

Memorandum to the File - August 23, 2010

Indian Point 2 Inspection Report 05000247/2010003,  
dated August 12, 2010

August 12, 2010

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

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 2 – NRC INTEGRATED  
INSPECTION REPORT 05000247/2010003

Dear Mr. Pollock:

On June 30, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 2. The enclosed integrated inspection report documents the inspection results, which were discussed on July 14, 2010 with you and other members of your staff.

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

This report documents one NRC-identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. Additionally, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as a non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region 1; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Indian Point Nuclear Generating Unit 2. In addition, if you disagree with the cross-cutting aspect assigned to the 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 Resident Inspector at Indian Point Nuclear Generating Unit 2.

In accordance with Title 10 of the Code of Federal Regulations Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS).

ADAMS is accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Mel Gray, Chief  
Projects Branch 2  
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000247/2010003  
w/ Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

J. Pollock

2

ADAMS is accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Mel Gray, Chief  
Projects Branch 2  
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000247/2010003  
w/ Attachment: Supplemental Information

Distribution w/encl: (via E-mail)  
M. Dapas, Acting RA (R1ORAMAIL)  
D. Lew, Acting DRA (R1ORAMAIL)  
J. Clifford, DRP (R1DRPMAIL)  
D. Collins, DRP (R1DRPMAIL)  
D. Roberts, DRS (R1DRSMAIL)  
P. Wilson, DRS (R1DRSMAIL)

L. Trocine, RI OEDO  
M. Gray, DRP  
R. Conte, DRS  
B. Bickett, DRP  
S. McCarver, DRP  
N. Sieller, SRI  
M. Catts, SRI

A. Ayegbusi, RI  
D. Hochmuth, DRP  
RidsNrrPMIndianPoint Resource  
RidsNrrDorILp1-1 Resource  
[ROPreport Resource@nrc.gov](mailto:ROPreportResource@nrc.gov)

**SUNSI Review Complete: BB (Reviewer's Initials)**

ML102240597

DOCUMENT NAME: G:\DRP\BRANCH2\la - Indian Point 2\Inspection Reports\IP2 IR 2010-03\IP2 2010.003.final.docx

After declaring this document "An Official Agency Record" it **will** be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI/DRP	RI/DRP	RI/DRS	RI/DRP
NAME	NSieller/*per telephone	BBickett/* BB	RConte/* RC	MGray/MXG
DATE	08/03/10	08/03/10	08/03/10	08/12/10

\* See prior concurrence

OFFICIAL RECORD COPY

U.S. Nuclear Regulatory Commission

Region I

Docket No.: 50-247

License No.: DPR-26

Report No.: 05000247/2010003

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 2

Location: Buchanan, NY 10511

Dates: April 1, 2010 through June 30, 2010

Inspectors: N. Sieller, Acting Senior Resident Inspector – Unit 2  
B. Haagensen, Acting Senior Resident Inspector – Unit 2  
O. Ayegbusi, Resident Inspector – Unit 2  
P. Cataldo, Senior Resident Inspector – Unit 3  
J. Noggle, Sr. Health Physicist – Region 1  
D. Molteni, Operations Engineer – Region 1  
S. McCarver, Project Engineer – Region 1

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

Enclosure

## TABLE OF CONTENTS

SUMMARY OF FINDINGS .....	3
REPORT DETAILS.....	5
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
1R11 Licensed Operator Requalification Program .....	8
1R12 Maintenance Effectiveness.....	9
1R13 Maintenance Risk Assessments and Emergent Work Control .....	9
1R15 Operability Evaluations.....	10
1R18 Plant Modifications .....	10
1R19 Post-Maintenance Testing.....	11
1R20 Refueling and Outage Activities .....	12
1R22 Surveillance Testing .....	13
1EP6 Drill Evaluation .....	16
2. RADIATION SAFETY .....	16
2RS7 Radiological Environmental Monitoring Program (REMP) .....	16
4. OTHER ACTIVITIES .....	18
4OA1 Performance Indicator Verification .....	18
4OA2 Identification and Resolution of Problems .....	19
4OA3 Event Follow-Up .....	20
4OA5 Other Activities .....	23
4OA6 Meetings .....	24
4OA7 Licensee-Identified Violations.....	24
ATTACHMENT: SUPPLEMENTAL INFORMATION.....	24
SUPPLEMENTAL INFORMATION.....	A-1
KEY POINTS OF CONTACT .....	A-1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED.....	A-1
LIST OF DOCUMENTS REVIEWED .....	A-2
LIST OF ACRONYMS .....	A-9

## SUMMARY OF FINDINGS

IR 05000247/2010003; 04/01/2010 – 06/30/2010; Indian Point Nuclear Generating (Indian Point), Unit 2; Surveillance Testing.

This report covered a three-month period of inspection by resident inspectors and announced inspections by regional reactor inspectors. One finding of very low significance (Green) was identified, which was determined to be a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." The cross-cutting aspect for the finding was determined using IMC 0310, "Components within the Cross-Cutting Areas." Findings for which the significance determination process (SDP) does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

**Cornerstone: Barrier Integrity**

- Green. The inspectors identified a Green NCV of Technical Specification (TS) 3.7.10 because Entergy personnel did not ensure proper configuration control of a damper in the control room ventilation system (CRVS), which resulted in both trains of CRVS being inoperable for greater than the TS allowed outage time. Although the closed damper was identified by the licensee during planned testing to fulfill Surveillance Requirement (SR) 3.7.10.4, this finding is being considered an NRC-identified finding due to significant questions from the inspectors that resulted in the implementation of additional corrective actions. Entergy personnel entered this issue into their Corrective Action Program (CAP) as CR-IP2-2010-03076 and CR-IP2-2010-03564 for resolution. Planned corrective actions included reinforcement of human performance tools, utilization of operating experience during future pre-job and pre-outage briefings, revised system check-off list, and implementation of a more robust method for locking the damper in position.

This finding was greater than minor because it was associated with the Barrier Performance attribute of the Barrier Integrity cornerstone, and it impacted the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. This finding is of very low safety significance because it impacted the radiological barrier function of the control room but did not impact other barrier functions of the control room.

The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance, Work Practices component, because Entergy personnel did not ensure that human error prevention techniques were applied to ensure work activities on the 'A' CRVS damper did not impact the nearby CCRB1 damper. [H.4(a) per IMC 0310] (Section 1R22)

**Other Findings**

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violation and corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

Summary of Plant Status

Indian Point Unit 2 began the inspection period in Mode 6, Refueling, for refueling outage 2R19. On April 10 Unit 2 entered Mode 2, Startup. Operators synchronized the unit to the electrical grid on April 12, ending 2R19. Full reactor thermal power (RTP) was achieved on April 15. On June 22, operators performed a planned power reduction to 81 percent power to conduct repairs to a service water leak on the main generator hydrogen cooler. Operators returned Unit 2 to full RTP later that same day. Unit 2 remained at or near full power for the remainder of the inspection period.

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

1R01 Adverse Weather Protection (71111.01 - 2 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Entergy's readiness for the onset of seasonal high temperatures. The review focused on the auxiliary boiler feed pump (ABFP) building ventilation system and the emergency diesel generators (EDGs). The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), control room logs, and the corrective action program (CAP) to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Entergy personnel had adequately prepared for these challenges. The inspectors reviewed station procedures including Entergy's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during hot weather conditions. This inspection constituted one inspection sample. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Summer Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

The inspectors performed a detailed review of the station's onsite and offsite AC (alternating current) power systems, and onsite alternate AC power system readiness. This review included a walkdown to observe the material condition of the offsite Buchanan switchyard, as well as onsite 138kV switchyard areas and components. The inspectors reviewed Entergy's response to 345 kV grid disturbances that occurred on April 21, May 6, and June 12, to verify appropriate interface and protocols between

Entergy staff and the offsite power transmission system operators. The inspectors reviewed the most recent revision to IP-SMM-OP-105, "Offsite Power Continuous Monitoring and Notification," to evaluate changes since the last revision, and to verify the procedure contained appropriate measures to monitor and maintain availability and reliability of both the offsite AC power systems and the onsite alternate AC power systems. The inspectors reviewed completed and outstanding work orders for the AC power systems and components, assessed the adequacy of corrective actions for identified, degraded conditions, and observed the performance of 138kV planned maintenance associated with bus-tie (BT) breaker BT-5-6. The inspectors reviewed a completed monthly inspection of the onsite 138kV switchyards, which included BT-4-5 and BT-5-6 breakers, and evaluated the associated increased risk impacts of emergent work conducted by ConEd on the 345kV output feeder ring breaker on June 2. Additional documents that were reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q – 4 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the plant systems listed below to verify operability when safety-related equipment in the opposite train was either inoperable, undergoing surveillance testing, potentially degraded, or following realignment after a system equipment outage. The inspectors used TS, operating procedures, drawings, and the UFSAR as guidance for conducting partial system walkdowns. The inspectors reviewed the alignment of system valves and electrical breakers to ensure proper inservice or standby configurations as described in plant procedures and drawings. During the walkdowns, the inspectors evaluated the material condition and general housekeeping of the systems and adjacent spaces. The documents reviewed are listed in the Attachment. The inspectors performed walkdowns of the following areas, which represented four inspection samples:

- Control room ventilation system (CRVS) on April 28;
- 21 ABFP following return from maintenance on June 3;
- 22 instrument air system during 11 station air compressor preventative maintenance on June 27; and
- 21 safety injection pump during boric acid flow control valve work on June 30.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors performed a complete system walkdown of accessible portions of the auxiliary boiler feedwater (AFW) system to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests (STs), drawings, equipment lineup check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors reviewed a sample of condition reports (CRs) and work orders (WOs) written to address deficiencies associated with the system to ensure they were appropriately evaluated and resolved. The documents reviewed during this inspection are listed in the Attachment. The walkdown of the AFW system represented one inspection sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q – 5 samples)

Resident Inspector Quarterly Walkdowns

a. Inspection Scope

The inspectors conducted a tour of the five areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that combustible materials and ignition sources were controlled in accordance with Entergy's administrative procedures. The inspectors verified that fire detection and suppression equipment was available for use as specified in the area pre-fire plan (PFP), 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 in accordance with procedures. The documents reviewed are listed in the Attachment. The inspectors toured the following areas which constituted five inspection samples:

- Service water intake structure (PFP 264);
- 480V switchgear room (PFP 251);
- Primary auxiliary building 15' elevation (PFP 204);
- Primary auxiliary building 59' elevation (PFP 207); and
- Primary auxiliary building 98' elevation (PFP 212).

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)a. Inspection Scope

The inspectors performed an inspection of underground Manhole 24, which contains safety-related electrical cabling to the motor driven ABFPs. The inspectors reviewed the UFSAR and related design basis documents to identify the requirements for the manhole design. The inspectors assessed the material condition of the support trays and cable insulation to verify there was no evidence of conditions that could challenge operability of the safety related pumps. The inspectors verified that conditions discovered during the manhole inspection were entered into the licensee's CAP. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A - 1 sample)a. Inspection Scope

The inspectors reviewed the 21 EDG jacket water heat exchanger to determine its readiness and availability to perform its safety functions. The inspectors reviewed the design basis for the component and verified Entergy's commitments to NRC Generic Letter 89-13. The inspectors reviewed the results of previous inspections of the 21 EDG jacket water and similar heat exchangers. The inspectors discussed with engineering staff the results of the most recent inspection performed on May 25 and reviewed pictures of the as-found and as-left conditions. The inspectors verified that appropriate corrective actions were initiated for deficiencies identified by Entergy personnel. The inspectors verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed. Documents reviewed are listed in the Appendix.

b. Findings

No findings of significance were identified.

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

The inspectors observed licensed operator simulator training on May 25, which included a steam generator tube rupture coincident with a loss of offsite power and the failure of select components to automatically start as required. The inspectors evaluated operator performance during the simulated event and verified completion of risk-significant operator actions including the use of emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction

provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 3 samples)

a. Inspection Scope

The inspectors reviewed risk-significant structures, systems, and components (SSCs) to assess the effectiveness of maintenance activities on SSC performance and reliability. The inspectors reviewed system health reports, corrective action program documents, maintenance work orders, and maintenance rule basis documents to ensure performance problems were being identified and properly evaluated within the scope of the maintenance rule. For each sample selected, the inspectors 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. 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. The documents reviewed are listed in the Attachment. The following samples were reviewed and represented three inspection samples:

- 480-Volt breaker failures;
- Station auxiliary transformer load tap changer hang-up alarms; and
- CRVS / toxic gas monitoring system.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 4 samples)

a. Inspection Scope

The inspectors reviewed scheduled and emergent maintenance activities to verify that the appropriate risk assessments were performed prior to removing equipment from service for maintenance or repair. The inspectors reviewed selected daily risk assessments to verify they were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. For emergent work activities, the inspectors assessed planning and control by Entergy staff of the emergent work and ensured plant risk was properly reassessed and managed. Documents reviewed during this inspection are listed in the Attachment. The following activities represented four inspection samples:

- Elevated risk during reactor coolant system (RCS) drain down conditions in the refueling outage on April 5;
- 21 steam generator feedwater regulating valve controller replacement on May 20;
- 24 isophase fan failure during 22 ABFP outage on June 16; and
- Service water (SW) leak repair on 22 hydrogen cooler on June 22.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 4 samples)

Resident Quarterly Review

a. Inspection Scope

The inspectors reviewed four operability determinations performed by Entergy personnel to assess the acceptability of the evaluations, the use and control of compensatory measures, and Entergy staff's compliance with TS. The inspectors assessed the technical adequacy of the evaluations to ensure consistency with the TS, UFSAR, and associated design basis documents. The inspectors verified that the operability determinations were performed in accordance with Entergy procedure ENN-OP-104, "Operability Determinations." The documents reviewed are listed in the Attachment. The following operability determinations represented four inspection samples:

- 21 ABFP during bus 6A maintenance outage, CR-IP2-2010-02630;
- 21 boric acid transfer pump discharge check valve failure, CR-IP2-2010-03106;
- Station auxiliary transformer load tap changer hang-up, CR-IP2-2010-03173; and
- Steam generator bistables found outside of acceptance criteria, CR-IP2-2010-03430.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 - 2 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors reviewed a temporary plant modification (TMOD) developed by Entergy staff under Engineering Change (EC) 22897 in response to a SW leak from the 22 hydrogen cooler. The TMOD was for the installation of a flexible stainless steel hose in place of a permanent section of small bore piping, which could remain installed until the March 2012 refueling outage. The inspectors verified that the design bases and performance capability of the system would not be impacted by the temporary modification, and assessed whether the TMOD would cause a significant increase in initiating event likelihood. The inspectors interviewed Entergy personnel and reviewed

issues entered into the CAP to determine whether personnel were effective in identifying and resolving problems associated with the temporary modification. The inspectors reviewed applicable Entergy procedures to verify that the design and implementation of the TMOD was in accordance with administrative requirements. The documents reviewed are listed in the Attachment. The inspectors' review of this temporary modification represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to the main generator Generrex excitation system implemented by EC 0170034, "Install Generrex Upgrade Modification." The inspectors reviewed modification documents associated with the upgrade and design change, including the replacement of transformer-based power supplies with solid state power supplies; installation of a digital excitation control system to replace the automatic function of the Generrex excitation system; and relocation of vibration susceptible components. The inspectors also reviewed revisions to the control room alarm response procedure and interviewed engineering and operations personnel to ensure the procedure could be reasonably performed. The documents reviewed are listed in the Attachment. The review of this permanent modification represented one inspection sample.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 7 samples)

a. Inspection Scope

The inspectors reviewed post-maintenance test (PMT) activities for seven risk-significant SSCs to ensure that the PMTs adequately verified SSC operability and capability. The inspectors verified that the PMT procedures and activities tested the functions of the SSC that may have been affected by the maintenance activity. The inspectors reviewed the UFSAR, TS, and design basis documents to determine whether the acceptance criteria in the PMT were consistent with these requirements. When applicable, the inspectors verified that test instrumentation had current calibrations and had an appropriate range and accuracy for the application. The inspectors ensured that issues identified during the performance of the PMTs were entered into the station's CAP and assessed for impact on operability or functionality of the affected SSC. The documents reviewed are listed in the Attachment. The following post-maintenance activities were reviewed and represented seven inspection samples:

- Generrex upgrade modification, Work Order (WO) 00170034;
- Station auxiliary transformer oil pump repairs, WO 00148562;
- Containment recirculation pump flow increase modification, WO 51325358;
- 24 steam generator flow transmitter FT-448 replacement, WO 00233983;
- 23 SW pump discharge piping leak repair, WO 00238885;
- Flow control valve 1121 diaphragm replacement, WO 51315478; and
- CRVS intake damper replacement, WO 51228985.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

Entergy began refueling outage 2R19 during the last quarter on March 10 and ended the outage on April 12 in this quarter. The inspectors evaluated the outage plan and outage activities to determine if Entergy personnel had considered risk, developed risk reduction and plant configuration control methods, considered mitigation strategies in the event of loss of safety functions, and adhered to licensee and TS requirements. The inspectors observed portions of the heat-up and reactor start-up processes. Additionally, the inspectors also performed a final Mode 3 walk down inside containment to independently assess that no evidence of boric acid accumulation was evident or that loose material or debris, which could be transported to the containment sump, was present. The inspectors reviewed CRs to determine if conditions adverse to quality were entered for resolution. Documents reviewed for the inspection are listed in the Attachment. Some of the specific activities completed by the inspectors included:

- Observed main generator exciter (Generrex) replacement;
- Reviewed station auxiliary transformer repairs;
- Evaluated reactor cavity leakage mitigation efforts;
- Reviewed containment sump vortex suppressors modification
- Observed RCS vacuum fill;
- Performed containment as-left walk down;
- Observed reactor heat up;
- Observed reactor start up;
- Observed reactor power ascension;
- Observed Unit 2 generator synchronization to the grid; and
- Assessed work hours for fatigue concerns.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 5 samples)a. Inspection Scope

The inspectors observed the performance of and/or reviewed test data for five STs associated with risk-significant SSCs. The reviews verified that the station established proper test conditions, no equipment preconditioning occurred, and acceptance criteria were met. The inspectors also ensured that acceptance criteria were established in accordance with TS, UFSAR, Technical Requirements Manual, and Entergy procedural requirements. When applicable, the inspectors verified that test instrumentation had current calibrations and had an appropriate range and accuracy for the application. The documents reviewed are listed in the Attachment. The following surveillance tests were reviewed and represented five inspection samples, including one containment isolation valve sample:

- 2-PT-2M4, Safety Injection System Train 'A' Actuation Logic Test;
- PC-EM26, Condensate Storage Tank Level Calibration;
- 2-PT-V024E, Main Steam Isolation Valves;
- WO 220505, Unfiltered Air In-Leakage Test for the Unit 2 CRVS; and
- 2-PT-M048, 480-Volt Undervoltage Alarms.

b. Findings

Introduction: An NRC-identified Green NCV of TS 3.7.10, Control Room Ventilation System (CRVS), was identified because Entergy personnel did not ensure proper configuration control of a damper in the CRVS, which resulted in both trains of CRVS being inoperable for greater than the TS allowed outage time.

Description: On April 23, 2010, Entergy staff was conducting control room envelope unfiltered air in-leakage testing to fulfill TS Surveillance Requirement 3.7.10.4, when CRVS flow was measured at approximately 500 cubic feet per minute (cfm). The expected flow rate was 2000 cfm  $\pm$  10 percent, to align with the required flow rate for CRVS operability per TS Bases 3.7.10 and surveillance procedure 2-PT-EM13. Entergy personnel performed a walkdown and discovered damper CCRB1, a normally open damper, in the closed position. CCRB1 was located in the suction duct to the 21 and 22 control room booster fans, and was intended to be retired-in-place in the open position. When Entergy technicians re-opened the damper, CRVS flow returned to 1978 cfm.

Entergy staff entered this issue into the CAP as CR-IP2-2010-03076 and performed an apparent cause evaluation (ACE) of the issue. Entergy staff determined the damper was normally held open by a control bar; however, on April 23 the control bar was found disconnected and hanging freely. The nearby 'A' damper had been replaced in March 2010, during 2R19, and the work area was described as "tight and cramped." Therefore, Entergy personnel concluded that the CCRB1 control bar was likely "physically contacted or affected" during work on the 'A' damper, which dislodged it and allowed damper CCRB1 to close. The apparent cause was attributed to human performance tools not being properly applied by the workers performing the 'A' damper replacement. The contributing cause was that no positive locking device was installed on CCRB1 at the time it was discovered out of position.

Entergy staff implemented several corrective actions (CAs) including reattaching the control bar, installing a locking cotter pin to hold the bar in place, and performing an extent of condition review. Entergy personnel determined that the condition was unique to CCRB1 based on its proximity to the 'A' damper, and because all other retired-in-place dampers in the CRVS system were maintained in the closed position with a blank-off plate installed. Entergy staff captured additional planned CAs including: (1) providing coaching to Entergy and contractor staff on management expectations for the use of human performance tools such as self checking, peer checking, and questioning attitude, and (2) utilizing the CCRB1 operating experience during future pre-job and pre-outage briefings.

The NRC inspectors reviewed Entergy's ACE and CAs, and questioned whether Entergy staff had fully evaluated the configuration control activities regarding damper CCRB1. Specifically, the inspectors questioned whether CCRB1 should have been formally "locked open," and whether the control bar that was in place at the time of the failure met the requirements of a formal locking device.

Regarding the first inspector question, the inspectors noted that Entergy had no specific procedural guidance for determining what types of components were required to be locked. However, Entergy procedure OAP-019, "Component Verification and System Status Control" stated that a system's baseline configuration was established by the system's check off list (COL). The inspectors reviewed the CRVS COL (2-COL-11.2) and identified that damper CCRB1 was not included in the procedure. The inspectors questioned whether CCRB1 was required to be in the COL, and whether it should be controlled as "locked open." The inspectors specifically noted the following: (1) CCRB1 was a single point vulnerability in that it could render both trains of CRVS inoperable if mispositioned, (2) system diagrams for CRVS labeled CCRB1 as "locked open," and (3) a similar damper on Indian Point Unit 3, the Manual Inlet Damper, was listed in 3-COL-LV-001, "Locked Valve Check Off List," as locked open. Entergy entered this issue into the CAP and subsequently determined that the damper would be added to the CRVS COL and would be controlled as formally locked open. The inspectors concluded the update of the COL to control the damper position was consistent with Entergy's configuration control standards.

Regarding the second inspector question (whether the control bar met the requirements of a formal locking device), the inspectors noted that procedure OAP-19 required a locking device to have two distinct components: "the lock or seal and the restraint." The restraint restricts component travel, and the sealing device is an "easily identified device" that seals the restraint in place. If anything other than a padlock is used, the seal should have to be destroyed in order to reposition the component, to provide visual evidence that the device has not been tampered. In the case of CCRB1, the inspectors questioned whether the cotter pin that was initially installed met the requirements of a sealing device, and also whether the locking cotter pin installed after April 23 met the requirements of a sealing device. Entergy staff tracked this question in the CAP as CR-IP2-03564. Although Entergy personnel determined the locking cotter pin met the definition of a "lock or seal," after further evaluation Entergy staff decided to replace the locking cotter pin with a more robust method for locking the damper in position.

Although the closed CCRB1 damper was identified by the licensee during planned testing to fulfill a surveillance requirement, this finding was determined to be an NRC-identified finding in accordance with NRC IMC 0612 due to the value added by the inspectors. The inspectors identified a previously unidentified configuration control issue in Entergy's evaluation and corrective actions, which resulted in the implementation of several additional corrective actions. These corrective actions included: (1) adding the damper to the CRVS COL, (2) controlling the damper as formally "locked open," and (3) implementing a more robust and visible method for locking the damper in position. The inspectors concluded Entergy's actions to control damper CCRB1 in the system COL and provide a more visible indication of the damper "locked open" status were significant corrective actions to provide for ensuring damper position control in accordance with Entergy's standards.

Analysis: The inspectors determined that not ensuring proper configuration control for damper CCRB1 constituted a performance deficiency. This finding was more than minor because it was associated with the Barrier Performance attribute of the Barrier Integrity cornerstone, and it impacted the cornerstone objective of providing reasonable assurance that physical design barriers (specifically the radiological barrier function of the control room) protect the public from radionuclide releases caused by accidents or events. This finding was evaluated using Phase 1 of the Significance Determination Process and was determined to be of very low safety significance because the finding represented a degradation of only the radiological barrier function of the control room.

The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Work Practices component, because Entergy staff did not ensure that human error prevention techniques were applied to ensure work activities on the 'A' CRVS damper were adequate. [H.4(a)]

Enforcement: TS 3.7.10 requires two trains of CRVS to be operable during Modes 1, 2, 3, 4, and during movement of recently irradiated fuel assemblies. Action C.1 states that if two trains of CRVS are inoperable, for reasons other than an inoperable control room envelope, CRVS must be returned to operable status within 72 hours. Although Entergy personnel could not determine exactly when CCRB1 was closed, Entergy personnel concluded it most likely occurred during the 'A' damper replacement in refueling outage 2R19. Unit 2 entered Mode 4 at 1920 hours on April 7, 2010 exiting from the recently completed refueling outage (2R19). Thus, contrary to the requirements of TS 3.7.10, both trains of CRVS were inoperable for a period exceeding 72 hours between April 7 and April 23, 2010. Because this finding is of very low safety significance and has been entered into the licensee's CAP as CR-IP2-2010-03076 and CR-IP2-2010-03564, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 05000247/2010003-01, Inoperable Control Room Ventilation System due to Damper Mispositioning)**

1EP6 Drill Evaluation (71114.06 - 1 sample)a. Inspection Scope

The inspectors evaluated an emergency classification conducted on May 25, during a licensed-operator requalification simulator training evaluation. The inspectors observed an operating crew in the simulator respond to various, simulated initiating events that ultimately resulted in the simulated implementation of the emergency plan. In particular, the inspectors verified the adequacy and accuracy of the simulated emergency classification of an Alert. The inspectors verified that the classification was appropriately credited as an opportunity toward NRC performance indicator data. The inspectors observed the management evaluator and training critique following termination of the scenario, and verified that performance deficiencies were appropriately identified and addressed within the critique and the corrective action program. This evaluation constituted one inspection sample

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY****Cornerstone: Occupational/Public Radiation Safety (PS)**2RS7 Radiological Environmental Monitoring Program (REMP) (71124.07 - 1 sample)a. Inspection Scope

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

The inspectors reviewed the ODCM to identify locations of environmental monitoring stations, and reviewed the UFSAR for information regarding the environmental monitoring program and meteorological monitoring instrumentation. The inspectors reviewed the annual effluent release report and the 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," report to determine if the licensee was sampling, as appropriate, for the predominant and dose-causing radionuclides likely to be released in effluents.

For the on-site portion of this inspection:

- The inspectors walked down air sampling stations and thermoluminescent dosimeter (TLD) monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition.

- For the air samplers and TLDs selected above, the inspectors reviewed the calibration and maintenance records to verify adequate operability of these components. Additionally, the inspectors reviewed the calibration and maintenance records of composite water samplers as available.
- The inspectors reviewed whether Entergy technicians had initiated sampling of other appropriate media upon loss of a required sampling station.
- The inspectors observed the collection and preparation of environmental samples from different environmental media (i.e., surface water, sediment, and air). The inspectors reviewed whether the environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were in accordance with procedures.
- Based on direct observation and review of records, the inspectors reviewed whether meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the UFSAR, NRC Regulatory Guide 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants," and licensee procedures. The inspectors reviewed the meteorological data readout and recording instruments in the control room and at the tower to verify operability.
- The inspectors verified that missed and or anomalous environmental samples were identified and reported in the annual environmental monitoring report. The inspectors reviewed the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection (LLDs). The inspectors reviewed the associated radioactive effluent release data that was the source of the released material.
- The inspectors selected SSCs that involved or could reasonably involve licensed material for which there is a credible mechanism for licensed material to reach ground water, to verify that Entergy staff had implemented a sampling and monitoring program sufficient to detect leakage of these SSCs to ground water.
- The inspectors reviewed records, as required by 10 CFR 50.75(g), of leaks, spills, and remediation since the previous inspection.
- The inspectors reviewed significant changes made by the licensee to the ODCM as the result of changes to the land census, long-term meteorological conditions (3-year average), or modifications to the sampler stations since the last inspection to verify the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment. The inspectors reviewed technical justifications for any changed sampling locations.
- The inspectors reviewed whether the appropriate detection sensitivities with respect to TS/ODCM were used for counting samples (i.e., the samples meet the TS/ODCM required LLDs). The inspector reviewed quality control charts for maintaining radiation measurement instrument status and actions taken for degrading detector performance.

- The inspectors reviewed the results of the licensee's interlaboratory comparison program to verify the adequacy of environmental sample analyses performed by the licensee. The inspectors verified that the interlaboratory comparison test included the media/nuclide mix appropriate for the facility.
- The inspectors reviewed whether problems associated with the REMP are being identified by Entergy staff at an appropriate threshold and were properly addressed for resolution in the station's corrective action program. The inspector's review included a selected sample of problems documented by Entergy staff that involved the REMP.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151 - 2 samples)

a. Inspection Scope

The inspectors reviewed Entergy's submittal of the Mitigating Systems cornerstones performance indicators (PIs) listed below to verify the accuracy of the data recorded from July 2009 through June 2010. The inspectors used Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the basis and reporting requirements for each PI. The inspectors reviewed various documents including portions of the main control room logs, CRs, and WOs to verify the accuracy of the recorded data. The inspectors also discussed the method for compiling and reporting performance indicators with cognizant engineering personnel. The inspectors compared graphical representations from the most recent PI report to the raw data to verify that the report correctly reflected the data. The documents reviewed are listed in the Attachment. The following PIs were reviewed and represented two inspection samples:

Mitigating Systems Cornerstone

- Safety System Functional Failures (MS05); and
- Mitigating System Performance Index, Emergency AC Power Systems (MS06).

b. Findings

No findings of significance were identified.

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

##### .1 Review of Items Entered into the Corrective Action Program (CAP)

###### a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and to identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of all items entered into Entergy's corrective action program. The review was accomplished by accessing Entergy's computerized database for CRs and attending condition report group screening meetings. In accordance with the baseline inspection modules, the inspectors selected corrective action program items across the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for further follow-up and review.

###### b. Findings

No findings of significance were identified.

##### .2 Semi-Annual Trend Review

###### a. Inspection Scope

The inspectors performed a semi-annual review of site issues, to identify trends that might indicate the existence of more significant safety issues, as required by Inspection Procedure 71152, "Identification and Resolution of Problems." The inspectors included in this review, repetitive or closely-related issues that may have been documented by Entergy outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or corrective action program backlogs. The inspectors also reviewed the Entergy corrective action program database for the first and second quarters of 2010, to assess condition reports (CRs) written in various subject areas (equipment problems, human performance issues, etc.), as well as individual issues identified during the NRCs daily CR review (Section 4OA2.1). The inspectors reviewed the Entergy quarterly trend report for the first quarter of 2010, conducted under LO-IP3LO-2010-00049 within the corrective action program, as well as EN-LI-121, "Entergy Trending Process," to verify that Entergy personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

###### b. Findings and Observations

No findings of significance were identified.

The inspectors evaluated a sample of departments that are required to provide input into the quarterly trend reports, which included maintenance and engineering departments. This review included a sample of issues and events that occurred over the course of the past two quarters to objectively determine whether issues either were appropriately considered or ruled as emerging or adverse trends, and in some cases, verified the appropriate disposition of resolved trends. The inspectors verified that these issues

were addressed within the scope of the corrective action program, or through department review and documentation in the quarterly trend report for overall assessment. For example, the inspectors noted that consistent with the onset of additional service water leaks that have occurred over the past several months and the ongoing challenges these service water leaks pose to safety-related and non-safety-related systems, Entergy personnel had appropriately identified “service water leaks” as a monitored trend with ongoing corrective actions to address this long-standing issue. In other cases, the inspectors verified for resolved trends, such as vendor oversight, that applicable success criteria identified to ensure successful resolution of adverse trends had been appropriately dispositioned.

The inspectors noted that improved trending tools and software were under development to aid departmental coordinators in the conduct of trending and assessment of data applicable to their departments.

Additionally, the inspectors noted an apparent increase in the number of breaker failures (failure to close, failure to stay closed, etc.) have occurred, and while a sample review indicated similar causal factors could not be identified, the increase of breaker malfunctions should have warranted a more focused inspection under station adverse rule procedures. In particular, other monitoring programs that compliment the trending process, such as system health and performance indicators, did not identify these breaker malfunctions for further assessment.

The inspectors also observed an apparent increase in the number of human performance negative coaching opportunities station personnel identified in the Engineering area. The inspectors noted that these human performance coaching opportunities have not been recognized by Entergy staff as a specific emerging or adverse trend.

#### 4OA3 Event Follow-Up (71153 – 6 samples)

##### .1 (Closed) LER 05000247/2009-003-00, Loss of Single Train 21 Pressurizer Backup Heater Required for Remote Plant Shutdown from the Control Room Due to an Inoperable Breaker

On May 28, 2009, following completion of quarterly testing of the pressurizer level bistables, operators in the control room observed the 21 back-up heater and modulating heaters trip off when the level defeat switch was being placed back in its normal position. The operators reset the modulating heaters but were unable to re-energize the 21 backup heater from the control room. Operators entered TS 3.3.4.A, Remote Shutdown, for an inoperable 21 pressurizer backup heater. Entergy’s troubleshooting revealed that the 21 backup heater was unable to be re-energized from the control room because the breaker control relay trip lever was misaligned. The lever was realigned, the breaker was closed on May 28, 2009, and the 21 backup heater was declared operable. Entergy staff entered this issue into the CAP as CR-IP2-2009-01965.

Entergy personnel performed an ACE and determined that the pressurizer heaters had tripped off due to a dead spot on the level defeat switch, which had caused a momentary actuation of the low level bistables. The ACE also documented that the control relay trip

lever had likely become misaligned when it was bumped during a previous breaker rack-in. The lever was in an exposed location on the breaker, and the breaker had been difficult to rack in because of a broken cubicle rail. Entergy technicians replaced the faulty pressurizer level defeat switch on March 17, 2010. Future planned corrective actions include repairing the broken cubicle rail; however, this activity can only be performed during a bus 3A outage due to the proximity of the rail to the bus. The inspectors reviewed Entergy's ACE and associated corrective actions for this issue and did not identify a violation of more than minor significance. This LER is closed.

.2 (Closed) LER 05000247/2009-004-00, Loss of Single Train 23 Charging Pump Required for Remote Plant Shutdown from the Control Room Due to a Failure of a Pump Internal Check Valve

On June 23, 2009, operators observed pressurizer level to be decreasing and determined that the 23 charging pump was experiencing decreased output flow. The operators removed the 23 charging pump from service and entered TS 3.3.4, Remote Shutdown. Subsequent investigation revealed that the decreased pump capacity was due to pump internal check valve failures. Entergy staff entered this issue into the CAP as CR-IP2-2009-02376 and performed an ACE. Because there has been a history of charging pump issues at Unit 2, specifically related to internal check valve failures, the NRC Problem Identification and Resolution (PI&R) team reviewed this issue during the biennial inspection in May 2010. No findings or violations of significance were identified. Although no findings of significance were identified related to this LER, several minor observations were documented in the PI&R team report, 05000247/2010008, Section 4OA2.1.b(3). This LER is closed.

.3 (Closed) LER 05000247/2009-005-00, Automatic Reactor Trip Due to a Turbine-Generator Exciter Protective Trip Caused by a Loss of the Generrex Power Supply Monitored Voltage Due to a High Resistance Ground Connection

On November 2, 2009, a Unit 2 automatic reactor trip occurred from 100 percent power due to a turbine-generator protective trip by the 86P lockout relay. Entergy personnel determined that the relay tripped due to a high resistance connection on the common ground terminal between the main generator Generrex excitation system power supplies and their associated alarm cards. Entergy engineers attributed the high resistance ground to a poor original equipment manufacturer design of the common ground wiring connections on the Generrex power supply distribution block, which made them susceptible to main turbine-generator vibrations. Corrective actions included repairing the power supply connection to meet station standards and installing a second ground connection to eliminate the single point vulnerability of the common ground. Entergy staff entered the event into its corrective action program as CR-IP2-2009-04530 and performed a root cause evaluation.

The inspectors reviewed the LER, applicable CRs, and corrective actions associated with the root cause evaluation. The inspectors concluded that the corrective actions were adequate to address the identified causal factors. No findings or violations of significance were identified. This LER is closed.

.4 (Closed) LER 05000247/2010-002-00, Technical Specification Prohibited Condition Caused by Two Main Steam Safety Valves Outside As-Found Lift Setpoint Test Acceptance Criteria

On March 9, 2010, Entergy personnel identified two main steam safety valves (MSSVs) had exceeded as-found lift setpoints during performance of surveillance testing in accordance with the in-service testing program. Specifically, MS-45C and MS-48C, exceeded the as-found lift setpoint acceptance criteria (+/- three percent of required pressure band), and were appropriately adjusted and tested within required limits to restore operability. Entergy staff determined the most likely cause of the failure of the MS-45C to lift within the required pressure range was setpoint drift while MS-48C was due to valve spring skew, although no component failure or degradation was identified that would have contributed to the identified conditions. The inspectors reviewed the LER and the associated apparent cause evaluation documented in condition report CR-IP2-2010-01181, and verified that Entergy staff adequately evaluated the TS violation and developed appropriate corrective actions. The enforcement aspects of this licensee-identified finding are discussed in Section 40A7. This LER is closed.

.5 (Closed) LER 05000247/2010-003-00, Inoperable Emergency Diesel Generators During Refueling Shutdown Due to Inadvertent Isolation of Service Water Cooling Caused by Failure to Properly Verify the In-Service Cooling Header

On March 13, 2010, while tagging out a SW header valve for work during the outage, Entergy technicians inadvertently isolated SW to all three EDGs. Entergy staff entered this issue into their CAP and performed an ACE. Entergy determined that the apparent cause was the responsible work window manager used improper verification techniques to determine the current plan conditions. This issue was previously inspected by the NRC at the time of occurrence, and a Green NCV of TS 3.8.2 was documented in NRC Inspection Report 05000247/2010002. This LER is closed.

.6 (Closed) LER 05000247-2010-005-00, Technical Specification Prohibited Condition Due to an Inoperable Control Room Ventilation System Caused by a Closed Normally Open Damper

On April 23, 2010, during scheduled testing of the CRVS, Entergy staff identified that the system flow was less than that required for operability. Entergy's troubleshooting revealed that the normally open CCRB1 damper, on the suction duct for the carbon/HEPA filter and CRVS booster fans, was closed and preventing the design flow rates. The damper was re-opened and CRVS flow returned to an acceptable value. This issue was inspected and a Green NCV was identified, as documented in Section 1R22 of this report. This LER is closed.

#### 4OA5 Other Activities

(Closed) EA-09-296, NOV 05000247/2009005 and 05000286/2009005-01, Incomplete Licensed Operator Medical Examinations

##### a. Inspection Scope

In accordance with Inspection Procedure 92702, the inspectors conducted a follow-up inspection of enforcement action EA-09-296, which was identified due to the submittal of inaccurate medical information for licensed operators by Entergy personnel. The submittals to the NRC were determined to be inaccurate due to incomplete tactile testing conducted by Entergy regarding required licensed operator and initial applicant medical examinations. This issue was documented as a cited violation in inspection reports 05000247/2009005 and 05000286/2009005. The inspectors reviewed the condition reports and analyses developed by Entergy staff to ensure the adequacy of (1) the evaluation of the issue, (2) the evaluation and impact of generic implications, and (3) that corrective actions have been fully implemented.

The inspectors reviewed the scope and depth of the analysis in addressing the identified deficiency. The inspectors also reviewed Entergy's assessment of generic implications of the identified violation on other Entergy facilities and other aspects of licensed operator medical examinations. The inspectors evaluated the corrective actions implemented by Entergy personnel to determine whether they were adequate to address the identified deficiency and prevent recurrence. Additionally, the inspectors evaluated Entergy's determination of why appropriate action was not taken in response to IN 2004-20, "Recent Issues Associated with NRC Medical Requirements for Licensed Operators," to identify that appropriate tactile testing was not being conducted. The inspectors reviewed Entergy's identified causes and the actions taken to prevent recurrence of those causes.

##### b. Findings

No findings of significance were identified.

The inspectors determined that the scope and depth of the analysis to address the identified deficiency was adequate and appropriate. The inspectors also determined that the generic implications identified by the corrective action process were adequate and appropriate. The inspectors concluded that Entergy's corrective actions were both timely and appropriate to address the identified deficiency and generic implications.

The inspectors determined that weaknesses in the Operating Experience Program that were identified as contributing causes in the failure to take appropriate action when IN 2004-20 was issued, were adequately corrected by changes made to the program. These changes were determined to correct the identified cause and prevent recurrence.

4OA6 MeetingsExit Meeting Summary

On July 14, 2010, the inspectors presented the inspection results to Mr. Joseph Pollock and other Entergy managers and staff, who acknowledged the inspection results. Entergy staff identified documents which were to be considered proprietary and handled as such.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by Entergy staff and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a Non-Cited Violation.

- TS 3.7.1, main steam safety valves (MSSVs), requires that MSSVs shall be operable, which, in part, is specifically met if as-found lift setpoints are within applicable acceptance criteria during in-service testing. Contrary to this requirement, on March 9, 2010, during performance of MSSV testing, Entergy personnel identified that MS-45C and MS-48C exceeded as-found lift set points. Entergy technicians subsequently performed satisfactory adjustments and as-left testing to ensure operability was restored. Entergy documented this issue in the corrective action program for resolution under condition report CR-IP2-2009-01181. In addition, Entergy personnel analyzed the past operability and associated impact on the safety analysis with two MSSVs potentially lifting at greater than allowable setpoints and concluded that the condition would not have prevented the accident mitigation capability of the MSSVs overpressure function. Although two MSSVs were determined to be inoperable for an unknown duration, and potentially longer than the allowed outage time listed in the Unit 2 technical specifications, the inspectors determined that this finding is of very low safety significance because it did not increase the probability or consequences of any anticipated operational occurrence or accidents covered by the safety analysis.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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

J. Pollock	Site Vice President
T. Alexander	Nuclear Reactor Operator Training
J. Baker	Shift Manager
R. Burroni	System Engineering Manager
T. Cole	Project Manager - NUC
G. Dahl	Licensing Specialist
R. Daley	System Engineer
G. Dean	Shift Manager IPEC Unit 2
D. Dewey	Shift Manager
G. Hocking	Supervisor, Radiation Protection Support
J. Lijoi	Maintenance Superintendent
R. Mages	Technical Specialist
T. McCaffrey	Design Engineering Manager
T. Orlando,	Director, Engineering
S. Prussman	Nuclear Safety/License Specialist
J. Reynolds	CA&A Technical Specialist
S. Sandike	Sr. HP/Chemical Specialist
D. Smith	Technical Specialist
F. Spagnuolo	Control Room Supervisor
A. Vitale	General Manager, Plant Operations
R. Walpole	Manager, Licensing

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED****Opened/Closed**

05000247/2010003-01	NCV	Inoperable Control Room Ventilation System due to Damper Mispositioning (Section 1R22)
---------------------	-----	--

**Closed**

05000247/2009-003-00	LER	Loss of Single Train 21 Pressurizer Backup Heater Required for Remote Plant Shutdown from the Control Room Due to an Inoperable Breaker (Section 4OA3.1)
----------------------	-----	--

05000247/2009-004-00	LER	Loss of Single Train 23 Charging Pump Required for Remote Plant Shutdown from the Control Room Due to a Failure of a Pump Internal Check Valve (Section 4OA3.2)
----------------------	-----	---

05000247/2009-005-00	LER	Automatic Reactor Trip Due to a Turbine-Generator Exciter Protective Trip Caused by a Loss of the Generrex Power Supply Monitored Voltage Due to A High Resistance Ground Connection (Section 4OA3.3)
05000247/2010-002-00	LER	Technical Specification Prohibited Condition Caused by Two Main Steam Safety Valves Outside As-Found Lift Setpoint Test Acceptance Criteria (Section 4OA3.4)
05000247/2010-003-00	LER	Inoperable Emergency Diesel Generators During Refueling Shutdown Due to Inadvertent Isolation of Service Water Cooling Caused by Failure to Properly Verify the In-Service Cooling Header (Section 4OA3.5)
05000247/2010-005-00	LER	Technical Specification Prohibited Condition Due to an Inoperable Control Room Ventilation System Caused by a Closed Normally Open Damper (Section 4OA3.6)
05000247/2009005-01	NOV	Incomplete Licensed Operator Medical Examinations (Section 4OA5)

**LIST OF DOCUMENTS REVIEWED**

**Common Documents Used**

Indian Point Unit 2 Updated Final Safety Analysis Report  
 Indian Point Unit 2 Technical Specifications  
 Indian Point Unit 2 Technical Specification 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-SOP-11.1, Ventilation System Operation, Rev. 51  
 OAP-048, Seasonal Weather Preparation, Rev. 6

Other

IP2-EDG DBD, Emergency Diesel Generator Design Basis Document, Rev. 2  
 IP2-RHR/SIS BDB, Residual Heat Removal/Safety Injection System Design Basis Document, Rev. 1

**Section 1R04: Equipment Alignment**Procedures

2-COL-21.3, Steam Generator Water Level and Auxiliary Boiler Feedwater, Rev. 30  
 2-PT-R013B, Auxiliary Feedwater pumps Automatic Actuation Circuits, Rev. 15  
 2-PT-R022A, Steam Driven Auxiliary Feed Pump Full Flow, Rev. 15  
 2-SOP-AFW-002, Auxiliary Feedwater System Support Procedure, Rev. 1  
 2-PT-Q-034A, 22 Auxiliary Feed Pump Steam Supply Valves, Rev. 8  
 2-PT-Q034, 22 Auxiliary Feed Pump, Rev. 26  
 2-COL-10.1.1, Safety Injection System, Rev. 25  
 2-COL-29.2, Instrument Air System, Rev. 30  
 2-SOP-29.2, Instrument Air System, Rev. 24  
 2-COL-11.2, CCR Heating Ventilation and Air Conditioning System, Rev. 15

Condition Reports (CR-IP2-)

2008-05047	2009-04952	2010-03043	2010-03193
2010-03873	2010-03959		

Work Orders

00151244	00172498	00146126	52218549
----------	----------	----------	----------

Other

IP2 AFW System Health Report, 1<sup>st</sup> Quarter 2010, Rev. 0  
 NRC Info Notice 2004-01, Auxiliary Feedwater Pump Recirculation Line Orifice Fouling -  
 Potential Common Cause Failure  
 Drawing 9321-F-2018

**Section 1R05: Fire Protection**Procedures

IP2-RPT-03-00015, IP2 Fire Hazards Analysis, Rev. 2  
 2-PT-A048, Rollup Fire Doors, Rev. 0

Condition Reports (IP2-CR-)

2010-03600

Work Orders

52024169

Other (Pre-Fire Plans)

PFP-264, Intake Structure – Exterior Buildings, Rev. 0  
 PFP-251, 480 Volt Switchgear Room – Control Building, Rev. 0  
 PFP-204, Primary Auxiliary Building – 15'-0" Elevation, Rev. 0  
 PFP-207, Primary Auxiliary Building – 59'-0" Elevation, Rev. 0  
 PFP-212, Primary Auxiliary Building – 98'-0" Elevation, Rev. 0

**Section 1R06: Flood Protection Measures**Condition Reports (IP2-CR-)

2009-05367	2009-02958	2009-01756	2009-00896
------------	------------	------------	------------

Procedures

2-COL-29.2, Instrument Air System, Rev. 30  
 2-SOP-29.2, Instrument Air System, Rev. 24

Work Orders

52248852

Other

DC-99-207, Fire Barrier Engineering Evaluation for RHR Pump No. 21 Room and 29A Piping and Valve Room  
 PGI-00433, Combustible Loading Calculation for 22 RHR Pump Room, dated 12/10/1999

**Section 1R07: Heat Sink Performance**

Condition Reports (CR-IP2-)

2010-03684

Work Orders

52232073                      52231424                      52231423                      52240044

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

Procedures

2-AOP-SG-1, Steam Generator Tube Leak, Rev. 11  
 2-E-0, Reactor Trip of Safety Injection, Rev. 3  
 2-E-3, Steam Generator Tube Rupture, Rev. 1

Other

Simulator Lesson Plan LRQ-SES-058  
 IPEC Radiological Emergency Data Form dated 5/25/2010 at 8:33  
 IPEC Radiological Emergency Data Form dated 5/25/2010 at 9:00

**Section 1R12: Maintenance Effectiveness**

Procedures

2-ARP-025, Station Auxiliary Transformer, Rev. 1  
 EN-DC-205, Maintenance Rule Monitoring, Rev. 2

Condition Reports (IP2-CR-)

2008-01258	2008-02723	2008-02954	2009-00419
2009-01284	2010-00548	2010-02994	2010-03173
2010-03695	2009-01965	2010-02304	2009-05277
2010-03382	2009-03489	2010-03564	2010-02108
2010-01969	2010-03076	2009-03107	2009-03089
2008-05213	2009-03108		

Work Orders

00152061                      00234069                      51324390                      52192089

Other

IPEC Combined Basis Document for 138 KV System, Rev. 2  
 IPEC Maintenance Rule Basis Document for 480V, Rev. 0  
 IPEC Maintenance Rule Basis Document for HVAC-CCR, Rev. 2  
 HVAC/CCR System Health Report for 1st Quarter 2010  
 TGM/HVAC System Health Report for 1st Quarter 2010  
 138 KV System Health Report for 1st Quarter 2010  
 480-Volt System Health Report for 1st Quarter 2010

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

Procedures

EN-WM-104, On Line Risk Assessment, Rev. 1  
 IP-SMM-WM-101, On Line Risk Assessment, Rev. 3  
 IP-SMM-OU-104, Shutdown Risk Assessment, Rev. 7  
 2-SOP-1.2, Draining Reactor Coolant System, Rev. 47  
 EN-OU-108, Shutdown Safety Management Program, Rev. 1  
 2-OSP-21.1.1, Controlling Steam Generator Level Using Hand Jack, Rev. 4

Work Orders

54933120

Other

IPEC EOOS Risk Model  
 Entergy Commitments to Generic Letter 88-17  
 Information Notice 2000-13, Review of Refueling Outage Risk

**Section 1R15: Operability Evaluations**

Procedures

2-ARP-025, Station Auxiliary Transformer, Rev. 1  
 OAP-005, Narrative Logs, Rev. 2  
 OAP-017, Plant Surveillance and Operator Rounds, Rev. 6  
 EN-MA-125, Troubleshooting Control of Maintenance Activities, Rev. 6  
 EN-OP-104, Operability Determination Process, Rev. 4  
 2-PT-Q032B, 22 Boric Acid Transfer Pump, Rev. 8

Condition Reports (CR-IP2-)

2010-02630	2010-03173	2009-04876	2010-00846
2008-01279	2010-03430	2010-03106	2010-01382

Work Orders

00235679	00125577	52240048	00234722
----------	----------	----------	----------

Drawings

5341D31, FOA/FOA Transformer-URT Tapchanger Schematic Wiring Diagram, Rev. 7J  
 9858D62, FOA/FOA Transformer Control Alarm Schematic Diagram – Station Auxiliary Transformer, Rev. 3D

Other

SP-LIC-03-02 Memorandum dated 3/4/2010

**Section 1R18: Plant Modifications**Procedures2-ARP-FBF, Steam Generator, CVCS, Feedwater and General Electric Main Generator,  
Rev. 45Condition Reports (IP2-CR-)

2010-02420                      2010-00966                      2010-02018                      2010-02076

Work Orders

00170034                      00233961

Other

EC-9507, Unit 2 Generex Upgrade, Rev. 0

EC-22897, Installation of temporary hose at connection at 22 Hydrogen Cooler Head

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

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

2-PT-EM027, Main, Unit, and Station Auxiliary Bus Transfer, Rev. 5

EN-WM-107, Post Maintenance Testing, Rev. 2

0-VLV-403-AOV, Copes-Vulcan Model D-100 and D-1000 Air Operated Valves with Quick  
Change Trim, Rev. 2

EN-DC-117, Post Modification Testing and Special Instructions, Rev. 3

Completed Procedures

2-PT-R016, Recirculation Pumps, Rev. 21 dated 04/01/10

2-PC-R32, Main Feedwater Flow – CCR, Rev. 13 dated 04/21/10

Condition Reports (CR-IP2-)

2010-03020                      2010-02091                      2010-02064                      2010-04294

2010-03728                      2010-04129\*                      2010-03816

Work Orders

51325358                      00233983                      00148562                      00170034

00238885                      52245845                      51315478                      51228985

Other

EC-9507, Unit 2 Generex Upgrade, Rev. 0

EC-20833, Station Aux Oil Pump Plate Stiffening, Rev. 0

ASME Boiler and Pressure Vessel Code Case N-513-2

Drawing D260528, Loop Diagram F.W. Steam Generator #24 – Main Flow, Rev. 3

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

2-POP-1.3, Plant Startup from Zero To 45% Power, Rev. 81

**Section 1R22: Surveillance Testing**Procedures

2-PT-EM13, CCR Filtration, Rev. 12

OAP-019, Component Verification and System Status Control, Rev. 5

3-COL-LV-001, Locked Valve Check Off List, Rev. 41

2-PT-M58, CCR Ventilation Area Radiation Monitors and Control, Rev. 36

2-COL-11.2, CCR Heating Ventilation and Air Conditioning System, Rev. 15

2-PT-V024E, Main Steam Isolation Valves, Rev. 12

Completed Procedures

2-PC-EM26, Condensate Storage Tank Level, Rev. 12, dated 03/23/10

2-PT-2M4, Safety Injection System Train "A" Actuation Logic and Master Relay Test, Rev. 17, dated 04/19/10

2-PT-M048, 480 Volt Undervoltage Alarm, Rev. 23, dated 06/23/10

Condition Reports (CR-IP2-)

2003-07361	2006-01365	2010-03040*	2010-03060
2010-03564*	2010-04256	2010-03076	2010-03309*
2010-02844	2000-06282		

Work Orders

00220505	51799971	51800878
----------	----------	----------

Other

Abnormal Occurrence Report Number 50-247/4-2-24, dated August 8, 1974

**Section 2RS7: Radiological Environmental Monitoring Program [REMP]**Procedures

2008 Indian Point Energy Center Annual Radioactive Effluent Release Report

2009 Indian Point Energy Center Annual Radioactive Effluent Release Report

2008 Indian Point Energy Center Annual Radiological Environmental Operating Report

2009 Indian Point Energy Center Annual Radiological Environmental Operating Report

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

IPEC Snapshot Self Assessment Report, May 18, 2008

Quality Assurance Surveillance Report No. QS-2010-03

3PT-SA37, Meteorological Tower Semi-Annual Sensor Calibration, Rev. 7

Condition Reports

CR-IP2-2009-3935	CR-IP3-2009-4213	CR-IP3-2010-1166	CR-IP2-2010-3308
CR-IP2-2010-0970	CR-IP2-2010-0943	CR-IP2-2009-3663	CR-IP2-2009-3045
CR-IP2-2009-3365	CR-IP2-2010-3300	CR-IP2-2010-3118	

**Section 4OA1: Performance Indicator Verification**Procedures

EN-LI-114, Performance Indicator Process, Rev. 3

**Section 4OA2: Identification and Resolution of Problems**Condition Reports

2010-00039	2008-03920	2010-03331	2009-00220
2008-05445	2010-03120	2010-03109	

Work Orders

00149226	00180366
----------	----------

**Section 4OA3: Event Follow-up**Condition Reports (CR-IP2-)

2006-06658	2006-06694	2009-01965	2009-02072
2009-04530	2010-01181	2010-01631	2010-02628

Other

LER 05000247/2009-003-00  
 LER 05000247/2009-004-00  
 LER 05000247/2009-005-00  
 LER 05000247/2010-002-00  
 LER 05000247/2010-003-00  
 LER 05000247/2010-005-00  
 CR-LO-LAR-2010-00138

**Section 4OA5: Other Activities**Procedures

EN-NS-112, Medical Program, Rev. 6  
 EN-NS-112, Medical Program, Rev. 7

Condition Reports

HQN-2009-00955	LO-NOE-2008-00361	LO-NOE-2009-00412
LO-NOE-2009-00427		

Other

ANSI/ANS 3.4-1983, Medical Certification and Monitoring of Personnel Requiring Operator  
 Licenses for Nuclear Power Plants  
 NRC Information Notice 2009-21, Incomplete Medical Testing for Licensed Operators  
 Letter NL-10-022, Indian Point, Units 2 & 3, Reply to Notice of Violation ML100750249

**LIST OF ACRONYMS**

ABFP	Auxiliary Boiler Feed Pump
ACE	Apparent Cause Evaluation
AFW	Auxiliary Feedwater
ADAMS	Agency-wide Document and Management System
BT	Bus-Tie
CA	Corrective Action
CAP	Corrective Action Program
CFM	Cubic Feet Per Minute
CFR	Code of Federal Regulations
COL	Check Off List
ConEd	Commonwealth Edison Electric Company
CR	Condition Report
CRVS	Control Room Ventilation System
EC	Engineering Change
EDG	Energy Diesel Generator
EPRI	Electric Power Research Institute
IMC	Inspection Manual Chapter
IR	Inspection Report
LER	Licensee Event Report
LLD	Lower Limit of Detection
MSSV	Main Steam Safety Valve
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
ODCM	Off-Site Dose Calculation Manual
PFP	Pre-Fire Plan
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post-Maintenance Test
QP	Augmented Quality Component
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RTP	Reactor Thermal Power
SSC	Structures, Systems, and Components
SDP	Significance Determination Process
SR	Surveillance Requirement
ST	Surveillance Test
SW	Service Water
TLD	Thermoluminescent Dosimeter
TMOD	Temporary Plant Modification
TS	Technical Specifications
UFSAR	Updated Final Safety Evaluation Report
URI	Unresolved Item
WO	Work Order