reviewed the procedure and observed performance of the examination at two locations on lines 84 and 96.

A sample of the computer based UT records, results of the upper reactor pressure vessel (RPV) head to control rod drive mechanism (CRDM) penetrations, and weld examinations conducted from underside of the RPV head, were reviewed. These examinations included the application of eddy current (ET) to examine the CRDM to head weld surface area. Included in the inspection sample were CRDMs 45, 52, 53, 70, and 86.

Video and still pictures of the VT-2 visual examination results for the top surface of the RPV upper head to CRDM penetrations, conducted per the Electric Power Research Institute guidelines, were observed. This work used a robot crawler to position a camera to view the circumference of the CRDM-to-head intersections for evidence of boric acid leakage. The few areas not accessible by the crawler were viewed by manually manipulated visual equipment. This review included a comparison of the 2012 visual observations with those of the previous 2010 outage. The inspectors observed the video results of a sample of CRDMs and the overall head surface condition. Included in the visual test inspection sample were CRDMs 35, 43, 44, 45, 46, 52, 70, 86, 90, 93, and 97.

For boric acid corrosion control activities in Unit 2, the inspectors confirmed the extent of plant boric acid walkdowns during plant operation and the plant shutdown process and noted that identified problem areas were documented in CRs for evaluation and resolution. The inspectors reviewed each of the photographs of the identified boric acid deposit conditions including those identified as 4152 and 954A. The inspectors

reviewed the CRs and operability assessment by L. Pitkin, Inc. dated February 27, 2012, for boric acid corrosion on the yoke of pressurizer spray valve PCV-455B.

While in containment, the inspectors observed the condition of portions of the containment liner and containment penetrations and discussed the extent of the ASME Section XI, IWE containment boundary examinations being conducted during the 2R20 outage with the responsible visual examiner and supervisor.

For steam generator tube ET inspection, the Operational Assessment for the Unit 2 Steam Generator Tube Integrity based on the Spring 2010 refuel outage (2R19) ET tube inspections were reviewed to confirm the basis for performing the next ISI of steam generator tubes during 2R21. The inspectors reviewed Entergy's evaluation of steam generator operational parameters and industry operational experience following 2R19 to confirm that the Operational Assessment of 2010 has remained valid.

The computer based ET, UT testing records and results of examination of the four U2 hot leg primary piping to reactor vessel nozzles, as part of the ASME Code Case N-770-1 inspection scope for dissimilar metal welds, were reviewed. These welds were examined by ET and UT from the inside diameter, under water, from the inside of the RPV.

b. Findings

No findings were identified.

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

.1 Quarterly Review of Licensed Operator Regualification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on March 2, which included just-in-time training for plant shutdown and RCS midloop operation. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the CRS. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors observed and reviewed RCS draindown conducted on Unit 2 during the maintenance outage on January 11, 2012. The inspectors observed infrequently performed test or evolution briefings, pre-shift briefings, and reactivity control briefings to verify that the briefings met the criteria specified in Entergy's Operations Section Expectations Handbook and Entergy Administrative Procedure OP-AA-329, "Conduct of Infrequently Performed Tests and Evolutions," Revision 1. Additionally, the inspectors observed operator performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 2 samples)

a. Inspection Scope

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

- Floor drain degradation in the 480 volt switchgear room on August 28, 2011
- Control room annunciator panels not flashing on January 30, 2012

b. Findings

.1 Inadequate Corrective Actions for Blocked Drains in the 480 Volt Switchgear Room

Introduction: The inspectors identified a finding of very low safety significance (Green) for Entergy staff not following Entergy Procedure EN-LI-102, Corrective Action Program. Specifically, between initial plant startup and January 17, 2012, Entergy staff did not follow Procedure EN-LI-102, to classify equipment failures of the drains in the 480 volt switchgear room as repetitive such that an apparent cause evaluation would have been performed, and corrective actions would have been developed to address the blocked drains.

Description: On August 28, 2011, when Hurricane Irene was impacting the area around Indian Point, Entergy staff observed water intrusion in the 480 volt switchgear room. Water was identified coming in around two SW pipes that enter the wall of the 480 volt switchgear room from under the transformer yard. Operations personnel discovered the water intrusion and observed indications the drain nearest to the water intrusion was blocked. Operations personnel used a catch basin to direct the water to another drain and placed sandbags around the 480 volt switchgear. The inspectors walked down the area during the hurricane and determined no water impacted operation of the 480 volt switchgear. The NRC opened an unresolved item (URI) in IR 05000247/2011004 requiring further information from Entergy staff regarding the causes of the water intrusion.

The inspectors reviewed past CRs of blocked drains in the 480 volt room and determined that this was a repetitive issue. The drains had been clogged in July 2001, August 2003, September 2003, January 2007, October 2008, October 2009, September 2010, October 2010, and during Hurricane Irene August 2011.

In November 2003, an external audit identified that important floor drains were not included in the PM program, and that blocked drains had been identified in some vital areas such as the 480 volt room. The inspectors determined that Entergy staff implemented a three month visual inspection for the hub drains in the room, the drains that are elevated off the floor by one to four inches, but did not implement a test of the hub drains or a PM for the drains that are flush with the floor.

In October 2006, the Entergy personnel determined that operating experience on maintenance of floor drains in safety related areas was applicable to Indian Point. In July 2008, the NRC Problem Identification and Resolution team inspection found that Entergy had not implemented corrective actions to address this operating experience that they determined was applicable to the site in October 2006 (NRC Inspection Report 05000247/2008010, dated July 24, 2008).

In January 2007, the NRC resident inspectors identified debris and foreign material in the drains in the 480 volt room. Entergy staff initiated engineering request IP2-07-12494 to add a two year PM to verify that each drain will pass a minimum of 10 gallons of flow in one minute. In December 2011, the NRC resident inspectors identified that this PM was not created even though the status was updated as complete.

On August 26, 2011, Entergy personnel performed the PM for the visual inspection of the hub drains. On August 28, 2011, Hurricane Irene impacted the area around Indian Point and one of the floor drains in the 480 volt room was identified as blocked. Entergy staff wrote CR-IP2-2011-4409 to address the blocked drain. The inspectors identified that Entergy staff had numerous opportunities to identify this repetitive issue and take corrective actions to implement a PM plan to ensure the drains were cleared.

The inspectors reviewed the CR written by Entergy staff to address the clogged drain and determined the CR was classified as a Category D, where no cause determination or tracking of corrective actions is required by Entergy staff, and the CR can be closed to the work management system. The inspectors questioned this level of classification

because Entergy Procedure EN-LI-102, Corrective Action Process, provides classification guidance that indicates a Category B designation with an ACE when there is an equipment failure of repetitive nature such that it is prudent to determine why. After the inspectors questioned the classification, Entergy staff initiated a Category B CR to determine the cause of the repetitive blocked drains in the 480 volt room since water intrusion in this room has the potential to impact all four trains of 480 volt switchgear.

In accordance with the requirements for a Category B CR, Entergy staff performed an ACE and determined that the apparent cause was the lack of sensitivity to the importance of drainage systems to mitigate the risk of water intrusion vulnerabilities for plant components and that Entergy had not developed and implemented a proactive identification or resolution strategy to preclude or mitigate water intrusion. Entergy's corrective actions included developing WR 247204, instituting a two year open and inspect PM program for the Unit 2 480 volt floor drains similar to Unit 3, cleaning the floor drains, and performing a test of the drains to demonstrate that the floor drains can de-water 10 gallons of water in one minute. In December 2011, the inspectors identified that CR-IP2-2011-4409 for unclogging the drains was closed to WR 247844 / WO 289247, and that this WR was inadvertently cancelled. After the inspectors identified this issue, Entergy staff wrote CR-IP2-2011-6465 and developed WR 256234.

On December 16, 2011, Entergy technicians inspected the drain lines in the 480 volt room with a boroscope and identified that approximately eight feet of one section of piping was filled halfway with debris, and that the drain in the fire deluge room, directly outside the 480 volt room, was completely blocked with debris. However, the inspectors identified that Entergy personnel did not write a CR to address this new degraded condition. Entergy staff wrote CR-IP2-2011-6470 to address this issue. On December 21, 2011, Entergy technicians flushed the drains. On January 17, 2012, Entergy staff created the PM to visually inspect the floor drains and ensure the drains pass 10 gallons of water in one minute.

Analysis: The performance deficiency associated with this finding was that Entergy staff did not follow Procedure EN-LI-102 to classify equipment failures of the drains in the 480 volt switchgear room as repetitive such that an apparent cause would have been performed, and corrective actions would have been developed to address the drain failures. This finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events Cornerstone and affects the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, water intrusion into the room with clogged drains could impact all four trains of 480 volt switchgear. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) using significance determination process (SDP) Phases 1 and 3. Phase 1 screened this Initiating Event Cornerstone finding to Phase 3 because the finding increased the likelihood of a flood causing a LOOP and SBO, which would require use of the alternate safe shutdown system (ASSS). A Region I SRA conducted the Phase 3 analysis using Entergy's current probabilistic safety assessment, IP-RP-0900026, Appendix C, Internal Flooding, Revision 0, dated November 2011. The SRA determined that this safety assessment presented a reasonable analysis of postulated 480-Volt switchgear flood scenarios, where the issue of importance was the potential for flood water to reach the height

where the switchgear would be damaged resulting in a loss of the three safety busses, a LOOP and an SBO. By design, Indian Point Unit 2 has an ASSS that would provide power, from a source not impacted by the flood, to equipment needed to prevent core damage following an SBO. In review of the analysis the SRA determined that the floor drains would only have made a difference in the event of a rupture of SW piping located in the switchgear room itself. For the other scenarios the flood flowrate would be small enough that leakage through the normal room doors would prevent switchgear damage or as in the case of a fire water rupture in the adjoining room, the flowrate would be so large that the drains would not make an appreciable difference. A review of the safety assessment Section 4.2.2.7, Rupture of the Service Water System in the 480-V Switchgear Room, Control Building 15' Elevation (Flood Zone CB15-14), and portions of Entergy's internal event probabilistic risk assessment, showed that they do not credit any operator action to respond to a flood caused by the rupture of SW piping in the switchgear room, because there is no installed method to alert the operators to the flooding condition. As such the blocked drain would have no impact on core damage frequency. 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 periodically trend and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems associated with the drains. [P.1(b) Per IMC 0310]

Enforcement: The inspectors identified a Green finding because Entergy personnel did not follow Procedure EN-LI-102, to classify an equipment failure of the drains in the 480 volt switchgear room as repetitive such that an apparent cause would have been performed, and corrective actions would have been developed to address the drain failures. No violation of regulatory requirements occurred because the drains in the 480 volt room are not safety related. Because this issue does not involve a violation of regulatory requirements and has very low safety significance, it is identified as a finding. Entergy personnel's corrective actions included performing an ACE, cleaning out the drains, and developed a PM schedule to keep the drains cleared. This issue was entered into Entergy's CAP as CR-IP2-2011-4324. **FIN 05000247/2012002-01, Inadequate Corrective Actions for Blocked Drains in the 480 Volt Switchgear Room.**

.2 Abnormal Operating Procedure not Followed for Annunciator Alarm Deficiency

Introduction: The inspectors identified a NCV of Technical Specification 5.4.1.a, "Procedures", because Entergy personnel did not follow Procedure 2-AOP-ANNUN-1, Failure of Flight or Supervisory Panel Annunciators, for an intermittent problem with control room annunciators. Specifically, between January 18, 2012 and January 30, 2012, operations personnel did not enter Procedure 2-AOP-ANNUN-1 when it was observed that the control room annunciator horns sounded but an alarm did not flash as designed on control room panels SAF-SCF.

Description: On January 30, 2012, the inspectors observed safety injection logic testing in the control room and identified that the control room annunciators on panels SAF-SCF were audibly alarming but not flashing as designed.

The inspectors reviewed the history of the control room annunciator issue and determined this was first identified October 13, 2011 in CR-IP2-2011-5105 and WR 251642. The WR was cancelled, and after a month, WR 254466 was written to address the issue. On January 3, 2012, CR-IP2-2012-27 was written for this alarm issue. The condition continued and impacted operator's ability to identify new alarms during the plant shutdown on January 10, 2012. On January 14, 2012, CR-IP2-2012-250 was written for the annunciator issue. The annunciator issue was repaired by replacing the flasher module on January 16, 2012 under WO 296630. The inspectors determined that Entergy staff did not enter Procedure 2-AOP-ANNUN-1 as required when these problems occurred. The inspectors concluded there was ineffective communication between engineering and maintenance personnel, who believed the issue had been corrected, and operations personnel, who thought the issue was still being resolved. Entergy staff entered the operator procedure compliance issues and ineffective corrective action to resolve the problem into their corrective action program under CR-IP2-2012-595.

Entergy technicians determined that the annunciator issue was caused by a mercoid flashing relay that could not be repaired online. The inspectors questioned Entergy personnel if compensatory measures were warranted until the annunciator issue could be corrected because this issue could impact the operator's ability to respond to a plant transient, assess changing plant conditions, and mitigate an accident if alarms are not flashing. Entergy staff implemented standing order 11-13, to station an extra reactor operator onsite to respond to the control room during a transient, and continually monitor annunciator status and report alarm conditions to the CRS as necessary. The licensee replaced the mercoid flashing relay on March 6, 2012 under WO 304372.

Analysis: The performance deficiency associated with this finding was that Entergy staff did not enter Procedure 2-AOP-ANNUN-1 for an intermittent control room annunciator problem. 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 availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure of the control room annunciators to alert operators to changing plant conditions during a transient could delay or impact operators' ability to mitigate an accident. Using IMC 0609.04, "Phase 1 Initial Screening and Characterization of Findings," the inspectors determined this finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not result in an actual loss of safety function, was not a loss of barrier function, and was not potentially risk significant for external events. The finding has a cross-cutting aspect in the area of human performance associated with decision making because Entergy personnel did not make safety-significant or risk-significant decisions using a systematic process including entering Procedure 2-AOP-ANNUN-1, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed and obtaining interdisciplinary input and reviews on safety-significant or risk-significant decisions. [H.1(a) per IMC 0310]

Enforcement: Technical Specification 5.4.1.a states, in part, that written procedures shall be established, implemented, and maintained covering the applicable requirements and recommendations of Appendix A of Regulatory Guide (RG) 1.33, Revision 2. Included in Appendix A of RG 1.33 are procedures for abnormal, off-normal, or alarm conditions. Entergy Procedure 2-AOP-ANNUN-1, Failure of Flight or Supervisory Panel Annunciators, requires entry for any indication of improper operation of annunciators on Flight or Supervisory Panels, including horn sounding but alarms not flashing. Procedure 2-AOP-ANNUN-1, steps 4.156 – 4.164, require troubleshooting the problem, notifying the SM / CRS to determine methods of compensatory monitoring, initiating a WR to repair the problem, determining emergency action level applicability, and initiating a CR. Contrary to the above, between January 18, 2012 and January 30, 2012, for the annunciators intermittently not flashing on panels SAF-SCF, Entergy staff did not enter Procedure 2-AOP-ANNUN-1 and complete the required actions. Entergy's corrective actions included troubleshooting the issue, developing a standing order for an extra operator to verify annunciators during a transient, and initiating a WR to fix the annunciator issue during the refueling outage. Because this finding is of very low safety significance and was entered into Entergy's CAP as CR- IP2-2012-595, consistent with Section 2.3.2 of the NRC Enforcement Policy, this violation is being treated as a NCV. **NCV 05000247/2012002-02, Abnormal Operating Procedure Not Followed for Annunciator Alarm Deficiency.**

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

a. Inspection Scope

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

- With rod control in manual, 12 centac instrument air compressor and 25 SW pump out of service for maintenance, and an unplanned reactor shutdown on January 10, 2012
- With RCS draindown to lowered inventory, steam generator not available as heat sink for core cooling, and backup spent fuel cooling pump not in service on January 11, 2012
- With rod control in manual, 26 SW pump out of service for planned maintenance, and solar flare activity severe weather watch in effect on January 25, 2012

- With 22 auxiliary boiler feed water pump out of service for planned maintenance, and 21 auxiliary component cooling water pump out of service for planned testing on February 2, 2012
- With the Appendix R diesel and 13.8 kV feeder 13W93 out of service for planned maintenance, and 21 pressurizer backup group out of service for unplanned maintenance on February 14, 2012

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 6 samples)

a. Inspection Scope

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

- RCS Loop 1 cold leg wide range instrument bistable (TM-413) failure during testing on January 14, 2012
- RWST high level on February 5, 2012
- Appendix R Diesel Generator breaker B3-3 not closing on February 14, 2012
- Pressurizer Channel 2 and Channel 3 RPS trip on February 28, 2012
- Residual heat exchanger 22 inlet isolation stop valve 745A sealite jacket on the wiring did not makeup to motor operator on March 14, 2012
- EDG Reserve Fuel Oil sampling on March 15, 2012

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

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 3 samples).1 Temporary Modificationsa. Inspection Scope

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

- PCV455B, pressurizer spray valve, actuator frame assembly removal on January 15, 2012
- Lowered trip setpoint of central control room heating, ventilation, and air conditioning fan unit 21 outlet flow switch on January 19, 2012

b. Findings

No findings were identified.

.2 Permanent Modificationa. Inspection Scope

The inspectors evaluated a low DC alarm setpoint change on all four battery chargers during the refueling outage. The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the setpoint change, including work packages used to adjust the alarm setpoint and post modification testing. The inspectors also observed portions of the alarm setpoint change, reviewed revisions to the control room alarm response procedure and interviewed engineering and operations personnel to ensure the procedure could be reasonably performed.

b. Findings

No findings were identified.

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

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with

the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- 23 static inverter DC input ammeter relay replacement on January 13, 2012
- Central control room backup fan after belts and sheaves replacement on January 15, 2012
- 21 RCP after seal replacement on January 18, 2012
- PCV455B, pressurizer spray valve, after actuator frame assembly removal on January 18, 2012
- 21 central control room fan after installation of temporary modification EC 34276 for flow switch IBISSW-FC-6830-S on January 19, 2012

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 2 samples)

.1 Maintenance Forced Outage

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Unit 2 maintenance forced outage to replace the 21 RCP seals, which was conducted January 10 through January 18. The inspectors reviewed Entergy's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by technical specifications

- Fatigue management
- Identification and resolution of problems related to outage activities

b. Findings

No findings were identified.

.2 Planned Outage

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Unit 2 maintenance and refueling outage (2R20), which was conducted March 5 through the end of the inspection period. The inspectors reviewed Entergy's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. In addition, inspectors reviewed Operating Experience Smart Sample FY2007-03, "Crane and heavy lift inspection, supplemental guidance for Inspection Procedure 71111.20," Revision 2. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by technical specifications
- Refueling activities, including fuel handling and fuel receipt inspections
- Reactor vessel head lift
- Fatigue management
- Identification and resolution of problems related to refueling outage activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 7 samples)a. Inspection Scope

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

- 2-PT-Q61, Main Steam Line Pressure Bistables on January 5, 2012
- PT-V21A, Alternate Reactor Coolant System / Residual Heat Removal Check Valve In-service Test on January 17, 2012
- 2-PT-V63A, Reactor Protection Logic Train “A” Partial Functional Test on January 18, 2012
- 0-SOP-LEAKRATE-001, RCS Leakrate Surveillance, Evaluation, and Leak Identification on February 25, 2012
- 2-PT-R014, Automatic Safety Injection System Electrical Load and Blackout Test on March 5, 2012
- 2-PT-R026A, Reactor Coolant Drain Tank Pump Discharge Containment Isolation Valve 1705 on March 24, 2012
- 2-PT-R027, Appendix J Local Leak Rate Test on March 26, 2012

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness**1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)****a. Inspection Scope**

The Office of Nuclear Security and Incident Response (NSIR) headquarters staff performed an in-office review of Indian Point Energy Center Emergency Plan, Revision 12 located under ADAMS accession number ML12017A204 as listed in the Attachment.

Entergy determined that in accordance with 10 CFR 50.54(q), the changes made in the latest revision resulted in no reduction in the effectiveness of the Plan, and that the revised Plan and procedures continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. This review was not documented in a safety evaluation report and did not constitute approval of licensee changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings were identified.

2. RADIATION SAFETY**Cornerstone: Occupational/Public Radiation Safety (PS)****2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)****a. Inspection Scope**

The inspectors selected radiologically risk-significant work activities that involved exposure to radiation. The inspectors verified that appropriate pre-work surveys were performed which were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program 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, including the potential presence of transuranics and/or other hard-to-detect radioactive materials; the hazards associated with work activities that could suddenly and severely increase radiological conditions; and, severe radiation field dose gradients that can result in non-uniform exposures of the body.

During tours of the facility and review of ongoing work the inspectors evaluated ambient radiological conditions. The inspectors verified that existing conditions were consistent with posted surveys, radiation work permits (RWPs), and worker briefings, as applicable.

During job performance observations, the inspectors verified the adequacy of radiological controls, such as required surveys, radiation protection job coverage, and contamination controls. The inspectors evaluated the means of using electronic

personnel dosimeters (EPDs) in high noise areas as high radiation area monitoring devices by Entergy personnel.

The inspectors verified that radiation monitoring devices were placed on the individual's body consistent with the method that Entergy was employing to monitor dose from external radiation sources. The inspectors verified that the dosimeter was placed in the location of highest expected dose or that Entergy personnel were properly employing an NRC-approved method of determining effective dose equivalent.

During job performance observations, the inspectors observed radiation worker performance with respect to stated radiation protection work requirements. The inspectors determined that workers were aware of the significant radiological conditions in their workplace and the RWP controls/limits in place and that their performance reflected the level of radiological hazards present.

During job performance observations, the inspectors observed the performance of the radiation protection technician with respect to radiation protection work requirements. The inspectors determined that technicians were aware of the radiological conditions in their workplace and the RWP controls/limits and that their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed RWPs used to access high radiation areas and identify what work control instructions or control barriers had been specified. The inspectors verified that allowable stay times or permissible dose for radiologically significant work under each RWP was clearly identified. The inspectors verified that EPDs alarm set points were in conformance with survey indications and plant policy.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

The inspectors obtained from Entergy staff a list of work activities ranked by actual or estimated exposure that were in progress during the Unit 2 refueling outage (2R20), and select work activities of the highest exposure significance (reactor disassembly/reassembly; scaffolding; valves; and, reactor coolant pumps).

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements. The inspectors determined that Entergy technicians had reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspectors verified that Entergy staff's planning identified appropriate dose mitigation features; considered, commensurate with the risk of the work activity, alternate mitigation features; and defined reasonable dose goals. The inspectors

verified that Entergy's ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices and or heat stress mitigation equipment. The inspectors determined that Entergy's work planning considered the use of remote technologies as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspectors verified the integration of ALARA requirements into work procedure and RWP documents.

The inspectors compared the results achieved with the intended dose established in Entergy's ALARA planning for these work activities. The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements, and evaluated the accuracy of these time estimates. The inspectors determined the reasons for any inconsistencies between intended and actual work activity doses. The inspectors focused on those work activities with planned or accrued exposure greater than 5 person-rem (radiation protection support; scaffold building and inspections; outage valve work; and, reactor disassembly/reassembly).

The inspectors verified that for the selected work activities that Entergy management had established measures to track, trend, and if necessary to reduce, occupational doses for ongoing work activities. The inspectors verified that trigger points or criteria were established to prompt additional reviews and/or additional ALARA planning and controls.

The inspectors evaluated Entergy's method of adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered. The inspectors determined that adjustments to exposure estimates were based on sound radiation protection and ALARA principles or they were adjusted to account for failures to control the work. The inspectors determined whether the frequency of these adjustments call into question the adequacy of the original ALARA planning process.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 4 samples)

a. Inspection Scope

The inspectors sampled Entergy's submittals for the below listed performance indicators (PIs) for Unit 2 for the period of January 1, 2011, through December 31, 2011. 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," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." As applicable, the inspectors reviewed Entergy's operator narrative logs, issue reports,

event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

- 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)

b. Findings

No findings were identified

4OA2 Problem Identification and Resolution (71152)

Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

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

b. Findings

No findings were identified.

A problem was identified with the UT examination zones on the steam generator lower heads for the primary nozzle inner radius. This was documented in CR-IP2-2012-01923. Entergy personnel decided to defer this UT examination until refueling outage 2R21, pending determination of the problem scope, cause, and proper corrective actions. The inspectors confirmed that deferring performance of the steam generator lower head inner radius ultrasonic examination until the next refueling outage, 2013 for Unit 3 and 2014 for Unit 2, is consistent with the 2001 Edition/2003 Addenda of the ASME Code, Section XI examination scheduling requirements. Additionally, pressurized water reactor industry operating experience has not identified any degradation at the inner radii on steam generator lower heads.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 3 samples).1 Plant Eventsa. Inspection Scope

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

- Shutdown for replacement of the 21 RCP seal package on January 10, 2012

b. Findings

No findings were identified associated with the operational response to the reactor trip.

.2 (Closed) URI 05000247/2011-004-01: Water Intrusion in the 480 Volt Room During Hurricane Irenea. Inspection Scope

The inspectors completed an evaluation of URI 05000247/2011004-01 regarding water intrusion in the 480 volt room during Hurricane Irene on August 28, 2011. Water was identified coming in around SW pipes that enter the wall of the 480 volt room from under the transformer yard. Operations personnel identified that the drain nearest to the water intrusion was blocked, and used a catch basin to direct the water to another drain. Operations personnel also placed sandbags around the 480 volt switchgear. The inspectors walked down the area during the hurricane and determined no water impacted the operation of the 480 volt switchgear. The URI was opened to review the licensee's evaluation of the causes of the water intrusion into the 480 volt room and determine if there is a performance deficiency.

The inspectors met with Entergy personnel to discuss the open item described above. Entergy personnel provided the inspectors with an ACE to address the causes of the water intrusion and the clogged drain. Entergy personnel also provided the inspectors with information and documentation to address related inspector questions. The inspectors reviewed the information provided, conducted additional meetings with Entergy personnel to determine whether Entergy technical staff had adequately provided the necessary information for the inspectors to address closure of the URI. Further details of the inspectors' review of this URI are provided below.

b. Findings and Observations

The inspectors reviewed the ACE associated with the causes of water intrusion in the 480 volt room during Hurricane Irene documented in CR-IP2-2011-4324. The inspectors identified a finding of very low safety significance (Green) because Entergy Procedure ENN-DC-150, Condition Monitoring of Maintenance Rule Structures, did not have appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Specifically, since September 6, 2007, Entergy personnel did not have an adequate procedure with acceptance criteria to determine if wall penetrations were properly sealed, which resulted in water intrusion into the 480 volt room during Hurricane Irene due to degradation of two SW pipe penetrations. This finding is documented as FIN 05000247/2011005-02, Water Intrusion Due to Leaking Flood Penetration Seals in the 480 Volt Room During Hurricane Irene. The inspectors also identified a finding of very low safety significance for Entergy staff not following Entergy Procedure EN-LI-102, Corrective Action Program. Specifically, between initial plant startup and January 17, 2012, Entergy staff did not follow Procedure EN-LI-102, to classify equipment failures of the drains in the 480 volt switchgear room as repetitive such that an apparent cause would have been performed and corrective actions would have been developed to address the drain failures. This finding is documented in Section 1R20 of this report.

The inspectors have completed their review of URI 05000247/201100401. Two findings were identified as noted above. Specific documents reviewed during this inspection are listed in the attachment. This URI is closed.

.3 (Closed) Licensee Event Report (LER) 05000247/2011-001-01: Automatic Actuation of Emergency Diesel Generators Due to Undervoltage on 480 VAC Vital Buses 5A and 6A Caused by a Loss of Offsite Power During Switchyard Troubleshooting

Entergy staff submitted LER 05000247/2011-001-01 to correct an erroneous reference to Indian Point Unit 3 battery chargers in the safety significance section of LER 05000247/2011-001-00. The inspectors reviewed the revised LER, CRs and corrective actions to determine whether the station adequately evaluated the condition. No findings were identified. This LER is closed. Inspectors documented their review of LER 05000247/2011-001-00 in inspection report 05000247/2011-005.

4OA6 Meetings, Including Exit

On April 26, 2012, the inspectors presented the inspection results to Mr. John Ventosa, Site Vice President, and other members of the Entergy staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

J. Ventosa, Site Vice President
R. Allen, Technical Specialist IV, Code Programs
N. Azevedo, Manager, Engineering
J. Baker, Shift Manager
T. Beasely, Senior Engineer
M. Burney, Nuclear Safety/License IV Specialist
R. Burroni, Manager, System Engineering
T. Cole, Project Manager, NUC
P. Conroy, Director, Nuclear Safety Assurance
L. Cossio-Gonzalez, Engineer, Code Programs
L. Coyle, General Manager, Plant Operations
G. Dahl, Nuclear Safety/License IV Specialist
R. Daley, Engineer III, Nuclear
G. Dean, Shift Manager
D. Dewey, Unit 2 Assistant Operations Manager
J. Dinelli, Manager, Operations
R. Dolanksy, Manager, ISI Program
R. Drake, Supervisor, Engineering
T. Flynn, Maintenance Inspection Coordinator
E. Goethicus, Operations Instructor
D. Gagnon, Manager, Security
F. Inzirillo, Manager, IPEC Quality Assurance
D. King, URS, NDE Project Manager
R. Lee, Lead Engineer, Buried Pipe and Tank Program
J. Lijoi, Superintendent, I&C
L. Lubrano, Senior Lead Engineer
R. Mages, Senior HP/Chemical Specialist
D. Mayer, Director, Unit 1
T. McCaffrey, Manager, Design Engineering
B. McCarthy, Manager, Assistant Operations
J. Miu, Engineer, Programs and Components
N. Papaiya, Auditor, Quality Assurance
E. Primrose, Shift Manager
S. Prussman, Nuclear Safety/License IV Specialist
J. Reynolds, Corrective Action Specialist
R. Robenstein, Superintendent, Simulator
T. Salentino, Superintendent, Dry Fuel Storage
S. Sandike, Senior HP/Chemical Specialist
A. Singer, Superintendent, Licensed Operator Requalification Training
D. Smith, Technical Specialist IV
B. Sullivan, Manager, Emergency Preparedness
R. Tagliamonte, Manager, Radiation Protection
M. Tesoriero, Manager, Programs and Components
J. Thaliath, Engineer II, Nuclear

M. Troy, Manager, Engineering
 R. Walpole, Manager, Licensing
 A. Williams, Assistant General Manager, Plant Operations
 D. Wilson, Manager, Chemistry
 W. Wittich, Supervisor, Design Engineering
 M. Woodby, Director, Engineering

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000247/2012002-01	FIN	Inadequate Corrective Actions for Clogged Drains in the 480 Volt Switchgear Room (1R12)
05000247/2012002-02	NCV	Abnormal Operating Procedure Not Followed for Annunciator Alarm Deficiency (1R12)

Closed

05000247/2011-004-01	URI	Water Intrusion in the 480 Volt Room During Hurricane Irene (4OA3)
05000247/2011-001-01	LER	Automatic Actuation of Emergency Diesel Generators Due to Undervoltage on 480 VAC Vital Buses 5A and 6A Caused by a Loss of Offsite Power During Switchyard Troubleshooting (4OA3)

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, Revision 28
 2-COL-30.1, Electrical Heat Tracing, Revision 26
 2-SOP-11.5, Space Heating and Winterization, Revision 32
 2-SOP-20.2, Condensate System Operation, Revision 44

 2-SOP-30.1, Electric Heat Tracing, Revision 26

OAP-048, Seasonal Weather Preparation, Revision 8

Condition Reports (CR-IP2-)

2011-6421 2011-6436 2012-0069 2012-274

Maintenance Orders/Work Orders

212314 236609 236610 255058 255630 302690

Section 1R04: Equipment Alignment

Procedures

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

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

2-COL-27.1.5, 480V AC Distribution, Revision 26

2-COL-10.5.1, Weld Channel and Containment Penetration, Revision 16

2-PT-R014, Automatic Safety Injection System Electrical Load and Blackout Test, Revision 23

2-COL-4.2.1, Residual Heat Removal System, Revision 29

OAP-007, Containment Entry and Egress, Attachment 4, Revision 25

Condition Reports (CR-IP2-)

2008-1421 2011-2801 2011-4060 2011-4447 2011-4673 2011-4952

2011-5008 2011-5197 2011-5547 2012-1399 2012-1467

Maintenance Orders/Work Orders

236313 293852

Drawings

9321-2018, Flow Diagram - Condensate and Boiler Feed Pump Suction, Sheet 1, Revision 145

9321-F-2019, Flow Diagram - Boiler Feedwater, Revision 116

9321-F-7033, Penetration and Liner Weld Joint Channel Pressurization Piping, Sheet 1, Revision 26

9321-F-7034, Penetration and Liner Weld Joint Channel Pressurization Piping, Sheet 2, Revision 24

9321-F-7039, Penetration and Liner Weld Joint Channel Pressurization Piping, Sheet 4, Revision 25

9321-F-7052, Penetration and Liner Weld Joint Channel Pressurization Piping, Sheet 5, Revision 38

9321-F-2726, Flow Diagram – Penetration and Liner Weld Joint Channel Pressurization System, Revision 77

251783, Auxiliary Coolant System Residual Heat Removal Pumps

9321-2720, Auxiliary Coolant System

Miscellaneous

Design Basis Document – Auxiliary Feedwater System, Revision 2

Tagout WCPs-132-VC Entry issued 2/19/12

Section 1R05: Fire ProtectionProcedures

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

EN-TQ-125, Fire Brigade Drills, Revision 1

IP2-RPT-03-00015, IP2 Fire Hazards Analysis, Revision 5

PFP-252 (FZ 11, 12, 13, 14): Cable Spreading Room - Control Building, Revision 11

PFP-259 (FZ 23, 62A): Auxiliary Feedwater Pump Room – Auxiliary Feedwater Building, Revision 0

PFP-211 (FZ 5, 5A, 6, 6A, 7, 7A, 8, 8A, 9A, 10A, 11A) General Floor Plan - Primary Auxiliary Building, Revision 11

PFP-209 (FZ 1) Component Cooling Pump Room – PAB 68'-0" – Primary Auxiliary Building, Revision 0

PFP-257 (FZ 40A, 41A, 42A) General Area – Turbine Building, Revision 12

Completed Procedures

EN-TQ-125, Fire Brigade Drills, Revision 1 dated January 25, 2012

Condition Reports (CR-IP2-)

2003-5642	2003-5955	2004-167	2009-2222	2009-4233	2011-6483
2011-6525	2012-1200	2012-278	2012-464	2012-448	2012-501
2012-502	2012-503	2012-506	2012-508		

Miscellaneous

IP-RPT-04-00227, Evaluation of Fire Separation between Fire Zone 30A (Fire Area A), Piping Bay and Tunnel and the Adjacent Primary Auxiliary Building (PAB) Fire Zones 5A, 7A, and 23A (Fire Area F)

Pre Fire Plan 201, General Floor Plan – Containment Building 46'-0" EL, Revision 0

Pre Fire Plan 202, General Floor Plan – Containment Building 68'-0" EL, Revision 0

Pre Fire Plan 203, General Floor Plan – Containment Building 95'-0" EL, Revision 0

TCE 12-001, Transient Combustible Evaluation dated 2/27/2012

Section 1R06: Flood Protection MeasuresProcedures

0-ELC-418-GEN, Manhole Inspections, Revision 3

0-MS-412, Inspection and Cleaning of Bus Bars, Contacts, Ground Connections, Wiring and Insulators, Revision 1

EN-DC-346, Cable Reliability Program, Revision 2

OAP-008, Severe Weather Preparations, Revision 11

Condition Reports (CR-IP2-)

2012-2147

Maintenance Orders/Work Orders

52394716 52387269

Section 1R07: Heat Sink PerformanceProcedures

2-HTX-006-FCU, Containment Fan Cooler Unit Motor Cooler Maintenance, Revision 2
 EN-DC-316, Heat Exchanger Performance and Condition Monitoring, Revision 3

Condition Reports (CR-IP2-)

2012-1777

Maintenance Orders/Work Orders

226426	226488	273443	308910	52201466
--------	--------	--------	--------	----------

Drawings

A209762, Flow Diagram Service Water System Nuclear Steam Supply Plant, Sheet 2,
 Revision 71
 B227330, Gasket Details of Ductwork Fan Motor Coolers, Revision 0
 236315, Fan Motor Cooler With Duct Work Units #21 and 22, Revision 1
 9321-2697, Containment Building Water Piping to Recirculation Fan Motor Coolers, Sheet 1,
 Revision 13

Miscellaneous

Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment,
 July 18, 1989
 System Health Report, HVAC Vapor Containment, 4Q11

Section 1R08: Inservice Inspection ActivitiesProcedures

CEP-CII-003, General Visual Examinations of Class MC Components, Containment Inservice
 Inspection, Revision 303
 CEP-NDE-0497, Manual Ultrasonic Examination of Welds in Vessels, Revision 5
 CEP-NDE-0423, Manual Ultrasonic Examination of Austenitic Piping Welds, Revision 5
 CEP-NDE-0485, Manual Ultrasonic Examination of Vessel Nozzle Inside Radius, Revision 7
 EN-DC-319, Inspection and Evaluation of Boric Acid Leaks, Revision 8
 WDI-SSP-1037, RVH Penetration Inspection Tool Operation, Revision 3
 WDI-ET-002, IntraSpect Eddy Current Inspection of Vessel Head Penetration J-Welds and Tube
 OD Surfaces, Revision 14
 WDI-STD-1042, Procedure for Eddy Current Examination of Reactor Vessel Head Penetrations,
 Revision 2

Condition Reports (CR-IP2-)

2010-1236	2010-1653	2010-5521	2011-2490	2011-4353
2012-1674	2012-1675	2012-1725	2012-1733	2012-1836
2012-1840				

Miscellaneous

ASME Section XI
 ASME Section XI, SubSection IWE
 ASME Code Case N-729-2, Examination of RPV Upper Head Penetrations
 IP U2 2R19 Steam Generator Eddy Current Inspection Summary

IP-U2 Reactor Vessel Hot-Leg DM Weld Examination Program Plan, Revision 0
 MRP-146, Report 1011955, Management of Thermal Fatigue in Normally Stagnant Non-Isolable
 Reactor Coolant System Branch Lines
 QA Checklist for Implementation of Engineering Programs
 Report No. SG-SGMP-10-15, June 2010, Steam Generator Operational Assessment for
 Operating Cycles 20 and 21, Indian Point Unit 2, U2R19, Revision 0
 WDI-TJ-1028, ASME Section V, Article 14, Technical Justification for Eddy Current Inspections
 of RVH, Revision 2

Section 1R11: Licensed Operator Requalification Program

Procedures

2-POP-2.1, Operations at Greater Than 45% Power, Revision 57
 2-POP-3.1, Plant Shutdown from 45% Power, Revision 54
 2-POP-3.3, Plant Cooldown – Hot to Cold Shutdown, Revision 77

Miscellaneous

Lesson Plan, Just-In-Time Training for Plant Shutdown, Revision 2
 Lesson Plan, Just in Time Training for Midloop Operations, Revision 1

Section 1R12: Maintenance Effectiveness

Procedures

2-AOP-ANNUN-1, Failure of Flight or Supervisory Panel Annunciators, Revision 5
 EN-LI-102, Corrective Action Process, Revision 17

Condition Reports (CR-IP2-)

2001-7205	2002-4034	2003-5474	2003-5571	2003-5642
2003-6974	2006-5827	2007-0309	2008-4853	2009-4172
2010-4289	2010-6157	2011-4289	2011-4324	2011-4409
2011-5105	2011-6465	2011-6530	2011-6470	2012-0027
2012-0250	2012-0595	2012-0763	2012-0815	

Maintenance Orders/Work Orders

157450	242137	296630	298038	302970
304372	52211985	52342772		

Drawings

9321-4011, Miscellaneous Drainage Plant Area Plans, Sections, and Details, Revision 14
 9321-01-44-2, Specification for Floor, Equipment and Roof Drains, December 28, 1966
 9321-F-4005, Yard Storm Drains Plans, Revision 12
 A241169, Control Room Panel SA, Revision 18
 B225258, Elementary Wiring Diagram of Annunciator Panel SAF, Revision 4

Miscellaneous

FEX-00231-00, Evaluation of Fire Piping Outside the 480V Switch Gear Room for Seismic
 Loading, Revision 0
 Generic Letter 82-033, Supplement to NUREG-0737 – Requirements for Emergency Response
 Capability, December 17, 1982

Indian Plant Examination of External Events for Indian Point Unit No. 2 Nuclear Generating Station, December 1995
Indian Point Unit Two Nuclear Power Plant Probabilistic Safety Analysis – Internal Flooding Analysis, Revision 0
IP-RPT-04-230, Indian Point Unit 2 Probabilistic Safety Assessment, Revision 1
IP2-DBD-221, Indian Point 2 Nuclear Power Plant Water Supply, Distribution, Pumping Facilities, Water-Based Fire Suppression Systems, and Hose Stations, Revision 3
NUREG-0700, Human-System Interface Design Review Guidelines, Revision 2
NUREG-0737, Clarification of TMI Action Plan Requirements, Supplement 1, January 1983
PMID 29297, Unit 2 480 Volt Room Drains, November 21, 2011
Standing Order 11-13, Station Extra Reactor Operator, February 8, 2012

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

EN-WM-104, On Line Risk Assessment, Revision 6
IP-SMM-WM-101, Online Risk Assessment, Revision 3
IP-SMM-OU-104, Shutdown Risk Assessment, Revision 10

Condition Reports (CR-IP2-) 2012-0516

Maintenance Orders/Work Orders 304088

Miscellaneous

NUREG-1022, Event Reporting Guidelines: 10 CFR 50.72 and 50.73, Revision 2
Operator Narrative Logs, January 10, 2012
Operator Narrative Logs, January 11, 2012
Operator Narrative Logs, January 25, 2012
Operator Narrative Logs, February 2, 2012
Operator Narrative Logs, February 14, 2012
Operator's Risk Report, January 25, 2012
Operator's Risk Report, February 2, 2012
Operator's Risk Report, January 10, 2012
Operator's Risk Report, January 11, 2012
Operator's Risk Report, February 14, 2012

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

0-CY-1500, Chemistry Sampling Locations, Revision 20
0-CY-3180, Suspended Solids, Revision 8
0-CY-1810, Diesel Fuel Oil Monitoring, Revision 11
0-CY-1560, Sampling and Adding Chemicals to Diesel Fuel Oil Storage Tanks, Revision 2
2-ARP-SAF, Reactor Coolant System, Revision 39
EN-LI-102, Corrective Action Process, Revision 17
EN-OP-104, Operability Determination Process, Revision 5
EN-OP-111, Operational Decision-Making Issue (ODMI) Process, Revision 7

Completed Procedures

2-PT-V14, Overpressurization Protection System Analog Channels, Revision 22

Condition Reports (CR-IP2-)

2011-2748	2011-4478	2011-5618	2012-01141	2012-01237
2012-1820	2012-1831	2012-219	2012-251	2012-918

Maintenance Orders/Work Orders

305736	52364905
--------	----------

Drawings

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

Miscellaneous

1024 1.1, Alloyco Motor Operator Gate Valves Vendor Manual, November 25, 1985
 American Society for Testing and Materials (ASTM) D4057, Standard Practice for Manual Sampling of Petroleum and Petroleum Products, Revision 06
 ASTM D6217, Standard Test Method for Particulate Contamination in Middle Distillate Fuels by Laboratory Filtration, Revision 11
 ASTM D2276, Standard Test Method for Particulate Contamination in Aviation Fuel by Line Sampling, Revision 08
 CS 16-321, Westinghouse Vender Manual, Type BFD Dc Relay
 IPEC Technical Specification 5.5.11
 NRC Information Notice 2011-03, Nonconservative Criticality Safety Analysis for Fuel Storage Sequence of Events Log, date 2/28/12
 Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment No. 277 to Facility Operating License No. DPR-26, Entergy Nuclear Operations, Inc., Indian Point Nuclear Generating Unit No. 2, Docket No. 50-247
 TS-ES-014, Design Procurement Specification for MOVs 745A, 745B, 899A, and 899B, Revision 0

Section 1R18: Plant ModificationsProcedures

2-PT-EM013, Central Control Room Filtration, Revision 13
 2-ARP-SAF, Reactor Coolant System, Revision 39
 EN-DC-319, Inspection and Evaluation of Boric Acid Leaks, Revision 7
 EN-LI-102, Corrective Action Process, Revision 17

Condition Reports (CR-IP2-)

2007-3156	2007-3161	2010-1236	2010-5521	2012-154
2012-2125	2012-2371	2012-286	2010-6933	

Maintenance Orders/Work Orders

229215	249682	302182	302795	51800597
--------	--------	--------	--------	----------

Drawings

260416, Loop Diagram – Reactor Coolant System, Pressurizer Pressure Control, Loop Numbers 455 and 456, Revision2

260417, Loop Diagram – Reactor Coolant System, Pressurizer Spray Control, Loop Numbers 455, Revision 2
 9321-2738, Flow Diagram, Reactor Coolant System, Revision 119
 9321-3126, Central Control Room Air Conditioning Evaporator Fan Control and Indication, Sheet 6, Revision 24
 IP2-S-000089, Spray Valve Indication, Pressurizer Spray Valves PCV-455A and PCV-455B, Revision 1
 IP2-S-000258, Control Room Back-Up vent Fan Power and Control, Revision 11

Miscellaneous

Design Basis Document – Central Control Room Heating, Ventilation, and Air Conditioning System, Revision 1
 EC 34128, Comparative Study for Effects of Removal of Valve Operator PCV-455B on Pipe Stress, Revision 0
 EC 20010, Change Battery Chargers Low V Setpoint from 120.5V to 128.5V, Revision 0
 Engineering Change 34276, Lower Trip Setpoint of Central Control Room Heating, Ventilation, and Air Conditioning Fan Unit 21 Outlet Flow Switch
 Instrument Calibration Data Sheet, FC-6830-S, January 19, 2012-02-18
 IP-CALC-12-00022, Operability Assessment of Pressurizer Spray Air Operated Valve PCV-455B with Degraded Actuator Frame Leg, Revision 0
 IP-RPT-0700093, Boric Acid Corrosion Control Program, Revision 2
 Maintenance Rule Basis Document, Heating, Ventilation, and Air Conditioning System - Central Control Room, Revision 2
 Setpoint Device Data Form, FC-6830-S, October 31, 2002
 Setpoint Device Data Form, FC-6830-S, April 21, 2005
 V-EC-1620, Thermally Induced Pressurization Rates in Gate Valves, May 1, 1996
 Valve Packing Data Sheet – 455B, September 5, 2010

Section 1R19: Post-Maintenance Testing

Procedures

0-FAN-401-HVA, Inspection and Repair of HVAC/Plant Ventilation Fans, Revision 4
 2-AOP-RCP-1, Reactor Coolant Pump Malfunction, Revision 11
 2-ARP-SAF, Reactor Coolant System, Revision 39
 2-ARP-SKF, Bearing Monitor, Revision 24
 EN-DC-319, Inspection and Evaluation of Boric Acid Leaks, Revision 7
 EN-LI-102, Corrective Action Process, Revision 17
 EN-MA-118, Foreign Material Exclusion, Revision 4
 EN-MA-125, Troubleshooting Control of Maintenance Activities, Revision 9

Condition Reports (CR-IP2-)

2010-1236	2010-5521	2010-6933	2011-5052	2011-6044
2012-154	2012-213	2012-260	2012-651	2012-657
2012-896	2012-0286	2012-0322	2012-0593	

Maintenance Orders/Work Orders

229215	249682	257479	293063	298444
302182	302608	302626	302795	302971
51548556	51800597	52310294		

Drawings

138221, Heating, Revision 11
 138248, Ventilation Control Diagrams, Sheet 1, Revision 9
 252665, Control Building Control and Air Flow Diagrams, Revision 17
 260416, Loop Diagram – Reactor Coolant System, Pressurizer Pressure Control, Loop Numbers 455 and 456, Revision 2
 260417, Loop Diagram – Reactor Coolant System, Pressurizer Spray Control, Loop Numbers 455, Revision 2
 9321-2738, Flow Diagram, Reactor Coolant System, Revision 119
 IP2-S-000089, Spray Valve Indication, Pressurizer Spray Valves PCV-455A and PCV-455B, Revision 1

Miscellaneous

Central Control Room HVAC Design Basis Document, Revision 1
 EC 34128, Comparative Study for Effects of Removal of Valve Operator PCV-455B on Pipe Stress, Revision 0
 EN47582, Event Notification for Reactor Scram, January 10, 2012
 EN47582, Event Notification Retraction for Reactor Scram, February 15, 2012
 Graph of 21 RCP Seal Return Flow, October 9, 2011 – January 9, 2012
 IP-CALC-12-00022, Operability Assessment of Pressurizer Spray Air Operated Valve PCV-455B with Degraded Actuator Frame Leg, Revision 0
 IP-RPT-0700093, Boric Acid Corrosion Control Program, Revision 2
 Maintenance Rule Basis Document for Reactor Coolant System, Revision 2
 V-EC-1620, Thermally Induced Pressurization Rates in Gate Valves, May 1, 1996
 Valve Packing Data Sheet – 455B, September 5, 2010

Section 1R20: Refueling and Other Outage Activities

Procedures

0-NF-206, Initial Criticality, Revision 5
 2-AOP-RCP-1, Reactor Coolant Pump Malfunction, Revision 11
 2-E-0, Reactor Trip or Safety Injection, Revision 4
 2-ES-0.1, Reactor Trip Response, Revision 4
 2-OT-Q092, Containment Building Inspection, Revision 6
 2-POP-1.2, Reactor Startup, Revision 57
 2-POP-1.3, Plant Startup from Zero to 45% Power, Revision 82
 2-POP-2.1, Operation at Greater Than 45% Power, Revision 57
 2-POP-3.1, Plant Shutdown From 45% Power, Revision 54
 2-POP-3.2, Plant Recovery from Trip, Hot Standby, Revision 38
 2-POP-4.2, Operation Below 20% Pressurizer Level with Fuel in the Reactor / Refueling, Attachment 13, Containment Closure Log, Revision 4
 2-PT-V053D, Mode Change Checklist, Mode 4 to Mode 3, Revision 9 dated March 26, 2012
 2-REF-002-GEN Sec 2.6, Reactor Vessel Head Removal, Revision 4
 2-SOP-1.2, Draining Reactor Coolant System, Revision 48
 2-SOP-4.2.2, Operation with Reduced Reactor Coolant System Inventory, Revision 23
 EN-LI-102, Corrective Action Process, Revision 17
 EN-MA-118, Foreign Material Exclusion, Revision 4
 IP-SMM-OU-104, IPEC Site Management Manual, Attachment 1, Shiftly Outage Shutdown Safety Assessment, Revision 9
 OAP-007, Containment Entry and Egress, Revision 26

Condition Reports (CR-IP2-)

2011-5052	2012-152	2012-154	2012-199	2012-205	2012-213
2012-219	2012-228	2012-262	2012-270	2012-2259	2012-2265
2012-2266	2012-2295	2012-2306	2012-2309		

Clearance Activities

AFW-004	AFW-004A	AFW-009	AFW-010	AFW-021
118V-002-22STAT INVT		DC-009-A-24BATTCHGR		DC-012-24BATT TEST
SI-030-B-MOV-851A		SGBD-003-PCV-1216A		

Miscellaneous

Event Notification 47582, Plant Shutdown Due to Increased Leakage from 21 RCP Seal Return, January 10, 2012

Graph of 21 RCP Seal Return Flow, October 9, 2011 – January 9, 2012

IP-2 Maintenance Rule Basis Document for Reactor Coolant System, Revision 2

IP2 UFSAR Section 9.5.6, Control of Heavy Loads, Revision 22

Nuclear Energy Institute 08-05, Industry Control of Heavy Loads, Revision 0

NRC Staff Safety Evaluation addressing NEI 08-05

Unit 2 Planned Outage Daily Update, January 11-18, 2012

Unit 2 Planned Outage Schedule, January 11-18, 2012

Section 1R22: Surveillance TestingProcedures

0-SOP-Leakrate-001, RCS Leakrate Surveillance, Evaluation and Leak Identification, Revision 2

0-OSP-IST-001, Leak Rate Test Rig Operations, Revision 11

2-ES-1.4, Transfer to Hot Leg Recirculation, Revision 3

2-PT-Q61, Main Steam Line Pressure Bistables, Revision 13

2-PT-R014, Automatic Safety Injection System Electrical Load and Blackout Test, Revision 23

2-PT-V63A, Reactor Protection Logic Train "A" Partial Functional Test, Revision 4

PT-V21A, Alternate Reactor Coolant System / Residual Heat Removal Check Valve Test, Revision 2

2-PT-R027, Appendix J Local Leak Rate, Revision 24

2-PT-R026A-DS005, 23 RCP Seal Water Test, Revision 11

2-PT-R026A-DS021, Reactor Coolant Drain Tank Pump Discharge Valves 1702, 1705, Revision 10

Condition Reports (CR-IP2-)

2010-5684	2011-5022	2011-5548	2012-01641	2012-1467	2012-1665
2012-1712	2012-2012	2012-2161	2012-2312	2012-2322	

Drawings

A235296, Flow Diagram, Safety Injection System, Sheet 2, Revision 71

Miscellaneous

IP2 Inservice Testing Program Basis Data Sheets – Valves, Revision 1

0-SOP-LEAKRATE-001, Attachment 4, RCS Leakrate Evaluation, Dated February 18, 2012, February 22, 2012, and February 25, 2012

IP2 RCS Leakrate Calculation, Dated February 23 and 24, 2012

IP2 7-Day Trending data for Leakage, Dated February 25, 2012
NEI 94-01, Industry Guidance for Implementing Performance Based Option of 10 CFR Part 50,
Appendix J, Revision 3
2-PT-R026A-DS021, RCDT Pump Discharge Valves 1702, 1705, Revision 10, Completed Test
Dated March 20, 2008 and March 24, 2012

Section 1EP4: Emergency Action Level and Emergency Plan Changes

IPEC-EP Rev. 12, Indian Point Energy Center Emergency Plan

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

RWP

20122518 20122520 20122521 20122534

Section 2RS2: Occupational ALARA Planning and Controls

ALARA Plan

20122532 20122539

Section 4OA1: Performance Indicator Verification

Procedures

0-CY-2765, Coolant Activity Limits – Dose Equivalent Iodine/Xenon, Revision 3
2-CY-2380, Primary Sampling System, Revision 4
EN-LI-114, Performance Indicator Process, Revision 5

Completed Procedures

EN-LI-114, Performance Indicator Process, dated April 14, 2011
EN-LI-114, Performance Indicator Process, dated July 7, 2011
EN-LI-114, Performance Indicator Process, dated October 4, 2011
EN-LI-114, Performance Indicator Process, dated January 3, 2012

Miscellaneous

Quarterly Primary Chemistry Trending for Units 2 and 3 for time period 01/01/2011 – 03/31/2011
Quarterly Primary Chemistry Trending for Units 2 and 3 for time period 04/01/2011 – 06/30/2011
Quarterly Primary Chemistry Trending for Units 2 and 3 for time period 07/01/2011 – 09/30/2011
Quarterly Primary Chemistry Trending for Units 2 and 3 for time period 10/01/2011 – 12/30/2011

Section 4OA2: Problem Identification and Resolution

Procedures

CEP-CII-003, General Visual Examinations of Class MC Components, Containment Inservice
Inspection, Revision 303
CEP-NDE-0497, Manual Ultrasonic Examination of Welds in Vessels, Revision 5
CEP-NDE-0423, Manual Ultrasonic Examination of Austenitic Piping Welds, Revision 5
CEP-NDE-0485, Manual Ultrasonic Examination of Vessel Nozzle Inside Radius, Revision 7
EN-DC-319, Inspection and Evaluation of Boric Acid Leaks, Revision 8
WDI-SSP-1037, RVH Penetration Inspection Tool Operation, Revision 3

WDI-ET-002, IntraSpect Eddy Current Inspection of Vessel Head Penetration J-Welds and Tube OD Surfaces, Revision 14

WDI-STD-1042, Procedure for Eddy Current Examination of Reactor Vessel Head Penetrations, Revision 2

Condition Reports (CR-IP2-)

2010-1236	2010-1653	2010-5521	2011-2490	2011-4353
2012-1674	2012-1675	2012-1725	2012-1733	2012-1836
2012-1840				

Miscellaneous

ASME Section XI

ASME Section XI, SubSection IWE

ASME Code Case N-729-2, Examination of RPV Upper Head Penetrations

IP U2 2R19 Steam Generator Eddy Current Inspection Summary

IP-U2 Reactor Vessel Hot-Leg DM Weld Examination Program Plan, Revision 0

MRP-146, Report 1011955, Management of Thermal Fatigue in Normally Stagnant Non-Isolable Reactor Coolant System Branch Lines

QA Checklist for Implementation of Engineering Programs

Report No. SG-SGMP-10-15, June 2010, Steam Generator Operational Assessment for Operating Cycles 20 and 21, Indian Point Unit 2, U2R19, Revision 0

WDI-TJ-1028, ASME Section V, Article 14, Technical Justification for Eddy Current Inspections of RVH, Revision 2

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

Procedures

2-AOP-RCP-1, Reactor Coolant Pump Malfunction, Revision 11

2-E-0, Reactor Trip or Safety Injection, Revision 4

2-ES-0.1, Reactor Trip Response, Revision 4

2-POP-2.1, Operation at Greater Than 45% Power, Revision 57

2-POP-3.1, Plant Shutdown From 45% Power, Revision 54

2-POP-3.2, Plant Recovery from Trip, Hot Standby, Revision 38

2-POP-4.2, Operation Below 20% Pressurizer Level with Fuel in the Reactor / Refueling, Attachment 13, Containment Closure Log, Revision 4

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

EN-MA-118, Foreign Material Exclusion, Revision 4

Condition Reports (CR-IP2-)

2011-5052	2012-00076
-----------	------------

Miscellaneous

Event Notification 47582, Plant Shutdown Due to Increased Leakage from 21 RCP Seal Return, January 10, 2012

Graph of 21 RCP Seal Return Flow, October 9, 2011 – January 9, 2012

IP2 Maintenance Rule Basis Document for Reactor Coolant System, Revision 2

IP2 USFAR Chapter 8

LIST OF ACRONYMS

ACE	apparent cause evaluation
ADAMS	Agencywide Document Access and Management System\
ALARA	as low as is reasonably achievable
ASME	American Society of Mechanical Engineers
ASSS	alternate safe shutdown system
ASTM	American Society for Testing and Materials
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
CRDM	control rod drive mechanism
CRS	control room supervisor
DDCS	double delta channel seal
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EDG	emergency diesel generator
ENTERGY	Entergy Nuclear Northeast
EPD	electronic personnel dosimeter
ET	eddy current
FZ	fire zone
GPM	gallons per minute
I&C	instrument and control
IMC	Inspection Manual Chapter
IPEC	Indian Point Energy Center
ISI	inservice inspection
IR	inspection report
LER	licensee event report
LOOP	loss of offsite power
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NSIR	Office of Nuclear Security and Incident Response
OEDO	Office of the Executive Director for Operations (NRC)
PFP	pre-fire plan
PI	performance indicator
PM	preventative maintenance
RA	regional administrator
RCP	reactor coolant pump
RCS	reactor coolant system
RG	Regulatory Guide
RPV	reactor pressure vessel
RI	resident inspector
RWP	radiation work permit
RWST	refueling water storage tank
SBO	station blackout
SDP	significance determination process
SM	shift manager
SRA	senior reactor analyst

SRI	senior resident inspector
SSC	structure, system, and component
SW	service water
UFSAR	Updated Final Safety Evaluation Report
URI	unresolved item
UT	ultrasonic testing
WO	work order
WR	work request