

November 12, 2008

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

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 3 – NRC INTEGRATED
INSPECTION REPORT 05000286/2008004

Dear Mr. Pollock:

On September 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 3. The enclosed integrated inspection report documents the inspection results, which were discussed on October 17, 2008, with Tony Vitale, 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). These findings were determined to be violations of NRC requirements. However, because of the very low safety significance and because they are entered into the corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region 1; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Indian Point Unit 3.

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 the Publicly Available

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Sincerely,

/RA/ Original Signed By:

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000286/2008004
w/ Attachment: Supplemental Information

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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.: 05000286/2008004

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 3

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

Dates: July 1, 2008 through September 30, 2008

Inspectors: P. Cataldo, Senior Resident Inspector, Indian Point 3
A. Koonce, Resident Inspector, Indian Point 3
J. Noggle, Senior Health Physicist, Region I
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Division of Reactor Projects

TABLE OF CONTENTS

SUMMARY OF FINDINGS	3
REPORT DETAILS.....	5
1. REACTOR SAFETY	5
1R01 Adverse Weather Protection (71111.01).....	5
1R04 Equipment Alignment	5
1R05 Fire Protection.....	6
1R11 Licensed Operator Requalification Program (71111.11Q)	6
1R12 Maintenance Effectiveness (71111.12Q).....	7
1R13 Maintenance Risk Assessments and Emergency Work Control (71111.13).....	8
1R15 Operability Evaluations (71111.15).....	8
1R18 Plant Modifications (71111.18).....	9
1R19 Post-Maintenance Testing (71111.19).....	9
1R22 Surveillance Testing (71111.22)	11
1EP2 Alert and Notification System Evaluation (71114.02)	12
2. Radiation Safety	13
2OS1 Access Control to Radiologically Significant Areas (71121.01).....	13
2OS2 ALARA Planning and Controls (71121.02)	14
Cornerstone: Public Radiation Safety (PS)	15
2PS3 Radiological Environmental Monitoring Program (71122.03)	15
4. Other Activities (OA)	16
4OA1 Performance Indicator Verification.....	16
4OA2 Identification and Resolution of Problems (71152).....	17
4OA3 Event Followup (71153 – 4 Samples).....	20
4OA5 Other Activities	24
4OA6 Meetings, including Exit.....	26
ATTACHMENT A: SUPPLEMENTAL INFORMATION.....	26
KEY POINTS OF CONTACT	1
LIST OF ITEMS OPENED, CLOSED AND DISCUSSED	2
LIST OF DOCUMENTS REVIEWED	3
LIST OF ACRONYMS	7

SUMMARY OF FINDINGS

IR 05000286/2008-004; 07/01/2008 – 09/30/2008; Indian Point Nuclear Generating Unit 3; Post-Maintenance Testing and Event Followup.

This report covered a three-month period of inspection by resident and region based inspectors. Two findings of very low significance (Green) were identified. These findings were also determined to be non-cited violations (NCV) of NRC requirements. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." 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: Initiating Events

- Green. A self-revealing, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when maintenance technicians incorrectly attached electrical jumpers during a surveillance test and caused the inadvertent start of two motor-driven auxiliary feedwater pumps while at the plant was at full power operation. Entergy entered this issue into the corrective action program for resolution as CR-IP3-2008-01863. Additional actions included a root cause evaluation, communication to maintenance personnel regarding similar events in 2008, as well as reinforcement of human error reduction tools, and proper actions when faced with unexpected circumstances or results.

The inspectors determined that the finding was more than minor because it was associated with the Human Performance attribute of the Initiating Events cornerstone, and impacted its objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, that human error resulted in a plant transient that unnecessarily challenged an automatic safety function and the unexpected start of safety-related pumps when not warranted. This finding was determined to be of very low safety significance, using Phase 1 guidance contained in IMC 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, that the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance. The significant contributor to the event was that the technicians did not utilize self-check and peer-check skills that would have prevented the event, and proceeded in the face of unexpected circumstances when a jumper became dislodged during testing. (H.4(a)) (Section 1R19)

Cornerstone: Mitigating Systems

- Green. A self-revealing, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when maintenance personnel improperly performed a maintenance procedure that resulted in two adjacent

cylinders of the 33 emergency diesel generator (EDG) being locked-out without fuel oil supply for approximately 37 days. Entergy entered this issue into the corrective action program, performed a root cause evaluation, performed extent of condition inspections of similar EDGs on-site, instituted immediate procedure changes to preclude recurrence, and communicated the human error attributes that contributed to the event to plant personnel.

The inspectors determined that the finding was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems cornerstone, and impacted its objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the locked-out cylinders degraded the full rated capacity of the EDG and unavailability hours were utilized to resolve the high exhaust temperatures identified during surveillance testing on July 11, 2008. This finding was determined to be of very low safety significance (Green), using Phase 3 guidance contained in IMC 0609, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, a bounding analysis was performed with the conservative assumption that the 33 EDG was considered inoperable for 37 days.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, in that maintenance personnel did not utilize self-check, peer-check, and documentation skills that would have prevented the event. Specifically, maintenance personnel failed to verify that all fuel injection pump control latches were not engaged prior to the installation of injection pump covers, and required signature verification that indicated successful completion of this step in the applicable maintenance procedure. (H.4(a)) (Section 4OA3.4)

B. Licensee-Identified Violations

None.

5
REPORT DETAILS

Summary of Plant Status

Indian Point Nuclear Generating (Indian Point) Unit 3 operated at or near full power throughout the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

a. Inspection Scope

The inspectors performed a detailed review of Entergy's procedures and activities to address impending adverse weather conditions, in particular, tropical storm Hanna on September 05, 2008. The inspectors evaluated Entergy's preparation and readiness for high winds and flash flood rains, evaluated applicable compensatory measures, and conducted walk downs of plant equipment and the site. 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 storm would not have significant impact on safety-related equipment and plant operation. The documents reviewed during this inspection are listed in the Attachment. This review of adverse weather preparations represented one inspection sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial System Walkdown (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 had identified and properly addressed equipment deficiencies that could potentially impair the capability of the available train, as required by Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action." 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:

- Chemical and volume control system while 32 charging pump was out of service;
- Auxiliary feedwater system while city water supply was out of service; and
- Residual heat removal system while 31 RHR pump was out of service.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

Fire Protection Tours (71111.05Q - 6 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 also evaluated the fire protection program against the requirements of License Condition 2.K. 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 304;
- Pre-Fire Plan 305;
- Pre-Fire Plan 307A;
- Pre-Fire Plan 352A;
- Pre-Fire Plan 306B; and
- Pre-Fire Plan 307B.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors observed a licensed operator annual requalification evaluation conducted on September 15, 2008, in the Unit 3 plant-reference simulator. The inspectors assessed the scope and breadth of the training, which included the following: (1) discussions with Entergy staff regarding deficiencies in operator performance and/or training being addressed in the current requalification training cycle; (2) assessment of

the implementation of normal and emergency procedures utilized by Unit 3 control room operators to respond to, and mitigate the effects of, various, simulated reactor-related events at the site; (3) assessment of technical specification implementation and oversight of crew activities by shift supervision; (4) overall crew performance, especially in the area of critical tasks that have consequences if not performed correctly or timely; and (5) an evaluation of the adequacy of the critique provided by operations management and training evaluators for issues regarding operator performance identified during the evaluation. The inspectors reviewed simulator fidelity with respect to appropriate correlation with the actual plant control room, to ensure impacts to training effectiveness due to differences in fidelity were either identified or appropriately dispositioned. Licensed operator training was evaluated against 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 requalification 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, or components (SSCs), to assess the effectiveness of maintenance activities. Reviews focused on:

- Proper Maintenance Rule scoping in accordance with 10 CFR 50.65;
- Characterization of reliability issues;
- System and component unavailability;
- 10 CFR 50.65 (a)(1) and (a)(2) classifications;
- Identifying and addressing common cause failures;
- Trending of system performance parameters;
- Appropriateness of performance criteria for SSCs classified (a)(2); and
- Adequacy of goals and corrective actions for SSCs classified (a)(1).

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

- 480 Volt switchgear;
- Main steam safety valves, CR-IP3-2008-01234; and
- 33 emergency diesel generator event on July 11, 2008.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergency Work Control (71111.13 – 5 samples)a. Inspection Scope

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

- Planned risk with 32 emergency diesel generator and 138kV feeder 33332 L&M removed from service;
- Emergent risk with 138kV feeder 96952 and severe weather warning;
- Planned risk while the 31 Auxiliary Feedwater Pump was out of service;
- Planned risk while the Appendix R diesel generator was out of service; and
- Planned risk while performing the quarterly stroke test of the Emergency Boration Valve, CH-MOV-333.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 – 4 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-IP3-2008-01589: 33 emergency diesel generator approach to exhaust cylinder temperature limits, subsequent shutdown and subsequent return to operability;
- CR-IP3-2008-2026: Pinhole leak on 18" service water piping Line #408;
- CR-IP3-2008-02156: 34 static inverter fan failure; and
- CR-IP3-2008-02195: Bus 5A Undervoltage/Degraded Grid time relays.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 – 1 sample)River Water Level Indicator Modificationa. Inspection Scope

The inspectors reviewed the design documentation associated with the installation of level indicating instruments for the measurement of service water intake bay level, which included the addition of level alarms both locally, and in the plant's control room. The inspectors verified the adequacy of the modification to ensure consistency with the design and licensing bases, including the TS, UFSAR, and associated calculations, procedures, and drawings. This verification included a review of attributes such as equipment range and accuracy, bay level alarm set points and associated Emergency Action Levels (EAL), and seismic qualification.

During implementation of the modification, the inspectors verified that appropriate configuration controls were utilized, which included infrequently performed testing controls. These controls were verified to ensure appropriate interface existed between the various activities that assured continuity of safe plant operations.

Following implementation, the inspectors verified that post-modification testing criteria were adequate and that acceptable results were obtained. Additionally, the inspectors verified that applicable operating and maintenance procedures were appropriately revised consistent with the requirements of the modification.

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; 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 four inspection samples:

- Replacement of reactor trip breaker on July 31, 2008, followed by testing during reactor protection system testing on August 4, 2008;
- 31 EDG alarm relay R-2 replaced on August 14, 2008;
- Auxiliary feedwater regulating control valve BFD-FCV-406B on August 28, 2008; and

- 32 boric acid transfer pump on September 9, 2008.

b. Findings

Introduction: A Green, self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," occurred when maintenance technicians incorrectly attached electrical jumpers during a surveillance test and caused the inadvertent start of two motor-driven auxiliary boiler feed pumps (ABFP) while at full power.

Description: On August 4, 2008, maintenance technicians were implementing the steam generator level section of 3-PT-M13B1, "Reactor Protection Logic Channel Functional test (Reactor Power Greater Than 35% - P8)," Revision 12. In Section 4.10 of the test, maintenance technicians were required to attach four electrical jumpers between specific terminal points to verify appropriate testing logic. At one point, the technicians identified that one jumper had become dislodged and reconnected the jumper to a terminal connection. A short time later, control room operators informed the technicians that two motor-driven ABFPs had unexpectedly started and injected flow to the steam generators increasing the water level. Subsequently, the maintenance technicians removed the jumpers and control room operators successfully secured the pumps. Following a review of the circumstances that led to the event, as well as verifying the proper configuration and readiness of the reactor protection system, the logic testing was completed satisfactorily.

The inspectors noted that Entergy entered this issue into the corrective action program for resolution under CR-IP3-2008-01863, performed a root cause evaluation, which included a review of the steam generator logic circuit that was tested in Section 4.10, and determined that the most likely cause of the event was the incorrect placement of electrical jumpers. Additionally, Entergy distributed a site-wide communication that highlighted the human performance issues that led to this event and provided training on procedure adherence. Also, Entergy reinforced the use of human error reduction tools, proper actions when faced with unexpected circumstances or results, and re-emphasized with first-line supervisors their contribution to the successful conduct of maintenance.

The inspectors reviewed the root cause evaluation, as well as the reactor protection system logic drawings, and determined that the failure of the maintenance technicians to correctly attach the electrical jumpers to appropriate terminal points in accordance with written procedures was the most likely cause and a performance deficiency.

Analysis: The inspectors determined that the failure of the maintenance technicians to correctly attach the electrical jumpers to appropriate terminal points in accordance with written procedures was a performance deficiency. This performance deficiency was within Entergy's ability to foresee and prevent. Traditional enforcement does not apply because there were no actual safety consequences or potential for impacting the NRC's regulatory function, and the finding was not the result of any willful violation of NRC requirements or Entergy's procedures.

The inspectors determined that the finding was more than minor because it was associated with the Human Performance attribute of the Initiating Events cornerstone, and impacted its objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the

performance deficiency resulted in a plant transient that unnecessarily challenged an automatic safety function and the unexpected start of safety-related pumps when not warranted. This finding was determined to be of very low safety significance, using the guidance contained in IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." Specifically, that the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance. The significant contributor to the human error was that the technicians did not utilize self-check and peer-check skills that would have prevented the event, and proceeded in the face of unexpected circumstances. (H.4(a))

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires in part, that activities affecting quality shall be prescribed by documented instructions and procedures of a type appropriate for the circumstances, and shall be accomplished in accordance with these instructions and procedures. Contrary to the above, on August 4, 2008, maintenance technicians incorrectly attached electrical jumpers during a surveillance test and caused the inadvertent start of two motor-driven auxiliary boiler feed pumps (ABFP) while at 100% power. Because this violation was of very low safety significance and it was entered into the corrective action program as CR-IP3-2008-01863, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000286/2008004-01, Failure to Follow Procedures Results in the Inadvertent Start of Two Auxiliary Boiler Feed Pumps at Power.**

1R22 Surveillance Testing (71111.22 – 5 routine surveillance samples and 1 In-Service Test sample)

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 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 test, 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:

- SOP-RPC-006A, "Reactor Thermal Power Calculation," Rev. 17;
- 3-PT-M108, "RHR/SI System Venting," Rev. 8;
- 3-PT-OL3B2, "Auxiliary Boiler Feedwater Pump #33 Load Sequencer Calibration," Rev.3;
- 3-PT-OL3B12, "Containment Recirculation Fan #33 Load Sequencer Calibration." Rev. 2;
- 3PT-Q80, "Pressurizer Block Valve Timing Test (RC-MOV-535/536)," Rev. 6; and
- 3-PT-Q092C, "33 Service Water Pump Train Operational Test," Rev. 12.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02 – 1 sample)

a. Inspection Scope

Region-based specialist inspectors continued to conduct inspections of the previous Indian Point alert and notification system (ANS) and also of the new siren system. The new IPEC ANS was placed in service on August 27, 2008. Inspection activities were conducted onsite for both systems throughout the quarter between July 1 and September 30, 2008. This inspection was conducted in accordance with the baseline inspection program deviation authorized by the NRC Executive Director of Operations (EDO) in a memorandum dated October 31, 2005, and renewed by the EDO in a memorandum dated December 19, 2007.

The inspectors conducted the following onsite inspection activities during this quarter:

- Verified that Entergy had satisfied, prior to placing the new ANS in service, their commitments described in the August 22, 2008, NRC Confirmatory Action Letter, including: having a tone alert radio (TAR) program in place; and having all required TARs deployed in the 0-5 mile emergency planning zone;
- Observed a pre-operational full volume sounding of the new ANS on August 14, 2008; and,
- Observed on September 27, 2008, a full volume sounding of the new ANS to demonstrate partial satisfaction of system reliability requirements stipulated in Section II.C.5 of the NRC Confirmatory Order dated January 31, 2006.

The inspectors also inspected, prior to August 27, the status of, and corrective actions for, the previous ANS to assure that Entergy was appropriately maintaining that system until the new system was made operational.

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 – 14 samples)

a. Inspection Scope

During August 4-8, 2008, the inspectors conducted the following activities to verify that Entergy was 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, site technical specifications, and Entergy's procedures.

- (1) There were no occupational exposure cornerstone performance indicator incidents during the current assessment period.
- (2) The inspectors walked down accessible, exposure-significant work areas of the plant (Units 1, 2, and 3) and reviewed Entergy's controls and surveys to determine if the surveys, postings, and barricades were acceptable and in accordance with regulatory requirements.
- (3) The inspectors walked down accessible, exposure-significant work areas of the plant and conducted independent surveys to determine whether prescribed radiation work permit and procedural controls were in place, and whether surveys and postings were complete and accurate.
- (4) During 2008, there were no internal dose assessments >10 mRem, committed effective dose equivalent, and therefore, no assessment of internal exposure calculations was performed.
- (5) Entergy's physical and programmatic controls for highly activated materials stored underwater in the Unit 2 and Unit 3 spent fuel pools were reviewed and evaluated through observation and a review of the applicable access control procedure.
- (6) A review of radiation protection program self-assessments and audits during 2008 was conducted to determine if identified problems were entered into the corrective action program for resolution.
- (7) The inspectors reviewed 10 condition reports associated with the radiation protection access control and ALARA areas between April 2008 and August 2008, and discussed with Entergy personnel to determine if the follow-up activities were being conducted in an effective and timely manner commensurate with their safety significance.
- (8) Based on the condition reports reviewed, repetitive deficiencies were screened to determine if Entergy's self-assessment activities were identifying and addressing these deficiencies.

- (9) There were no Occupational Exposure Performance Indicator incidents reported during the current assessment period to evaluate utilizing the significance determination process.
- (10) Changes to the high radiation area and very high radiation area procedures since the last inspection in this area were reviewed, and management of these changes were discussed with the Radiation Protection Manager.
- (11) Controls associated with potential changing plant conditions to anticipate timely posting and controls of radiation hazards was discussed with a radiation protection supervisor.
- (12) All accessible locked high radiation area entrances in the plant (Units 1, 2, and 3) were verified to be locked through challenging the locks or doors. All locked and very high radiation area keys were inventoried and controls reviewed.
- (13) Several condition reports (see Section 4OA2) were reviewed to evaluate if the incidents were caused by radiation worker errors and to determine if there were any trends or patterns and if Entergy's corrective actions were adequately addressing these trends.
- (14) Several condition reports (see Section 4OA2) were reviewed to evaluate if the incidents were caused by radiation protection technician errors and to determine if there were any trends or patterns and if Entergy's corrective actions were adequately addressing these trends.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02 – 2 samples)

a. Inspection Scope

During August 4-8, 2008, the inspectors conducted the following activities to verify that Entergy was 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 20.1101(b) and Entergy's procedures.

- (1) There were no declared pregnant workers during 2008. Therefore Entergy performance in this area was not observed.
- (2) Radiation protection related condition reports were reviewed between April 2008 and August 2008 for repetitive deficiencies in ALARA to determine if Entergy's self-assessment activities were identifying and addressing these deficiencies.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety (PS)2PS3 Radiological Environmental Monitoring Program (REMP) (71122.03 – 10 samples)a. Inspection Scope

- (1) The inspectors reviewed the current Annual Radiological Environmental Operating Report, and Entergy assessment results, to verify that the REMP was implemented as required by TS's and the ODCM. The review included changes to the ODCM with respect to environmental monitoring commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, inter-laboratory comparison program, and analysis of data. The inspectors also reviewed the ODCM to identify environmental monitoring stations. In addition, the inspectors reviewed the following: Entergy self-assessments and audits, event reports, inter-laboratory comparison program results, the Final Safety Analysis Report for information regarding the environmental monitoring program and meteorological monitoring instrumentation, and the scope of the audit program to verify that it met the requirements of 10 CFR 20.1101.
- (2) The inspectors walked down five air particulate and iodine sampling stations; both plant inlet and discharge river water sampling stations; two broad-leaf vegetation sampling locations; the Campfield and Croton drinking water reservoir sample locations; and, eight thermoluminescent dosimeter (TLD) monitoring locations and determined that they were located as described in the ODCM and determined that any applicable equipment material condition to be acceptable.
- (3) The inspectors observed the collection and preparation of a variety of environmental samples (listed above) and verified that environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were in accordance with procedures.
- (4) Based on direct observation and review of records, the inspectors verified that the primary and backup meteorological tower instruments were operable, calibrated, and maintained in accordance with guidance contained in the FSAR, NRC Safety Guide 23, and licensee procedures. The inspectors verified that the meteorological data readout and recording instruments in the control room and at the tower were operable.
- (5) The inspectors reviewed each event documented in the Annual Radiological Environmental Monitoring Report that involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement for the cause and corrective actions. The inspectors conducted a review of Entergy's assessment of any positive sample results.
- (6) The inspectors reviewed any significant changes made by Entergy to the ODCM as the result of changes to the land census or sampler station modifications since the last inspection. The inspectors also reviewed technical justifications for any changed sampling locations and verified that Entergy performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

- (7) The inspectors reviewed the calibration and maintenance records for air samplers. The inspectors reviewed the following: the results of Entergy's inter-laboratory comparison program to verify the adequacy of environmental sample analyses performed by Entergy, Entergy's quality control evaluation of the inter-laboratory comparison program and the corrective actions for any deficiencies, Entergy's determination of any bias to the data and the overall effect on the REMP, and QA audit results of the program to determine whether Entergy met the TS/ODCM requirements. The inspectors verified that the appropriate detection sensitivities with respect to TS/ODCM are utilized for counting samples and reviewed the results of the quality control program including the inter-laboratory comparison program to verify the adequacy of the program.
- (8) The inspectors observed the radioactive material survey and release locations and inspected the methods used for control, survey, and release to include observing the performance of personnel surveying and releasing material for unrestricted use and verifying that the work is performed in accordance with plant procedures.
- (9) The inspectors verified that the radiation monitoring instrumentation used for the release of material from the radiological controlled area (RCA), was appropriate for the radiation types present and was calibrated with appropriate radiation sources, and alarmed when tested with applicable a low activity radioactive source. The inspectors reviewed Entergy's equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance contained in Circular 81-07 and Information Notice 85-92 for surface contamination and HPPOS-221 for volumetrically contaminated material.
- (10) The inspectors reviewed Entergy's audits and self-assessments related to the radiological environmental monitoring program since the last inspection to determine if identified problems were entered into the corrective action program, as appropriate. Selected corrective action reports were reviewed since the last inspection to determine if identified problems accurately characterized the causes and corrective actions were assigned to each commensurate with their safety significance. Any repetitive deficiencies were also assessed to ensure that Entergy's self-assessment activities were identifying and addressing these deficiencies (see Section 4AO2).

b. Findings

No findings of significance were identified.

4. Other Activities (OA)

4OA1 Performance Indicator Verification

Resident Inspector Baseline Inspection (71151 – 5 samples)

a. Inspection Scope

The inspectors reviewed performance indicator data for the cornerstone 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.

Mitigating System Cornerstone (MSPI)

- Emergency AC Power System: July 2007 – June 2008;
- High Pressure Injection System: July 2007 – June 2008;
- Heat Removal Systems: July 2007 – June 2008;
- Residual Heat Removal System: July 2007 – June 2008; and
- Cooling Water Systems: July 2007 – June 2008.

The inspectors reviewed data and plant records from the above noted periods. The records included performance indicator data summary reports, licensee event reports, operator narrative logs, the corrective action program, and Maintenance Rule records. The inspectors verified the accuracy of the number of critical hours reported, and interviewed the system engineers and operators responsible for data collection and evaluation.

The inspectors also reviewed the licensee's evaluation of the potential impact of the 37 additional days of unavailability due to two adjacent cylinders of the 33 EDG being locked out (see section 4A02 for details) on the Safety System Functional Failures Performance Indicator (MS05) and MSPI – Emergency AC Power System (MS06). As of the close of the inspection period, Entergy had not completed its determination if the 33 EDG was inoperable. Based upon the licensee's evaluation, the inspectors determined that both Performance Indicators would remain Green for the 3rd quarter if the additional unavailability was considered.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 – 2 Samples)

.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'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 Attachment.

b. Findings

No findings of significance were identified.

.2 PI&R Focused Review: Hemyc Fire Barrier Wrap Issues (1 Sample)

a. Inspection Scope

The inspectors selected condition report (CR) CR-IP3-2005-01933 as a problem identification and resolution (PI&R) sample for a detailed follow-up review. CR-IP3-2005-01338 documented failures of Hemyc fire barrier wrap as described in information notice (IN) 2005-07, "Results of Hemyc Electrical Raceway Fire Barrier Full Scale Fire Testing," and how the failures applied to the Hemyc fire barrier wrap installed at Indian Point Nuclear Generating Unit 3 for 10 CFR 50, Appendix R, purposes. The IN described failures of Hemyc one hour rated fire barrier wrap to provide the required one hour performance (per 10 CFR 50, Appendix R) when tested in accordance with the requirements of Generic Letter (GL) 86-10, Supplement 1. Additionally, the CR tracked corrective actions to enhance Indian Point Generating Unit 3's conduit/cable raceway supports and adding stainless steel/strapping around box enclosures for structures, systems, and components (SSCs) that were protected in a less conservative manner than the NRC tested configurations.

The inspectors assessed Entergy's problem identification threshold, cause analyses, extent of condition reviews, operability determinations, and the prioritization and timeliness of corrective actions to determine whether Entergy was appropriately identifying, characterizing, and correcting problems associated with these issues and whether the planned or completed corrective actions were appropriate. Additionally, the inspectors reviewed modification packages, engineering evaluations, safety evaluation reports (SERs), fire tests and performed plant walkdowns of areas Hemyc fire barrier wrap was installed. The inspectors interviewed cognizant plant personnel regarding the identified issues. Specific documents reviewed are listed in the attachment to this report.

b. Findings and Observations

No findings of significance were identified.

Based on review of the NRC's IN test data, Entergy determined that the fire resistance rating of the Hemyc fire barrier wrap installed at Indian Point Generating Unit 3 was indeterminate. Entergy implemented compensatory measures which consisted of verification of operability of fire detection systems and the posting of a one hour roving fire watch in the plant areas where Hemyc was installed [electrical tunnels, penetration areas, and the component cooling water (CCW) pump area]. Additionally, Entergy's response to Generic Letter (GL) 2006-03, "Potentially Nonconforming Hemyc and MT Fire Barrier Configurations," June 8, 2006, also identified Indian Point Generating Unit 3's use of Hemyc and that the configurations installed were inoperable. The compensatory measures were held in place pending final resolution of identified Hemyc issues. Entergy's corrective actions included performing an engineering evaluation to confirm the minimum thirty minute rating for conduit/box-type configurations and twenty-four minutes for cable tray configurations as allowed by a notice of exemption dated September 28, 2007, for Indian Point Generating Unit 3. Additional corrective actions

included modifications to add additional fire wrap to conduit and cable tray supports for installed Hemyc fire barrier wrap and to add stainless steel bands/strapping around the box enclosures to ensure its ability to provide the approved fire resistance.

The inspectors determined that Entergy properly implemented their corrective action process regarding the initial discovery of the Hemyc issues. The CR, modification packages and engineering evaluations were complete and included operability determinations, extent of condition reviews, corrective actions and planned corrective actions. Additionally, the CR, modification packages, and engineering evaluations were thorough. Corrective actions appeared appropriate to provide adequate (30 minute for conduit/box-type configurations and 24 minutes for cable tray configurations) fire resistance for the revised Hemyc configurations and the engineering evaluations of the protected SSCs justified operability of the systems. The inspectors determined that corrective actions included performing an engineering evaluation of the installed Hemyc configurations at Indian Point Generating Unit 3, with respect to NRC test data, installation of modifications to the installed Hemyc configurations, maintaining the enhanced configurations in the surveillance program, and revising maintenance procedures to contact fire protection engineers prior to removing or repairing Hemyc fire barrier wrap at the site. Additionally, the inspectors verified that administrative control procedures that control hot work and limit transient combustibles in the affected areas were in place.

.3 Occupational Radiation Safety Cornerstone

a. Inspection Scope

The inspectors reviewed ten corrective action condition reports associated with the radiation protection program that were initiated between April 2008 and August 2008. The inspectors verified that problems identified by these condition reports were properly characterized in Entergy's corrective action program, and that applicable causes and corrective actions were identified, commensurate with the safety significance of the radiological occurrences.

b. Findings and Observations

No findings of significance were identified.

.4 Public Radiation Safety Cornerstone

a. Inspection Scope

The inspectors reviewed nine corrective action condition reports associated with the radioactive liquid and gaseous radioactive effluent control program and the radiological environmental monitoring program that were initiated between June 2006 and August 2008. The inspectors verified that problems identified by these condition reports were properly characterized in Entergy's corrective action program, and that applicable causes and corrective actions were identified, commensurate with the safety significance of the radiological occurrences.

b. Findings and Observations

No findings of significance were identified.

.5 PI&R Focused Review: 480 Volt Switchgear Fan Repetitive Failures (1 sample)

a. Inspection Scope

The inspectors evaluated Entergy's corrective actions following recurrent failures of fuses associated with vital switchgear fans No. 33 and No. 34 over the last several years. In particular, while the issues that contributed to the recurrent failures of the No. 33 fan have been effectively resolved, the inspectors evaluated Entergy's actions to ensure that corrective actions to resolve No. 34 fan failures (e.g., as identified in CR-IP3-2007-02029) were appropriate for the circumstances. This review included an assessment of engineering analyses that supported a major corrective action that involved the installation of a 25A fuse in lieu of the previously installed 20A fuse. Overall, the inspectors evaluated the timeliness and appropriateness of the corrective actions identified to correct the fuse failures, commensurate with the safety significance, and that the identified corrective actions were appropriately focused to correct the fuse failures.

b. Assessment and Observations

No findings of significance were identified.

The inspectors concluded that the timeliness and appropriateness of the corrective actions identified to correct the fuse failures were commensurate with the safety significance, and that the identified corrective actions were appropriately focused to correct the fuse failures.

4OA3 Event Followup (71153 – 4 Samples)

.1 (Closed) LER 05000286/2008-002-00, Loss of Single Train 31 Pressurizer Backup Heater Bank Required to Function to Shutdown and Maintain the Reactor in a Safe Condition Remote from Control Room

On February 19, 2008, Unit 3 control room operators received alarms that indicated a trip of the 31 pressurizer heater backup group had occurred. As a result, technical specification (TS) 3.3.4 was entered for loss of remote shutdown capability due to the heater inoperability, which was later determined to be caused by a failed transformer. Subsequently, Entergy staff evaluated the condition and determined sufficient capability existed to meet the applicable TS functions and exited the TS. However, as documented in NRC inspection report 50-286/2008-002, the NRC determined that Entergy staff had inappropriately exited the TS, had failed to report the loss of remote shutdown capability, and both findings were dispositioned accordingly. The inspectors reviewed the LER to verify its accuracy based on the NRC's assessment of the event and a review of Entergy's evaluation and associated corrective actions contained in CR-IP3-2008-00504. No further findings of significance or violation of NRC requirements were identified. This LER is closed.

- .2 (Closed) LER 05000286/2008-003-00, Automatic Actuation of Emergency Diesel Generator 33 During Surveillance Testing Caused by Inadvertent Actuation of the Undervoltage Sensing Circuit on 480 Volt AC Safeguards Bus 5A.

On March 25, 2008, during surveillance testing at Unit 3, maintenance technicians performed steps out-of-sequence that resulted in the loss of power to a vital 480V bus, and subsequent start of 33 emergency diesel generator (EDG). The relay testing was subsequently completed satisfactorily, the vital bus was repowered from its normal power source, and the 33 EDG was returned to its normal, standby condition. The inspectors reviewed the LER to verify its accuracy based on the NRCs assessment of the event, and a review of Entergy's evaluation of the event contained in the root cause report and associated corrective actions contained in CR-IP3-2008-0818. The personnel performance aspects that contributed to this event were previously evaluated and dispositioned as a non-cited violation in NRC inspection report 50-286/2008-003. No further findings of significance or violation of NRC requirements were identified. This LER is closed.

- .3 (Closed) LER 05000003/05000247/05000286/2008-001-00, Attempted Introduction of Contraband into the Plant Protected Area Due to Personnel Error.

On May 27, 2008, during a routine search of employee packages immediately prior to entry into the protected area, IPEC Security identified an item of contraband (hand gun). The individual was denied protected area access and held for questioning. The licensee entered this issue for evaluation into the corrective action program as CR-IP2-2008-02808, and evaluated the need for additional communications regarding the existing prohibition of handguns within the protected area. The LER was reviewed by the inspectors and no findings of significance or violation of NRC requirements were identified. This LER is closed.

- .4 Emergency Diesel Generator No.33 Emergency Shutdown Due to Elevated Exhaust Cylinder Temperatures on July 11, 2008

a. Inspection Scope

The inspectors reviewed Entergy's actions following the emergency shutdown of the No. 33 EDG during surveillance testing on July 11, 2008. This review included verification of technical specification compliance and reportability responses; adequacy of surveillance procedure implementation; review of critical EDG parameters; and extent-of-condition reviews in support of NRC assessments for event response.

b. Findings

EDG No. 33 Cylinder Locking Devices Remain Engaged Following Maintenance

Introduction: A Green, self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," occurred when maintenance personnel improperly implemented a maintenance procedure that resulted in two, adjacent cylinders of the 33 emergency diesel generator (EDG) being locked-out without fuel oil supply for approximately 37 days.

Description: On July 11, during surveillance testing of the 33 emergency diesel generator (EDG), operators observed abnormal/elevated cylinder exhaust temperatures that approached acceptance criteria limits and cylinder exhaust piping that was glowing dark red. The operators promptly commenced an EDG shutdown. The subsequent Entergy investigation revealed that the #3 and #4 EDG cylinders (3R and 4R) located on the right-hand side of the EDG were inappropriately locked-out (e.g., fuel injection pump control latches were engaged). This adverse condition associated with the control latches isolated the affected cylinders from their fuel oil supply and impacted EDG operation by shifting the EDG load-carrying ability to the remaining 14 cylinders and causing high exhaust temperatures.

Following corrective action to restore the latches to the correct position, Entergy retested the EDG to verify appropriate parameters were observed during the testing to ensure the operational readiness of the 33 EDG to perform its required safety function (e.g., cylinder compression checks, cylinder firing checks, and exhaust temperatures). Entergy also verified through extent-of-condition checks that the remaining EDGs on-site did not have a similar issue regarding locked-out cylinders.

Entergy performed a root cause evaluation, and determined that maintenance personnel had inappropriately engaged the control latches during preventive maintenance (PM) activities approximately 37 days earlier, on or about June 4, 2008. Entergy also determined that problems were encountered with test equipment during the PM activities that resulted in the cancellation of some of these activities, and during the recovery from these activities, maintenance personnel did not verify that all fuel injection pump control latches were not engaged prior to the installation of injection pump covers. The verification of the control latches prior to installation of injection pump covers is required by maintenance procedure 0-EDG-407-ELC, "Emergency and Appendix 'R' Diesel Generator Engine Analysis/Inspection," Revision 1.

In addition to the maintenance errors, the inspectors determined that Entergy missed a reasonable opportunity to evaluate and correct an adverse condition associated with abnormal EDG cylinder temperatures prior to re-establishing EDG operability on June 4, 2008. Specifically, the inspectors determined that Entergy's assessment and decision-making process on June 4, 2008, regarding the abnormal cylinder exhaust temperatures, was not adequately supported by EDG operational indications experienced during the post-maintenance test. In particular, abnormally high and low exhaust cylinder temperatures were not fully evaluated by Entergy consistent with functional testing procedural guidance and previous internal operating experience at Indian Point (CR-IP3-2003-3613). Subsequently, inspectors discussed this issue with Entergy management on a number of occasions regarding the failure to address this adverse condition within the corrective action program. As a result, Entergy issued a condition report on September 5, 2008, to address the inspectors' concerns (CR-IP3-2008-02137).

The inspectors determined that the inadequate implementation of maintenance procedures to appropriately engage and verify the fuel injection pump control latches was a performance deficiency.

Analysis: The inspectors determined that the finding was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems cornerstone, and impacted its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable

consequences. Specifically, the locked-out cylinders degraded the full rated capacity of the EDG since June 4, 2008, until the high exhaust temperatures revealed themselves again during surveillance testing on July 11, 2008. Also, the performance deficiency resulted in unplanned unavailability of the 33 EDG on July 11, 2008 for Entergy personnel to evaluate, troubleshoot, and correct the condition, and to retest and declare the 33 EDG operable.

The finding was determined to be of very low safety significance (Green) in accordance with Inspection Manual Chapters (IMC) 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings" and 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," using the Phase 1, Phase 2 and Phase 3 of the significance determination process (SDP). Specifically, an analysis was performed with a bounding assumption (e.g., the EDG was made inoperable for 37 days in the analysis), because a past-operability analysis has not yet been finalized by Entergy that would provide a basis regarding a loss of EDG safety function. Using Phase 1 the inspectors determined that a Phase 2 evaluation was necessary assuming that the 33 EDG was inoperable for 37 days which represented an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time. The Region I Senior Reactor Analyst (SRA) determined a Phase 3 analysis was necessary because the IP3 site-specific, pre-solved Phase 2 SDP worksheets indicated that the finding could be more than of very low significance assuming an exposure time of greater than 30 days (one year).

Using the IP3 Standardized Plant Analysis Risk (SPAR) model (revision 3.45) the SRA determined that the delta core damage frequency (CDF) was in the range of 1 core damage accident in 1,700,000 years of reactor operation, mid E-7 per year, given assumptions that: the 33 EDG would have failed to run over 24 hours for a 37 day period. This increase was driven by the increase in the common cause failure probability of the other two EDGs to run for 24 hours. The SPAR model also used an EDG failure to run/failure to recover offsite power convolution factor, which accounts for the probability that an EDG would run for some period of the 24 hours, prior to failing and the subsequent probability that, given the associated EDG failure time, offsite power would not be recovered by that time. The SPAR model dominant core damage sequence was a transient with a resulting loss off offsite power and the common cause failure of the 31 and 32 EDGs, with a subsequent reactor coolant pump (RCP) seal loss of coolant accident and a failure to enter low pressure injection. With the delta CDF for internal initiating events in the mid E-7 range the SRA determined, relative to the 33 EDG, that:

- External initiators did not contribute significantly to the total delta CDF, based on a review of IP3 site specific pre-solved External Event worksheets, which was based on review of the individual plant examination of external events (IPEEE) report.
- Delta LERF was not a contributor based on the IP3 site specific pre-solved Phase 2 SDP worksheets, because the dominate core damage sequences did not involve a steam generator tube rupture or anticipated transient without scram condition.

The inspectors noted that Entergy has entered this issue into the corrective action program for resolution under CR-IP3-2008-01594, performed a root cause evaluation and extent of condition verifications, and returned the EDG to operable status.

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance, in that maintenance personnel did not utilize self-check, peer-check, and documentation skills that would have prevented the event. Specifically, maintenance personnel failed to verify that all fuel injection pump control latches were not engaged prior to the installation of injection pump covers, and required signature verification that indicated successful completion of this step in the applicable maintenance procedure. (H.4(a))

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires in part, that activities affecting quality shall be prescribed by documented instructions and procedures of a type appropriate for the circumstances, and shall be accomplished in accordance with these instructions and procedures. Contrary to the above, on June 4, 2008, maintenance personnel incorrectly implemented a maintenance procedure that resulted in two, adjacent cylinders of the 33 EDG being locked-out without fuel oil supply for approximately 37 days. Because these violations were of very low safety significance and they were entered into the corrective action program for resolution, these violations are being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000286/2008004-02, Failure to Follow Maintenance Procedures Results in Degraded EDG for 37 Days.)**

4OA5 Other Activities

.1 Review of Independent Safety Evaluation (ISE) Report Review

a. Inspection Scope

On September 10, the NRC completed a detailed review of the final ISE report issued July 31, 2008. This review did not identify any immediate safety concerns or violations of regulatory requirements within the report, which were not previously identified by the NRC. The NRC plans to inspect a sample of risk significant corrective actions that Entergy implements in response to the recommendations and observations of the ISE Report.

b. Findings

No findings of significance were identified.

.2 Ground-Water Contamination Investigation

a. Inspection Scope

This inspectors reviewed plans, procedures, remediation and long term monitoring activities affecting the contaminated ground water condition at Indian Point, relative to NRC regulatory requirements, as authorized by the NRC Executive Director of Operations in a Reactor Oversight Process deviation memorandum dated December 19, 2007 (ADAMS Accession number ML073480290). Entergy's performance, relative to development and implementation of its long term monitoring plan, was examined throughout this quarterly inspection report period. The inspection included onsite inspections, independent split sample analyses of selected monitoring well samples, frequent review of Entergy performance, progress and achievements, and periodic communications with federal, state, and local government stakeholders.

An onsite review of the long term monitoring plan was conducted on August 6-7, 2008, by an NRC team including: Messrs. James Noggle, Region I, Tom Nicholson, NRC's Office of Nuclear Regulatory Research, John Commiskey, Region I, and John Williams, U.S. Geological Survey's New York Science Center in Troy, NY. In addition, Messrs. Larry Rosenmann and Timothy Rice of New York State Department of Environmental Conservation (NYS DEC) monitored and observed the inspection activity.

b. Findings and Observations

No findings of significance were identified.

On August 6-7, 2008, Region I conducted a team inspection of the Indian Point ground-water long-term monitoring plan, including implementation and process. The inspectors confirmed that Entergy is continuing activities to enhance long term monitoring to meet the following objectives; (1) early and timely detection of abnormal releases to the onsite ground water, primarily from the Unit 2 and 3 spent fuel pools (SFP) and related subsurface systems; and (2) confirmation of the efficacy of Entergy's chosen remediation approach, Monitored Natural Attenuation (MNA) for the existing onsite contamination plumes of tritium (H-3), strontium-90 (Sr-90), and nickel-63 (Ni-63). The current long term monitoring plan is adequate. Notwithstanding, Entergy is pursuing additional improvements and refinements to further enhance the plan.

- (1) Entergy has initiated actions to further improve linkages to other program elements to adjust the groundwater monitoring frequency based on potential changes in radioactive source concentrations and initiating events (e.g., the Fuel Integrity Program, Unit 2 SFP chemistry analysis, and the storm drain monitoring program). In addition, Entergy is also pursuing cross ties to onsite construction/excavation activities to evaluate any possible effects on existing ground-water flow gradients and the creation of inadvertent pathways for potential abnormal releases.
- (2) Entergy intends to enhance the existing site hydrogeologic characterization to provide additional documentation of the existing Unit 3 site area ground-water monitoring technical basis consist with the industry's voluntary ground-water protection initiative.
- (3) Entergy has initiated actions to improve the LaFarge No. 2 monitoring well as an offsite ground-water sampling location within the radiological environmental monitoring program (REMP), and to evaluate its monitoring data as an indicator of offsite ground-water migration.
- (4) Entergy is planning to establish a ground-water plume baseline after terminating the original source of the Unit 1 plume. Drainage of the Unit 1 SFP system is in progress and expected to be completed by the end of 2008. Based on this plume baseline, Entergy plans to establish action levels or triggers to initiate further evaluations and if necessary, contingency actions for stakeholder notification and possible interdiction. These analyses would provide the technical bases for defining the long term ground-water monitoring plan criteria to monitor existing plume changes and detect new leaks into the ground water above current levels.

- (5) Entergy has continued to evaluate ground-water flow conditions adjacent to the Unit 2 SFP. Entergy has initiated additional tracer testing in the vicinity of Unit 2 to better understand the ground-water flow characteristics in this area.
- (6) Entergy will evaluate the need for continued transducer measurements of ground-water levels in a limited number of monitoring wells to continue confirmation existing hydrogeologic site characterization, dated January 8, 2008.
- (7) After draining the Unit 1 SFP system, Entergy will evaluate the Unit 1 footer drain sampling data to enhance the detection capability of leaks from the Unit 2 SFP and other adjacent structures.

Entergy has identified the planned improvement action items, described above, in condition report No. IP3-LO-2008-000157. The NRC staff will continue split sampling of selected ground-water monitoring wells, observed Unit 1 SFP drain down activities and continue to follow the licensee's performance in this area.

.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, they 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 October 17, 2008, the inspectors presented the inspection results Tony Vitale and other Entergy staff members, who acknowledged the inspection results. Entergy did not identify any material as proprietary.

On November 10, 2008, the inspectors presented the revised inspection results to Mr. Pat Conroy and other Entergy staff members, who acknowledged the revised inspection results.

ATTACHMENT A: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

J. Pollock, Site Vice President
A. Vitale, General Manager, Plant Operations
P. Conroy, Director, Nuclear Safety Assurance
D. Gagnon, Manager, Security
R. Walpole, Manager, Licensing
B. Beckman, Manager, Maintenance
R. Christman, Manager, Training
J. Dinelli, Assistant Operations Manager, Unit 3
V. Myers, Supervisor, Mechanical Design Engineering
A. Singer, Superintendent, Operations Training
T. Orlando, Engineering Director
B. Sullivan, Manager – Emergency Preparedness, Indian Point
R. Burroni, Manager Programs, Components and Engineering
S. Verrochi, Manager System Engineering.
L. Cerra, Design Engineering
N. Azevedo, Supervisor, Code Programs
K. Elliott, Fire Protection Engineer
S. Prussman, Licensing
T. Jones, Coordinator, Site VP
B. Dolansky, Plant Programs
B. Allen, Code Programs
W. Wittich, Components Engineering
M. Garofalo, QA
N. Papayia, QA
R. Gioggia, Plant Programs
G. Dahl, Licensing

LIST OF ITEMS OPENED, CLOSED AND DISCUSSEDOpened and Closed

- | | | |
|---------------------|-----|--|
| 05000286/2008004-01 | NCV | Failure to Follow Procedures Results in the Inadvertent Start of Two Auxiliary Boiler Feed Pumps at Power. |
| 05000286/2008004-02 | NCV | Failure to Follow Maintenance Procedures Results in Degraded EDG for 37 Days. |

Closed

- | | | |
|---------------------|-----|--|
| 05000003/2008001-00 | LER | Attempted Introduction of Contraband into the Plant Protected Area Due to Personnel Error. |
| 05000286/2008002-00 | LER | Loss of Single Train 31 Pressurizer Backup Heater Bank Required to Function to Shutdown and Maintain the Reactor in a Safe Condition Remote from Control Room. |
| 05000286/2008003-00 | LER | Automatic Actuation of Emergency Diesel Generator 33 During Surveillance Testing Caused by Inadvertent Actuation of the Undervoltage Sensing Circuit on 480 Volt AC Safeguards Bus 5A. |

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

OAP-048, "Seasonal Weather Preparation," Rev. 4

OAP-008, "Severe Weather," Rev. 4

Section 1R04: Equipment Alignment

Procedures

3-COL-FW-2, "Auxiliary Feedwater System," Rev. 29

3-COL-CVCS-1, "Chemical and Volume Control System," Rev. 26

3-COL-RHR-1, "Residual Heat Removal System," Rev. 26

Work Order

00144915

Section 1R05: Fire Protection

Procedures

ENN-DC-161, "Transient Combustible Program," Rev. 11

SMM-DC-901, "IPEC Fire Protection Program," Rev. 2

Pre-Fire Plans 304, 305, 307A, 352A, 306B, and 307B

Surveillances and associated Work Orders

WO 51478114-01 (November 27, 2007), 3PT-SA17, "Fire Protection Ultra-Violet Flame Detectors," Rev. 11

WO 51640248-01 (May 30, 2008), 3PT-SA17

Condition Reports (CR-IP3-)

2008-01782

Section 1R11: Licensed Operator Requalification

Procedures

IP-SMM-TQ-114, Attachment 10.9, "Simulator Examination Summary Sheet," Revision 7, for Crew-3B on 9/15/2008.

IPEC Simulator Evaluated Scenario dated 5/2/2008, Rev. 00

Section 1R12: Maintenance Effectiveness

Condition Reports (CR-IP3-)

2006-00434 2007-00221 2007-01038 2007-02723 2007-03059 2008-01086

2008-01535

Maintenance Rule Monitoring Documents

Unit 3 emergency diesel generator system health report

Unit 3 480 Volt system health report for 2nd Qtr 2008, Rev. 0

Unit 3 Main steam system health report

IPEC maintenance rule basis document 480 VAC electrical system (480V), Rev. 0

Procedures

EN-DC-143, "System Health Reports," Rev. 6
EN-DC-159, "System Monitoring Program," Rev. 1
EN-DC-167, "Classification of Structures, Systems, and Components," Rev. 0
EN-DC-203, "Maintenance Rule Program," Rev. 0
EN-DC-204, "Maintenance Scope and Basis," Rev. 0
EN-DC-205, "Maintenance Rule Monitoring," Rev. 0
EN-DC-206, "Maintenance Rule (a)(1) Process," Rev. 0

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

Procedures

3-PT-Q132, "Emergency Boration Flow Path Valve CH-MOV-333," Rev. 2
IP-SMM-WM-101, "On-Line Risk Assessment," Rev. 2
Work Week Managers Operator's Risk Report, Work Weeks 0828, 0835, 0837, and 0840

Work Orders

51478703

Section 1R15: Operability Evaluations

Procedures

EN-OP-104, "Operability Determinations," Rev. 2
Indian Point Unit 3 Updated Final Safety Analysis Report, Rev. 2
3-PT-M62B, "480V Undervoltage/Degraded Grid Protection System Bus 5A Functional," Rev. 2

Condition Reports (CR-IP3-)

2008-00984 2008-01437 2008-01617 2008-02156 2008-02195

Other Documents

Solidstate Controls, INC Instruction / Technical Manual for 7.5KVA Inverter, Entergy Nuclear,
Indian Point, Serial No. C80298, P.O. No. 4500512985
Calculation IP3-calc-sws-03625, Rev. 4
Ultrasonic testing report IP3-UT-08-034 conducted on August 24, 2008

Section 1R18: Plant Modifications

Engineering Changes

EC-000000297, Modify LI-1837 and LI-1834 River Water Level Indicators

Procedures

3-AOP-Flood-1, "Flooding," Rev. 3
3-ARP-049, "Panel Local – Intake Structure," Rev. 5
3-ARP-012, "Panel SJF – Cooling Water and Air," Rev. 47
3-AOP-SWL-1, "Low Service Water Bay Level," Rev. 0

Section 1R19: Post-Maintenance Testing

Procedures

EN-MA-101, "Conduct of Maintenance," Rev. 5
EN-WM-102, "Work Implementation and Closeout," Rev. 2

EN-WM-105, "Planning," Rev. 4
3-PT-Q038B, "32 Boric Acid Transfer Pump Functional Test," Rev. 13
0-BRK-401-ELC, "Westinghouse Reactor Trip and Bypass Circuit Breaker (DB-50)," Rev. 3

Other Documents

Drawing No. IP3V-13-0002, Rev.15
Work Order 51652827-02

Condition Reports (CR-IP3-)

2008-01677 2008-02038

Work Orders

00161937 51478703 51677932

Section 1R22: Surveillance Activities

Procedures

3-PT-M108, "RHR/SI System Venting," Rev. 8
3PT-Q080, "Pressurizer Block Valve Timing Test (RC-MOV-535/536)," Rev. 6
IP-SMM-HU-102, "Pre-Job Briefs and Post Job Critiques," Rev. 0
3-PT- OL3B12, "Containment Recirculation Fan #33 Load Sequencer Calibration," Rev. 2
3-PT-Q092C, "33 Service Water Pump Train Operational Test," Rev. 12

Other Documents

Indian Point Unit 3 Updated Final Safety Analysis Report, Rev. 2
Calculation 1821529-C-001, "Indian Point Energy Center Unit 3 Residual Heat Removal System
– Evaluation of Acceptable Pump Suction Void Size," Rev. 1

Condition Reports (CR-IP3-)

2008-01667

Work Orders

51662816 51648173 51665061

Section 2OS1/2OS2: Access Control and ALARA

IP3LO-2008-00065, Snap Shot Self-Assessment of Indian Point Unit 2 Contamination Control during IP2 Refuel Outage 18
IP3LO-2008-00068, Snap Shot Self-Assessment of Radiation Protection Standing Orders and night Orders
IP3LO-2008-00067, Snap Shot Self-Assessment of Radiation Protection Radioactive Material Control
IP3LO-2007-0010, Snap Shot Self-Assessment of Radiation Protection Department Annual Self-Assessment Report, July 2007 – June 2008

Procedures

EN-RP-101, Rev. 2, Access Control for Radiologically Controlled Areas
EN-RP-105, Rev. 2, Radiation Work Permits
EN-RP-141, Rev. 2, Job Coverage

Section 2PS3: Radiological Environmental Monitoring Program (REMP)

Annual Radiological Effluent Release Reports - 2006 and 2007
Annual Radiological Environmental Operating Reports - 2006 and 2007
Offsite Dose Calculation Manual, Rev. 1
Quality Assurance Department Audit QA-6-2007-IP-1, Environmental/Effluents Audit

Section 4OA1: Performance Indicator Verification

Procedures

EN-LI-114, "Performance Indicator Process," Rev. 2
EN-LI-114, Attachment 9.2, "NRC Performance Indicator Technique/Data Sheet," Rev. 2,
Second Quarter 2007 thru First Quarter 2008
NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 5

Other Documents

Indian Point Unit 3 Operating Logs

Section 4OA2: Problem Identification and Resolution

Condition Reports

CR-IP2-2008-1835	CR-IP2-2008-2163	CR-IP2-2008-1834	CR-IP3-2008-1753
CR-IP3-2008-1464	CR-IP2-2008-1823	CR-IP3-2008-0911	CR-IP2-2008-2580
CR-IP2-2008-3512	CR-IP2-2008-3321		
CR-IP2-2008-2523	CR-IP2-2008-3506	CR-IP2-2008-3064	
CR-IP2-2008-3061	CR-IP2-2008-3156	CR-IP3-2008-1675	
CR-IP2-2008-2348	CR-IP2-2007-3382	CR-IP3-2008-0911	

Miscellaneous Documents

Engineering Change EC-8502

LIST OF ACRONYMS

ADAMS	Agency Wide Document Management System
ALARA	As Low As is Reasonably Achievable
ANS	Alert and Notification System
AOPS	Abnormal Operating Procedure
CCW	Component Cooling Water
CEDE	Cumulative Effective Dose Equivalent
CFR	Code of Federal Regulations
CR	Condition Report
DEC	Department of Environmental Conservation
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EDO	Executive Director of Operations
FCU	Fan Cooler Unit
GL	NRC Generic Letter
GSI	Generic Safety Inspection
I&C	Instrumentation and Controls
IN	Information Notice
INPO	Institute of Nuclear Power Operations
IP	Inspection Procedure
MNA	Monitored Natural Attenuation
mRem	Millirem
MRP	Materials Reliability Program
MW	Monitoring Well
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records
PI&R	Problem Identification and Resolution
POP	Plant Operating Procedures
PRA	Probabilistic Risk Assessments
PWR	Pressurized-Water Reactors
QA	Quality Assurance
RCA	Radiological Controlled Area
REMP	Radiological Environmental Monitoring Program
RP	Radiation Protection
RWP	Radiation Work Permit
SER	Safety Evaluation Report
SFP	Spent Fuel Pool
SI	Safety Injection
SSC	Structures, Systems, and Components
SOP	System Operating Procedures
SW	Service Water
TI	Temporary Instruction
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report