



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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May 11, 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 3 – NRC INTEGRATED
INSPECTION REPORT 05000286/2010002

Dear Mr. Pollock:

On March 31, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 3. The enclosed integrated inspection report documents the inspection results, which were discussed on April 19, 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.

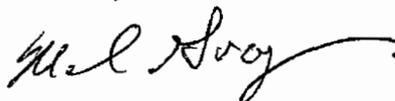
This report documents two self-revealing findings of very low safety significance (Green). Additionally, two licensee-identified violations which were determined to be of very low safety significance are listed in this report. However, because of their very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV, 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 3. In addition, if you disagree with the characterization of 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 1, and the NRC Resident Inspector at Indian Point Nuclear Generating Unit 3. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

J. Pollock

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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,

A handwritten signature in cursive script, appearing to read "Mel Gray", with a long horizontal flourish extending to the right.

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

Docket No. 50-286
License No. DPR-26

Enclosure: Inspection Report No. 05000286/2010002
w/ Attachment: Supplemental Information

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Sincerely,

/RA/

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

Docket No. 50-286
License No. DPR-26

Enclosure: Inspection Report No. 05000286/2010002
w/ Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-286

License No.: DPR-26

Report No.: 05000286/2010002

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 3

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

Dates: January 1, 2010 through March 31, 2010

Inspectors: P. Cataldo, Senior Resident Inspector - Indian Point 3
M. Halter, Resident Inspector - Indian Point 3
E. Keighley, Reactor Inspector, - Region 1
J. Noggle, Sr. Health Physicist - Region 1
S. Barr, Sr. Emergency Preparedness Specialist - Region 1

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

Enclosure

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SUMMARY OF FINDINGS

IR 05000286/2010002; 1/1/10 – 3/31/10; Indian Point Nuclear Generating (Indian Point) Unit 3; Post-Maintenance Testing; Surveillance Testing;

This report covered a three-month period of inspection by resident and region based inspectors. Two findings of very low significance (Green) were identified. 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 0305, "Operating Reactor Assessment Program." 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: Mitigating Systems

- Green. A self-revealing finding of very low safety significance was identified because Entergy personnel did not have adequate procedures appropriate for the circumstances for maintenance associated with the steam-driven auxiliary feedwater (AFW) pump. Specifically, Entergy implemented maintenance procedures associated with the 32 AFW pump, which contained coupling gap dimensions inconsistent with vendor requirements, and did not ensure appropriate shaft axial alignment for continued, reliable pump operation. As a result, in February 2010, high pump axial vibrations exceeded operability limits during scheduled surveillance testing, the pump was removed from service, and troubleshooting was initiated to determine the cause. Entergy personnel performed turbine-end bearing replacements, oil flush and refill of all bearing housings, performed coupling inspections and shaft alignment, successfully performed post-maintenance surveillance testing, and performed an apparent cause evaluation within the corrective action program under condition report (CR)-IP3-2010-00541 and IP3-2009-04592.

The inspectors determined the finding is more than minor because the finding is associated with the procedure quality objective of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inadequate procedures resulted in increased unavailability to evaluate and correct vibration and other issues between November 2009 and February 2010. The inspectors evaluated the significance of the finding using IMC 0609, Attachment 4, and determined this finding was not a design or qualification deficiency, did not result in a loss of safety function, and was not impacted by external events. Consequently, the finding is of very low safety significance.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance because Entergy staff did not ensure that complete, accurate and up-to-date procedures were available to perform appropriate maintenance on a safety-related AFW pump. (H.2(c)) (Section 1R19)

- Green. An NRC-identified non-cited violation (NCV) of very low safety significance of 10 CFR 50, Appendix B, Criterion XI, "Test control," was identified because Entergy technicians conducted unacceptable preconditioning by cycling the Refueling Water Storage Tank

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(RWST) lo-lo level alarm switch prior to recording the as-found set-point during Technical Specification Surveillance Requirement (SR) 3.5.4.5.

The finding was more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of procedure quality and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, preconditioning of the RWST Lo-Lo Level Alarm switch could mask its actual as-found condition and result in an inability to verify its operability, as well as make it difficult to determine whether the switch would perform its intended safety function during an event. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings," and determined the finding was of very low safety significance because the finding is not a design or qualification deficiency, did not result in the loss of a safety function, and was not risk significant due to external events.

The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution because Entergy did not implement and institutionalize operating experience (OE) through changes to station processes, procedures, equipment, and training programs. Specifically, Entergy did not utilize NRC published guidance and lessons learned from recent preconditioning incidents at Entergy sites to preclude preconditioning the RWST Lo-Lo Level Alarm Switch prior to recording the as-found switch set-point. (P.2.(b)) (Section 1R22).

Other Findings

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

REPORT DETAILS

Summary of Plant Status

Indian Point Unit 3 began the inspection period operating at full reactor power (100%). Unit 3 remained at or near full power during the remainder of the inspection period.

1. REACTOR SAFETY**Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**1R01 Adverse Weather Protection (71111.01 - 1 sample)Cold Weather Preparednessa. Inspection Scope

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

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 3 samples)Partial System Walkdownsa. Inspection Scope

The inspectors performed partial system walkdowns to inspect Entergy staff's performance in maintaining the proper equipment alignment of redundant or diverse trains and components during periods of system train unavailability, and where applicable, following return to service after maintenance. The inspectors referenced system procedures, the Updated Final Safety Analysis Report (UFSAR), and system drawings to verify that the alignment of the applicable system or component supported its required safety functions. The inspectors also reviewed applicable condition reports (CRs) or work orders (WOs) to ensure Entergy personnel identified and properly addressed equipment deficiencies that could potentially impair the capability of the available train(s). The documents reviewed during this inspection are listed in the Attachment. The inspectors performed partial walkdowns of the following systems or components, which represented three inspection samples:

- 32 EDG during 33 EDG maintenance on January 27, 2010;
- 31/33 ABFP during 32 ABFP testing on January 23, 2010; and
- 31 CS pump during 32 train unavailability on March 5, 2010.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q – 6 samples)

Resident Inspector Quarterly Walkdowns

a. Inspection Scope

The inspectors conducted tours of selected Unit 3 fire areas to assess the material condition and operational status of applicable fire protection features. The inspectors reviewed, consistent with the applicable administrative procedures, whether: combustible material and ignition sources were adequately controlled; passive fire barriers, manual fire-fighting equipment, and suppression and detection equipment were appropriately maintained; and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with Entergy's fire protection program. The inspectors also evaluated the fire protection program for conformance with the requirements of License Condition 2.K. The documents reviewed during this inspection are listed in the Attachment.

- Upper electrical tunnel – PFP-358;
- Upper electrical tunnel – PFP-357;
- Fire pump house – PFP-390;
- Pipe tunnel – PFP-305A;
- Central control room – PFP 353; and
- Hydrogen storage facility – PFP 381.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07 – 1 sample)

a. Inspection Scope

The inspectors evaluated maintenance activities and reviewed inspection data associated with periodic inspections of heat exchangers. The inspectors reviewed applicable design basis information and commitments associated with Entergy's Generic Letter 89-13 program to validate that maintenance activities were adequate to ensure the system could perform its required safety function. The inspectors reviewed non-destructive examination results for selected heat exchangers, and verified that adverse conditions were being identified and corrected. This inspection represented one sample for heat sink performance.

- 34 Fan Cooler Unit heat exchanger inspection on January 6, 2010.

b. Findings

No findings of significance were identified.

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

.1 Quarterly Resident Inspector Evaluation

a. Inspection Scope

On February 8, 2010, the inspectors observed licensed operator requalification training examinations conducted in the plant-reference simulator, to verify appropriate operator performance, and that evaluators identified and documented crew performance problems, as applicable. The inspectors evaluated the performance of risk significant operator actions, including the use of emergency operation procedures. The inspectors assessed the clarity and the effectiveness of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operations, and the oversight and direction provided by the control room supervisor and shift manager.

The inspectors reviewed simulator fidelity to verify correlation with the actual plant control room, and to verify that differences in fidelity that could potentially impact training effectiveness were either identified or appropriately dispositioned. Licensed operator training was evaluated for conformance with the requirements of 10 CFR 55, "Operator Licenses." The documents reviewed during this inspection are listed in the Attachment. This observation of operator evaluations represented one inspection sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 3 samples)

a. Inspection Scope

The inspectors reviewed performance-based problems that involved selected structures, systems, and components (SSCs) to assess the effectiveness of maintenance activities and to verify activities were conducted in accordance with site procedures and 10 CFR 50.65 (The Maintenance Rule). The reviews focused on:

- Evaluation of Maintenance Rule scoping and performance criteria;
- Verification that reliability issues were appropriately characterized;
- Verification of proper system and/or component unavailability;
- Verification that Maintenance Rule (a)(1) and (a)(2) classifications were appropriate;
- Verification that system performance parameters were appropriately trended;
- For SSCs classified as Maintenance Rule (a)(1), that goals and associated corrective actions were adequate and appropriate for the circumstances; and
- Identification of common cause failures.

The inspectors also reviewed system health reports, maintenance backlogs, and Maintenance Rule basis documents. The documents reviewed during this inspection are listed in the Attachment. The following systems and/or components were reviewed and represented three inspection samples:

- 35 battery charger;
- Appendix 'R' EDG; and
- Agastat timing relay failures.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 6 samples)

a. Inspection Scope

The inspectors reviewed maintenance activities to verify that the appropriate on-line risk assessments were performed prior to removing equipment for work as required by 10 CFR 50.65(a)(4). When planned work scope or schedules were altered to address emergent or unplanned conditions, the inspectors verified that the plant risk was promptly reassessed and managed by station personnel. The documents reviewed during this inspection are listed in the Attachment. The following maintenance activities represented six inspection samples:

- No. 34 containment fan cooler maintenance, No. 31 instrument bus and No. 31 auxiliary component cooling water pump on January 7, 2010;
- Appendix 'R' and No. 33 emergency diesel generators, and the No. 31 safety injection pump, on January 27, 2010;
- No.32 auxiliary boiler feedwater pump, and the No. 35 containment fan cooler unit, on February 24, 2010;
- No. 35 battery charger unavailability on February 5, 2010;
- 480V undervoltage relays, off-site feeders 95891/W92, and the No. 32 boric acid transfer pump, on March 11, 2010; and
- Off-site feeder 95891 maintenance, and No. 33 auxiliary boiler feedwater pump load sequencer calibrations on March 16, 2010.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 5 samples)

a. Inspection Scope

The inspectors reviewed operability evaluations to assess the acceptability of the evaluations, the use and control of compensatory measures when applicable, and compliance with Technical Specifications. These reviews were conducted to verify that operability determinations were performed in accordance with procedure ENN-OP-104, "Operability Determinations." The inspectors assessed the technical adequacy of the evaluations to ensure consistency with the UFSAR and associated design and licensing

basis documents. The documents reviewed are listed in the Attachment. The following operability evaluations were reviewed and represented five inspection samples:

- IP3-2010-00328; 33 EDG lube oil leak on February 1, 2010;
- IP3-2010-00347; SW pump discharge piping corrosion on February 3, 2010;
- Past-operability; 32 ABFP bearing damage on February 23, 2010;
- IP3-2010-00635; SI-869B failed closed on March 4, 2010; and
- IP3-2010-00438; Agastat relay failure on March 12, 2010 during testing.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 - 1 sample)

Temporary Modifications

a. Inspection Scope

The inspectors reviewed one temporary plant modification package for the EC-20444 blank flange installation for SI-869B repairs. The inspectors verified the adequacy of the temporary modification and reviewed the associated temporary procedure changes. The inspectors also reviewed the work package that installed this temporary modification. Following repairs, the inspectors verified that the system was returned to its original configuration which ensured the containment spray system would perform its design basis function.

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 procedures and associated testing activities for selected risk-significant mitigating systems, and assessed whether the effect of maintenance on plant systems was adequately addressed by control room and engineering personnel. The inspectors verified that: test acceptance criteria were clear and the test demonstrated operational readiness consistent with design basis documentation; test instrumentation had current calibrations with the appropriate range and accuracy for the application; and the tests were performed as written, with applicable prerequisites satisfied. Upon completion of the tests, the inspectors reviewed whether equipment was returned to the proper alignment necessary to perform its safety function. Post-maintenance testing was evaluated against the requirements of 10 CFR 50, Appendix B, Criterion XI, "Test Control." The documents reviewed are listed in the Attachment. The following post-maintenance activities were reviewed and represented seven inspection samples:

- 31 SOLA Transformer replacement on January 15, 2010;
- Appendix 'R' EDG failure on January 20, 2010;
- 34 Zurn strainer motor replacement on January 22, 2010;
- 33 EDG jacket water heater replacement on January 27, 2010;

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- N-39 detector return to service on February 8, 2010;
- 32 ABFP return to service on February 25, 2010;
- SI-869B, 32 CS pump discharge valve return to service after failure on March 4, 2010.

b. Findings

Introduction: A self-revealing finding of very low safety significance was identified, because Entergy personnel did not have adequate procedures appropriate for the circumstances for maintenance associated with the steam-driven auxiliary feedwater (AFW) pump.

Description: On February 23, 2010, the 32 AFW pump was declared inoperable after pump axial vibration readings exceeded operability limits during surveillance testing. Surveillance testing frequency had been increased from once per quarter to every 45 days to comply with in-service testing requirements following a November 24, 2009 test, which resulted in the first, observable increased vibration reading in the pump axial direction. The inspectors noted that Entergy personnel completed an apparent cause evaluation under condition report CR-IP3-2009-04592, which was generated following the November 2009 test. Also of note, the inspectors identified a missed opportunity in that a coupling gap anomaly was identified, however, Entergy personnel did not determine that the coupling gap acceptance criteria was not consistent with vendor requirements. This inconsistency resulted in acceptance criteria for the coupling gap approximately 0.125 inches larger than required by the coupling vendor. The inspectors also noted that coupling gap requirements were identified and revised, consistent with vendor requirements, in January 2010, within 0-TUR-403-AFP, "Worthington Auxiliary Boiler Feed Pump Turbine Preventive Maintenance," but was not recognized to be inconsistent with the associated pump maintenance procedure that was utilized during maintenance activities, and potentially introduced an approximate 0.125 inch larger coupling gap than that required by the vendor.

The inspectors also reviewed the apparent cause evaluation performed under CR-IP3-2010-00541, which was generated following the inoperability in February 2009. Entergy personnel determined that the high vibration was caused by excessive rotor float, which had shifted in the pump outboard direction by approximately 0.100 inches. Entergy personnel also determined that a larger coupling gap of a similar dimension was identified, due to inadequate translation of vendor requirements into maintenance procedures. Also, during troubleshooting, Entergy personnel approximated a balancing disc gap of 0.001 inches, much less than the required 0.017 - 0.020 inches, which would potentially contribute to a loss of hydraulic counterforce and lead to axial forces in the pump direction and manifest as increased vibration. The inspectors noted that Entergy staff revised the coupling gap dimensions appropriately, adjusted the axial rotor float, and returned the 32 AFW pump to operable status following a successful post-maintenance test on February 25, 2010. Additionally, the inspectors noted that planned corrective actions during the next refueling outage included: evaluation for turbine soft foot, turbine bearing inspections, coupling alignment effectiveness, and evaluate for appropriate turbine rotor bore due to ongoing turbine bearing degradation that has been identified on several occasions since March 2009.

Analysis: The inspectors determined there was a performance deficiency because Entergy personnel did not have maintenance procedures appropriate for the circumstances, for maintenance associated with the steam-driven auxiliary feedwater (AFW) pump. Specifically, Entergy technicians implemented maintenance procedures associated with the 32 AFW pump, which contained coupling gap dimensions inconsistent with vendor

requirements, and did not ensure appropriate shaft axial alignment for continued, reliable pump operation. The inspectors determined the finding is more than minor because the finding is associated with the procedure quality objective of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inadequate procedures resulted in increased unavailability to evaluate and correct vibration and other issues between November 2009 and February 2010. The inspectors evaluated the significance of the finding using IMC 0609, Attachment 4, and determined this finding was not a design or qualification deficiency, did not result in a loss of safety function for greater than its technical specification allowed outage time, and was not impacted by external events. Consequently, the finding is of very low safety significance (Green).

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance because Entergy staff did not ensure that complete, accurate and up-to-date procedures were available to perform appropriate maintenance on a safety-related AFW pump. (H.2(c))

Enforcement: 10 CFR 50, Appendix B, Part V, requires in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances, and shall include appropriate quantitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to this requirement, 0-PMP-411-BFP, "Turbine Driven Auxiliary Boiler Feed Pump Overhaul/Inspection," contained a coupling gap measurement approximately 0.125 inches larger than required by the coupling vendor. Additionally, while a companion preventive maintenance procedure was appropriately revised in January 2010, the inconsistency between these procedures utilized for maintenance of the pump and turbine were not reconciled. Consequently, the procedure that contained the larger than required coupling gap was utilized prior to the successful post-maintenance testing that occurred on February 25, 2010. Because this violation was of very low safety significance and was entered into Entergy's corrective action program, this violation is being treated as a non-cited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000286/2010002-01: Inadequate maintenance procedures for the steam-driven auxiliary boiler feedwater (AFW) pump).

1R22 Surveillance Testing (71111.22 – 8 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant structures, systems, and components, to assess whether test results satisfied Technical Specifications, UFSAR, technical requirements manual, and Entergy procedure requirements. The inspectors verified that: test acceptance criteria were sufficiently clear; tests demonstrated operational readiness and were consistent with design basis documentation; test instrumentation had accurate calibrations and appropriate range and accuracy for the application; tests were performed as written; and applicable test prerequisites were satisfied. Following the tests, the inspectors verified whether equipment was capable of performing the required safety functions. The documents reviewed during this inspection are listed in the Attachment. The following surveillance tests were reviewed and represented eight inspection samples, which included an in-service testing (IST) surveillance:

- 3-PT-Q120C, 33 auxiliary feedwater pump on January 4, 2010;
- 32 EDG on March 5, 2010;
- 32 TDAFW on January 9, 2010;
- "B" SI logic testing on January 11, 2010;
- 3-PT-W001 on January 17, 2010;
- 32 TDAFW run on February 23, 2010;
- 3-PT-M100 on January 29, 2010; and
- 3-PT-Q83 on February 4, 2010.

b. Findings

Introduction: The inspectors identified a non-cited violation (NCV) of very low safety significance of 10 CFR 50, Appendix B, Criterion XI, "Test control," because Entergy technicians conducted unacceptable preconditioning by cycling the Refueling Water Storage Tank (RWST) lo-lo level alarm switch prior to recording the as-found set-point during Technical Specification Surveillance Requirement (SR) 3.5.4.5.

Description: On November 12, 2009, the inspectors observed the performance of surveillance test 3-PT-Q83, "RWST Level Instrument Check and Calibration (LIC-921)." This procedure checks and calibrates the RWST lo-lo level instrument loop No. 921, which included both the local gauge pointer and the lo-lo level alarm set-point. The RWST supplies borated water to emergency core cooling systems (ECCS) during a loss-of-coolant-accident, and this alarm alerts operators in the control room to perform the manual action to switch from injection phase to recirculation phase. The lo-lo level alarm is required by Technical Specification 3.5.4 to be set between 10.5 and 12.5 feet. The lower set-point limit is set to ensure switchover to recirculation occurs before the RWST empties to prevent ECCS pump damage. The upper set-point limit is set to ensure that switchover does not occur until there is adequate water inventory in the containment to provide sufficient ECCS pump suction during the recirculation phase.

To set up the test equipment at the RWST, the inspectors determined the technicians isolate the tank from the Barton gauge, open a path to the test connection, which relieves pressure from the gauge and results in a reading of approximately 0 in. H₂O. Once the test equipment is connected, the technicians were directed by the procedure to "exercise the indicating switch" up to 480 in. H₂O and back down to 0 in. H₂O, actuating the switch. The inspectors also observed the technicians disconnect/reconnect the test equipment to remove unwanted, residual water in the test equipment, repeated the previous step, which caused an additional switch actuation. Next, to record as-found readings for the local pointer, the Barton gauge was slowly pressurized to 480 in. H₂O, relieved to 0 in. H₂O, which actuated the switch an additional time. At this point in the test, the inspectors noted that the lo-lo level alarm switch had been actuated multiple times prior to determining the initial, as-found switch set-point.

After these activities, a test light was connected to determine the as-found, lo-lo level alarm switch set-point reading. Since there was no pressure on the gauge at this point in the procedure, technicians increased pressure until the illuminated test light was extinguished. Finally, the technicians slowly decreased pressure until the test light illuminated again, and then recorded the as-found set-point.

Because the as-found reading determines the operability of the instrument, the inspectors concluded that the practice of exercising the switch before obtaining the as-found set-point could potentially mask an existing condition such as mechanical binding or set-point drift.

The inspectors reviewed regulatory positions and guidance regarding preconditioning, including NRC Inspection Manual Chapter (IMC) part 9900: Technical Guidance, "Maintenance – Preconditioning of Structures, Systems, and components Before Determining Operability." IMC Part 9900 states, in part, that unacceptable preconditioning is defined as the alteration, variation, manipulation, or adjustment of the physical condition of a SSC before or during a TS surveillance that will alter one or more SSCs operational parameters, which results in acceptable test results. Such changes could mask the actual as-found condition of the SSC and possibly result in an inability to verify the operability of the SSC. In addition, unacceptable preconditioning could make it difficult to determine whether the SSC would perform its intended function during an event in which the SSC might be needed.

At the time of the inspection, Entergy staff had not completed a preconditioning acceptability review to evaluate and document the appropriateness of exercising the switch or calibrating the indicator portion of the instrument prior to recording the as-found RWST lo-lo level alarm set-point. The inspectors determined that actuating the lo-lo level alarm switch manipulates the mechanical linkage between the instrument pointer and switch and constitutes unacceptable preconditioning, when performed prior to recording the as-found switch set-point. Although the inspectors could not conclude that, without preconditioning, the as-found RWST lo-lo level alarm switch set-point would not be found within specifications, preconditioning may have masked unacceptable instrument drift or mechanical binding not previously identified. The inspectors noted that Entergy personnel had documented four instances during the past two years, where the as-found RWST Lo-Lo level alarm switch set-point was found to be outside of the calibration test acceptance criteria, and on one of these instances, the as-found switch set-point was also outside of the tolerance band required by technical specifications. The existing testing methodology ensured operability of the switch subsequent to the performance of the surveillance test, because the required as-left switch set-point was adjusted, if needed, prior to the completion of the surveillance. At the time of the inspection, LIC-921 was included in Entergy's Set-Point Drift Monitoring Program with increased testing frequency due to previous out-of-tolerance as-found readings. Entergy personnel revised the calibration procedure to remove the step directing technicians to exercise the switch and to record the as-found set-point of the lo-lo level alarm switch earlier in the procedure.

Analysis: The inspectors determined that Entergy staff's performance of unacceptable preconditioning prior to reading the as-found set-point of the RWST lo-lo level alarm switch set-point was a performance deficiency. The finding was more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of procedure quality and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, preconditioning of the RWST lo-lo level alarm switch could mask its actual, as-found condition and result in an inability to verify its operability, and potentially make it difficult to determine whether the switch would perform its intended safety function during an event. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings," and determined the finding was of very low safety significance because the finding is not a design or qualification deficiency, did not result in the loss of a safety function, and was not risk significant due to external events.

The inspectors determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution because Entergy personnel did not implement and institutionalize operating experience (OE) through changes to station processes, procedures, equipment, and training programs. Specifically, Entergy staff did not utilize NRC published guidance and lessons learned from recent preconditioning incidents at Entergy sites to preclude preconditioning the RWST lo-lo level alarm switch prior to recording the as-found switch set-point. (P.2.b per IMC 0305).

Enforcement: 10 CFR 50, Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in-service, is identified and performed in accordance with written test procedures, and incorporate the requirements and acceptable limits contained in applicable design documents. Contrary to the above, on November 12, 2009, Entergy technicians failed to test the as-found RWST lo-lo level alarm set-point prior to actuating the mechanical alarm switch during TS SR 3.5.4.5. As such, the procedure for testing the RWST lo-lo level alarm did not assure the test demonstrated the switch would operate satisfactorily in service. Entergy staff entered this issue into their corrective action program (CAP) for resolution as IP3-CR-2009-04585. Immediate corrective actions included revising the calibration procedure to remove the step directing the technicians to exercise the switch and to record the as-found set-point of the lo-lo level alarm switch earlier in the procedure. Because the finding was of very low safety significance (Green) and was entered into the licensee's CAP, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000286/2010002-02, Preconditioning of RWST Level Switch)

1EP6 Drill Evaluation (71114.06 – 1 sample)

a. Inspection Scope

The inspectors evaluated an emergency classification conducted on February 8, 2010, during a licensed-operator requalification examination conducted in the plant-reference simulator. The inspectors observed an operating crew respond to simulated initiating events and malfunctions that ultimately resulted in the simulated implementation of the site emergency plan. In particular, the inspectors verified the adequacy and accuracy of the simulated emergency classification by the Shift Manger of 'Notice of Unusual Event. The inspectors verified this initial classification was appropriately credited as an opportunity toward NRC performance indicator data. The inspectors observed the management evaluation and training critique following termination of the scenarios, and verified that performance deficiencies were appropriately identified and addressed within the critique and, as applicable, within the corrective action program. Also, the inspectors reviewed the summary performance report for the evaluation and verified that appropriate attributes of drill performance including deficiencies were captured. This evaluation constituted one inspection sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational/Public Radiation Safety (PS)

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

a. Inspection Scope

Radiological Hazard Assessment

The inspectors determined if there have been changes to plant operations since the last inspection that may result in a significant new radiological hazard for onsite workers or members of the public. The inspectors verified that Entergy has assessed the potential impact of these changes with respect to the Spring Unit 2 refueling outage radiological conditions and has implemented periodic monitoring, as appropriate, to detect and quantify the associated radiological hazards.

The inspectors reviewed radiological surveys of principal refueling outage radiological work areas, and verified that the thoroughness and frequency of the surveys were appropriate for the given radiological hazards that were accessed by workers.

The inspectors conducted walk-downs of the facility to evaluate material conditions and potential radiological conditions (radiological control area, protected area, controlled area, contaminated tool storage, and contaminated machine shops).

The inspectors selected radiologically risk-significant work activities associated with the Unit 2 refueling outage that involved exposure to radiation that included:

- Inside reactor head in-service inspection;
- Reactor disassembly;
- Scaffold installation activities;
- 21 Reactor coolant pump motor removal;
- Temporary shielding installation activities;
- Steam generator inspection – secondary hand hole inspections and preparation for primary inspection activities; and
- Radiation protection job coverage of various work activities

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.

The inspectors selected air sample survey records and verified that samples were collected and counted in accordance with applicable procedures. The inspectors observed work in potential airborne areas, and verified that air samples were representative of the breathing air zone. The inspectors verified that Entergy had a program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

Problem Identification and Resolution

A review of related condition reports (CRs) was conducted to determine if identified problems and negative performance trends were entered into the corrective action program and evaluated for resolution. The inspectors reviewed CRs associated with the occupational radiation protection program, initiated between January 2009 through February 2010, to determine if follow-up activities were being conducted in an effective and timely manner, commensurate with their safety significance.

Contamination and Radioactive Material Control

At the Unit 2 RCA control point, the inspectors observed workers surveying and releasing potentially contaminated materials for unrestricted use. The inspectors verified that the counting instrumentation was located in a low background area and that the instruments sensitivity was appropriate for the type of contamination being measured.

Instructions to Workers

The inspectors selected containers holding non-exempt, licensed radioactive materials resulting from the Unit 2 refueling outage activities, which may cause unplanned or inadvertent exposure of workers, and verified that they were labeled and controlled.

The inspectors reviewed radiation work permits (RWPs) associated with the work activities listed above, which were used to access high radiation areas to identify the specific work control instructions or control barriers. The inspectors verified that allowable stay times or the permissible dose for radiologically significant work under each RWP was clearly identified. The inspectors verified that electronic personal dosimeter (EPD) alarm set points were in conformance with survey indications and plant policy.

The inspectors selected one to two occurrences where a worker's EPD noticeably malfunctioned or alarmed. The inspectors verified that workers responded appropriately to the off-normal condition, and verified that the issue was included in the corrective action program and dose evaluations were conducted as appropriate.

b. Findings

No findings of significance were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02 – 1 sample)

a. Inspection Scope

The inspectors reviewed pertinent information regarding plant collective exposure history, current exposure trends, and ongoing or planned activities, to assess current performance

and exposure challenges, and to determine the 3-year rolling average collective exposure. The inspectors noted that due to zinc injection, which was utilized during the previous Unit 2 operating fuel cycle, the source term for Unit 2 has decreased and resulted in generally lower refueling outage dose rates for many associated work activities.

Problem Identification and Resolution

The inspectors reviewed elements of Entergy's corrective action program related to implementing ALARA program controls, including condition reports, Nuclear Oversight field observation reports, audits and dose/dose rate alarm reports, to determine if problems were being entered at a conservative threshold and resolved in a timely manner.

b. Findings

No findings of significance were identified.

2RS4 Occupational Dose Assessment (71124.04 – 1 sample)

a. Inspection Scope

Special Bioassay

The inspectors reviewed the adequacy of Entergy's program for dose assessments based on airborne/Derived Air Concentration (DAC) monitoring. The inspectors verified that flow rates and/or collection times for fixed head air samplers or lapel breathing zone air samplers were adequate to ensure that appropriate lower limits of detection (LLDs) are obtained. The inspectors reviewed the adequacy of procedural guidance used to assess dose when protection factors are applied. The inspectors reviewed dose assessments performed using airborne/DAC monitoring, and verified that the DAC calculations were representative of the actual airborne radionuclide mixture, including hard-to-detect nuclides.

The inspectors reviewed the adequacy of Entergy's internal dose assessments for any actual internal exposure greater than 10 millirem committed effective dose equivalent, to determine if the affected personnel were properly monitored with calibrated equipment, and that the data was analyzed and internal exposures properly assessed in accordance with applicable procedures.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151 - 3 samples)

a. Inspection Scope

The inspectors reviewed performance indicator data for the cornerstones listed below and used Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, to verify individual performance indicator accuracy and completeness. The documents reviewed during this inspection are listed in the Attachment.

Enclosure

Initiating Events Cornerstone

- Unplanned Scrams per 7000 Critical Hours;
- Unplanned Power Changes per 7000 Critical Hours; and
- Unplanned Scrams with Complications.

b. Findings

No findings of significance were identified.

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

.1 Routine Problem Identification and Resolution (PI&R) Program Review

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 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. The inspectors assessed Entergy personnel's threshold for problem identification, the adequacy of the cause analysis, extent of condition reviews, operability determinations, and the timeliness of the associated corrective actions.

b. Findings

No findings of significance were identified.

.2 Annual Sample Review

a. Inspection Scope

On December 9, 2009, Entergy staff conducted a full-volume test of the Indian Point Energy Center (IPEC) alert and notification system (ANS). The test was conducted using radio communications only in order to evaluate the system's performance using only those components that would be available in the event of a loss of normal power to the system. During the test, all 16 sirens in Putnam County failed to actuate. The failure of the Putnam County sirens caused communication problems with the siren activation feedback (polling) systems in the other three counties surrounding Indian Point. As a result, 18 sirens additional sirens failed to indicate a successful activation within the acceptance criteria of 30 minutes following siren activation.

The inspectors reviewed Entergy staff's evaluation of, and corrective actions for, the problems encountered in the December 2009 ANS test. The inspectors: interviewed IPEC Emergency Preparedness staff and contractors responsible for oversight of the ANS; reviewed system maintenance and test procedure; walked down the Putnam County

Emergency Operations Center ANS activation control point and radio tower; and, assessed the root cause report performed by Entergy in association with Condition Report CR -IP2-2009-05087. The focus of the inspection was to verify the evaluation and to ensure the corrective actions were appropriate to the circumstances.

b. Findings and Observations

No findings of significance were identified.

The inspectors reviewed both Entergy's initial troubleshooting plan following the ANS test failure and the final root cause report that was issued on January 11, 2010. The licensee's initial troubleshooting plan was primarily focused on resolving radio interference that was detected on the ANS communication lines during the test. Upon further investigation, Entergy staff determined that the primary causes for the failure of the Putnam County sirens was a combination of factors including a slight misalignment of the antenna and water intrusion that had formed ice in an antenna electrical connector. The inspectors reviewed the results of silent system test which Entergy personnel had conducted shortly preceding the full-volume test. The positive silent test results supported Entergy staff's conclusion that it was the simultaneous occurrence of radio interference combined with the siren antenna defects that weakened the Putnam County activation signal to a level where the sirens failed to respond to the activation signal.

Entergy's immediate corrective actions included replacing the Putnam County Emergency Operations Center tower connector which had experienced the water intrusion, relocating the antenna to a sturdier portion of the tower and properly aligning the antenna. These corrective actions proved effective as evidenced by the successful January 27, 2010, full-volume test conducted under the same conditions as the December 9, 2009, test. During the January 27, 2010, test, 168 out of the 172 sirens successfully operated as designed, and none of the four siren failures were a result of the same causes as identified following the previous test.

The root cause report also documented a problem observed during the December test with the siren activation feedback verification (polling) system. The report stated that the antenna failure and the radio frequency interference resulted in a lack of polling coordination. In order for the system to perform the polling process in a controlled manner, the system requires all four counties to activate their respective sirens within a one-minute window. If one or more counties activate outside of the window, the system does not properly process the activation as complete and attempts to poll the county sirens concurrently. Concurrent polling following the December 9, 2009, siren activation, resulted in the siren feedback signals interfering with each other, and caused 18 sirens (beyond the 16 Putnam County siren failures) to indicate as siren failures. A similar root cause regarding the polling system was also noted following the September 16, 2009, full volume siren test failures. The licensee's corrective action plan included an action to resolve the problem with the ANS polling system.

The inspectors concluded that Entergy's immediate corrective actions were effective, and there was no apparent performance issue identified with the test failures. Specifically, the misalignment of the antenna was likely caused by ice falling off the tower, and the water intrusion in the electrical connector could not have reasonably been identified by testing or a preventative maintenance activity. Therefore, no findings of significance were identified. Additional, planned corrective actions associated with the siren polling system will be reviewed during future NRC inspections.

Enclosure

40A3 Event Follow-Up (71153 – 3 samples)

- .1 (Closed) LER 05000286/2009-002-00, Technical Specification Prohibited Condition Caused by Two Main Steam Safety Valves Outside Their As-Found Lift Setpoint Test Acceptance Criteria.

On March 10, 2009, Entergy personnel identified two (2) main steam safety valves (MSSVs) had exceeded as-found lift setpoints during performance of surveillance testing in accordance with the Inservice Testing Program. Specifically, MS-45-1 and 48-3, exceeded the as-found lift setpoint acceptance criteria (+/- 3 percent of required pressure band), and were appropriately adjusted within required limits to restore operability. Entergy staff determined the most likely cause of the failure of the MSSVs to lift within the required pressure range was setpoint drift, although no component failure or degradation was identified that would have contributed to the identified condition. The inspectors reviewed the LER and the associated condition report CR-IP3-2009-00716, and verified that the Entergy staff's evaluation and corrective actions were adequate. The enforcement aspects of this licensee-identified finding are discussed in Section 40A7. This LER is closed.

- .2 (Closed) LER 050000286/2009-003-00, Manual Reactor Trip Due to Steam Generator 33 High Water Level Caused by a Failed 33 Main Feedwater Regulating Valve.

On May 15, 2009, Unit 3 control room operators initiated a manual reactor trip in response to steam generator (SG) water levels approaching automatic reactor trip criteria. Subsequently, the cause of the SG water level event was determined to be caused by failed feedback linkage associated with the feedwater regulating valve for the 33 SG. Entergy staff performed a root cause evaluation (RCE), repaired the feedback linkage, performed initial extent-of-condition inspections of similar valves, and captured the event in the corrective action program as CR-IP3-2009-02368.

The inspectors reviewed the LER and the associated condition report CR-IP3-2009-02368, and verified that the Entergy staff's evaluation and corrective actions were adequate. In addition, the inspectors reviewed information obtained during the NRCs baseline inspection during the actual event from the 2nd quarter 2009. Subsequently, the inspectors determined the performance aspects that contributed to this issue were previously evaluated by the NRC and dispositioned as a Green finding (FIN) in NRC inspection report 50-286/2009-003. There were no additional findings of significance or violations of NRC requirements identified. This LER is closed.

- .3 (Closed) LER 05000286/2009-008-00, Technical Specification Prohibited Condition Due to Exceeding the Allowed Completion Time for an Inoperable Over Power Delta Temperature (OPDT) Bistable.

On September 17, 2009, Entergy personnel identified out-of-specification readings on a bistable associated with reactor coolant system temperature channel 441. Specifically, during surveillance testing, bistable 3TC-441C/D was identified to have as-found readings associated with specific functions of the reactor protection system, namely, the overpower delta temperature trip and rod stop functions. During subsequent evaluation, a previously completed surveillance conducted in June 2009, was also identified to have similar out-of-specification readings contrary to technical specifications.

Entergy staff determined the cause of the readings was most likely test input errors that resulted in associated bistable output readings to be documented that were out-of-specification. Entergy technicians replaced the bistable, performed procedure changes to ensure test inputs and subsequent critical readings were documented in the surveillance procedures as a quality check to prevent recurrence. In addition, Entergy technicians will be performing future troubleshooting to ensure they have evaluated appropriate and reasonable failure modes. The inspectors reviewed the LER and the associated condition report CR-IP3-2009-03817, and verified that the Entergy staff's evaluation and corrective actions, both taken and planned, were adequate. The enforcement aspects of this licensee-identified finding are discussed in Section 4OA7. This LER is closed.

4OA5 Other Activities

Strike Contingency Plan (92709 - 1 sample)

a. Inspection Scope

The inspectors reviewed Entergy's activities to prepare for a potential work disruption upon expiration of the contract between Entergy and the Utility Workers Union of America on January 17, 2010. The union represents certain Indian Point Energy Center employees including non-licensed operators, reactor operators, and support organization personnel (i.e., maintenance workers, chemistry technicians, and health physics technicians). The inspectors reviewed Entergy's strike contingency plan to verify that the plan accounted for the manning requirements of Technical Specifications, the Indian Point Energy Center Emergency Plan, and NRC regulations. The inspectors evaluated the plan content to verify that the required minimum number of qualified personnel will be available for the proper operation and safety of the facility and that facility security will be maintained. Documents reviewed are listed in the Attachment.

On January 17-18, and January 20, 2010, the inspectors initiated 24-hour site coverage during contract negotiations between Entergy and the Utility Workers of America local union, which onsite, consisted of various Entergy staff, including licensed-operators, maintenance technicians, and radiation protection personnel. The inspectors verified the adequacy of the implementation of Entergy's strike contingency plans to ensure compliance with NRC regulations, which included, for example: (1) licensed-operator staffing and training (10 CFR 50 and 55), (2) fatigue rule compliance (10 CFR 73), and (3) Emergency Plan and emergency response organization staffing requirements. The inspectors verified through communication with local law enforcement and union leadership, that appropriate unfettered access was afforded to various entities for continued safe operation of the reactors, including unfettered access for NRC inspectors, as well as critical fuel oil requirements and other critical operational and maintenance supplies.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

On March 19, 2010, the inspector presented inspection results to Mr. Anthony Vitale and other members of his staff. The licensee acknowledged the findings. No proprietary information is contained in this report.

Enclosure

40A7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are a violation of NRC requirements which meet the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-Cited Violation.

- TS 3.7.1 requires that all main steam safety valves (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 10, 2009, during performance of MSSV testing, Entergy personnel identified that MS-45-1 and 48-3 exceeded as-found lift setpoints. Entergy 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-IP3-2009-00716. 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. Although two MSSVs were determined to be inoperable for an unknown duration, and potentially longer than the allowed outage time listed in Unit 3 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.
- TS 3.3.1 requires reactor protection instrumentation of each function identified in TS Table 3.3.1-1, to be operable. Contrary to this requirement, Entergy personnel identified that as-found readings had, on two occasions, exceeded operability criteria for the overpower delta temperature trip and rod stop functions for a loop 4 reactor coolant temperature bistable module. Specifically, this exceedance was identified following surveillance testing on September 17, 2009, and during subsequent reviews, was also identified to have occurred during the previous surveillance testing conducted on June 26, 2009. Entergy technicians subsequently replaced the bistable module, and documented this issue in the corrective action program for resolution under condition report CR-IP3-2009-03817. In addition, Entergy personnel determined a contributor to this operability issue was caused by test inputs (voltages) that were not recorded in certain physical locations of the circuit to validate their use in the circuit and therefore, allow validation of accurate trip setpoints. The inspectors determined that this finding was of very low safety significance. The bistable affected only one of four redundant channels and the trip of two channels is required to generate a trip signal. Two redundant channels remained operable to generate the trip signal and satisfy the safety function throughout the period when this bistable was inoperable.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

V. Andreozzi	System Engineer
R. Burroni	Systems Engineering Manager
P. Conroy	Director, Nuclear Safety Assurance
T. Cole	Project Manager
G. Dahl	Licensing Specialist
K. Davison	Assistant General Manager, Plant Operations
T. Garvey	Emergency Preparedness Coordinator
G. Hocking	Supervisor, Radiation Protection Support
C. Ingrassia	System Engineer
D. Loope	Manager, Radiation Protection
L. Lubrano	System Engineer
R. Mages	ALARA Specialist
T. McCaffrey	Acting Director, Nuclear Safety Assurance
T. Orlando	Engineering Director
J. Pollock	Site Vice President
J. Reynolds	Acting Manager, Corrective Actions & Assessment
S. Sandike	Specialist, Effluent & Environmental Monitoring
D. Smith	ALARA Specialist
B. Sullivan	Emergency Planning Manager
A. Vitale	General Manager, Plant Operations
R. Walpole	Licensing Manager
A. Williams	Site Operations Manager

LIST OF ITEMS OPENED, CLOSED AND DISCUSSEDOpen and Closed

05000286/2010002-01	NCV	Inadequate maintenance procedures for the steam-driven auxiliary boiler feedwater (AFW) pump.
05000286/2010002-02	NCV	Preconditioning of RWST Level Switch

Closed

05000286/2009-002-00	LER	Technical Specification Prohibited Condition Caused by Two Main Steam Safety Valves Outside Their As-Found Lift Setpoint Test Acceptance Criteria
05000286/2009-003-00	LER	Manual Reactor Trip Due to Steam Generator 33 High Water Level Caused by a Failed 33 Main Feedwater Regulating Valve
05000286/2009-008-00	LER	Technical Specification Prohibited Condition Due to Exceeding the Allowed Completion Time for an Inoperable Over Power Delta Temperature (OPDT) Bistable

LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather Preparations**Procedures

OAP-008, Severe Weather Procedure, Rev. 6

Section 1R04: Equipment AlignmentProcedures

3-COL-CS-1, Containment Spray System, Rev. 14
 3-COL-FW-2, Auxiliary Feedwater System, Rev. 29
 3-COL-EL-5, Diesel Generators, Rev. 34

Section 1R05: Fire ProtectionCondition Reports (CR-IP3-)

2010-00260	2010-00690	2010-00820	2010-00822
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Pre Fire Plan

PFP-305A, Mini Containment and Pipe Tunnels, Rev. 0
 PFP-357, Upper Electrical Tunnel, Rev. 5
 PFP-358, Upper Electrical Penetration Area, Rev. 0
 PFP-390, Fire Pump House, Rev. 5

PFP-381, Hydrogen Crib, Rev. 5
PFP-353, Control Room - Control Building, Rev. 5

Completed Surveillance Test Procedures

3PT-R100, Fire Barrier Penetration Seal Inspection, Completed 7/25/01

Drawings

9321-M-40953, Fire Barrier Penetrations PAB Upper Pipe Penetration Area Fan House El. 46'
0" North Wall, Rev. 3
9321-M-40953, Fire Barrier Penetrations Upper Electrical Penetration Area El. 46' 0" South
Wall, Rev. 3

Other

SAO-703, Fire Protection Impairment Criteria and Surveillance, Rev. 26
IP3-ANAL-FP-02035, Evaluation of Electrical Tunnels Preaction Water Spray System, Rev. 0
0090-00066-EVAL-003, Expansion and Seismic Gaps for the Indian Point Unit 3 Nuclear Power
Plant, Rev. 0

Calculations

IP-CALC-04-01171, Hydraulic Analysis of Indian Point Unit 2 and Unit 3 Fire Protection Water
Supply Systems and Several Unit 2 Suppression Systems and the Unit 2 Standpipe
System, Rev. 0

Section 1R07: Heat Sink Performance

Procedures

EN-DC-316, Heat Exchanger Program, Rev. 0
3-HTX-007-FCU, Containment fan Cooler Unit Heat Exchanger Maintenance, Rev. 2

Condition Reports (CR-IP3-2010-)

00040	00044	00045	00046	00100	00102
00108	00113				

Section 1R11: Licensed Operator Requalification

Other

TQF-210-DD03, LOR Simulator Crew Performance Evaluation Report, dated 2/8/10

Section 1R12: Maintenance Effectiveness

Procedures

EN-DC-115, Engineering Change Process, Rev. 8
EN-DC-205, Maintenance Rule Monitoring, Rev. 2
EN-DC-206, Maintenance Rule (A)(1) Process, Rev. 1
3-PT-R201, 35 Station Battery Charger Functional Test, Rev. 0

Condition Reports (CR-IP3-)

2010-00441	2010-00490	2010-00555*	2010-00448
2010-00362			

Work Orders

51451482 00217003 52214932

Other

EC 12664, Replace Existing Obsolete AC Input Circuit Breaker in Battery Charger 35
125 V DC Power System Maintenance Rule Basis Document, Rev. 0
System E26-0047 Maintenance Rule Basis Document

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

Procedures

EN-WM-104, On Line Risk Assessment, Rev. 1

Other

Unit 3 Operator's Risk Report, dated 2/5/10
Unit 3 Operator's Risk Report, dated 1/27/10
Unit 3 Operator's Risk Report, dated 2/24/10
Unit 3 Operator's Risk Report, dated 2/25/10

Section 1R15: Operability Evaluations

Procedures

3-PT-M079C, 33 EDG Functional Test, Rev. 39

Condition Reports (CR-IP3-)

2010-00635 2010-00328 2010-00438 2010-00347
2009-00716

Drawings

9321-F-27353, Flow Diagram Safety Injection System Sheet No. 1, Rev. 41
9321-F-27503, Flow Diagram Safety Injection System Sheet No. 2, Rev. 50

Other

Ultrasonic Report No. IP3-UT-10-008, WO 224954-07
Calculation IP-CALC-05-00435

Section 1R18: Plant Modifications

Work Orders

00228450

Other

EC-20444, Alternate Containment Isolation Configuration for Penetration "P"

Section 1R19: Post-Maintenance Testing

Procedures

EN-OP-116, Infrequently Performed Tests or Evolutions, Rev. 4
3-SOP-EL-002, Instrument Bus and Plant Computer Static Inverter Operation, Rev. 29
3-VLV-027-GEN, Inspection and Repair of Aloyco 8" Manually Operated Gate Valves, Rev. 6

3-ARP-036, Local Alarm Panel – Appendix R Diesel, Rev. 9
 3-SOP-EL-013, Appendix R Diesel Generator Operation, Rev. 22
 3-PT-M090, Appendix R DG Functional Test, Rev. 15

Completed Procedures

3-PT-Q117B, 32 Containment Spray Pump Functional Test, dated 3/4/10
 3-PC-OL45B, Calibration Procedure for Channel II N39 Gamma-Metrics Excore Nuclear Instrumentation, dated 1/27/10
 3-PT-Q120B, 32 ABFP (Turbine Driven) Surveillance and IST, Rev. 13, dated 11/24/10

Condition Reports (CR-)

IP3-2010-00208	IP3-2010-00314	IP3-2010-00359	IP3-2010-00440
IP3-2010-00664	IP3-2010-00693	IP3-2010-00745	IP3-2010-01271*
IP2-2010-01056	IP3-2010-01022	IP3-2009-04592	IP3-2010-

Work Orders

00187193	00220658	00223241	00224498
00228402	215794-02	00217066	52191478
51559347	ip3-02-20112	223281	

Work Requests

21518	18533
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Drawing

IP3V-306-009, Control Diagram, Rev. 1
 IP3V-306-008, Control Diagram, Rev. 2
 IP3V-306-0013, AC Elementary 3 Line Diagram, Rev. 2
 9321-LL-31323, Schematic Diagram Pilot Wire and Misc Lock-Out Relays, Rev. 2

Other

IP3-DBD-324, Appendix R Diesel Generator, Rev. 0
 451-100000596, Auxiliary Feed Pump Turbine Manual
 1158-100000844, Service Water Strainer Vendor Manual

Section 1R22: Surveillance Testing

Procedures

3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), Rev. 27
 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), Rev. 28
 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), Rev. 29
 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), Rev. 30
 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), Rev. 31
 3-PT-Q120C, 33 ABFP (Motor Driven) Surveillance and IST, Rev. 10
 3-PT-Q120C, 33 ABFP (Motor Driven) Surveillance and IST, Rev. 11

Completed Procedures

3-PT-M14B, Safety Injection System Logic Functional Train B, dated 1/11/10
 3-PT-Q120B, 32 ABFP (Turbine Driven) Surveillance and IST, dated 1/9/10
 3-PT-M100, Monthly Post Accident Monitor Channel Checks, dated 1/29/10
 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 5/19/08

- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 7/10/08
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 8/7/08
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 9/4/08
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 10/2/08
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 10/30/08
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 12/4/08
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 12/18/08
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 1/23/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 2/12/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 3/10/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 4/9/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 5/14/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 6/17/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 7/17/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 8/19/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 10/15/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 11/12/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 11/13/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 12/11/09
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 1/7/10
- 3-PT-Q83, RWST Level Instrument Check and Calibration (LIC-921), dated 2/4/10

Condition Reports

CR-IP3-2009-04592	CR-IP3-2009-02964	CR-IP3-2009-02979
CR-IP3-2010-00096	CR-IP3-2010-00099	CR-IP3-2010-00308
CR-IP3-2009-04478	CR-IP3-2009-04585	CR-IP3-2010-00788
HQN-2009-00953	CR-IP3-2010-00017	

Calculations

- IP3-CALC-ESS-01306, ESFAS Time Delay Relays Setpoint Calculation, Rev. 0
- 98-019, IP3 Auxiliary Feedwater System PROTO-FLO Thermal Hydraulic Model, Rev. 3
- IP3-CALC-SI-00725, Instrument Loop Accuracy/Setpoint Calc/RWST Level, Rev. 2
- 83990.164-F-SW-101, SW Flow to EDGs During Long Term Recirculation Phase, Rev. 0

Other

- Certificate of Calibration, Report Number 79632, Serial Number 865446
- Certificate of Calibration for Digital Test gauge, CED IC-1745, Certificate number 0010540107
- IP3-DBD-306, Indian Point 3 Safety Injection System, Rev. 3
- 504-4(A), Differential Pressure Indicating Switch Mod 288A, 290A, 291A Technical Manual, Change A
- NRC Information Notice (IN) 97-16, Preconditioning of Plant Structures, Systems, and Components Before ASME Code Inservice Testing or Technical Specification Surveillance Testing
- NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants

Section 1EP6: Drill Evaluation

Procedures

3-ARP-004, Panel SBF-1-Safeguards, Rev. 38
3-E-2 DEV, Faulted Steam Generator Isolation, Rev. 0
3-E-1, Loss of Reactor or Secondary Coolant, Rev. 3

Other

Radiological Emergency Data Form
TQF-201-IM05, Remedial Training Plan, Rev. 7

Sections 2RS1/2RS2/2RS4: Radiological Hazard Assessment and Exposure Controls/Occupational ALARA Planning and Controls/Occupational Dose Assessment

Procedures

EN-RP-113, Air Sampling, Rev. 7

Condition Reports

CR-IP3-2009-1183 CR-IP3-2009-1318 CR-IP2-2009-2784
CR-IP2-2009-3978 CR-IP2-2009-4518 and associate root cause analysis

Section 4OA1: Performance Indicator Verification

Procedures

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

Completed Procedures

EN-LI-114, Performance Indicator Process, dated 4/13/09
EN-LI-114, Performance Indicator Process, dated 7/01/09
EN-LI-114, Performance Indicator Process, dated 10/07/09
EN-LI-114, Performance Indicator Process, dated 1/07/10

Section 4OA2: Identification and Resolution of Problems

Procedures

IP-EP-AD20, IPEC Alert Notification System, Revision 3
IP-EP-AD30, IPEC ATI Siren System Administration, Revision 2
IP-EP-AD31, IPEC ATI Siren System Maintenance Administration, Revision 0
IP-EP-AD32, IPEC ATI Siren System Routine Polling & Testing, Revision 3
IP-EP-AD33, IPEC ATI Siren System Quarterly Preventive Maintenance, Revision 4
IP-EP-AD36, IPEC ATI Repeater Tower Semi-Annual Preventive Maintenance, Revision 2

Condition Reports (CR-IP-)

2009-05087

Miscellaneous

Entergy Emergency Planning Indian Point Siren System Performance Assessment December 9, 2009
EN-MA-125 Troubleshooting Control Form, CR-IP2-2009-05087, Repeater Tower

EN-MA-125 Troubleshooting Control Form, CR-IP2-2009-05087, Putnam County EOC CCU
Command and Control, Alert Notification System Testing, Date 01/27/2010

Section 4OA3: Event Follow-up

Procedures

EN-LI-119, Apparent Cause Evaluation Process, Rev. 10
3-PT-M100, Monthly Post Accident Monitor Channel Checks, Rev. 9
EN-DC-153, Preventative Maintenance Component Classification, Rev. 4
EN-DC-335, PM Basis Template, Rev. 2
3-PT-R006A, Main Steam Safety Valves Setting Test Using Set Pressure Verification Device,
Rev. 8

Condition Reports (CR-IP3-)

2007-04493	2009-03108	2009-03904	2009-04084
2009-04123			

Work Orders

00132611	00202173	00210601
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Other

Nuclear Instrumentation System Maintenance Rule Basis Document, Rev. 0
Nuclear Instrumentation System (a)(1) Maintenance Rule Action Plan, dated 8/18/09
Technical Specifications
UFSAR
IP-CALC-09-00183, Justification for Past Operation with Main Steam Safety Valves above Tech
Spec Limits, Rev. 0

LIST OF ACRONYMS

ADAMS	Agency Wide Document Management System
AFW	Auxiliary Feedwater
ALARA	As Low as is Reasonably Achievable
ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DAC	Derived Airborne Concentration
DRS	Division of Reactor Safety
ECCS	Emergency Core Cooling Systems
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
EPD	Electronic Personal Dosimeter
IMC	Inspection Manual Chapter
IPEC	Indian Point Energy Center
IR	Inspection Report
IST	In-Service Test
LER	Licensee Event Report
LIC	Level Instrument Check and Calibration

NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OE	Operating Experience
OPDT	Over Power Delta Temperature
PAB	Primary Auxiliary Building
PT	Penetrant Test
RCA	Radiologically Controlled Area
RWP	Radiation Work Permit
RWST	Refueling Water Storage Tank
SI	Safety Injection
SR	Specification Surveillance Requirement
SSC	Structures, Systems, and Components
SW	Service Water
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report