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

May 13, 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 05000247/2010002

Dear Mr. Pollock:

On March 31, 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 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), one of which was determined to be a violation of NRC requirements. However, because of the very low safety significance and because the finding was entered into your corrective action program, the NRC is treating this finding as non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the 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 2. 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 2. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

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 of 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,

Mel Gray

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000247/2010002
w/ Attachment: Supplemental Information

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Sincerely,

/RA/

Mel Gray, Chief
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U.S. Nuclear Regulatory Commission

Region I

Docket No.:	50-247
License No.:	DPR-26
Report No.:	05000247/2010002
Licensee:	Entergy Nuclear Northeast (Entergy)
Facility:	Indian Point Nuclear Generating Unit 2
Location:	450 Broadway, GSB Buchanan, NY 10511-0249
Dates:	January 1, 2010 through March 31, 2010
Inspectors:	B. Haagensen, Acting Senior Resident Inspector – Indian Point 2 O. Ayegbusi, Resident Inspector – Indian Point 2 E. Keighley, Reactor Engineer – Region 1 J. Noggle, Sr. Health Physicist – Region 1 J. Schoppy, Sr. Reactor Inspector – Region 1 E. Gray, Sr. Reactor Inspector – Region 1 S. Barr, Sr. Emergency Preparedness Specialist – Region 1
Approved By:	Mel Gray, Chief Projects Branch 2 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000247/2010002; 1/1/10 – 3/31/10; Indian Point Nuclear Generating (Indian Point) Unit 2; Refueling and Outage Activities; and Event Follow-up.

This report covered a three-month period of inspection by resident and region based inspectors. Two findings of very low safety significance (Green) were identified, one of which was 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 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: Initiating Events

- Green. A self-revealing finding of very low safety significance was identified because Entergy personnel did not establish procedures that were appropriate to the task, and personnel did not adequately implement the procedures that existed for isolating the generator exciter system on the main generator. Specifically, on January 11, 2010, Entergy personnel did not properly isolate one rectifier exciter bank on the exciter system of the main generator while repairing a leak in the associated cooling water line. Entergy staff did not ensure that the procedural direction was adequate to ensure that the workers could recognize when the exciter rectifier disconnect switches were in the fully open position. In addition, Entergy supervisors did not stop the maintenance in the face of uncertainty when presented with several indications that the 24 exciter rectifier bank had not been isolated, including detecting unexpected voltage in the 24 exciter rectifier cabinet and a high temperature alarm associated with the exciter rectifier. As a result, the rectifier bank was not properly isolated electrically while the cooling water to the rectifier was isolated. This resulted in overheating the exciter bank control circuits which caused a main turbine trip and a reactor trip.

  This finding is more than minor because the performance deficiencies caused a reactor trip. The finding is associated with both the procedure quality and human performance attributes of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The inspectors performed a Phase 1 screening in accordance with Inspection Manual Chapter (IMC) 0609 "Significance Determination Process (SDP)" and determined that the finding is of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available.

  The finding has a cross-cutting aspect in the area of human performance related to decision making. Entergy personnel did not make safety-significant or risk significant decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained (H.1.a). [Section 4OA.3]

Cornerstone: Mitigating Systems

- Green. A self-revealing NCV of Technical Specification (TS) Limiting Condition of Operation (LCO) 3.8.2 was identified when Entergy personnel did not maintain service water (SW) cooling to the emergency diesel generators (EDGs) when the reactor was in cold shutdown. Specifically, on March 13, 2010, Entergy personnel isolated cooling water flow to the EDGs for a period of three minutes. This condition was corrected after an alarm in the control room alerted the operators to the condition and the operators promptly directed the restoration of cooling water to the EDGs.

  The inspectors determined that the isolation of cooling water flow to the standby EDGs was a violation of TS LCO 3.8.2, which requires "Two EDGs to be capable of supplying two safeguards power trains of the onsite AC electrical power distribution subsystem(s) required by LCO 3.8.10." Inadequate SW cooling to the EDGs, if left uncorrected, could have caused the EDGs to fail from a lack of cooling. This finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and adversely affected the objective to assure the availability, reliability and capability of systems that respond to initiating events to prevent core damage. The finding was determined to be of very low safety significance (Green) because further analysis by Entergy staff determined that the EDGs could have operated without cooling water for the period of three minutes.

  The finding has a cross-cutting aspect in the area of human performance related to work practices. Entergy personnel did not incorporate actions to address the impact of work on different job activities, and did not plan work activities to support equipment reliability by limiting safety systems unavailability and reliance on manual actions (H.3.b). [Section 1R20]

REPORT DETAILS

Summary of Plant Status

Indian Point Unit 2 began the inspection period operating at full reactor power (100%). The Unit 2 reactor tripped on January 11, 2010 due to a failure in the main generator exciter cabinet. Operators returned the plant to full power on January 14 following repairs to the main generator. Unit 2 entered a refueling outage on March 10 and remained in this outage until the end of the quarter on March 31.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 1 sample)

.1 Impending Adverse Weather

a. 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, SW intake structure, and the control building. Additionally, the inspectors conducted the review to verify that the station's implementation of OAP-008, "Severe Weather Preparations," and OAP-048, "Seasonal Weather Preparation," appropriately maintained systems required for normal operation and safe shutdown conditions. 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)

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns to verify the operability of redundant or diverse trains and components during periods of system train unavailability or following periods of maintenance. The inspectors referenced system procedures, Updated Final Safety Analysis Report (UFSAR) and system drawings to verify the alignment of the available train supported its required safety functions. The inspectors also reviewed applicable condition reports (CRs) and work orders to ensure Entergy personnel identified and properly addressed equipment discrepancies that could potentially impair the capability of the available train, as required by 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." The documents reviewed during these inspections are listed in the Attachment. The inspectors performed a partial walkdown on the following systems, which represented three inspection samples:

- 21 auxiliary feedwater pump on January 15, 2010;
- Containment spray system on March 5, 2010; and
- 21 EDG on March 31, 2010.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors conducted tours of several fire areas to assess the material condition and operational status of fire protection features. The inspectors verified, consistent with the applicable administrative procedures, that: combustibles 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 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. This inspection represented five inspection samples for fire protection tours, and was conducted in the following areas:

- EDG building PFP-258;
- Diesel fire pump house FA-yard PFP-265;
- Containment 46 foot level PFP-201;
- Containment 68 foot level PFP-202; and
- Containment 95 foot level PFP-203.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08 – 1 sample)

a. Inspection Scope

The inspectors reviewed activities during the Unit 2 refueling outage 19 (2R19) which included observations of ultrasonic testing (UT) calibration and component testing in-progress using manual and computer based UT techniques. Manual UT observations included those done on the pressurizer lower head inner radius to surge line and the pressurizer surge line welds 63-2 and 63-3. The applicable UT test procedures, task work orders, and test data for these ultrasonic examinations were reviewed against the American Society of Mechanical Engineers (ASME) Code requirements and confirmed to be evaluated by Entergy technical staff as part of the inservice inspection process.

The inspectors reviewed a sample of the computer based UT records, results of the upper reactor pressure vessel (RPV) head to control rod drive mechanism (CRDM) penetrations, and weld examinations conducted from underside of the RPV head. Included in the inspection sample were CRDMs 52, 70 and 86.

The video of the visual examination results for the upper surface of the RPV upper head to CRDM penetrations, conducted per the Electric Power Research Institute guidelines was observed by inspectors. This work used a robot crawler to position a camera to view the circumference of the CRDM-to-head intersections for evidence of boric acid leakage. The few areas not accessible by the crawler were viewed by manually manipulated visual equipment. This review included a comparison of the 2010 visual observations with those of the previous (2008) outage. The inspectors observed the video results in the four quadrants of each of the 97 penetrations. The video records of the VT-2 inspection, per procedure 2-PT-R204, of the bottom head RPV penetrations 1, 2, 3, 4, 7, 12, 17, 24, 39, and 48 were reviewed.

For boric acid corrosion control (BACC) activities, the inspectors confirmed the extent of plant boric acid walkdowns during plant operation and the plant shutdown process and noted that identified problem areas were documented in condition reports for evaluation and resolution. The visual inspection, VT-1, process of the steam generator vessel primary side manway studs was observed and a sample of the cleaned studs were examined for comparison to the acceptance criteria. While in containment, the inspectors observed the condition of portions of the containment liner and containment penetrations.

The application of the flow accelerated corrosion program per procedure ENN-CS-S-008 was reviewed to determine the method and scope of measurements to locate and control areas of pipe system wall thinning.

For steam generator (SG) tube eddy current inspection the inspectors reviewed the SG Degradation Assessment (Report SG-SGMP-09-20 dated February 2010) for 2R19. The extent of eddy current tube examination performed in 2010 during 2R19 was compared to the inspection scope in report SGMP-09-20, as was the expansion of examination scope as outlined in that report. The inspectors verified that eddy current analysts were qualified and confirmed to be prepared for the site specific conditions for the Unit 2 steam generators by applicable testing. The independent quality data analyst (IQDA) work scope and final report were reviewed to confirm the extent of independent oversight of the eddy current testing process.

The inspectors reviewed computer based eddy current testing (ET), UT testing records and results of examination of the four hot leg (HL) primary piping to reactor vessel nozzles, as part of the MRP-139 inspection scope for dissimilar metal welds, were reviewed. These welds were examined by ET and UT from the inside diameter, under water, from the inside of the RPV.

The inspectors observed the excavated portion of the auxiliary steam and condensate line shown on drawing 9321-F-40783 where a wisp of condensed water vapor had previously been reported after heat-up of the line.

b. Findings

No findings of significance were identified.

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

.1 Quarterly Review

a. Inspection Scope

On January, 26, 2010, the inspectors observed licensed operator simulator training, which included steam generator instrumentation failures and a large break loss-of-coolant-accident coincident with the failure of several plant systems to automatically respond to adverse conditions. The inspectors observed whether Entergy evaluators were identifying and documenting crew performance problems using simulator lesson plan AOP-RHR-1. The inspectors evaluated the performance 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, performance of timely control board operation and manipulation, and the oversight and direction provided by the control room supervisor. The inspectors also assessed simulator fidelity with respect to the actual plant. The inspectors evaluated licensed operator training for conformance with the requirements of 10 CFR Part 55, "Operator Licenses." The documents reviewed during this inspection are listed in the Attachment. This observation of operator simulator training represented one inspection sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 1 sample)

a. Inspection Scope

The inspectors reviewed the positive displacement charging pumps to assess the effectiveness of maintenance activities. The review focused on:

- Proper maintenance rule scoping in accordance with 10 CFR 50.65;
- Characterization of reliability issues;
- Changing system and component unavailability;
- 10 CFR 50.65(a)(1) and (a)(2) classification;
- Identifying and addressing common cause failures;
- Trending of system flow and temperature values; and

- Appropriateness of performance criteria for structures, system, and components (SSCs) classified (a)(2).

The inspectors also reviewed system health reports, maintenance backlogs, and maintenance rule basis documents. The inspectors evaluated maintenance effectiveness and monitoring activities against the requirements of 10 CFR 50.65. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 5 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 risk assessments to verify assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors reviewed the plant risk to ensure risk was promptly reassessed and managed. Documents reviewed during this inspection are listed in the Attachment. The following activities represented five inspection samples:

- Planned risk regarding repairs of the refueling water storage tank (RWST) on January 7, 2010;
- Planned risk regarding 480V undervoltage testing with 21 CHP non-functional on February 3, 2010;
- Planned risk regarding the 22 auxiliary boiler feedwater pump testing on February 3, 2010;
- Unplanned risk regarding vital inverter 23 swap on February 17, 2010; and
- Planned risk regarding the reactor coolant system (RCS) drain down to reduced inventory on March 15, 2010.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 9 samples)

.1 Resident Quarterly Review

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 TS. The inspectors' reviews included verification 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 TS, UFSAR, and associated design basis documents. The documents reviewed are listed in the Attachment.

The following operability evaluations were reviewed and represented nine inspection samples:

- RWST LT-5751 degraded power supply switch;
- 23 inverter swap to the alternate power supply;
- FW-1425 SW pipe through-wall leak;
- 22 containment spray pump 2PT-R27 IST;
- N21 inverter failure – source range monitor N-31 operability determination;
- 21 battery cable terminations below minimum allowable radii;
- Isolation valve seal water failed surveillance test 2PT-R26;
- Reactor refueling cavity leakage and safety equipment inside containment; and
- Source range monitor N32 failure.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Modifications (1 sample)

a. Inspection Scope

The inspectors reviewed one temporary plant modification, source range N-33 temporary power supply. Engineering change (EC-20912) provided reliable, safety-grade instrument power to the wide-range alternate source range monitor, NI-5134, from 120 VAC instrument bus N-31. The temporary modification also included TMOD-20912 to provide control room indication for alternate source range monitor NI-5143 via a live video feed. This temporary modification was also coordinated with another temporary modification that re-routed power to source range monitor N-31 from the 120 VAC instrument bus, N-32, in order to provide a redundant power supply to the credited source range monitors when source range instrument N-32 was inoperable. These temporary modifications provided two channels of source range nuclear instruments that were used for refueling the core.

The inspectors reviewed Entergy's temporary modification procedures to verify that the modification was processed adequately. The inspectors verified the design bases, licensing bases, and performance capability of the system was not degraded by the temporary modification. In addition, the inspectors interviewed plant staff and reviewed issues entered into the corrective action program to determine whether Entergy had been effective in identifying and resolving problems associated with the temporary modifications. The review of these temporary modifications represented one inspection sample. The documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2 Permanent Modifications (1 sample)

a. Inspection Scope

The inspectors reviewed the EC No. 14973 that installed vortex suppressors within the Unit 2 vapor containment (VC) at the following locations: above the internal recirculation sump strainer, above the VC sump strainer, and above the VC sump strainer extension in the VC annulus. Each vortex suppressor consists of a stainless steel frame structure that supports sections of grating that provide the vortex suppression function. Entergy personnel implemented this change to address the generic industry concern associated with the potential for vortex formation at the strainer inlet during certain loss-of-coolant accident (LOCA) scenarios. Specifically, engineering personnel determined that the vortex suppressors were required to mitigate potential reliability and operational concerns associated with air ingestion by air core vortices during post-LOCA recirculation operation.

The inspectors reviewed the modification to verify that the design bases, licensing bases, and performance capability of the internal recirculation and VC sumps had not been degraded by the modification. The inspectors reviewed several related calculations associated with sump strainer performance and post-LOCA debris loading to ensure that Entergy used conservative assumptions and appropriate inputs to adequately evaluate the modification. The inspectors conducted several walk downs of the VC to independently assess Entergy's configuration and foreign material exclusion control, and the validity of Entergy's design process inputs. The inspectors also observed portions of the installation activities in the VC to ensure that Entergy personnel adequately controlled the work in accordance with work order instructions and did not adversely impact adjacent structures, systems, and components. The inspectors reviewed Entergy's installation work orders including the associated drawings, weld specification sheets, weld maps, and completed weld data sheets. The inspectors also reviewed corrective action CRs to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the inspectors reviewed the 10 CFR 50.59 screen and engineering evaluation associated with this modification. The documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 4 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 four inspection samples:

- 21 charging pump repairs;
- Calibration of control rod indication C-11;
- 23 atmospheric dump valve positioner repairs; and
- 23 EDG overhaul.

b. Findings

No findings of significance were identified.

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

.1 Indian Point Unit 2 Refueling Outage (2R19)

a. Inspection Scope

Entergy began refueling outage 2R19 on March 10, 2010, and remained in an outage status through the end of the quarter on March 31. 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 Entergy and TS requirements. The inspectors observed portions of the shutdown, and cooldown processes. Additionally, the inspectors performed an initial containment walk down to evaluate the as-found condition of containment. The inspectors reviewed CRs to determine if conditions adverse to quality were entered for resolution. This outage is scheduled to be completed during the next quarter and will therefore be documented as a sample on the next quarterly report. Documents reviewed for the inspection are listed in the Attachment. Some of the specific activities the inspectors observed and performed included:

- Reactor shutdown and cool down;
- Reactor water level drain down to the reactor flange;
- Midloop and reduced inventory operations;
- Reactor head lift;
- Fuel handling, core loading, and fuel element assembly tracking;
- Containment as-found walk down;
- Review of outage risk plan;
- Alloy 600 weld overlay project;

- SW piping inspections; and
- 21 RCP motor replacement.

b. Findings

Introduction: The inspectors identified a self-revealing, NCV of very low safety significance (Green) of TS 3.8.2, AC Sources – Shutdown. Entergy operators inadvertently isolated both SW headers to all three EDGs for a period of three minutes with the reactor in mode 5.

Description: On March 13, 2010, Entergy personnel inadvertently isolated all SW to the EDGs when an operator closed valve SW N-30 isolating flow to the 1-2-3 EDG header for planned work on the 21 EDG while the reactor was in mode 5. Valve SW N-29, on the redundant SW header, had been previously tagged closed from an earlier surveillance test and had not yet been reopened, thereby isolating the 4-5-6 EDG SW header. SW N-30 was isolated because the Outage Control Center had referred to the outage schedule that indicated the 4-5-6 SW header should have been restored at the time the 1-2-3 SW header was tagged. The 4-5-6 EDG SW header had not actually been restored to service because completion of the previous surveillance test had been delayed. Operating the EDGs without SW to cool the EDGs could have caused all three EDGs to overheat and fail. An annunciator in the control room alerted the control room operators that both SW headers had been isolated and the operators took prompt action to reopen SW N-30 and to restore SW flow in the 1-2-3 header to the EDGs. This event was subsequently reported to the NRC as required by 10 CFR 50.72(b)(3)(v)(B).

Analysis: The inspectors determined that Entergy staff's isolation of cooling water flow to the standby EDGs was a performance deficiency. TS LCO 3.8.2 requires "Two EDGs to be capable of supplying two safeguards power trains of the onsite AC electrical power distribution subsystem(s) required by LCO 3.8.10." Required action B.1 requires the operators to immediately "Declare affected requires feature(s) with no EDG available inoperable." Action B.2.2 requires the operators to immediately "Initiate action to restore required EDG to OPERABLE status." Inadequate SW cooling to the EDGs, if left uncorrected, could have caused the EDGs to fail from a lack of cooling. This finding is more than minor because it is associated with the configuration control attribute of the Mitigating Systems cornerstone and adversely affected the objective to assure the availability, reliability and capability of systems that respond to initiating events to prevent core damage.

The inspectors performed a Phase 1 screening in accordance with IMC 0609.04, "Initial Screening and Characterization of Findings" because it is associated with the Mitigating Systems cornerstone. The finding was determined to be of very low safety significance (Green) because further analysis by Entergy staff determined that the EDGs could have operated without cooling water for longer than three minutes. Prompt restoration of SW to the EDGs by the operators in three minutes prevented a loss of safety system function and a Phase 2 SDP analysis was not required.

The finding has a cross-cutting aspect in the area of human performance related to work practices. Entergy personnel did not incorporate actions to address the impact of work on different job activities, and did not plan work activities to support equipment reliability by limiting safety systems unavailability and reliance on manual actions (H.3.b).

Enforcement: TS LCO 3.8.2, AC Sources – Shutdown, requires two EDGs to be operable with the reactor in modes 5 and 6. Contrary to this requirement, all three EDGs were inoperable for a period of three minutes between 6:25 PM and 6:28 PM on March 13, 2010. Technical Specifications require an immediate initiation of action to restore the EDGs to an operable status. Entergy personnel caused this violation by not appropriately controlling and scheduling the authorization of the tag out on the 1-2-3 SW header. Entergy personnel subsequently corrected the condition by reopening SW N-30 and restoring SW flow. Because this violation is of very low safety significance and it was entered into Entergy's corrective action system (CR-IP2-2010-01367) and promptly corrected; this violation is being treated as an NCV consistent with the NRC Enforcement Policy. **(NCV 05000247/2010002-01, Isolation of Service Water to EDGs)**

1R22 Surveillance Testing (71111.22 - 8 samples)

a. Inspection Scope

The inspectors observed performance of portions of surveillance tests and/or reviewed test data for selected risk-significant SSCs to assess whether tests satisfied TS, UFSAR, Technical Requirements Manual, and Entergy procedure requirements. The inspectors verified that: test acceptance criteria were clear, demonstrated operational readiness, and were consistent with design basis documentation; test instrumentation had accurate calibration, and appropriate range and accuracy for the application; and tests were performed as written, with applicable prerequisites satisfied. Following the tests, the inspectors verified that the equipment was capable of performing the required safety functions. The inspectors evaluated the surveillance tests against the requirements in TS. The documents reviewed during this inspection are listed in the Attachment. The following surveillance tests were reviewed and represented eight inspection samples:

- 2-PC-Q2, RWST level calibration;
- 2-PT-2M2A monthly RPS logic test;
- 2-PT-Q030B, 22 CCW pump quarterly IST;
- 2-PT-M48, 480V under voltage testing;
- 2-CY-2380 RCS coolant sample for activity analysis;
- 2-PT-R007A AFW full-flow tests (IST);
- 2-PT-13 SI initiation; and
- 2-PT-R006 Main Steam Safety Valve set point testing.

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 Entergy staff have 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. The inspector 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; and
- The hazards associated with work activities that could suddenly and severely increase radiological conditions.

- 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 Entergy 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 has 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 was conducted to determine if identified problems and negative performance trends were entered into the corrective action program and evaluated for resolution. Relevant condition reports associated with the occupational radiation protection program, initiated between January 2009 and February 2010, were reviewed and discussed with the Entergy staff to determine if the 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 nonexempt licensed radioactive materials resulting from the Unit 2 refueling outage activities that 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 that were used to access high radiation areas and identified the work control instructions or control barriers that had been specified. The inspectors verified that allowable stay times or permissible dose for radiologically significant work under each RWP was clearly identified. The inspectors verified that electronic personal dosimeter (EPD) alarm set points were in conformance with survey indications and plant policy.

The inspectors selected one occurrence where a worker's EPD noticeably malfunctioned or alarmed. The inspectors verified that the worker responded appropriately to the off-normal condition. The inspectors 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 in order to assess current performance and exposure challenges. The inspectors determined the plant's 3-year rolling average collective exposure. The inspectors determined the site-specific trends in collective exposures and source term measurements.

Problem Identification and Resolution

The inspectors noted that, due to zinc injection during the previous Unit 2 operating fuel cycle, the source term for Unit 2 has decreased resulting in generally lower refueling outage dose rates for many associated work activities.

The inspectors also 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 are obtained. The inspectors reviewed the adequacy of procedural guidance used to assess dose when the Entergy personnel applies protection factors. The inspectors reviewed dose assessments performed using airborne/DAC monitoring. The inspectors verified that the Entergy's 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. The inspectors determined that the affected personnel were properly monitored with calibrated equipment and the data was analyzed and internal exposures properly assessed in accordance with Entergy procedures.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 - 4 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.

Initiating Events Cornerstone

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

The inspectors reviewed data and plant records from January 2009 to December 2009. The records included PI data summary reports, Entergy event reports, operator narrative logs, Entergy's corrective action program and Maintenance Rule Records. The inspectors verified the accuracy of the number of critical hours reported, and interviewed the system engineers, technicians and operators responsible for data collection and evaluation.

Barrier Integrity Cornerstone

- RCS Specific Activity

The inspectors reviewed data and plant records from January 2009 to December 2009. The records included performance indicator data summary reports, Entergy event reports, operator narrative logs, and Entergy's corrective action program. The inspectors verified the accuracy of the number of critical hours reported, and interviewed the technicians, system engineers and operators responsible for data collection and evaluation.

b. Findings

No findings of significance were identified.

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

.1 Resident Inspector Daily Review of Conditions Reports

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

b. Findings

No findings of significance were identified.

.2 Annual Sample - Refuel Cavity Liner Leakage

a. Inspection Scope

The inspectors reviewed the leakage of borated water from the reactor refueling cavity into the lowest level (46 foot) of containment during refueling outage conditions. The reactor refueling cavity leakage has been documented in Entergy's corrective action program back to 1993 at a leak rate that has varied from 2 gpm to 10 gpm. Previous corrective action plans have included the application of various temporary and permanent cavity coating materials to attempt to stop the leakage. The most recent corrective action plan is documented in CR-IP2-2008-01629.

The inspectors reviewed Entergy's implementation of this corrective action plan for timely and effective corrective action. The inspectors interviewed Entergy civil engineering and chemistry staff, walked down the leakage pathway, and assessed condition reports, causal analyses and corrective actions that are documented in the attachment to this report. The focus of the inspection was to verify how Entergy staff evaluated the significance of the leakage and that corrective actions were appropriate to the circumstances.

b. Findings and Observations

Introduction: The inspectors identified an unresolved item in that the Entergy technical staff has not evaluated the impact of reactor refueling cavity water leakage on the dissimilar metal welds between the stainless steel liner and the carbon steel studs that attach the liner to the concrete wall. During reactor refueling activities that occur for approximately two weeks every other year, when the refueling cavity is flooded, water (containing approximately 2700 ppm boric acid) has leaked at a rate of between 2 and 10 gpm. The water dripped on equipment in the 46 foot level of containment. The effects of the leakage have not been evaluated with regard to liner attachment welds and carbon steel hardware.

Description: The reactor refueling cavity leakage has been documented in Entergy's corrective action program back to 1993. Entergy personnel had previously attempted to repair this leakage by applying various chemically bonded coatings to the stainless steel liner in various prospective leak locations. The coatings have not proven effective in stopping the leakage. As documented in CR-IP2-2008-01629 Entergy plans to research available technologies to identify a new permanent coating material and to apply this new material to specified areas of the leaking liner during the next three refueling outages. Completion of these activities is planned for 2014. Until a new permanent coating is identified and applied, a temporary coating material would be used as an interim measure to minimize leakage. If this remediation plan does not stop the leakage by 2014, Entergy will perform additional monitoring to assess the condition of potentially affected structures. During the refueling outage in April 2010 (2RFO19) the inspectors determined that Entergy personnel had not identified a new permanent coating material and had applied a temporary coating to prospective leak locations.

The inspectors determined the reactor refueling cavity liner is a safety-related structure. The UFSAR section 9.5.1.4, "Protection Against Radioactivity Release from Spent Fuel and Waste Storage" states: "The reactor cavity, refueling canal and spent fuel storage pit are reinforced concrete structures with a seam-welded stainless steel plate liner. These structures are designed to withstand the anticipated earthquake loadings as seismic Class I structures so that the liner prevents leakage even in the event the reinforced concrete develops cracks." The reactor refueling cavity liner is classified as a QA category "A" structure in design drawing UE&C #9321-F-1283. The stainless steel liner is attached to the concrete cavity walls by a system of carbon steel "Nelson Studs™" which are listed as being seismically qualified in drawing detail "K".

In CR-IP2-2000-09120 (documented in calendar year 2000), Entergy staff stated that the dissimilar metal weld between the stainless steel liner and the Nelson Studs may be subject to attack by galvanic corrosion or by intergranular stress corrosion cracking if sufficient concentrations of chloride ionic impurities are present due to leaking from the concrete cavity walls. This condition report was administratively closed without taking documented corrective action.

Although there is no known degradation to this point, the inspectors concluded additional information is required by Entergy related to their assessment of this condition in accordance with Entergy procedures. The inspectors acknowledge that the leakage only occurs for approximately two weeks every other year, when the refueling cavity is flooded with water. For the remaining period of each operating cycle, this area is dry and area conditions should not be conducive to corrosion. **(URI 05000247/2010002-02, Refueling Cavity Leakage into Containment)**

.3 Annual Sample Review – ANS Corrective Actions

a. Inspection Scope

On December 9, 2009, Entergy 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 (for a total of 34) failed to indicate a successful activation within the acceptance criteria of 30 minutes following siren activation.

The inspectors reviewed Entergy'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 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. Entergy'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 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 had conducted shortly preceding the full-volume test. The positive silent test results supported Entergy'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 2009, 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. Entergy'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.

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

.1 (Closed) LER 05000247/2010-001-00, Automatic Reactor Trip as a result of a Turbine-Generator Trip Due to a Loss of Generator Field Excitation Caused by a Failed Exciter Rectifier

a. On January 11, 2010, Unit 2 went off-line while at 100% power when a rectifier bank overheated and caused a main unit generator-initiated plant trip, which resulted in a main turbine trip and, by design, an automatic reactor trip. Following the reactor trip, the inspectors responded to the control room and evaluated the response of the operators. The inspectors reviewed plant computer data, including the sequence of events report, evaluated plant parameter traces and discussed the event with plant personnel, to verify that plant equipment responded as expected, and to ensure that operating procedures were appropriately implemented. The inspectors verified that Entergy's post-trip review group (PTRG) correctly identified the causes of the trip to facilitate corrective actions prior to restart. This event and the PTRG report were entered into Entergy's corrective action program as CR IP2-2010-00157.

b. Finding

Introduction: A self-revealing finding of very low safety significance was identified because Entergy personnel did not establish procedures that were appropriate to the task, and personnel did not adequately implement the procedures that existed for isolating the generator exciter system on the main generator. Specifically, on January 11, 2010, Entergy personnel did not properly isolate one rectifier exciter bank on the exciter system of the main generator while repairing a leak in the associated cooling water line.

Discussion: On January 11, 2010, Entergy personnel were conducting planned repairs on a cooling water leak in one of four exciter rectifier banks of the generator exciter subsystem to the main generator. At 3:11 PM, Entergy workers attempted to remove the 24 exciter rectifier from service by opening the disconnect switch in accordance with 2-SOP-26.4, "Turbine Generator Operating Procedure, Attachment III." Although the workers noted that the disconnect switch handle had moved over a 90 degree arc, they questioned if the switch had actually been fully opened. After discussions with other personnel, including engineering staff present at the work site, the switch was operated a second time and personnel at the switch concluded the switch was in the open position.

Entergy personnel then removed control power fuses and performed voltage checks on bus work immediately above the leaking cooling water pipe. The voltage check identified approximately 137 volts AC phase to ground and zero volts phase to phase. Entergy personnel concluded that the voltage represented a monitoring circuit because the voltage was not a normal voltage and that there was zero phase to phase voltage. Entergy personnel also noted that monitoring lights on the rectifier cabinet were still lit. Entergy field supervision then directed the planned work to continue. Workers isolated cooling water to the rectifier and began removing a section of the cooling water line. Subsequently, Entergy personnel received a rectifier high temperature alarm in the control room but concluded that the alarm was due to latent heat within the cabinet that would dissipate with time. At 3:59 PM, 40 minutes after the start of the planned maintenance, the 24 exciter rectifier bank failed electrically due to overheating and caused loss of generator excitation and a turbine trip, which, by design resulted in a reactor trip.

The inspectors determined that the procedure 2-SOP-26.4, "Turbine Generator Operating Procedure," was not adequate to ensure that the workers could recognize when the exciter rectifier disconnect switches were in the fully open position. In addition, the supervisors did not stop the maintenance in the face of uncertainty when presented with several indications that the 24 exciter rectifier bank had not been isolated including detecting unexpected voltage in the 24 exciter rectifier cabinet and a high temperature alarm associated with the exciter rectifier.

Analysis: The inspectors concluded that operators did not implement Entergy procedure 2-SOP-26.4, "Turbine Generator Operating Procedure, Attachment III," to fully isolate the 24 exciter rectifier bank was a performance deficiency. This finding is more than minor because the performance deficiency resulted in a reactor trip. The finding is associated with both the procedure quality and human performance attributes of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. This resulted in a reactor trip and damage to the generator exciter system. The inspectors performed a Phase 1 screening in accordance with IMC 0609 "Significance Determination Process" and determined that the finding is of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available.

The finding has a cross-cutting aspect in the area of human performance related to decision making. Entergy staff did not make safety-significant or risk significant decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained. Specifically, the field supervisor did not stop the maintenance when confronted with unexpected plant conditions (H.1.a).

Enforcement: The inspectors identified a Green finding because Entergy did not ensure that activities affecting quality were prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and that the activities were accomplished in accordance with these instructions, procedures, or drawings. No violation of regulatory requirements occurred, because the generator exciter is not safety-related. Because this issue does not involve a violation of regulatory requirements and has very low safety significance, it is identified as a finding. Entergy took immediate corrective actions to repair the exciter system and entered this issue into their corrective action system (CR-IP2-2010-00157). **(FIN 05000247/2010002-03: Improper Generator Isolation Caused Reactor Trip)**

.3 Major Snow storm February 25 – 26, 2010

a. Inspection Scope

On February 25, 2010, a major snow storm impacted the Northeast region. During this storm, Indian Point Unit 2 experienced a loss of the running instrument air compressor leading to a decrease of instrument air header pressure, and entry into the adverse weather procedure OAP-048, Seasonal Weather Preparation, Rev 5, dated 10/6/2009 due to high winds. The ANS was impacted but did not lose functionality. The inspectors monitored plant performance during this snow storm and maintained frequent communications with the Regional Office.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Inspection Results for TI 2515/172, RCS Dissimilar Metal Butt Welds

a. Inspection Scope

The Temporary Instruction, TI 2515/172 provides for confirmation that owners of pressurized-water reactors have implemented the industry guidelines of the Materials Reliability Program (MRP) -139 regarding nondestructive examination and evaluation of certain dissimilar metal welds in reactor coolant systems containing Alloy 600/82/182. The TI requires documentation of specific questions in an inspection report. The questions and responses were previously provided in inspection reports 05000247-286/2008003 and 05000247-286/2009003.

In summary, Indian Point Units 2 and 3 have MRP-139 applicable Alloy 600/82/182 RCS welds in only the HL and cold leg (CL) pipe to RPV nozzle connections. These were examined from the inside surface volumetrically by ultrasonic testing and on the ID surface by eddy current testing at Unit 2 in the 2006 refuel outage and on Unit 3 from the outside surface visually during the 2007 refuel outage.

For Unit 3 during 3R15 in spring 2009, these eight alloy 82/182 welds were examined from the nozzle inner diameter by ET for the weld surface and UT for the weld volume with ASME Section XI examination coverage confirmed. The safe end-to-pipe or cast elbow stainless steel welds were also ET and UT examined. No significant indications were found on any of these welds. One very small indication in the weld cladding of CL 34 was identified but found to be acceptable for continued service.

For Unit 2 during 2R19 in spring 2010, the four alloy 82/182 HL welds were examined from the nozzle inner diameter by ET for the weld surface and UT for the weld volume. The inspector evaluated the UT and ET techniques including the data analysis process and qualifications of both the non-destructive examination (NDE) procedures and the NDE examiners. No significant indications were found on any of these welds.

b. Findings

No findings of significance were identified

.2 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 Union of America, 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 25, 2010, the inspector presented the inspection results to Mr. Anthony Vitale, General Manager Plant Operations and other members of the Entergy staff, at the conclusion of the inspection. Entergy personnel acknowledged the conclusions and observations presented.

The inspector asked Entergy personnel whether any materials examined during the inspection should be considered proprietary. Some proprietary items were reviewed and returned during the inspection, but no proprietary information is presented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

R. Allen	Code Programs
H. Anderson, Jr.	Licensing Specialist
R. Antonow	Manager, Project Management
N. Azevedo	Supervisor, Code Programs
J. Baker	Shift Manager
I. Bashir	Senior Nuclear Electrical Technician
F. Bauer	Design Engineer
R. Burroni	Engineering Manager
T. Chan	Supervisor, System Engineering
T. Cole	Project Manager
L. Cossio-Gonzalez	Engineer, Code Programs
G. Dahl	Licensing Specialist
G. Dean	Assistant Operations Manager Unit 2
J. Deneli	Assistant Operations Manager Unit 3
D. Dewey	Shift Manager
R. Dolansky	Plant Programs
R. Drake	Supervisor, Design Engineering
T. Garvey	Emergency Preparedness Coordinator
D. Glas	Chemistry Technician
G. Hocking	Supervisor, Radiation Protection Support
J. Lijoi	Superintendant, I&C
K. Lo	Senior Engineer (Nuclear)
D. Loope	Manager, Radiation Protection
R. Mages	ALARA Specialist
T. McCaffrey	Acting Director, Nuclear Safety Assurance
B. McCarthy	OCC Manager
R. Montrose	Control Room Supervisor
T. Motko	Engineer Iii (Nuclear)
T. Orlando	Director, Engineering
N. Papayia,	QA
J. Peters	Chemistry Supervisor
J. Pollock	Site Vice President
E. Primrose	Shift Manager
H. Primrose	Control Room Operator
S. Prussman	Senior Lead Engineer
M. Randazzo	Supervisor, I&C
J. Reynolds	Acting Manager, Corrective Actions & Assessment
S. Sandike	Specialist, Effluent & Environmental Monitoring
P. Schoen	Shift Manager
J. Skonieczny	Senior Lead Engineer, Civil Engineering
D. Smith	ALARA Specialist
F. Spagnulo	Control Room Supervisor
A. Stewart,	IPEC Licensing
B. Sullivan	Manager, Emergency Preparedness

A. Vitale	General Manager, Plant Operations
R. Walpole	Manager, Licensing
A. Williams	Operations Manager
W. Wittich	Components Engineering*

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000247/2010-001-00	LER	Automatic Reactor Trip as a Result of a Turbine-Generator Trip Due to a Loss of Generator Field Excitation Caused by a Failed Exciter Rectifier

Opened/Closed

05000247/2010002-01	NCV	Isolation of Service Water to All Emergency Diesel Generators
05000247/2010002-03	FIN	Improper Generrex Isolation Caused Reactor Trip

Opened

05000247/2010002-02	URI	Refueling Cavity Leakage into Containment

LIST OF DOCUMENTS REVIEWED

Common Documents Used
Indian Point Unit 2 Updated Final Safety Analysis Report
Indian Point Unit 2 Individual Plant Examination
Indian Point Unit 2 Individual Plant Examination of External Events
Indian Point Unit 2 Technical Specifications and Bases
Indian Point Unit 2 Technical Requirements Manual
Indian Point Unit 2 Control Room Narrative Logs
Indian Point Unit 2 Plan of the Day

Section 1R01: Adverse Weather Protection

Procedures
OAP-048, Seasonal Weather Preparation, Rev 5, dated 10/6/2009

Condition Reports (CR-IP2-)
2010-00483

Section 1R04: Equipment Alignment

Procedures
2-COL-21.3, Steam Generator Water Level and Auxiliary Boiler Feedwater, Rev. 30
2-SOP 27.3.1, Emergency Diesel Generator Manual Operation, Rev. 31

2-COL-27.3.1, Diesel Generators, Rev. 25
2-COL-4.2.1, Containment Spray System, Rev. 26

Section 1R05: Fire Protection

Condition Reports
CR-IP2-010-1666

Pre Fire Plan
PFP-201, Containment Building 46' EL, Rev. 0
PFP-265, Diesel Fire Pump House – Exterior Buildings, Rev. 0
PFP-202, Containment Building 68' EL, Rev. 0
PFP-258, EDG #21 - #22 - #23 - Diesel Generator Building/Electrical Tunnel Exhaust Fans, Rev. 5
PFP-203, Containment Building 95' EL, Rev. 0

Procedure
2-SOP-29.6, Fire Protection System Operation, Rev. 22

Section IR08: Inservice Inspection Activities

Procedures
EN-DC-315, Flow Accelerated Corrosion (FAC) Program, Rev. 3
CEP-NDE-0505, Ultrasonic Thickness Examination, Rev. 4
ENN-CS-S-008, Pipe Wall Thinning Structural Evaluation, Rev. 2
ENN-EP-S-005, FAC Program Component Scanning and Gridding Standard, Rev. 1
2-PT-R204, Visual Examination of Reactor Pressure (RPV)Vessel Bottom Mounted Instrumentation Penetrations for Leakage, Rev. 2
CEP-NDE-0485, Manual Ultrasonic Examination of Vessel Nozzle Inside Radius, Rev. 5
CEP-NDE-0901, VT-1 Examination (for Pressure Retaining Bolting), Rev. 4
CEP-NDE-0903, VT-3 Examination (for RPV Interior), Rev. 5
WDI-STD-146, ET RV Pipe Welds Inside Surface, Rev. 9
WDI-STD-144, RVHI ICI Bottom OD Surface EC Manual Probe Inspection, Rev. 5
2-REF-003-GEN, Section 2.3, Reactor Vessel – Debris Inspection, Rev. 2

Condition Reports (CR-IP2-)

2008-01436	2010-01448	2010-01014	2010-01015
2010-01016	2010-01017	2010-01617	2010-01626
2010-01628	2010-01629		

Drawings
D207776-0, IPU2 RCS Hot Leg Noz/SE/Pipe/ID Clad details, Weld RPVS-21-1A
D207780-0, IPU2 RCS Cold Leg Noz/SE/Pipe/ID Clad details, Weld RPVS-21-14A
D207835-0, IPU2 RCS Przr Surge Line Noz/SE/Pipe Weld PZRS-6
A206918-1, Pressurizer No. 21
D207982-0, IPU2 Surge line Weld RPVS-63-1

NDE Reports
2R19, 10-UT-007. MS Circ Weld 3-21
2R19, 10-UT-011, RCS Pipe Weld 63-1

2R19, 10-UT-013, RCS PZRN6, Surge Line Lower Nozzle, Inner Radius
2R19, 10-UT-014, RCS Pipe Weld 63-2
2R19, 10-UT-015, RCS Pipe Weld 63-3
2R19, 10-UT-020, RHXC 22-1, UT, Single Sided Exam

Other
FAC Inspection Points for 2R19
WDI-TJ-1028, ASME Section V, Article 14, Technical Justification for Eddy Current Inspections of RVH, Rev. 0
IP U2 March 2010 IQDA Exit Letter by Anatec on SG EC Tube inspection
IP U2 2R19 Steam Generator Eddy Current Inspection Summary
IP U2 Steam Generator Degradation Assessment SG-SGMP-09-20, for 2R19, dated February 2010
ASME Section XI
ASME Section XI, Subsection IWE
ASME Code Case N-722, Examination Requirements for RPV Lower Head Penetrations
ASME Code Case N-729-1, Examination of RPV Upper Head Penetrations
QA Checklist for Implementation of Engineering Programs

Section 1R11: Licensed Operator Requalification Program

Procedures
2-AOP-ANNUN-1, Failure of Flight or Supervisory Panel Annunciators, Rev. 04
2-AOP-RHR-1, Loss of RHR, Rev. 06

Section 1R12: Maintenance Effectiveness

Procedures
IP2 System Health Report, CVCS 2008 1st Quarter
IP2 System Health Report, CVCS 2008 2nd Quarter
IP2 System Health Report, CVCS 2008 3rd Quarter
IP2 System Health Report, CVCS 2008 4th Quarter
IP2 System Health Report, CVCS 2009 1st Quarter
IP2 System Health Report, CVCS 2009 2nd Quarter
IP2 System Health Report, CVCS 2009 3rd Quarter
IP2 System Health Report, CVCS 2009 4th Quarter

Condition Reports (CR-IP2-)

2008-02774	2009-03596	2009-04524	2009-04971
2010-00448	2010-00812		

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
EN-OU-108, Shutdown Safety Management Program, Rev. 1

Condition Reports (CR-IP2-)

2008-00907	2009-02686	2009-01785

Other
EOOS On-Line at-Power Risk Model
Entergy Commitments to Generic Letter 88-17
Information Notice 2000-13, Review of Refueling Outage Risk

Section 1R15: Operability Evaluations

Procedures
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
EN-DC-319, Inspection and Evaluation of Boric Acid Leaks, Rev. 5
2PC-2Y72B, Source Range Neutron Flux N-32 Channel Calibration, Rev. 5
2PT-R26, Leakage test for IV SW, Rev. 5
2PT-R27, Containment Spray Pump IST, Rev. 29
2-SOP-13.1, Nuclear Instrument System Operations, Rev. 27

Condition Reports (CR-IP2-)

2010-00828	2006-00368	2008-03858	2010-02035
2010-00130	2010-01040	2010-01133	2010-01876

Work Orders
221273

Other
Drawing 9321-F-2746, Isolation Valve Seal Water System Flow Diagram
IP-CALC-10-00037 Rev. 0
Isolation Valve Seal Water System Description, Rev. 7

Section 1R18: Plant Modifications

Condition Reports (CR-IP2-2010-)

01398	01571	01581	02073	02263	02264
02266	02322	02347	02349	02356	

Work Orders

195522	195523	230788

Calculations
IP-CALC-06-00034 EC 14973, IP2 Evaluation of Trash Rack and Radiation Protection Flow Barrier Over the Reactor Cavity (GSI-191 GL 2004-02), Rev. 0
IP-CALC-06-00035 EC 14973, Containment Building Flow Barrier (GSI-191 GL 2004-02), Rev. 0
IP-CALC-09-00179, Indian Point ECCS Sump Strainer Certification Calculation Based on NPSH, Minimum Flow, Structural Limit and Void Fraction Requirements, Rev. 3

Design Documents
EC-14973 10 CFR 50.59 Process Applicability Determination, dated 11/18/09
EC-14973 Design Input Record, dated 11/18/09
EC-14973 Design Verification Checklist, dated 12/02/09
EC-14973, IP2 VC Sump and IR Sump Vortex Suppression Modification (GSI-191), Rev. 0
ECN-20996, ECN to EC-20912 for Drawing Changes
U2 2010 / 06-02-003, Licensing Basis Design Change Request (Updated Final Safety Analysis Report Revision 21 Update), dated 10/16/09
EC-14973 Safety Classification Worksheet, dated 11/30/09
EC-20912, Temporary Modification: Provide Temporary CCR Indication for Alternate Source Range Monitor NI-5143 and Temporary Reliable Power to NM-5143-1 and N-31, dated 3/26/2010
TMOD No. 20912, Provide Temporary CCR Indication for Alternate Source Range Monitor NI-5143

Drawings
2006MD0043, Containment Building VC Sump Barrier, Rev. 0
502403, Containment Building; IR Sump Strainer, Vortex Suppressor; Details, Rev. 0
502404, Containment Building; IR Sump Strainer, Vortex Suppressor; Details, Rev. 0
502405, Containment Building; IR Sump Strainer, Vortex Suppressor; Details, Rev. 0
502406, Containment Building; VC Sump Annulus; Vortex Suppressor, Rev. 0
502407, Containment Building; VC Sump Vortex Suppressor, Rev. 0
A208503-35, 118 VAC Inst Buses 21A, 22A, 23A and 24A
A208502-63, 118 VAC Inst Buses 21, 22, 23 and 24
A201008, 118 VAC Inst Bus Panels 21 & 22
IP2-S-0010000-03, SW D for Alternate Safe Shutdown Source Range Monitor

Miscellaneous
EN-MA-118 ATT 9.6, WO 00195523-01 (VC Sump) Foreign Material Exclusion Component Close-Out Data Sheet, dated 3/22/10
EN-MA-118 ATT 9.6, WO 00195523-02 (Sections 1, 2, 3, & 5) Foreign Material Exclusion Component Close-Out Data Sheet, dated 3/27/10
Indian Point Unit 2 2R19 Outage VC and Recirc Sump Foreign Material Exclusion (FME) Plan, dated 2/23/10
IPEC-SPEC-09-00008, Specification for Emergency Sump Strainer and Flow Channeling Barrier Fabrication, dated 11/10/09
IP-RPT-09-00046, Indian Point Units 2 and 3 Design and Evaluation of Vortex Suppression Grating, Rev. 0
NRC Generic Letter 2004-02: Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors, dated 9/13/04
OAP-007, Containment Entry and Egress, Rev. 17
PER003-PR-003, Summary of Vortex Evaluation Testing Results for Top Hat Strainer Modules, Rev. 0
Regulatory Guide 1.82, Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident, Rev. 3
WM-00195522-01-01/0, Vortex Suppressor Weld Data Sheet, dated 3/29/10
WM-00195522-01-02/0, Vortex Suppressor Weld Data Sheet, dated 3/26/10
WM-00195523-01-01/1, Weld map Instructions, dated 3/18/10
WM-00195523-02-01/0, Vortex Suppressor Weld Data Sheet, dated 3/19/10

WM-00195523-02-02/0, Vortex Suppressor Weld Data Sheet, dated 3/20/10

Section 1R19: Post-Maintenance Testing

Procedure
2-AOP-ROD-1, Rod Control and Indication Systems Malfunctions, Rev. 6
2-PT-Q033A, 21 Charging Pump, Rev. 14
2-PC-R6C, Rod Position Indication System "Hot Span" Verification, Rev. 7

Work Orders
224260

Condition Reports (CR-IP2-)

2010-00506	2010-01367	2010-00540	2009-04971
2009-04524	2009-03596	2008-02774	

Section 1R20: Refueling and Other Outage Activities

Procedures
EM-OM-123, Fatigue management Program, Rev. 2
EN-NF-104, Special Nuclear Materials Program, Rev. 4
EN-NF-200, Special Nuclear Material Control, Rev. 6
2-POP-3.1, Plant Shutdown from 45% Power, Rev. 64
2-PT-R156, RCS Boric Acid Leakage and Corrosion Inspection, Rev. 1
2-SOP-1.2, Draining the Reactor Coolant System, Rev. 47

Other:
EmpCenter Fatigue Management Software
2R19 Outage Handbook

Section 1R22: Surveillance Testing

Procedures
2-PC-Q2, Refueling Water Storage Tank Level, Rev. 20
2-CY-2380, Primary Sampling System, Rev. 4
2-PT-Q030B, 22 Component Cooling Water Pump, Rev. 20

Completed Procedures
2-PT-M048, 480 Volt Undervoltage Alarm, Rev. 22
2-PT-R006, Main Steam Safety Valve Setpoint Determination, Rev. 26
2-PT-R013, Safety injection System, Rev. 28
2-PT-2M2A, RPS Logic Train "A" Actuation Logic test & TADOT (>25% Reactor Power), Rev. 2
2-PT-R007A, Motor Driven Auxiliary Feed Pumps Full Flow, Rev. 22

Condition Reports (CR-IP2-)

2010-01181	2008-02255	2006-06657	2004-05076
2002-09585			

Other
Certificate of Calibration for Fluke 189 True RMS Multimeter, Serial Number 90090161, Asset Number ic-1628
FIX-00096-01, Instrument Loop Accuracy/Setpoint Calculation/RWST Level, Rev. 1
MPN-S65-001, RWST-Level Instrument Channel Accuracies Calibration & Setpoints, Rev. 0
2-ARP-SBF-2, CCR Safeguards, Rev. 30
SPDDF-LC-5113-1S, Set Point Device Data Forms, Rev. 0
RCS Sample Count Results computer printout dated 3/4/2010

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-IP2-)
2009-4518 2009-1183 2009-2784 2009-3978

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, Rev. 3
IP-EP-AD30, IPEC ATI Siren System Administration, Rev. 2
IP-EP-AD31, IPEC ATI Siren System Maintenance Administration, Rev. 0
IP-EP-AD32, IPEC ATI Siren System Routine Polling & Testing, Rev. 3
IP-EP-AD33, IPEC ATI Siren System Quarterly Preventive Maintenance, Rev. 4
IP-EP-AD36, IPEC ATI Repeater Tower Semi-Annual Preventive Maintenance, Rev. 2
OAP-34, Safety Function Determination Process, Rev. 0
ENN-MS-S-0090-IP2, IP1/IP2 System Safety Function Sheets, Rev. 1
EN-DC-167, Classification of Structures, Systems and Components, Rev. 3

Condition Reports (CR-IP2-)

2009-05087	1998-01720	2000-02487	2000-02568
2000-02871	2000-09120	2001-09530	2002-10550
2002-10550	2002-10610	2004-05350	2004-05430
2006-02968	2008-01629	2008-01689	

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
IPEC-EP, Emergency Plan, Rev. 5
NUREG-0654 FEMA-REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
EM-OM-123, Fatigue management Program, Rev. 2
ENN-HR-132, Exempt Overtime, Rev. 0
EN-OP-115, Conduct of Operations, Rev. 3
OAP-048, Seasonal Weather Preparation, Rev. 5

Section 4OA5: Other

Procedures
IPEC-EP, Emergency Plan, Rev. 5
NUREG-0654 FEMA-REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
SMM-DC-901, Fire Protection Program Plan, Rev. 2
SAO-711, Quality Assurance Requirements for Fire Protection Systems, Rev. 0
ENN-HR-132, Exempt Overtime, Rev. 0
EN-OP-115, Conduct of Operations, Rev. 3
OAP-115, Operations Commitments and Policy Details, Rev. 6
OAP-32, Operations Training Program, Rev. 8
CEP-NDE-0505, Ultrasonic Thickness Examination, Rev. 4
ENN-CS-S-008, Pipe Wall Thinning Structural Evaluation, Rev. 2
CEP-NDE-0485, Manual Ultrasonic Examination of Vessel Nozzle Inside Radius, Rev. 5
WDI-STD-146, ET RV Pipe Welds Inside Surface, Rev. 9
WDI-STD-144, RVHI ICI Bottom OD Surface EC Manual Probe Inspection, Rev. 5

Drawings
D207776-0, IPU2 RCS Hot Leg Noz/SE/Pipe/ID Clad details, Weld RPVS-21-1A
D207780-0, IPU2 RCS Cold Leg Noz/SE/Pipe/ID Clad details, Weld RPVS-21-14A
D207835-0, IPU2 RCS Przr Surge Line Noz/SE/Pipe Weld PZRS-6
A206918-1, Pressurizer No. 21
D207982-0, IPU2 Surge line Weld RPVS-63-1

Miscellaneous
IPEC Strike Contingency Plan

LIST OF ACRONYMS

ADAMS	Agency-wide Document and Management System
ALARA	Low As is Reasonably Achievable
ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers
BACC	Boric Acid Corrosion Control
CFR	Code of Federal Regulations
CL	Cold Leg
CR	Condition Report
CRDM	Control Rod Drive Mechanism
DAC	Derived Airborne Concentration
EC	Engineering Change
EDG	Emergency Diesel Generator
EPD	Electronic Personal Dosimeter
ET	Eddy Current Testing
HL	Hot Leg
IMC	Inspection Manual Chapter
IPEC	Indian Point Energy Center
IP2	Indian Point 2
IR	Inspection Report
IP	Inspection Procedure
LCO	Limiting Condition of Operation
LOCA	Loss-of-Coolant Accident
MRP	Materials Reliability Program
NCV	Non-cited Violation
NDE	Non-Destructive Examination
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NUREG	NRC Technical Report Designation
PARS	Publicly Available Records
PTRG	Post Trip Review Group
RVP	Reactor Vessel Pressure
RWP	Radiation Work Permit
RWST	Refueling Water Storage Tank
SER	Safety Evaluation Report
SDP	Significance Determination Process
SG	Steam Generator
SSC	Structures, Systems, and Components
SW	Service Water
TS	Technical Specifications
UFSAR	Updated Final Safety Evaluation Report
UT	Ultrasonic Testing
VC	Vapor Containment