



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

May 11, 2009

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 No. 3 – NRC INTEGRATED  
INSPECTION REPORT 05000286/2009002**

Dear Mr. Pollock:

On March 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit No. 3. The enclosed integrated inspection report documents the inspection results, which were discussed on April 15, 2009, with you and other members of your staff.

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

This report documents one finding of very low safety significance (Green), which was also 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 the finding as a non-cited violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest this NCV, you should provide a written 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 D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Senior Resident Inspector at Indian Point Nuclear Generating Unit 3. In addition, if you disagree with the characterization of this finding, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspectors at Indian Point Nuclear Generating Unit 3. 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 (10 CFR) Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room of the Publicly Available Records System (PARS) component of the NRC's document system (ADAMS).

J. Pollock

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Sincerely,

**/RA/**

Mel Gray, Chief  
Projects Branch 2  
Division of Reactor Projects

Docket No. 50-286  
License No. DPR-64

Enclosure: Inspection Report No. 05000286/2009002  
w/ Attachment: Supplemental Information

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J. Pollock

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w/ Attachment: Supplemental Information

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U.S. Nuclear Regulatory Commission

Region I

Docket No.: 50-286

License No.: DPR-64

Report No.: 05000286/2009002

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 3

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

Dates: January 1, 2009 through March 31, 2009

Inspectors: P. Cataldo, Senior Resident Inspector, Indian Point 3  
A. Koonce, Resident Inspector, Indian Point 3  
C. Hott, Resident Inspector, Indian Point 2  
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Projects Branch 2  
Division of Reactor Projects

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## SUMMARY OF FINDINGS

IR 05000286/2009-002; 01/01/2009 – 03/31/2009; Indian Point Nuclear Generating Unit 3; Radiological Access Control.

This report covered a three-month period of inspection by resident and region-based inspectors. One finding of very low significance (Green) was identified, which was also determined to be a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." The cross-cutting aspect for each 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.

A. NRC-Identified and Self-Revealing Findings

**Cornerstone: Occupational Radiation Safety**

- Green. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, "Procedures," because Entergy personnel did not generate condition reports or investigation paperwork for multiple high dose-rate alarms as required by station procedures. Specifically, personnel did not generate the required condition reports and adequately document the investigations for 21 instances of unplanned or un-briefed electronic dosimeter alarms that occurred between January 2009 and March 2009. The performance deficiency resulted in workers receiving unanticipated dose rate alarms with no formally-documented investigation prior to returning to work in a Radiologically Controlled Area. Entergy entered the finding into the corrective action program as condition report CR-IP3-2009-01253 and 01318.

The finding is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of programs and process, and adversely affected the objective to ensure adequate protection of worker health and safety from exposure to radiation. Moreover, the inspectors identified a programmatic deficiency to maintain and implement programs to keep exposures as low as reasonably achievable, because multiple examples were identified regarding the failure to satisfy station radiation protection procedures. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined that the finding was of very low safety significance (Green) because it did not involve: (1) as low as is reasonably achievable planning and controls, (2) an overexposure of an individual, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose.

The inspectors determined that the finding had a cross-cutting aspect related to procedural adherence in the Work Practices component of the Human Performance area. Specifically, Entergy employees did not follow procedures to generate condition reports and document investigations when high dose-rate alarms were received by workers. H.4(b) (Section 2OS1)

B. Licensee-Identified Violations

None.



## REPORT DETAILS

Summary of Plant Status

Indian Point Nuclear Generating (Indian Point) Unit 3 began the inspection period at full reactor power. On March 10, 2009, a planned downpower was initiated that culminated in the Unit being taken off-line to begin refueling outage No. 15 (3R15). The Unit remained off-line to refuel for the remainder of the inspection period.

**1. REACTOR SAFETY****Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**1R01 Adverse Weather Protection (71111.01 – 2 samples).1 Impending Cold Weather Reviewa. Inspection Scope

The inspectors performed a detailed review of Entergy's procedures to address impending cold weather conditions due to a forecasted arctic front on January 15, 2009. The inspectors evaluated Entergy's preparation and readiness for cold weather conditions, evaluated applicable compensatory measures, conducted walk downs of plant equipment, and verified that cold weather deficiencies from previous years have been addressed. In addition, the inspectors reviewed the status of deficiencies identified during the current seasonal preparations, and verified that adverse conditions were being adequately addressed to ensure the impending cold weather conditions would not have significant impact on plant operation and safety. The documents reviewed during this inspection are listed in the Attachment. This review of cold weather preparations represented one inspection sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 3 samples)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, and where applicable, following return to service after maintenance. The inspectors reviewed 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 or work orders to ensure that Entergy personnel had identified and properly addressed equipment deficiencies that could potentially impair the capability of the available train. 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:

- Auxiliary feedwater system following return to service of the 31 auxiliary boiler feedwater pump on February 20, 2009;
- 31 and 33 emergency diesel generators (EDG) while the 32 EDG was out-of-service for 8-year and 16-year planned maintenance activities; and
- 31 and 33 safety injection (SI) pumps during planned maintenance on the 32 SI pump on February 6, 2009.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 6 samples)

a. Inspection Scope

The inspectors conducted tours of various fire areas to assess the material condition and operational status of applicable fire protection features. The inspectors verified, consistent with the applicable administrative procedures, that: 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 against the requirements of License Condition 2.K. Additionally, the inspectors reviewed the circumstances surrounding a fire main component leak located at the header isolation valve associated with the Outage Support Building (Fire Zones 391 and 392). The documents reviewed during this inspection are listed in the Attachment.

This inspection represented six inspection samples and was conducted in the areas covered by the following Pre-Fire Plans:

- Pre-Fire Plan Nos. 391 and 392;
- Pre-Fire Plan 306;
- Pre-Fire Plan 306A;
- Pre-Fire Plan 362;
- Pre-Fire Plan 362A; and
- Pre-Fire Plan 362B.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

a. Inspection Scope

The inspectors reviewed the Unit 3 Individual Plant Examination, the UFSAR, and IP-RPT-06-00071, "Indian Point Unit 3 Probabilistic Safety Assessment (PSA)," Rev. 2,

concerning internal flooding events. The inspectors assessed flood mitigation attributes within the turbine building that are utilized to minimize potential impacts of flooding on the vital 480 Volt switchgear room that adjoins the turbine building. The inspectors also reviewed a surveillance test conducted on February 3, 2009, associated with flood level indicators in the turbine building, 3-PT-R22, "Turbine Building (Lower Level) Level Sensors," Rev. 10. This inspection represented one sample for internal flood protection measures.

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 service water system piping. 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 radiographic results for selected piping segments to ensure pipe corrosion and conditions adverse to quality were being identified and corrected. This inspection represented one sample for heat sink performance.

b. Findings

No findings of significance were identified.

1R08 In-service Inspection (71111.08 - 1 sample)

a. Inspection Scope

Activities inspected during the Unit 3 refuel outage 15 (3R15) included observations of ultrasonic testing (UT) calibration or in-progress component testing using manual and computer based UT techniques. Manual UT observations included the main steam 6" diameter, loop 32, pipe welds 22 and 23 shown on drawing 2201, Rev 6, and review of the UT data sheets for residual heat removal (RHR) pipe welds W13 and W16. The sample of visual inspection (VT) included the areas of the containment inner boundary at the containment liner and containment penetrations. The task work orders and test data for several ultrasonic and visually identified indications were reviewed and confirmed to be evaluated by Entergy personnel as part of the in-service inspection process.

The inspectors observed the video-visual examination results for a sample of the reactor pressure vessel (RPV) upper head-to-control rod drive mechanism (CRDM) penetrations per the EPRI guidelines. This inspection included the sequence of Entergy's evaluation of the as-found conditions, conducted in accordance with procedure 3-PT-R203, Rev. 3, which used a robot crawler to position a camera to view the circumference of each CRDM for boric acid leakage. This inspection also included a comparison of the 2009 visual observations with those of the previous (2007) outage which included CRDMs 17, 24, 41, 53, 60, and 76.

The inspectors reviewed a sample of computer-based, eddy current (ET) and ultrasonic testing (UT) records and results of the upper RPV-head-to-CRDM penetrations and weld examinations as conducted from the underside of the RPV head.

In the area of boric acid corrosion control activities, the inspectors confirmed the extent of boric acid walkdowns during plant operation and the plant shutdown process, and verified that identified problem areas were documented in condition reports for evaluation and resolution. In particular, the inspectors reviewed visual records of the as-found and as-left conditions of a reactor vessel head mechanical penetration, Conoseal #3, which had experienced some leakage and was identified by Entergy personnel at shutdown. The inspectors confirmed the Conoseal leakage to be from a mechanical joint and not pressure boundary leakage that was repaired during this refueling outage. Additionally, the inspectors evaluated the as-left condition on the RPV head in that area and other potentially affected areas. The condition of the upper threads on vessel stud #29 and the status of eight other studs were visually inspected to confirm that no significant degradation was present.

The inspectors noted that steam generator (SG) tube inspection results from the 2007 (3R14) outage provided the basis for not performing eddy current testing (ECT) of SG tubes during the 3R15 outage. The inspectors reviewed the SG tube assessment (Report IP-RPT-06-00186) for 3R14 and the documented review (Report IP-RPT-07-00031) of the acceptability of SG operation for two cycles until 3R17. It was noted that the operating conditions between 3R15 and 3R16 would be assessed to confirm that those conditions were consistent with the IP-RPT-07-00031 report prior to the start of RFO 3R16.

The inspectors reviewed computer-based ECT and UT records and examination results of the four hot leg and four cold leg primary piping-to-reactor vessel nozzles consistent with the dissimilar metal weld program under MRP-139. These welds were examined under water from the inside of the reactor pressure vessel (RPV). The answers to the applicable TI 2515/172 (temporary inspection) procedure are included in Section 4OA5 of this report. Additionally, the inspectors reviewed a sample of the computer-based ECT and UT records and examination results of the bottom-mounted RPV penetrations that were accessed from inside the RPV.

The inspectors reviewed the video record of the visual examinations of the three 6" safety and one 4" pressure relief pressurizer upper cast head inner radius to nozzle surfaces to verify the adequacy of the examination technique and to confirm the status of the inner radius and related areas. The accessible areas around the 4" spray nozzle were also viewed although the inner radius of the spray nozzle was not accessible. No items of degradation were observed in any of the visually accessible areas.

The inspectors noted that the surge nozzle-to-pipe dissimilar metal, stainless steel weld, located at the bottom of the pressurizer was ultrasonically examined after appropriate preparation of the exterior surface by grinding flush. The inspectors examined the grinding mockup, the as-ground condition, the engineering analysis including thickness calculation, and the UT results.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11Q - 1 sample)Quarterly Resident Inspector Evaluationa. Inspection Scope

The inspectors observed licensed operator regualification training conducted on February 25, 2009, in the Unit 3 plant-reference simulator. The inspectors assessed the scope and breadth of the training, which focused on specific activities that were planned for the Unit 3 refueling outage. In particular, the inspectors observed simulated activities associated with the normal cooldown process that occurs following entry into the outage as the plant transitions into lower modes of operation as defined by technical specifications. The inspection also included the following: (1) discussions with Entergy staff regarding deficiencies in operator performance and/or training being addressed in the current regualification training cycle; and (2) assessment of the implementation of abnormal operating procedures utilized by Unit 3 control room operators to respond to, and mitigate the effects of, simulated loss of residual heat removal cooling.

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." Documents reviewed during this inspection are listed in the Attachment. This review represented one inspection sample for licensed operator regualification training.

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; and
- For SSCs classified as Maintenance Rule (a)(1), that goals and associated corrective actions were adequate and appropriate for the circumstances.

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 Unit 3 systems and/or components were reviewed and represented three inspection samples:

- Intake structure;
- Emergency diesel generators; and
- RWST level indication system.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed maintenance activities to verify that the appropriate on-line and shutdown 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. Additionally, the inspectors utilized IMC 0609, Appendix G, during various refueling outage periods, to assist in the evaluation of Entergy's shutdown risk assessments. The documents reviewed during this inspection are listed in the Attachment. The following activities represented five inspection samples:

- Planned risk during containment fan cooler and N42 power range nuclear instrumentation activities on January 26, 2009;
- Planned risk during troubleshooting activities associated with 480-Volt safety bus 6A conducted on February 5, 2009;
- Planned risk during quarterly calibrations of power range nuclear instrumentation channels N41 and N42 on February 17, 2009;
- Initial RCS drain down for reactor vessel head removal on March 13, 2009; and
- Defense-in-depth contingency 3A during 138kV electrical system outage on March 20, 2009.

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 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 UFSAR and associated design and licensing basis documents. The documents reviewed are listed in the Attachment. The following operability evaluations were reviewed and represented four inspection samples:

- CR-IP3-2009-00052: Noise from 32 service water pump bearing;

- CR-IP3-2009-00138/00151: 33 control building exhaust fan deficiencies;
- CR-IP3-2009-00135: Unit 3 auxiliary transformer tap changer deficiencies;
- CR-IP3-2009-00408/00421: Safety injection room scaffolding deficiencies; and
- CR-IP3-2008-01589: 33 emergency diesel generator past operability evaluation (3R/4R cylinder lockout event from June/July 2008).

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 – 1 sample)

Temporary Emergency Diesel Generator (EDG) Cooling Water Modification

a. Inspection Scope

The inspectors reviewed design change documentation that supported Entergy's installation of temporary end bells on the 31 and 33 EDG jacket water heat exchangers. This modification diverted service water to a local storm drain to support maintenance activities on the Service Water System. The inspectors verified that the design bases, licensing bases, and performance capability of the system was not degraded by the temporary modification. The inspectors verified that Entergy utilized established procedures governing the use of temporary end bells while they were in service. In addition, the inspectors interviewed plant staff, and reviewed issues that had been entered into the corrective action program to determine whether Entergy had been effective in identifying and resolving problems associated with temporary modifications. The documents reviewed are listed in the Attachment.

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 plant personnel. The inspectors verified that: test acceptance criteria were clear; tests demonstrated operational readiness and were consistent with design basis documentation; test instrumentation had current calibrations and appropriate range and accuracy for the application; tests were performed as written; and applicable test prerequisites were satisfied. Upon completion of the tests, the inspectors verified that 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 following post-maintenance activities were reviewed and represented seven inspection samples:

- 33 containment fan cooler air flow switch replacement on January 8, 2009;

- Fuel storage building ventilation following charcoal and filter replacement on January 26, 2009;
- 31 residual heat removal pump load sequence calibration on February 12, 2009;
- Valve diagnostic test and calibration of MS-PCV-1134 on February 18, 2009;
- 32 EDG air receiver following liner installation on March 15, 2009;
- 32 EDG following 16-year and 8-year PMs on March 16, 2009; and
- 31 auxiliary boiler feedwater pump cutback controller repair.

b. Findings

No findings of significance were identified.

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

Refueling Outage No. 15 (3R15)

a. Inspection Scope

The inspectors observed and/or evaluated the selected outage activities listed below to verify that (1) shutdown risk was considered during schedule preparation and implementation, and high risk significant evolutions such as mid-loop or reduced inventory conditions; (2) defense-in-depth (DID) measures were utilized to mitigate impacts on key safety functions (e.g., reactivity control, electrical power availability, containment integrity, etc.) due to plant configuration control changes and ensure compliance with technical specifications and the operating license throughout the outage period; and (3) risk significant activities were conducted in accordance with procedures and evaluated in a manner appropriate for the circumstances.

- Fuel receipt and inspection activities; Special nuclear material (SNM) accountability and transfer;
- Plant shutdown, cooldown (in accordance with TS limits) entry into residual heat removal operation; and refueling operations (e.g., reactor vessel head lift, core offload, etc);
- Changes in daily plant risk and implementation of DID measures;
- Post-shutdown boric acid inspection inside the vapor containment to assess effectiveness of unidentified leakage monitoring and compliance with TS;
- Evaluated multiple reactor and refueling cavity draindown evolutions to verify procedural compliance, and operability and functionality of the redundant and diverse reactor coolant system level instrumentation;
- A sample of lockout/tagouts and clearances, were reviewed to verify appropriate controls of plant configuration changes were being implemented for the protection of plant equipment and personnel;
- Open outage constraints (work orders and condition reports) were reviewed to verify appropriate disposition of issues, both technical and /or administratively, to ensure compliance with procedural and/or TS requirements;
- Vapor containment closure team DID measures (DID-C4) and contingency implementation, team make-up, briefings, and inspection of staged tools;
- Evaluated refueling cavity upender sheave failure and replacement activities;
- Evaluated boration flowpath activities to ensure appropriate reactivity controls; and
- Observed and/or evaluated several surveillance tests, which included:



- 3-PT-R145, "AMSAC System Functional Check," Rev. 14;3
- 3-PC-R62C, "Inadequate Core Cooling Monitor-86 Calibration," Rev. 12;
- 3-PC-R45, "Calibration Procedure For The Gamma-Metrics Excore Nuclear Instrumentation System," Rev. 15;
- 3-PT-V51, "Overpressure Protection System Channel Operational Test," Rev. 2; and
- 3-PT-R003G, "31 EDG/2AT5A Interlock Test," Rev. 2.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – 6 samples)

a. Inspection Scope

The inspectors witnessed performance of surveillance tests and/or reviewed test data of selected risk-significant structures, systems, and components, to assess whether test results satisfied Technical Specification, 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 that the 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 six inspection samples, which includes RCS and IST surveillances:

- 3-PT-Q116C, "33 Safety Injection Pump Functional Test," Rev. 13, conducted on January 28, 2009;
- 0-SOP-LEAKRATE-001, "RCS Leakrate Surveillance, Evaluation and Leak Identification," Rev. 1, conducted on March 9, 2009;
- Bus 6A portion of 3-PT-R003B, "Safety Injection System Test Breaker Sequencing/ Bus Stripping," Rev. 26, conducted on March 13, 2009;
- 3-PT-Q120C, "33 ABFP (Motor Driven) Surveillance And IST," Rev. 9, conducted on January 23, 2009;
- 3-PT-M62C, "480V Undervoltage/Degraded Grid Protection System Bus 6A Functional," Rev. 7, conducted on February 5, 2009; and
- 3-PT-R006A, "Main Steam Safety Valves Setting Test Using Set Pressure Verification Device," Rev. 8, conducted on March 10, 2009.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety (OS)**

2OS1 Access Control to Radiologically Significant Areas (71121.01 - 16 samples)

a. Inspection Scope

During March 23 - 27, 2009, the inspectors conducted the following activities to verify that Entergy personnel were properly implementing physical, engineering, and administrative controls for access to high radiation areas, and other radiologically controlled areas, and that workers were adhering to these controls when working in these areas. Implementation of the access control program was reviewed against the criteria contained in 10 CFR 20 and Entergy's procedures required by the Technical Specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. This inspection activity represents completion of sixteen (16) samples relative to this inspection area.

The inspectors performed independent radiation dose rate measurements and reviewed the following items:

Plant Walk Downs and Radiation Work Permit (RWP) Reviews

- (1) Exposure-significant work areas were identified for review within radiation areas, high radiation areas, and airborne areas in the plant. Associated administrative controls and surveys were reviewed for adequacy. This review included: Refuel floor split pin and reactor head inspections, refuel floor lower internals removal and installation, refuel floor and fuel support building fuel transport equipment repairs requiring an underwater diver, reactor coolant pump (RCP) work including RCP #31 impeller replacement, containment valve work including pressurizer safety valves, various containment and auxiliary building activities.
- (2) With the use of a survey instrument and assistance from a Health Physics Technician, performed a walkdown of these areas to determine whether the appropriate RWPs, procedure, and engineering controls were in place, and whether surveys and postings were adequate.
- (3) The inspectors reviewed RWPs that provide access to exposure-significant areas of the plant including high radiation areas. Specified electronic personal dosimeter alarm set points were reviewed with respect to current radiological condition applicability, and workers were queried to verify their understanding of plant procedures governing alarm response and knowledge of radiological conditions in their work area.
- (4) The inspectors noted there were no RWPs for airborne radioactivity areas with the potential for individual worker internal exposures of >50 mrem CEDE.
- (5) The inspectors noted there were no internal dose assessments that resulted in actual internal exposures greater than 50 mrem CEDE. Internal assessments were reviewed to determine adequacy and assurance that they were not in fact equal to or greater than 50 mrem CEDE.

Problem Identification and Resolution

- (6) The inspectors reviewed condition reports associated with access controls since the last inspection in this area. Staff members were interviewed and documents

reviewed to determine whether follow-up activities were being conducted in an effective and timely manner, commensurate with their safety and risk.

- (7) For repetitive deficiencies or significant individual deficiencies in problem identification and resolution, the inspectors determined if Entergy's assessment activities were also identifying and addressing these deficiencies.
- (8) The inspectors noted there were no events associated with performance indicator occurrences that involved dose rates greater than 25 Rem/hour at 30 cm, dose rates greater than 500 Rem/hour at 1 meter, or unintended exposures greater than 100 mrem TEDE (or greater than 5 Rem SDE or greater than 1.5 Rem LDE).

#### Job-in-Progress Reviews

- (9) The inspectors observed aspects of various on-going activities to confirm that radiological controls, such as required surveys, area postings, job coverage, and job site preparations were conducted. The inspectors verified that personnel dosimetry was properly worn and that workers were knowledgeable of work area conditions. The inspectors attended pre-planning meetings for work described earlier in the report.
- (10) The inspectors reviewed the adequacy of underwater diving activities associated with repairs to the fuel transport system, which included dosimetry requirements, bioassay requirements and controls.

#### High Risk Significant, High Dose Rate High Radiation Areas (HRA) and Very HRA Controls

- (11) The inspectors reviewed the adequacy of inventory and key control for access to LHRA and VHRA. The inspector verified that accessible LHRAs were properly secured and posted during plant tours.
- (12) The inspectors discussed with Radiation Protection supervision the adequacy of high dose rate HRA and VHRA controls and procedures and verified that no programmatic or procedural changes have occurred that reduce the effectiveness and level of worker protection.

#### Radiation Worker Performance

- (13) During observation of the work activities listed above, the inspectors evaluated radiation worker performance with respect to the specific radiation protection work requirements, and their knowledge of the radiological conditions in applicable work areas.
- (14) The inspectors reviewed condition reports related to radiation worker performance to determine if an observable pattern, traceable to a similar cause was evident.

#### Radiation Protection Technician Proficiency

- (15) During observation of the work activities listed above, the inspectors evaluated radiation protection technician work performance with respect to their knowledge of the radiological conditions, the specific radiation protection work requirements and radiation protection procedures.
- (16) The inspectors reviewed condition reports related to radiation protection technician proficiency to determine if an observable pattern traceable to a similar cause was evident.

b. Findings

Introduction: The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, "Procedures," because Entergy personnel did not generate condition reports or investigation paperwork for multiple high dose-rate alarms as required by station procedures. Specifically, personnel did not generate the required condition reports and adequately document the investigations for 21 instances of unplanned or un-briefed electronic dosimeter alarms that occurred between January 2009 and March 2009.

Description: During the period January 2009 through March 2009, 21 instances of electronic dosimeter dose rate alarms were recorded by the access control system. During this period, Entergy personnel inconsistently utilized an informal process of reviewing the alarms without a full investigation or approval process. Moreover, in three of the 21 instances, the inspectors identified that no investigation or follow-up had occurred. In some cases, the occurrences were over two months old, which the inspectors noted would have made resultant investigations more challenging to perform. In other cases, the alarms were not identified until the worker attempted to re-enter the radiologically controlled area (RCA) and the access control system required manual override to "un-lock" the occurrence to allow entry into the RCA. The inspectors noted that the controlling Entergy procedure for this activity, EN-RP-203, "Dose Assessment," specifies that for a dose-rate alarm that is unanticipated or un-briefed, several actions are required, one of which is to initiate a condition report, another is to document the investigation using an attachment in the procedure. Contrary to EN-RP-203, for these 21 instances, no condition reports or attachments were generated with a detailed investigation prior to the workers re-entering the radiologically controlled area. The highest exposure received by these workers during their entry, as indicated by their electronic dosimeter and logged by the access control system, was 33 mRem, while most dosimeters indicated less than 1 mRem for the entry.

Analysis: The inspectors determined that the failure to generate a condition report, as well as the failure to adequately investigate 21 unplanned or un-briefed electronic dosimeter alarms prior to re-entry into the RCA, as required by station procedure was a performance deficiency. This performance deficiency was within Entergy personnel's ability to foresee and correct, and should have been prevented. This issue was not subject to traditional enforcement, in that it did not have actual safety consequence, it was not an issue that had the potential to impact NRC's ability to perform its regulatory function, and there were no willful aspects.

The finding is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of programs and process, and adversely affected its objective to ensure adequate protection of worker health and safety from exposure to radiation. Moreover, the inspectors identified a programmatic deficiency to maintain and

implement programs to keep exposures as low as reasonably achievable, because multiple examples were identified regarding the failure to satisfy station radiation protection procedures. Specifically, in 21 cases, Entergy did not fully evaluate dose rate alarms received by workers in radiologically controlled areas of the plant. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined that the finding was of very low safety significance (Green) because it did not involve: (1) as low as is reasonably achievable planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose.

The inspectors determined that the finding had a cross-cutting aspect related to procedural adherence in the Work Practices component of the Human Performance area. Specifically, Entergy employees did not follow procedures to generate condition reports and document investigations when high-dose rate alarms were received by workers. (H.4 (b))

Enforcement. Technical Specification 5.4.1.a, "Procedures," requires that Entergy establish, implement, and maintain procedures specified in Regulatory Guide (RG) 1.33, Revision 2, Appendix A., Section 7.e, radiation protection procedures for personnel monitoring. Entergy procedure EN-RP-203, Revision 2, Section 5.11, requires that a condition report be written for each unplanned or un-briefed electronic dosimeter dose-rate alarm. Contrary to the above, the inspectors identified through a review of electronic dosimeter log information from January 2009 through March 2009, 21 instances of unanticipated or un-briefed electronic dosimeter dose-rate alarms when the procedure was not implemented and condition reports were not generated. Because this finding was of very low safety significance and it was entered into the corrective action program as CR-IP3-2009-001253 and CR-IP3-2009-001318, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. **(NCV 05000286/2009002-01, Failure to Follow Radiation Protection Procedures)**

## 2OS2 ALARA Planning and Controls (71121.02 - 12 samples)

### a. Inspection Scope

During March 23 - 27, 2009, the inspectors conducted the following activities to verify that Entergy personnel were properly maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA). Implementation of the ALARA program was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Entergy's procedures. This inspection activity represents completion of twelve (12) samples relative to this inspection area.

### Inspection Planning

- (1) The inspectors reviewed pertinent information regarding cumulative exposure history, current exposure trends, and on-going activities to assess current performance and outage exposure challenges. The inspectors determined the site's 3-year rolling collective average exposure.
- (2) The inspectors reviewed Unit 3 outage work-related activities that occurred during the inspection period, the associated ALARA plans, RWPs, ALARA Committee Reviews, exposure estimates, actual exposures and post job reviews. Work reviewed included: refuel floor split pin and reactor head inspections,

refuel floor lower internals removal and installation, refuel floor and fuel support building fuel transport equipment repairs requiring an underwater diver, reactor coolant pump (RCP) work, which included RCP #31 impeller replacement, containment valve work including pressurizer safety valves, and various containment and primary auxiliary building activities.

- (3) The inspectors reviewed implementing procedures associated with maintaining occupational exposures ALARA. This included a review of the processes used to estimate and track work activity exposures.

#### Radiological Work Planning

- (4) With respect to the work activities listed above, the inspectors reviewed dose summary reports, related post-job ALARA reviews, related RWPs, exposure estimates and actual exposures, and ALARA Committee meeting paperwork. This review was also performed to verify that dose was appropriately managed and evaluated by station management.
- (5) ALARA work activity evaluations, exposure estimates, and exposure mitigating requirements were reviewed for work packages previously mentioned, to verify whether Entergy had established procedures, as well as engineering and work controls, based on sound radiation protection principles.
- (6) The inspectors compared the results achieved with the intended dose that was established in the planning of the work. The inspectors determined the reasons for inconsistencies between the intended and actual work activity doses and station management awareness and involvement.
- (7) The inspectors evaluated for adequacy, the interfaces between operations, radiation protection, maintenance, maintenance planning and others for interface problems or missing program elements.

#### Verification of Dose Estimates and Exposure Tracking Systems

- (8) Methods for adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work is encountered, were reviewed by the inspectors for adequacy.

#### Job Site Inspections and ALARA Controls

- (9) The inspectors reviewed work activities that present the highest radiological risk to workers. The inspectors evaluated Entergy personnel's use of engineering controls to achieve dose reductions and to verify that procedures and controls are consistent with ALARA reviews. Associated ALARA Plans and RWPs were reviewed to determine if appropriate exposure and contamination controls were being employed.

#### Radiation Worker Performance

- (10) Through observations and interviews by the inspectors, workers and technicians were found to be knowledgeable of the work area radiological conditions and low dose waiting areas.

### Declared Pregnant Workers

- (11) The inspectors reviewed information associated with declared pregnant workers during the assessment period and whether appropriate monitoring and controls were being utilized to ensure compliance with 10CFR20.

### Problem Identification and Resolution

- (12) The inspectors reviewed elements of the Entergy's corrective action program related to implementing radiological controls to determine if problems are being entered into the program for timely resolution.

b. Findings

No findings of significance were identified.

## **4. OTHER ACTIVITIES (OA)**

### 4OA1 Performance Indicator Verification

#### Resident Inspector Baseline Inspection (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.

#### 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

#### .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 condition reports, and attending condition report screening meetings.

In accordance with the baseline inspection procedures, 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. The condition reports reviewed during this inspection are listed in the applicable inspection sections.

b. Findings

No findings of significance were identified.

.2 Occupational Radiation Safety Cornerstone

a. Inspection Scope

The inspectors reviewed 23 corrective action condition reports associated with the radiation protection program that were initiated between December 2008 and March 2009. The inspectors verified that problems identified by these condition reports were properly characterized in the licensee's event reporting system, and that applicable cause and corrective actions were identified commensurate with the safety significance of the radiological occurrences.

b. Findings

No findings of significance were identified.

.3 In-Service Inspection Activities (1R08)

a. Inspection Scope

The inspectors reviewed the extent of oversight of in-service inspection (ISI) nondestructive examination (NDE) activities, including the topics of current ISI oversight and surveillances. This review included a sample of issue reports, which are listed in Attachment 1, to confirm that identified problems were being documented for evaluation and proper resolution.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

Loss of 480 Volt Emergency Safety Bus 6A During Surveillance Testing on January 2, 2009



a. Inspection Scope

The inspectors evaluated the response of control room personnel following the unexpected loss of 480 Volt safeguards bus 6A that occurred during the performance of a degraded grid/undervoltage relay surveillance test on January 2, 2009. The inspectors reviewed plant computer data, 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 short term corrective actions were appropriate in response to the event. This event was entered into Entergy's corrective action program as CR IP3-2009-00011.

b. Findings and Observations

No findings of significance were identified.

The inspectors noted, however, that corrective actions for the current event were tracked in an on-going root cause evaluation for a similar event that occurred on October 9, 2008. In addition, the inspectors noted a failure analysis was planned for applicable equipment and components, and extensive troubleshooting was planned for the current 3R15 outage period.

4OA5 Other Activities

.1 Continued Groundwater Sampling Effort to Monitor Tritium (Deviation Memorandum Inspection)

a. Inspection Scope

During the week of March 23-27, 2009, the inspectors met with Entergy representatives to review the results of recent groundwater samples, as well as those taken and analyzed in 2008. The review was conducted against criteria contained in 10CFR20, 10CFR50, and applicable industry standards.

The review of the data included a comparison of Entergy's data with split samples taken by the NRC of monitoring wells MW-66 and MW-67, as well as the LaFarge sample point. In all, 47 samples were analyzed and compared from January 2008 through January 2009. Isotopic analyses were performed and compared at each of the sample points for: Tritium, Strontium 90, Nickel 63, and gamma emitters such as Cobalt-60 and Cesium-137. Results of the NRC samples can be found in ADAMS accession numbers: ML081420676, ML082690244, ML082690202, ML082690237, ML082730830, ML082730810, ML090400523, ML090400516, ML090400502, ML090923932, ML090920949.

Entergy's evaluation of recent groundwater results are documented in condition reports: CR-IP2-2009-00883, CR-IP2-2009-01110, CR-IP2-2009-01111, CR-IP2-2009-01113, and CR-IP2-2009-01114.

b. Findings

No findings of significance were identified.

The inspectors concluded that overall, there was agreement between Entergy personnel's results and those independently analyzed by the NRC, and that actions taken by Entergy have been appropriate. The inspectors also noted that conservative estimates indicate that the samples represent a very small fraction of the permissible public dose limits and are negligible with respect to natural background radiation levels.

.2 Inspection Results for TI 2515/172, Reactor Coolant System (RCS) Dissimilar Metal Butt Welds

a. Inspection Scope

The NRC's Temporary Instruction (TI) 2515/172, provides for confirmation that owners of pressurized-water reactors (PWRs) have implemented the industry guidelines of the Materials Reliability Program (MRP)-139 regarding nondestructive examination and evaluation of certain dissimilar metal (DM) welds in reactor coolant systems containing Alloy 600/82/182. The TI requires documentation of specific questions in an inspection report, and those questions and responses applicable to Indian Point are included below.

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

For Unit 3 during 3R15 in Spring 2009, eight alloy 82/182 welds were examined from the nozzle inner diameter by ECT 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 examined by ECT and UT methods. The inspector evaluated the UT and ET techniques, which included the data analysis process and qualifications of both the NDE procedures and the NDE examiners. No significant indications were found on these welds. One very small indication in the weld cladding of CL 34 was identified but found to be acceptable for continued service.

a. For MRP-139 baseline inspections of IP Unit 3 in 2009:

Qa1. Have the baseline inspections been performed or are they scheduled to be performed in accordance with MRP-139 guidance?

A. Yes. The four HL and CL Unit 3 welds were scheduled for UT and ECT examinations and performed during the Spring 2009 3R15 refueling outage.

Qa2. Is the licensee planning to take any deviations from the MRP-139 baseline inspection requirements? If so, what deviations are planned and what is the general basis for the deviation? If inspectors determine that a licensee is planning to deviate from any MRP-139 baseline inspection requirements, NRR should be informed by email as soon as possible.

A. No deviations are planned for Unit 3 as the 3R15 ECT and UT examinations complete the MRP-required examination scope.

b. For each examination inspected at IP Unit 3 in 2009 was the activity:

Qb1. Performed in accordance with the examination guidelines in MRP-139 Section 5.1 for unmitigated welds or mechanical stress improved welds and consistent with NRC staff relief request authorization for weld overlaid welds?

A. For Unit 3, neither mechanical stress relief nor weld overlays were performed. The four HL and CL Unit 3 weld UT and ECT examinations were performed from the nozzle inside diameter at the DM weld location. Also, the outside surfaces of these welds were visually examined in 2007.

Qb2. Performed by qualified personnel? (Briefly describe the personnel training/qualification process used by the licensee for this activity.)

A. The UT was performed with a qualified procedure and by qualified individuals. The eddy current examinations were done in accordance with procedure WDI-STD-146, Rev 9, with review of the qualifications of the ECT individuals as part of the pre-job preparations.

Qb3. Performed such that deficiencies were identified, dispositioned, and resolved?

A. One minor indication in the weld internal surface clad material was identified on the 34 CL. This UT-identified condition was reviewed and resolved by the Level III data reviewer. The condition was not surface interfacing and was not an eddy current indication.

b. Findings

No findings of significance were identified

.3 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that these activities were consistent with Entergy security procedures and applicable regulatory requirements. Although these observations did not constitute additional inspection samples, the inspections were considered an integral part of the normal, resident inspector plant status reviews during implementation of the baseline inspection program.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

On April 15, 2009, the inspectors presented the inspection results to Mr. Joe Pollock and other Energy staff members, who acknowledged the inspection results. While some

proprietary items were reviewed and returned during the inspection, no proprietary information is presented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Entergy Personnel

J. Pollock, Site Vice President  
A. Vitale, General Manager, Plant Operations  
K. Davison, Assistant General Manager, Plant Operations  
P. Conroy, Director, Nuclear Safety Assurance  
D. Gagnon, Manager, Security  
R. Walpole, Manager, Licensing  
B. Beckman, Manager, Maintenance  
J. Dinelli, Assistant Operations Manager, Unit 3  
V. Myers, Supervisor, Mechanical Design Engineering  
T. Orlando, Engineering Director  
R. Burroni, Manager Programs, Components and Engineering  
D. Loope, Manager, Radiation Protection  
S. Verrochi, Manager System Engineering  
F. Inzirillo, Manager, Quality Assurance  
N. Azevedo, Supervisor, Code Programs  
T. Morzello, Maintenance Supervisor  
G. Dahl, Licensing Engineer  
H. Anderson, Licensing Engineer  
D. Smith, ALARA Specialist  
G. Hocking, Supervisor, Radiation Protection Support  
R. Blaine, Supervisor, Radiation Protection Operations  
S. Sandike, Specialist, Effluent & Environmental Monitoring  
P. Donahue, Specialist, Effluent & Environmental Monitoring  
R. Mages, ALARA Specialist  
N. Papayia, QA  
B. Allen, Code Programs

**LIST OF ITEMS OPENED, CLOSED AND DISCUSSED**

Open and Closed

05000286/2009002-01                      NCV                      Failure to Follow Radiation Protection Procedures (Section 2OS1)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R01: Adverse Weather Protection**

Procedures

OAP-048, "Seasonal Weather Preparation," Rev. 4  
 OAP-008, "Severe Weather Preparations," Rev. 5  
 3-PT-W011, "TSC Diesel Generator Support System Inspection," Rev. 18

**Section 1R04: Equipment Alignment**

Miscellaneous

CR-IP3-2009-00070

Other

Flow Diagram 9321-F-27503, "Safety Injection System, Sheet No. 2," Rev. 48  
 3-COL-FW-2, "Auxiliary Feedwater System," Rev. 29  
 3-COL-EL-005, "Diesel Generators," Rev. 33  
 3-COL-SI-001, "Safety Injection System," Rev. 38

**Section 1R05: Fire Protection**

Procedures

EN-DC-161, "Control of Combustibles," Rev. 3  
 IP-SMM-DC-901, "IPEC Fire Protection Program," Rev. 6  
 Pre-Fire Plans 391, 392, 306, 306A, 362, 362A, and 362B  
 3-COL-FP-2, "Fire Protection System Ring Header," Rev. 10

Condition Reports (CR-IP3-2009-)

00499	00504	00511	00556	00584	00600	00604
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**Section 1R07: Heat Sink Performance**

CR-IP3-2009-00535  
 IP CALC-09-00039  
 WO 00133315  
 RT Report # IP3-RT-09-008, "Weld PAB-106, Line #408"

**Section 1R08: In-Service Inspection**

ENN-NDE-9.04, Rev 2. Ultrasonic Examination of Ferritic Piping Welds (ASME Sect XI)  
 PDI-UT-1, Rev 20, Ultrasonic Examination of Ferritic Piping Welds

3-PT-R114, Rev 10. RCS Boric Acid Leakage and Corrosion Inspection  
 3-PT-R131, Rev 11. RCS Integrity Leak Test  
 WDI-UT-004, Rev 12. IntraSpect UT Analysis Guidelines for RPV Upper Head CRDM welds  
 WDI-ET-013, Rev 13. IntraSpect ET Analysis Guidelines for RPV Upper Head CRDM welds  
 EN-DC-343, Rev 0. Buried Piping and Tanks Inspection and Monitoring Program  
 WDI-STD-146, Rev 9 ET RV Pipe Welds (ID)  
 WDI-STD-142, Rev 2 ET RV BMI Welds (ID)  
 WDI-STD-134, Rev 5 UT RV BMI Welds (ID)  
 WDI-STD-141, Rev 4 UT RV BMI Welds Analysis(ID)  
 3-REF-002-GEN, Section 3.7, Rev 2. RFO Procedure CETNA Conoseal Assembly  
 PDI-ISI-254-SE, Rev 2. Remote ISI Examination of Rx Nozzle to Pipe and Safe End  
 PDI-UT-10, ENN-NDE-9.10, Rev 2. UT procedure for pressurizer surge nozzle.

Drawings

A226192-18, IP U2 Reactor Coolant Pump Shaft Seal  
 9321-F-27453, Rev 30. Flow Diagram - Sampling System (valve 953)  
 9321-F-27383, Rev 27. Flow Diagram RC System (valve 514A)  
 322097-00, Rev 2, Replacement of Removed Liner Insulation (U2)  
 9321-F-1280-15, A200 168, Containment Liner Details (U2)  
 Pressurizer Drawing RCPCPRI, INT-1-2100, Rev 8.  
 6D30575, Rev 3. BMI NDE Calibration Sample Tube

Condition Reports (IP3-2009)

00898	01335	01242	01103	01097	01097
00779	00898	01016	00739	00805	

Work Packages

WO-00154909-01, for NDE  
 WO-00172099-01, for upper RPV head to CRDMs VT

Other

IP3 Boric Acid Master List, dated 3/26/2009  
 Report WDI-PJF-1303956-FSR-002. Pressurizer Surge Nozzle Safe End Surface Preparation  
 and PDI UT Examination, dated March 23, 2009  
 ASME Section XI  
 ASME Section XI, Sub-Section IWE

**Section 1R12: Maintenance Effectiveness**

Procedures

3-PT-Q83, RWST Level Instrument Check and Calibration (LI-921)  
 3-PT-SA43, RWST Level Instrument Check and Calibration (Loop 920A/B)  
 3-ES-1.3, Transfer to Cold Leg Recirculation

Condition Reports (CR-IP3-)

2008-01027	2008-01080	2008-01088	2008-01139	2008-01264	2008-01327
2008-01340	2008-01490	2008-01520	2008-01554	2008-01566	2008-01577
2008-01594	2008-01599	2008-01601	2008-01602	2008-01670	2008-01723
2008-01828	2008-01849	2008-01870	2008-01873	2008-01878	2006-01671
2007-01179	2007-03884	2007-04038	2007-04352	2007-04409	2007-03155
2008-00726	2008-01844	2008-02211	2008-02875	2008-03019	2009-00348

IP2-2009-00527      IP2-2009-01041

Maintenance Rule Monitoring Documents

EN-DC-143, "System Health Reports," Rev. 8  
EN-DC-159, "System Monitoring Program," Rev. 3  
EN-DC-167, "Classification of Structures, Systems, and Components," Rev. 2  
EN-DC-203, "Maintenance Rule Program," Rev. 1  
EN-DC-204, "Maintenance Scope and Basis," Rev. 1  
EN-DC-205, "Maintenance Rule Monitoring," Rev. 2  
EN-DC-206, "Maintenance Rule (a)(1) Process," Rev. 1  
Unit 3 EDG System health report for 4<sup>th</sup> Qtr 2008, Rev. 0  
Unit 3 EDG Health Improvement Plan  
SED-AD-22, "Condition Monitoring of Maintenance Rule Structures," Rev. 4

Miscellaneous

Maintenance Rule Basis Document Residual Heat Removal System, dated 5/23/05

Work Orders

51667042    51802297    51797562    51694152    51688955    51679627  
52024026    00176792

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

Procedures

IP-SMM-WM-101, "On-Line Risk Assessment," Rev. 3  
Work Week Managers Operator's Risk Report, Work Weeks 0905, 0906 and 0908  
3R15 Refueling Outage Schedule Risk Assessment Report, Jan. 2009, Amended Feb. 2009  
IP-SMM-OU-104, Attachment 9.1, "Shiftly Outage Shutdown Safety Assessment," Rev. 5

**Section 1R15: Operability Evaluations**

Procedures

EN-OP-104, "Operability Determinations," Rev. 3  
Indian Point Unit 3 Updated Final Safety Analysis Report, Rev. 2  
3PT-Q124, "Control Building Exhaust Fan Operational Test," Rev. 3  
EN-MA-133, "Control of Scaffolding," Rev. 4

Calculations

IP-CALC-08-00208, Rev. 0  
CN-CRA-08-11, Rev. 0  
IP-CALC-04-00809, Rev. 2  
IP3-ANAL-SI-02802, Rev. 0  
IP3-CALC-ED-00207, Rev. 7

Condition Reports (CR-IP3-)

2008-01589

Other Documents

Engineering Report, IP3-RPT-09-00007, ALCO Genset Operation with Injection Pumps 3R and 4R Locked Out, Rev. 0



EN-MA-133, Attachment 9.1, Scaffold approval forms for Scaffolds #212 and 214

### **Section 1R18: Plant Modifications**

#### Procedures

3-TAP-001-EDG, "Removal and Installation of Service Water Drain Line on Emergency Diesel Generator Jacket Water Heat Exchangers," Rev. 0  
 3-OSP-EL-001, "Emergency Diesel Generator Operation with Temporary Service Water Return Lines," Rev. 3

#### Miscellaneous

EC-13411  
 CR-IP3-2009-00640

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

#### Procedures

EN-MA-101, "Conduct of Maintenance," Rev. 6  
 EN-WM-102, "Work Implementation and Closeout," Rev. 2  
 EN-WM-105, "Planning," Rev. 4 and 5  
 3-PT-R032A, "Fuel Storage Building Filtration System," Rev. 18  
 0-GNR-410-ELC, "Emergency Diesel Generator 8-Year Inspection," Rev. 3  
 3-GNR-026-ELC, "Emergency Diesel Generator 16-Year Inspection," Rev. 4  
 3-PT-R160B, "32 EDG Capacity Test," Rev. 11  
 0-VLV-404-AOV, "Use of Air Operated Valve Diagnostics," Rev. 5  
 3-PT-OL3B15, "Residual Heat Removal Pump #31 Load Sequencer Calibration," Rev. 2  
 3-PT-Q134, "31 RHR Pump Functional Test (RHR Cooling Not In Service)," Rev. 4  
 3-PT-Q126, "Fan Cooler Unit Operational Test," Rev. 0  
 3-PT-R007A, "31 & 33 Auxiliary Boiler Feedwater Pumps Full Flow test," Rev. 16

#### Condition Reports (CR-IP3-)

2009-00012	2009-00013	2009-00138	2009-01200	2009-01222	2009-00149
2008-03053	2008-03074	2008-03165	2008-03240		

#### Work Orders

00162194	51548354	51558427	00165576	00153367	51483691
51672208	51698102	00177619	00163178		

#### Misc

IP3-CALC-ED-01131  
 Engineering Standard ENN-MS-S-009-IP3, "IP3 System Safety Function Sheets," Rev. 1

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

#### Procedures

3-POP-3.3, Plant Cooldown - Hot To Cold Shutdown  
 3-POP-4.1, Operation at Cold Shutdown  
 3-SOP-RHR-001, Residual Heat Removal System Operation  
 3-SOP-NI-003, Setting of the High Flux at Shutdown Alarm  
 3-SOP-RP-021, Filling the RCS/Refueling Cavity  
 3-SOP-CVCS-003, Reactor Coolant System Boron Concentration Control

3-POP-3.2, Plant Recovery From Trip, Hot Standby

Condition Reports (IP3-2009-)

00681      01242      01178      00963      2008-00440

**Section 1R22: Surveillance Activities**

Procedures

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

3-PT-Q-116C, 33 Safety Injection Pump Functional Test," Rev. 13

3-PT-R003B, "Safety Injection System Test Breaker Sequencing/Bus Stripping," Rev. 26

Work Orders

51695634      51796922

Condition Reports (CR-IP3-2009)

00111      00321      00463      00711      00715      00716      00773

**Section 2OS1: Access Control to Radiologically Significant Areas and  
Section 2OS2: ALARA Planning and Controls**

Procedures

EN-RP-100, Rev. 03, Radworker Expectations

EN-RP-101, Rev. 04, Access Control for Radiologically Controlled Areas

EN-RP-102, Rev. 02, Radiological Control

EN-RP-105, Rev. 04, Radiation Work Permits

EN-RP-108, Rev. 07, Radiation Protection Posting

EN-RP-110, Rev. 05, ALARA Program

EN-RP-121, Rev. 04, Radioactive Material Control

EN-RP-131, Rev. 06, Air Sampling

EN-RP-141, Rev. 04, Job Coverage

EN-RP-151, Rev. 02, Radiological Diving

EN-RP-202, Rev. 06, Personnel Monitoring

EN-RP-203, Rev. 02, Dose Assessment

EN-RP-204, Rev. 02, Special Monitoring Requirements

EN-RP-205, Rev. 02, Prenatal Monitoring

EN-RP-208, Rev. 02, Whole Body Counting and In-Vitro Bioassay

Condition Reports

CR-IP3-2009-00752, CR-IP3-2009-00785, CR-IP3-2009-00857, CR-IP3-2009-00885

CR-IP3-2009-00886, CR-IP3-2009-00937, CR-IP3-2009-00998, CR-IP3-2009-01006

CR-IP3-2009-01107, CR-IP3-2009-01154, CR-IP3-2009-01169, CR-IP3-2009-01171

CR-IP3-2009-01183, CR-IP3-2009-01253, CR-IP3-2009-01293, CR-IP3-2009-01295

CR-IP3-2009-01296, CR-IP3-2009-01318, CR-IP2-2009-00883, CR-IP2-2009-01110

CR-IP2-2009-01111, CR-IP2-2009-01113, CR-IP2-2009-01114

Miscellaneous

Radiation Protection Attention Logs (Electronic Dosimeter Alarms)

TEDE ALARA Evaluations

ALARA Committee Reviews

RP-STD-XX, Rev. X, "Unreported Dosimeter Alarms and Anomalies" (Draft)  
IPEC Snapshot Self-Assessment Report (IP3-LO-2007-0010) July 2007 – June 2008.  
RWP's: 2009-002, 2009-003, 2009-2021, 2009-3001, , 2009-3002, 2009-3056, 2009-3501,  
2009-3504, 2009-3515, 2009-3529

### **Section 40A1: Performance Indicator Verification**

#### Procedures

EN-LI-114, "Performance Indicator Process," Rev. 4  
EN-LI-114, Attachment 2, "NRC Performance Indicator Technique Sheet," Rev. 2, for First  
Quarter 2008 thru Fourth Quarter 2008 for selected Performance Indicators  
EN-LI-106, Attachment 9.4, "NRC Submittal Review," Rev. 3  
NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 5

### **Section 40A5: Other Activities**

EnergySolutions Procedure FP-FO-WI-001, Rev. 0, Spent Fuel Pool Cleaning at Indian Point  
Unit 1  
Entergy Procedure 1-RP-RWM-913, Rev. 1, Unit 1 Fuel Handling Building West Pool 24/7  
Demineralizer System  
Entergy Work Order 00123484 10, Modifications to the FHB West Pool Demineralization  
System

#### Completed Surveillance Procedures

3-PT-M079A, Rev. 36, 31 EDG Functional Test, completed July 8, August 6, and Sept. 4, 2008  
3-PT-M079B, Rev. 37, 32 EDG Functional Test, completed July 9, August 6, and Sept. 2, 2008  
3-PT-M079C, Rev. 36, 33 EDG Functional Test, completed July 11, August 8, and Sept. 3, 2008

#### Procedures

3-PT-R160A, Rev. 11, 31 EDG Capacity Test

#### Calculations

IP3-CALC-ED-00207, Rev. 7, 480 V Bus 2A, 3A, 5A, & 6A and EDGs 31, 32 & 33 Accident  
Loading

#### Other Documents

Indian Point Nuclear Generating Unit No. 3, Updated Final Safety Analysis report, Chapter 8,  
Rev. 02, 2007  
MI-11272C, Engine Maintenance Schedule, Nuclear Standby Engines developed by ALCO  
Owner's Group and FM/ALCO  
Indian Point Nuclear Generating Unit No. 3 Technical Specifications, Section 3.8, Electrical  
Power Systems, through Amendment 226  
Indian Point Nuclear Generating Unit No. 3 Technical Specifications Bases, Section 3.8,  
Electrical Power Systems, Rev. 3

**LIST OF ACRONYMS**

ADAMS	Agency Wide Document Management System
ALARA	As Low As is Reasonably Achievable
AMSAC	ATWS Mitigation Actuation Circuit
ATWS	Anticipated Transient without SCRAM
AOPs	Abnormal Operating Procedure
CAP	Corrective Action Program
CB	Control Building
CCW	Component Cooling Water
CEDE	Cumulative Effective Dose Equivalent
CFR	Code of Federal Regulations
CR	Condition Report
CRDM	Control Rod Drive Mechanism
CS	Containment Spray
DEC	Department of Environmental Conservation
DID	Defense In Depth
ECCS	Emergency Core Cooling System
ECT	Eddy Current Testing
EDG	Emergency Diesel Generator
EDO	Executive Director of Operations
EOPs	Emergency Operating Procedures
EPRI	Electric Power Research Institute
ET	Eddy Current (Inservice Inspection Program nomenclature)
FCU	Containment Fan Cooler Unit
FSB	Fuel Storage Building
GL	NRC Generic Letter
HRA	High Radiation Area
I&C	Instrumentation and Controls
IST	Inservice Testing
LCO	Limiting Condition for Operation
LDE	Lens (Eye) Does Equivalent
LHRA	Locked High Radiation Area
LER	Licensee Event Report
mRem	Millirem
MS	Main Steam
MW	Monitoring Well
NCV	non-cited violation
NEI	Nuclear Energy Institute
NIST	National Institute of Science and Technology
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
ODCM	Offsite Dose Calculation Manual
PAB	Primary Auxiliary Building
PARS	Publicly Available Records
PI	Performance Indicator
PI&R	Problem Identification and Resolution
POP	Plant Operating Procedures
PM	Preventive Maintenance
PRA	Probabilistic Risk Assessments
PWR	Pressurized-Water Reactor

QA	Quality Assurance
RCA	Radiological Controlled Area
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RMS	Radiation Monitoring Systems
RP	Radiation Protection
RWP	Radiation Work Permit
RWST	Reactor Water Storage Tank
SCBA	Self-Contained Breathing Apparatus
SDE	Shallow Dose Equivalent
SDP	Significance Determination Process
SFP	Spent Fuel Pool
SG	Steam Generator
SI	Safety Injection
SSC	Structures, Systems, and Components
SW	Service Water
SWP	Service Water Pump
TEDE	Total Effective Dose Equivalent
TI	Temporary Instruction
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing
VC	Vapor Containment
VHRA	Very High Radiation Area
VT	Visual Inspection (Inservice Inspection Program nomenclature)