



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

February 9, 2010

EA-09-296

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

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 2 – NRC INTEGRATED
INSPECTION REPORT 05000247/2009005 and NOTICE OF VIOLATION
(EA-09-296)

Dear Mr. Pollock:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 2. The enclosed integrated inspection report documents the inspection results, which were discussed on January 21, 2010 with you and other members of your staff.

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

Based on the results of this inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at www.nrc.gov; select **About NRC, How We Regulate, Enforcement, and then Enforcement Policy.**

The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. During the inspection, the NRC identified a violation involving Entergy's submittal of inaccurate information to the NRC related to the medical qualifications of licensed operators. Letters to the NRC certified that the operators had been medically examined and had met all medical qualifications, when, in fact, one test (namely, a tactile test) had not been performed. A tactile test is required to ensure that operators can distinguish among various shapes of control knobs and handles by touch. The test was not performed because your Medical Review Officer (MRO) was unaware that such a test was required. Further, the MRO considered his review of the operators' medical history records for neurological conditions to be sufficient to verify the operators' ability to feel, manipulate, and distinguish plant components when needed.

Violations involving the provision of inaccurate or incomplete information are of particular concern to the NRC, and may be considered for escalated enforcement under certain circumstances. However, in this case, the NRC has classified this violation at Severity Level IV, after considering the guidance set forth in Section IV.A.3 of the Enforcement Policy because the inaccurate information did not invalidate the NRC licensing since all of the operators subsequently passed a tactile test when Entergy administered it shortly after the NRC identified the violation. Further, the actual and potential safety significance of this violation was very low in that the Medical Review Officer had conducted a neurological evaluation, albeit not a tactile test, and the operators had been observed successfully manipulating control knobs and handles by Entergy and NRC personnel in the conduct of their licensed duties. Nonetheless, this violation demonstrates the importance of taking all of the necessary steps and conducting all of the necessary reviews to assure that information submitted to the NRC is complete and accurate in all material respects.

Although this violation has been placed in your corrective action program, a Notice of Violation is being issued and a response is being required to better understand: 1) what actions were taken in 2004 in response to NRC Information Notice (IN) 2004-20, "Recent Issues Associated with NRC Medical Requirements for Licensed Operators," which, in part, reminded facility licensees that licensed operators and the personnel who perform and interpret their medical examinations need to be familiar with the regulatory requirements and guidelines (it should be noted that this IN specifically described an instance in which a facility licensee had not conducted some tests required in the ANSI standard for any of its licensed operators); 2) why appropriate action was not taken in response to IN 2004-20 to identify appropriate tactile testing was being conducted; and 3) the corrective actions taken and planned at this time to assure all information submitted to the NRC is complete and accurate in all material respects.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Based on the results of this inspection, this report also documents three additional findings of very low safety significance. All of these findings were determined to be violations of NRC requirements. However, because of their very low safety significance, and because the findings were entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, 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 2. In addition, if you disagree with the characterization of any 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 and the NRC Resident Inspectors at Indian Point Nuclear Generating Unit 2. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

J. Pollock

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/readingrm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Sincerely,

A handwritten signature in black ink, appearing to read "Mel Gray", with a long, sweeping flourish extending to the right.

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

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

Enclosure 1: Notice of Violation
Enclosure 2: Inspection Report No. 05000247/2009005
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

J. Pollack

3

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/readingrm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Sincerely,

/RA/

Mel Gray, Chief
Projects Branch 2
Division of Reactor Projects

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NOTICE OF VIOLATION

Entergy Nuclear Operations, Inc.
Indian Point Unit 2 and Unit 3

Docket No. 50-247 & 50-286
License Nos. DPR-26 and DPR-64
EA-09-296

During an NRC inspection conducted from October 19 through October 22, 2009, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 50.9 requires, in part, that information provided to the Commission by an applicant for a license or by a licensee or information required by statute or by the Commission's regulations, Orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects.

10 CFR 55.21 requires, in part, that an applicant for a license shall have a medical examination by a physician and the licensee shall have a medical examination by a physician every two years. The physician shall determine that the applicant or licensee meets requirements of Section 55.33(a)(1).

10 CFR 55.33(a)(1) requires, in part, that an applicant's medical condition and general health will not adversely affect the performance of assigned operator job duties or cause operational errors endangering public health and safety.

10 CFR 55.23 requires, in part, that to certify the medical fitness of the applicant, an authorized representative of the facility licensee shall complete and sign NRC Form-396, "Certification of Medical Examination by Facility Licensee."

NRC Form-396, when signed by an authorized representative of the facility licensee, certifies that a physician conducted a medical examination of the applicant and that the guidance contained in American National Standards Institute/American Nuclear Society (ANSI/ANS) Standard 3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants" was followed in conducting the examination and making the determination of medical qualification.

ANSI/ANS 3.4-1983, Section 5.4 provides specific minimum capacities required for medical qualifications. Section 5.14 requires, "Tactile discrimination sufficient to distinguish among various shapes of control knobs and handles by touch."

Contrary to the above, from October 20, 2004 through October 22, 2009, Entergy Nuclear Operations, Inc. (Entergy) provided information to the NRC that was not complete and accurate in all material respects. Specifically, Entergy had not completed medical examinations of licensed operators in accordance with ANSI/ANS 3.4-1983. The licensee submitted numerous NRC Form-396s for renewal of senior reactor operator and reactor operator licenses and for initial license applicants that certified that the applicants met the medical requirements of ANSI/ANS 3.4-1983 when, in fact, tactile testing had not been conducted.

This is a Severity Level IV violation (Supplement VII).

Pursuant to the provisions of 10 CFR 2.201, Entergy Nuclear Operations, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional

Administrator, Region I, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA-09-296" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 9th day of February 2010.

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-247

License No.: DPR-26

Report No.: 05000247/2009005

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 2

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

Dates: October 1, 2009 through December 31, 2009

Inspectors: G. Malone, Senior Resident Inspector - Indian Point 2
O. Ayegbusi, Resident Inspector – Indian Point 2
P. Cataldo, Senior Resident Inspector – Indian Point 3
J. D'Antonio, Senior Operations Engineer
S. Barr, Senior Emergency Prep Inspector
J. Commiskey, Health Physicist
C. Crisden, Emergency Preparedness Specialist
T. Fish, Senior Operations Engineer
J. Lilliendahl, Reactor Inspector
K. Mangan, Senior Reactor Inspector
J. Nicholson, Health Physicist
J. Schoppy, Senior Reactor Inspector

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

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SUMMARY OF FINDINGS

IR 05000247/2009005; 10/01/2009 – 12/31/2009; Indian Point Nuclear Unit 2; Licensed Operator Requalification Program; Alert and Notification System (ANS) Evaluation; Event Follow-Up; and Other Activities.

This report covered a three-month period of inspection by resident and region based inspectors. Four finding of very low significance (Green) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." The cross-cutting aspects for the findings were 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 (SL) after NRC management review. The NRC's program for overseeing safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone: Mitigating Systems

- SL IV. An NRC-identified Severity Level IV Violation of 10 CFR 50.9, "Completeness and accuracy of information" was identified because Entergy submitted inaccurate medical information for licensed operators. The inspectors identified submittals to the NRC were inaccurate due to the omission of a tactile test (test performed to ensure that operators can distinguish among various shapes of control knobs and handles by touch) from the required licensed operator medical examinations. The inspectors determined that Entergy's medical physician did not adequately test all licensed operators (both initial and renewal licensees) in accordance with 10 CFR 55.21 and 10 CFR 55.33 with respect to ANSI/ANS-3.4 1983. However, Entergy had submitted medical information, as required by 10 CFR 55 for licensed operators and applicants that stated the testing had been performed satisfactorily. Following identification of the issue, Entergy entered the issue into the corrective action program (CR-IP3-2009-04487) and completed corrective actions to develop and administer an appropriate test. The inspectors noted that all licensed operators passed this new test and no new license conditions were required.

Entergy's failure to provide complete and accurate information to the NRC could have resulted in an incorrect licensing action and is a performance deficiency because the licensee is required to comply with 10 CFR 50.9. Because this violation of 10 CFR 50.9 is considered to be a violation that potentially impedes or impacts the regulatory process, it is dispositioned using the traditional enforcement process. The finding was more than minor because documents which provided the information to the NRC were signed under oath by the company medical physician and the Site Vice President.

The applicability of cross-cutting aspects related to the performance deficiency of this finding will be determined after NRC review of Entergy's response to the Notice of Violation. (Section 1R11.2)

- Green. A self-revealing non-cited violation (NCV) of very low safety significance of 10 CFR 50, Appendix B Criterion V "Instructions, Procedures, and Drawings," was identified because Entergy personnel did not perform work regarding replacement of a control room digital recorder. As a result, during performance of the work, personnel inadvertently shorted a live

wire resulting in a partial loss of control room indications and alarms related to the safety relief valve acoustic monitor flow indications, low range steam and feed flow indications, and inadvertent control rod movement. Entergy personnel reset the breakers to restore control room indications and entered this issue into the corrective action program as CR-IP2-2009-04860. Personnel subsequently replaced the digital recorder with the circuit breaker opened to eliminate the electrical hazard.

The finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems cornerstone and impacted the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the grounded recorder power supply resulted in a loss of control room indications and alarms that could have impacted operations response to an event. The inspectors evaluated this finding using Phase 1 of IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and determined it to be of very low safety significance (Green).

The inspectors determined that this finding had a cross-cutting aspect in the area of Human Performance related to work practices. Specifically, Entergy personnel did not follow procedures during the replacement of a control room digital recorder. [H.4(b) per IMC 0305] (Section 4OA3.2)

Cornerstone: Emergency Preparedness

- **Green.** A self-revealing NCV of very low safety significance of 10 CFR 50.47(b)(5) was identified because Entergy personnel did not ensure the alert and notification system (ANS) sirens remained available for notification of the populace within the plume exposure pathway emergency planning zone (EPZ). Specifically, Entergy personnel did not use procedures, step lists, or checklists while performing maintenance on the ANS siren system which caused approximately 8% of the siren system to be degraded for 56 days. The siren technicians did not use a detailed written procedure or work instruction to perform siren file updates, but instead relied on performing the task from memory. As a result, on September 16, 2009, Entergy conducted a full volume siren test during which a total of 18 sirens indicated a failure to function. Entergy entered the siren failures into their corrective action process for resolution and performed a root cause of the event to determine the short and long term corrective actions.

The finding was more than minor because it was associated with the Emergency Preparedness (EP) cornerstone attribute of facilities and equipment, and impacted the cornerstone objective of ensuring that Entergy is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. This finding was evaluated using IMC 0609 Appendix B, "Emergency Preparedness Significance Determination Process (SDP)" and was determined to be of very low safety significance (Green).

This finding has a cross-cutting aspect associated with the area of Human Performance because Entergy did not ensure adequate supervisory and management oversight of work activities performed by siren technicians [H.4(c) per IMC 0305] (Section 1EP2)

Other Findings

- **SL IV.** An NRC-identified Severity Level IV, NCV of 10 CFR 72.212(b)(2)(ii), was identified because Entergy personnel did not evaluate a change to the written evaluation described in its Holtec Updated Final Safety Analysis Report (UFSAR) prior to implementing the change. Specifically, inspectors identified that Entergy personnel were storing combustible material on the Independent Spent Fuel Storage Installation (ISFSI) pad which was contrary to the Holtec UFSAR and the Entergy 72.212 Evaluation Report which stated that transient combustibles will not be stored on the ISFSI pad. Following the inspectors' questions, Entergy personnel determined the required evaluation in accordance with the requirements of 10 CFR 72.48(c) was not performed. Entergy personnel entered the issue into their corrective action program and verified that all combustibles had been removed from the pad.

The Reactor Oversight Process (ROP) was not used for this finding because inspections of ISFSI activities are covered under NRC Manual Chapter 2690 and are not incorporated in the reactor safety cornerstones in the ROP's Significance Determination Process (SDP). It was determined that the failure to evaluate a change to the written evaluation required by 10 CFR 72.212 using the requirements of 10 CFR 72.48(c) was a performance deficiency that was reasonably within Entergy's ability to foresee and prevent. The finding was determined to be a Severity Level IV violation based on Supplement VI, Example D.2 of the NRC Enforcement Policy.

A cross-cutting aspect was not assigned since the performance deficiency was not applicable to evaluation in accordance with the ROP. (Section 40A5.2)

REPORT DETAILS

Summary of Plant Status

Indian Point Unit 2 began the inspection period operating at full reactor power (100%). On November 2, Unit 2 shutdown due to an automatic reactor trip due to a turbine-generator protective trip resulting from a loss of the generator exciter power supply. On November 7, operators returned the plant to 100% power. Unit 2 remained at or near full power during the remainder of the inspection period.

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

The inspectors reviewed the readiness of risk-significant systems for winter cold weather conditions. The inspectors reviewed Entergy's adverse weather procedures, operating experience, corrective action program, UFSAR, Technical Specifications (TS), operating procedures, and applicable plant documents to determine the types of adverse weather challenges to which the site is susceptible. The inspectors also checked local area temperatures, as well as the operability of ventilation and heating systems, to ensure the plant was prepared for cold weather conditions. In addition, the following risk-significant systems that were required to be protected from adverse weather conditions were selected and collectively represented one inspection sample:

- Motor driven and turbine driven auxiliary feedwater system;
- Diesel generator fire pump; and
- 21, 22 and 23 emergency diesel generators (EDGs).

b. Findings

No findings of significance were identified.

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

The inspectors performed partial system walkdowns to verify the operability of redundant or diverse trains and components during periods of system train unavailability or following periods of maintenance. The inspectors referenced system procedures, UFSAR, and system drawings to verify the alignment of the available train supported its required safety functions. The inspectors also reviewed applicable condition reports

(CRs) and work orders to ensure Entergy personnel identified and properly addressed equipment discrepancies that could potentially impair the capability of the available train, as required by 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." The documents reviewed during these inspections are listed in the Attachment.

The inspectors performed a partial walkdown on the following systems, which represented three inspection samples:

- 22 EDG after planned outage;
- 22 residual heat removal (RHR) train when 21 RHR pump was out of service; and
- EDG fuel oil system following testing.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors performed a complete system walkdown of accessible portions of the component cooling water (CCW) system to identify discrepancies between the existing equipment lineup and the required lineup. The inspectors reviewed operating procedures, surveillance tests, piping and instrumentation drawings, equipment lineup check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors reviewed a sample of CRs written to address deficiencies associated with the system to ensure they were appropriately evaluated and resolved. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q – 5 samples)

.1 Resident Inspector Quarterly Walkdowns

a. Inspection Scope

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

Attachment. This inspection represented five inspection samples for fire protection tours, and was conducted in the following areas:

- ISFSI pad area;
- Fire Zone (FZ) 25, 23 battery room;
- FZ 15 control room;
- FZ 90A, 91A spent fuel pool area; and
- FZ 252 cable spreading room.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07T - 3 Samples)

a. Inspection Scope

Based on a plant specific risk assessment, past inspection results, and resident inspector input, the inspectors selected the following heat exchanger samples:

- 22 CCW heat exchanger;
- 23 EDG jacket water and lube oil heat exchangers; and
- Ultimate heat sink (UHS), which included operation of the service water system and UHS.

The inspectors reviewed whether potential common cause heat sink performance problems were identified and corrected by the licensee. The inspectors also reviewed potential macro fouling (silt, debris, etc.) issues and biotic fouling issues to verify the issues were closely examined by Entergy personnel. In response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," Entergy committed to performing frequent periodic cleaning of essential service water heat exchangers in lieu of testing for degraded performance. To ensure adequate implementation of Generic Letter 89-13 commitments, the inspectors reviewed Entergy's inspection, cleaning, and eddy current testing methods and frequency with the responsible system engineer. The inspectors compared surveillance test and inspection data, including as found conditions and eddy current summary sheets, to the established acceptance criteria to verify that the results were acceptable and that system heat exchanger operation was consistent with design. The inspectors reviewed heat exchanger design basis values and assumptions, plugging limit calculations, and vendor information, to verify whether Entergy personnel incorporated the information into the heat exchanger inspection and maintenance procedures.

The inspectors walked down the intake area, portions of the service water system, including the service water pump and strainer pits, CCW heat exchangers, and EDG heat exchangers, to assess the material condition and operational functioning of these systems and components. The inspectors reviewed a sample of condition reports related to the service water system to ensure that station personnel were appropriately identifying, characterizing, and correcting problems related to these systems and components. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

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

.1 Quarterly Review

a. Inspection Scope

On October 6, the inspectors observed licensed operator simulator training, which included simulated steam generator instrumentation failures and a large break loss-of-coolant-accident (LBLOCA) coincident with the failure of several plant systems to automatically respond to adverse conditions, to verify operator performance was adequate and evaluators were identifying and documenting crew performance problems. The inspectors evaluated the performance of risk-significant operator actions including the use of emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms, performance of timely control board operation and manipulation, and the oversight and direction provided by the control room supervisor. The inspectors also assessed simulator fidelity with respect to the actual plant. The inspectors evaluated licensed operator training for conformance with the requirements of 10 CFR 55, "Operator Licenses." The documents reviewed during this inspection are listed in the Attachment. This observation of operator simulator training represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Licensed Operator Regualification (71111.11B - 1 sample)

a. Inspection Scope

On December 15, the inspectors reviewed results of the 2009 comprehensive written and annual operating tests to determine whether pass/fail rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Regualification Human Performance Significance Determination Process (SDP)."

Inspectors verified the following:

- Crew failure rate on the dynamic simulator was less than 20%. (Failure rate was 0.0%);
- Individual failure rate on the dynamic simulator test was less than or equal to 20%. (Failure rate was 0.0%);
- Individual failure rate on the walkthrough test (job performance measures) was less than or equal to 20%. (Failure rate was 0.0%);
- Individual failure rate on the 2009 comprehensive written exam was less than or equal to 20%. (Failure rate was 0.0%); and
- More than 75% of the individuals passed all portions of the exam (100% of the individuals passed all portions of the exam).

b. Findings

Introduction: An NRC-identified Severity Level IV Violation of 10 CFR 50.9, "Completeness and accuracy of information" was identified because Entergy submitted inaccurate medical information for licensed operators. The inspectors identified submittals to the NRC were inaccurate due to the omission of a tactile test (test performed to ensure that operators can distinguish among various shapes of control knobs and handles by touch) from the required licensed operator medical examinations.

Description: The NRC's requirements related to the conduct and documentation of medical examinations for operators are contained in Subpart C, Medical Requirements, of 10 CFR 55, Operators' Licenses. Specifically, 10 CFR 55.21, Medical Examination, requires every operator be examined by a physician when he or she first applies for a license and every two years, thereafter, once the license is received. The medical examination is performed in order for the physician to determine whether the operator meets the requirements of 10 CFR 55.33(a)(1). The physician is to verify that the operator's medical condition and general health will not adversely affect the performance of assigned operator duties or cause operational errors that endanger public health and safety.

The facility licensee (Entergy) must also certify which industry standard (i.e., the 1983 or 1996 version of ANSI/ANS-3.4, Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants, or other NRC-approved method) was used in making the fitness determination. For the medical examination performed for licensed operators at Indian Point Units 2 and 3, the inspectors determined that Entergy had stated on NRC Form 396 that the 1983 industry standard was used for the completion of the medical examination. The inspectors noted that ANSI-3.4 1983, Paragraph 5.4.14 "Neurological," requires licensed operators to have "Tactile discrimination (Stereognosis) sufficient to distinguish among various shapes of control knobs and handles by touch." Additionally, the inspectors identified that the Form 396 was signed by both the medical review officer and Site Vice President, under oath, verifying the examination had been performed.

During the medical records review, the inspectors determined that Entergy personnel had not been conducting tactile testing of its licensed operators. This omission had the potential for being significant since, during a transient aggravated by limited visibility, operators may be required to perform actions relying on their ability to distinguish, by touch, between different shapes of operating switches and knobs. Following identification of the issue Entergy personnel completed corrective actions to develop and administer an appropriate test. The inspectors noted that all licensed operators passed this new test, and no new license conditions were required.

Analysis: The inspectors determined that a long-standing deficiency had existed at the Indian Point Units 2 and 3 in that the licensee's medical physician was not adequately testing all licensed operators (both initial and renewal licensees) in accordance with 10 CFR 55.21 and 55.33 with respect to ANSI/ANS-3.4 1983. 10 CFR 55.23 requires that an authorized representative of the facility licensee shall certify the medical fitness of an applicant by completing and signing an NRC Form 396. NRC Form 396, when signed by an authorized representative of the facility licensee, certifies that a physician conducted a medical examination of the applicant as required in 10 CFR 55.21, and that

the guidance contained in ANSI/ANS-3.4 1983 was followed in conducting the examination and making the determination of medical qualification.

The licensee's failure to provide complete and accurate information to the NRC could have resulted in an incorrect licensing action by the NRC and is a performance deficiency because the licensee is required to comply with 10 CFR 50.9 and the issue was within the licensee's ability to foresee and prevent. Because a violation of 10 CFR 50.9 is considered to be a violation that potentially impedes or impacts the regulatory process, it is dispositioned using the traditional enforcement process. The finding was more than minor because the document which provided the information was provided to the NRC signed under oath by the company medical doctor and the site vice president. Because there was no evidence that operators mis-operated equipment due to omitted tactile tests, the finding was determined to be of very low safety significance (SL IV).

The applicability of cross-cutting aspects related to the performance deficiency of this finding will be determined after NRC review of Entergy's response to the Notice of Violation.

Enforcement: 10 CFR 50.9 states, in part, "Information provided to the Commission by an applicant for a license or by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the applicant or the licensee shall be complete and accurate in all material respects." Contrary to this, from October 20, 2004 through October 22, 2009, Entergy submitted inaccurate information to the NRC on NRC Form 396 regarding the medical certification and testing of its licensed operators and initial applicants. This information was material to the NRC because the NRC relied on this certification to determine whether the applicant met the requirements to operate the controls of a nuclear power plant pursuant to 10 CFR 55.

This issue has been entered into the facility corrective action program (CR-IP3-2009-04487) and is of very low safety significance. The licensee implemented immediate corrective action and satisfactorily performed the required test. The inspectors verified the adequacy and promptness of the licensee's corrective actions for the medical issue. These corrective actions included the development of a tactile test which required operators to identify by touch various control knobs and switch shapes within a bag. The new tests were administered to all licensed operators and senior licensed operators. All operators passed the test and no new deficiencies were identified.

This violation is being treated consistent with other licensed operator medical examination findings and the NRC Enforcement Policy. **(NOV 05000247/2009005-01, Incomplete Licensed Operator Medical Examinations)**

1R12 Maintenance Effectiveness (71111.12Q - 1 sample)

a. Inspection Scope

The inspectors reviewed performance-based problems that involved structures, systems, and components (SSCs) to assess the effectiveness of maintenance activities. When applicable, the reviews focused on:

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

The inspectors also reviewed the system health report, maintenance backlogs, and maintenance rule basis document. The inspectors evaluated maintenance effectiveness and monitoring activities against the requirements of 10 CFR 50.65. The documents reviewed during this inspection are listed in the Attachment. The following component was reviewed and represented one inspection sample:

- Appendix R diesel generator coolant compatibility.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- Emergent maintenance associated with the Appendix R diesel generator concurrent with maintenance on 138kV line 33332 L&M, power range nuclear instrumentation recalibrations, and preventative maintenance on the 22 containment spray pump on October 2;
- Planned maintenance associated with the 23 CCW pump and preventative maintenance on the 21 and 22 safety injection (SI) and RHR pump motor breakers on October 20;
- Planned maintenance associated with the 33332 L&M line, 23 CCW pump and 22 SW pump following an inadvertent trip of the 22 EDG output breaker on October 26; and
- Unplanned maintenance outage associated with the 22 EDG on November 9 and 10.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 2 samples).1 Resident Quarterly Reviewa. 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 (TS). The inspectors' reviews included verification that operability determinations were performed in accordance with procedure ENN-OP-104, "Operability Determinations." The inspectors assessed the technical adequacy of the evaluations to ensure consistency with the TS, UFSAR, and associated design basis documents. The documents reviewed are listed in the Attachment.

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

- 21 EDG day tank level Indication; and
- 22 EDG jacket water heater breaker failure.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 8 samples)a. Inspection Scope

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

- 23 CCW pump overhaul;
- Motor operated valve (MOV) SI-1852B motor and actuator overhaul;
- Starting air system maintenance and output breaker inspection on the 22 EDG;
- Preventative maintenance of the 24 fan cooler unit (FCU) service water flange;
- Service water valve MOV SWN-41-1B motor and actuator overhaul;
- Cable pull and repair splicing of the L&M 33332 line;
- Internal inspection of EDG 23 heat exchangers; and
- Replacement of diesel fire pump relief valve.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – 6 samples)a. Inspection Scope

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

- Feedwater valves FCV-405 A-D In-service test (IST);
- 23 EDG load test;
- 21 SI pump IST;
- 21 RHR pump IST;
- Condensate storage tank guided wave evaluations of underground portions of the condensate and SW piping; and
- 23 station battery quarterly surveillance.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)1EP2 Alert and Notification System (ANS) Evaluation (71114.02 - 1 sample)a. Inspection Scope

An onsite review was conducted to assess the maintenance and testing of Indian Point Energy Center's (IPEC) current ANS. During the inspection, the inspector interviewed the Entergy staff responsible for overseeing the ANS testing and maintenance of the system. The inspector reviewed ANS procedures and the ANS design report to ensure Entergy's compliance with design report commitments for system maintenance and testing. The inspector reviewed CRs pertaining to the ANS for causes, trends, and corrective actions. The inspector also reviewed Entergy's root cause report related to siren test results conducted in September 2009. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 2. Planning Standard, 10 CFR 50.47(b)(5) and the related requirements of 10 CFR 50, Appendix E, were used

as reference criteria. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

Introduction: A self-revealing NCV of very low safety significance (Green) of 10 CFR 50.47(b)(5) was identified because Entergy personnel did not ensure the alert and notification system (ANS) sirens remained available for notification of the populace within the plume exposure pathway emergency planning zone (EPZ). Specifically, Entergy personnel did not use procedures, step lists, or checklists while performing maintenance on the ANS siren system which caused approximately 8% of the siren system to be in a degraded condition for 56 days.

Description: The new ANS siren system is comprised of 172 sirens located throughout the four counties within the 10 mile Emergency Planning Zone (EPZ). Of the 172 sirens, 13 are capable of voice reproduction. The voice enabled sirens are located in areas, such as Harriman State and Croton Point Parks, where the population may not have access to media that would transmit Emergency Alert Messages.

The inspector's review of Entergy's root cause evaluations determined that, in July 2009, Entergy received new voice chips along with two data files (one for voice and one for non-voice sirens) along with instructions for installation of the chips and data files from the siren system vendor. The new voice chips and software provided an upgrade to the previous voice message. On July 15, 2009, Entergy personnel discussed the task of installing new voice chips on the digital message boards (DMB) for the 13 voice enabled sirens and installing the updated voice data file for each siren. The first voice chip installation and data file update was performed on July 20, 2009. Although the siren system vendor provided the installation instructions for the data file, the instructions were not included in the Entergy work instructions nor were they provided to the technician performing the upgrade.

On July 22, 2009, technicians continued to update all voice sirens with the new voice chip and the new data file. While updating a single voice siren data file, the UPDATE ALL command was inadvertently invoked three times within a short period of time. The technician recognized the error and proceeded to abort the process all three times. A similar data file update error had previously occurred on July 20, 2009. While actions were taken to recover from the error, a CR was not documented and no actions were taken to prevent reoccurrence. Between July 22 and July 29, 2009, the technicians continued to update the remaining voice sirens with the new voice chips and data file with no additional instances of the UPDATE ALL command being invoked. The installation of voice chips and the voice data files was completed on July 29, 2009. All voice sirens were updated and verified with the voice chips and the new data file. The post maintenance testing for this activity would not have identified the latent error with the non-voice enabled sirens because it was not intended to have modified these sirens during this work activity.

As a result of the data file update error on July 22, 2009, 14 non-voice sirens were inadvertently configured as voice sirens. After the technician made the file update error on July 22, 2009, the technician did not verify that the correct data files were installed for all non-voice sirens (three non-voice sirens were verified as having the correct files after the July 20, 2009 data update error). This error caused 14 non-voice sirens to be left in

a condition where the sirens would function (annunciate); however, the indication at the siren activation points would indicate that the sirens had failed (red-dots versus green-dot for successful activation).

In August 2009, routine polling, silent tests and annual Preventive Maintenance (PM) were conducted by Entergy. The annual PM procedure requires verification if the individual siren's data file is correct for the type of siren (voice or non-voice). During the PMs, several siren data files were found to be incorrect and were corrected during the PM. The last four PMs conducted on non-voice sirens in the August/September timeframe each began with a non-voice siren verification failure. This failure was an indication that the non-voice siren was configured with a voice siren data file. The Entergy Root Cause report determined that the failure should have been identified by the technician and indicated that there was a more significant problem with the siren data files. This problem was neither documented in a CR nor was it reported to management. The silent tests that were conducted would not have identified voice data file configuration errors.

On September 16, 2009, Entergy conducted a full volume test of the siren system. Of the 172 sirens activated during the test, 18 siren failures were observed (red dots on displays indicating siren failures). Of the 18 failures observed, four were reported as amplifier (AMP) failures and 14 were reported as DMB errors. The inspector did not identify a performance deficiency associated with the four AMP siren failures. The 14 DMB errors were due to an incorrect data file being installed for the siren. The sirens indicating an error were non-voice sirens that were installed with the voice data file.

According to procedure IP-EP-AD30, IPEC ATI Siren System Administration, maintenance on the siren system will be performed using procedures, step lists, and checklists per IP-EP-AD31, IPEC Siren System Maintenance Administration Procedure. IP-EP-AD31 states checklist and procedures will be used if the work is beyond the skill of the craft or the vendor tech manuals. Contrary to IP-EP-AD30, the inspectors determined the technician did not use detailed written procedures nor work instructions to perform the siren updates. Instead the technician relied on performing the task from memory. As a result, on September 16, 2009, 14 DMB failures occurred due to an incorrect data file being installed for the sirens.

Troubleshooting testing conducted following the September 16, 2009, full volume test, demonstrated that while the 14 sirens indicated that they had failed to function, the sirens most likely sounded based on this subsequent testing. In the case of a siren indicating failure during an actual event, Entergy would use an installed reverse calling system to notify the affected public. Following the siren test failures, Entergy diagnosed the data file error, installed the correct data file, and had all 14 sirens returned to an operable status on the day of the test. On October 22, 2009, a subsequent full volume test demonstrated 100 percent successful siren activation.

Analysis: The inspector determined that Entergy's failure to use procedures, step lists or checklists while performing maintenance on the siren system was a performance deficiency resulting in approximately 8% of the system to be degraded for 56 days. The finding is greater than minor because it is associated with the emergency preparedness (EP) cornerstone attribute of Facilities and Equipment (Maintenance of Equipment) and affected the EP cornerstone objective of ensuring the capability to implement adequate measures to protect the health and safety of the public in the event of a radiological

emergency. This finding was evaluated using IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," Sheet 1, "Failure to Comply." The finding is associated with the failure to meet or implement a regulatory requirement (planning standard). The finding is not more than Green because it did not result in a Risk Significant Planning Standard (RSPS) function being lost or degraded. The SDP defines degradation of this RSPS to be, "the public alert and notification system (e.g., sirens, other supporting primary notification methods) has design flaws or deficiencies in the test program, maintenance program, or procedures that degrade a portion of the system for a significant period from the time of discovery (e.g., 100% over 25 days, greater than 48% over 45 days, greater than 24% over 90 days, greater than 12% over 6 months)." In this case, approximately 8% of sirens were degraded for over 45 days; therefore, it was concluded that the RSPS was not degraded (as defined by the SDP) and the finding was determined to be of very low safety significance (Green).

This finding has a cross-cutting aspect associated with the area of Human Performance because Entergy did not ensure adequate supervisory and management oversight of work activities performed by station personnel and siren technicians (H.4(c)).

Enforcement: 10 CFR 50.54(q) states in part that the facility licensee shall follow and maintain in effect emergency plans which meet the standards in 50.47(b) and the requirements in Appendix E of this part. Planning Standard 10 CFR 50.47 (b)(5) requires, in part, that a means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ have been established. Contrary to the above, from July 22, 2009 until September 16, 2009, a means to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ had not been established in the areas adjacent to the 14 non-functional sirens. A contributing cause for this violation was the failure to use procedures, step lists or checklists during a siren maintenance activity conducted on July 22, 2009. Because this violation was of very low safety significance and it was entered into Entergy's corrective action program (CR-IP2-2009-3701); this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. (**NCV 05000247/2009005-02, Siren Test Failure**)

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System
(71114.03 - 1 sample)

a. Inspection Scope

The inspector conducted a review of IPEC's ERO augmentation staffing requirements and the process for notifying and augmenting the ERO. This was performed to ensure the readiness of key licensee staff to respond to an emergency event and to ensure Entergy's ability to activate their emergency facilities in a timely manner. The inspector reviewed the IPEC ERO roster, sampling of training records, and CRs related to the ERO staffing augmentation system. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 3. Planning Standard, 10 CFR 50.47(b)(2) and related requirements of 10 CFR 50, Appendix E, were used as reference criteria. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04 - 1 sample)

a. Inspection Scope

Since the last NRC inspection of this program area, Entergy implemented various changes to different sections of their emergency plan. Entergy had determined that, in accordance with 10 CFR 50.54(q), any change made to the emergency plan, and its lower-tier implementing procedures, had not resulted in any decrease in effectiveness of the plan, and that the revised plan continued to meet the standards in 50.47(b) and the requirements of 10 CFR 50 Appendix E. The inspector reviewed all emergency plan changes, including the changes to lower-tier emergency plan implementing procedures, to evaluate for any potential decreases in effectiveness of the emergency plan. However, this review by the inspector was not documented in an NRC Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 4. The requirements in 10 CFR 50.54(q) were used as reference criteria. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05 - 1 sample)

a. Inspection Scope

The inspectors reviewed a sampling of self-assessment procedures and reports to assess Entergy's ability to evaluate their EP performance and programs. The inspectors reviewed a sampling of CRs from December 2007 through November 2009, initiated by Entergy at IPEC from drills and audits. Additionally, the inspectors reviewed 10 CFR 50.54(t) audits; and self-assessment reports. This inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 5, Planning Standard, 10 CFR 50.47(b)(14) and the related requirements of 10 CFR 50, Appendix E, were used as reference criteria. The documents reviewed during this inspection are listed in the Attachment.

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 – 15 samples)

a. Inspection Scope

During September 28 through October 2, 2009, the inspectors conducted activities to verify that Entergy staff at IPEC were properly implementing physical, engineering, and

administrative controls for access to high radiation areas (HRAs), 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 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. The documents reviewed during this inspection are listed in the Attachment.

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

Plant Walk Downs and RWP Reviews

The inspectors reviewed exposure significant work areas within radiation areas, HRAs, and airborne areas in the plant to assess licensee controls and surveys for adequacy. Work reviewed included 3R15 Refueling Outage and On-Line work activities:

- U2 RCP Platform Entry (Oil Addition)
- U2 Vapor Containment, Replace 21 CRD Fan Motor radiation work permit (RWP) 2009-2033
- U2 Fuel Moves, RWP 2009-2043
- U2 Dry Cask Storage & Associated Work, RWP 2009-2029
- Radiation protection support for locked HRA (LHRA) Entries, RWP 2009-3501
- Maintenance Support, RWP 2009-3506
- Waste Management, RWP 2009-3504
- Scaffolding, RWP 2009-3518
- Outage Valve Work, RWP 2009-3520
- Reactor Disassembly & Reassembly, RWP 2009-3521
- Split Pin Repair & Associated Work, RWP 2009-3530
- RCP Pump & Motor Work, RWP 2009-3534

With a survey instrument and assistance from a Health Physics qualified individual, the inspectors walked down various areas to determine: whether the RWP, procedure, and engineering controls were in place and whether surveys and postings were adequate. The inspectors reviewed RWPs that provide access to exposure-significant areas of the plant. Specified electronic personal dosimeter alarm set points were reviewed by inspectors 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.

The inspectors determined there were no RWPs for airborne radioactivity areas with the potential for individual worker internal exposures of >50 millirem (mrem) committed effective dose equivalent (CEDE). Additionally, the inspectors determined there were no internal dose assessments that resulted in actual internal exposures greater than 50 mrem CEDE.

Problem Identification and Resolution

The inspectors reviewed access control-related CRs generated since the last inspection in this area was conducted. Staff members were interviewed and documents reviewed to determine that follow-up activities are being conducted in an effective and timely manner, commensurate with their safety and risk. For repetitive deficiencies or significant individual deficiencies in problem identification and resolution, the inspectors determined if the licensee's assessment activities addressed the repetitive aspects. The inspectors reviewed events to determine whether there existed 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, unintended exposures greater than 100 mrem total effective dose equivalent (TEDE), greater than 5 Rem shallow dose equivalent (SDE), or greater than 1.5 Rem lens dose equivalent (LDE).

Job-in-Progress Reviews

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 briefing meetings for U2 Badger Testing and ISFSI related activities.

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

Key control associated with LHRA and VHRA were reviewed by inspectors to assess Entergy's controls and inventory and to verify accessible LHRAs were properly secured and posted during plant tours. 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

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 their work areas. The inspectors reviewed CRs related to radiation worker performance to determine if an observable pattern traceable to a similar cause was evident.

Radiation Protection Technician Proficiency

During observation of the work activities listed above, 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. The inspectors reviewed CRs related to radiation protection technician performance to determine if an observable pattern traceable to a similar cause was evident.

b. Findings

No findings of significance were identified

2OS2 ALARA Planning and Controls (71121.02 - 10 samples)

a. Inspection Scope

During September 28 through October 2, 2009, the inspectors conducted the following activities to verify that Entergy staff were properly maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA). Implementation of the ALARA program was reviewed for conformance with the criteria contained in 10 CFR 20, applicable industry standards, and Entergy's procedures. The documents reviewed during this inspection are listed in the Attachment.

Inspection Planning

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. The inspectors reviewed work performed during the inspection period, the associated ALARA plans, RWPs, ALARA Committee Reviews, exposure estimates, actual exposures and post job reviews. Jobs reviewed included those listed earlier in this report in Section 2OS1. 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

With respect to the work activities reviewed, the inspectors reviewed dose summary reports, related post-job ALARA reviews, related RWPS, exposure estimates and actual exposures, and ALARA Committee meeting paperwork. The inspectors reviewed ALARA work activity evaluations, exposure estimates, and exposure mitigating requirements were reviewed for work packages. The inspectors' review was to verify whether the licensee has established procedures and work controls, based on sound radiation protection principles. The inspectors compared the results achieved with the intended dose that was established in the planning of the work. The inspectors evaluated the basis for inconsistencies between the intended and actual work activity doses and station management awareness and involvement.

Job Site Inspections and ALARA Controls

The inspectors reviewed work activities that present the highest radiological risk to workers. The inspectors evaluated the licensee'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 by inspectors to determine if appropriate exposure and contamination controls were being employed.

Radiation Worker Performance

Through observations and interviews, the inspectors reviewed whether workers and technicians were found to be knowledgeable of the work area radiological conditions and low dose waiting areas.

Declared Pregnant Workers

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 10 CFR 20.

Problem Identification and Resolution

The inspectors reviewed elements of the licensee'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 ACTIVITIES4OA1 Performance Indicator Verification (71151 – 8 samples)a. Inspection Scope

The inspectors reviewed performance indicator (PI) data for the cornerstones listed below and used Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, to verify individual PI accuracy and completeness. The inspectors reviewed the PI data and supporting documentation from the fourth quarter of 2008 through the third quarter of 2009 to verify the accuracy of the reported data. The documents reviewed during this inspection are listed in the Attachment.

Barrier Integrity Cornerstone

- Reactor Coolant Identified Leakage.

Mitigating Systems Cornerstone

- Mitigating System Performance Index Heat Removal Systems; and
- Mitigating System Performance Index Cooling Water Systems.

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness.

Public Radiation Safety Cornerstone

- Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences.

Emergency Preparedness Cornerstone

- Drill and Exercise Performance (DEP);
- ERO Drill Participation; and
- ANS Reliability.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 - 2 samples).1 Resident Inspector Daily Review of Conditions Reportsa. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and to identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of all items entered into Entergy's corrective action program. The review was accomplished by accessing Entergy's computerized database for CRs and attending CR group screening meetings.

In accordance with the baseline inspection modules, the inspectors selected corrective action program items across the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for further follow-up and review. The inspectors assessed Entergy personnel's threshold for problem identification, adequacy of the causal analysis, extent of condition reviews, and operability determinations, and timeliness of the associated corrective actions.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Trend Review (71152 - 1 sample)a. Inspection Scope

The inspectors performed a semi-annual review of Unit 2 issues, to identify trends that might indicate the existence of more significant safety issues. The inspectors included in this review, repetitive or closely-related issues that may have been documented by Entergy outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, maintenance rule assessments, and maintenance or corrective action program backlogs. The inspectors also reviewed Entergy's corrective action program database for the third and fourth quarters of 2009, to assess CRs written in various subject areas (equipment problems, human performance

issues, etc.), as well as individual issues identified during the NRC's daily CR review. The inspectors reviewed Entergy's quarterly trend report for the third quarter of 2009, and specific inputs from the Engineering Department that were included in the site trend report, to verify the existence or absence of, identified trends and the adequacy of existing corrective actions to address these trends. The inspectors also reviewed EN-LI-121, "Entergy Trending Process," to verify that Entergy was appropriately evaluating and trending adverse conditions in accordance with applicable procedures. The documents reviewed during this inspection are listed in the Attachment.

b. Assessment and Observations

No findings of significance were identified.

The inspectors identified several issues and events that occurred over the course of the past year, and more specifically, the third and fourth quarters of 2009, which could objectively be considered adverse trends. The inspectors verified that these issues were either addressed within the scope of the corrective action program, or through department review and documentation in the quarterly trend report for overall assessment. For example, the inspectors reviewed the following issues:

- IP2-2009-04306 - Root Cause Evaluation: Adverse Trend - Centrifugal Pump Rework; and
- IP2-2009-02629 - Recent events involving weaknesses in supplemental personnel work practices;

No adverse trends were identified by the inspectors that were not previously addressed by Entergy personnel.

.3 Aggregate Impact of Operator Workarounds (71152 -1 sample)

a. Inspection Scope

The inspectors conducted a review of the aggregate impact of operator burdens and workarounds. The inspectors reviewed Entergy's implementation of procedures OAP-45, "Operator Burden Program." The inspectors conducted control room walkdowns and interviewed plant operators to determine the impact of deficiencies on operator response to plant events. Additionally, the inspectors reviewed operator logs, CRs and performed system walkdowns to verify that there were no risk significant operator actions that had not been evaluated by Entergy personnel.

b. Findings and Observations

No findings of significance were identified.

The inspectors verified that operator workarounds and burdens were entered into the corrective action program at an appropriate threshold and that corrective actions were planned or taken commensurate with their safety significance.

4OA3 Event Follow-Up (71153 - 2 samples).1 Reactor Trip on November 2, 2009, Due to a Turbine-Generator Exciter Protective Tripa. Inspection Scope

The inspectors responded to the control room on November 2, 2009, following an automatic reactor trip due to a turbine-generator protective trip resulting from a loss of the Generex power supply. The inspectors observed Entergy's post-trip response in the control room to determine if plant equipment responded as expected, and to ensure that operating procedures were being appropriately implemented. The inspectors attended post-trip review and forced outage meetings, and discussed the event, plant response and corrective actions with plant management. The purpose of the reviews was to confirm that Entergy had taken appropriate actions during and following the event, and had taken appropriate corrective actions for the trip prior to commencing restart activities. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Partial Loss of Control Room Indication During NI-41 Recorder Replacementa. Inspection Scope

The inspectors responded to the control room on November 23, 2009, following notification by the shift manager that there had been a partial loss of control room annunciators and alarms associated with safety relief valve acoustic monitor indication, low range steam and feedwater flow indication, and inadvertent control rod movement. Entergy personnel determined that the partial loss of control room indications and control rod movement was due to inadvertent grounding of a live feed wire during the replacement of a control room digital recorder. The grounding caused the recorder's associated breaker to open and the 21 instrument bus to auto-transfer from its normal source (static inverter) to its alternate source (transformer). The inspectors verified that Entergy operations and maintenance personnel had taken appropriate actions following the inadvertent grounding of the wire and resultant control room indications. The inspectors' review included verification that applicable TS limiting conditions of operation (LCO) were entered by operations personnel for the equipment made inoperable by the partial loss of control room indications/alarms. Finally, the inspectors performed system walkdowns, interviewed personnel, reviewed applicable CR's, work packages, plant procedures, operating experience and corrective actions associated with the apparent cause evaluation performed by Entergy personnel to independently assess the causes of the partial loss of control room annunciators. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

Introduction: A self-revealing NCV of very low safety significance (Green) of 10 CFR 50, Appendix B Criterion V "Instructions, Procedures, and Drawings," was identified because Entergy personnel did not perform work in accordance with instructions associated with the replacement of a control room digital recorder. As a result, during performance of

the work, Entergy personnel shorted a live wire which resulted in a partial loss of control room indications and alarms, and inadvertent control rod movement.

Description: On November 23, 2009, during the replacement of control room safety related digital recorder NR-41, electrical maintenance personnel inadvertently grounded the recorder's live power lead on the bracket of the recorder. NR-41 provides control room operators indication for reactor power from the power range upper detectors. Entergy personnel determined this resulted in the NR-41 circuit breaker opening and the power supply for the 21 instrumentation bus auto transferring from normal (static inverter) power to the alternate (transformer) power supply requiring entry into TS limiting condition of operation (LCO) 3.8.7. The opening of the circuit breaker caused a partial loss of control room annunciators related to acoustic monitors for safety relief valves, and low range steam and feed flow indication. In addition, operations personnel observed control rods (control bank 'D') move in half a step. Entergy personnel determined that the control rod movement occurred because of the power transient associated with the 21 instrument bus transferring from its static inverter to an alternate power supply.

The inspectors determined that Work Order (WO) 163807 provided instructions for replacing NR-41 and required the performance of a pre-job brief. WO 163807 identified that working on live circuits was a "safety hazard" and an "error likely situation." The WO instructed maintenance personnel to "tape all areas where feed wires present, if applicable." The inspectors determined that EN-HU-102, "Human Performance Tools," requires an acceptable defense against an error likely situation and taping of all areas was identified in the WO as the human performance tool to address the error likely situation. Entergy determined that the maintenance personnel did not apply the electrical barriers to prevent the inadvertent ground of the live power supply prior to performing the work.

Following the event, inspectors observed that Entergy personnel replaced the digital recorder with the circuit breaker opened to eliminate the electrical hazard. Entergy entered the issue into the corrective action program (CR-IP2-2009-04860) and implemented corrective actions which included supplemental training for station personnel regarding the station's requirements to follow procedural direction.

Analysis: The inspectors determined that a performance deficiency associated with this finding was that Entergy maintenance personnel did not follow instructions provided in the WO to install electrical protective barriers when working on live equipment. The finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems cornerstone and impacted the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the grounded recorder power supply resulted in a loss of control indication and alarms that would impact operations' response to an event. The inspectors evaluated this finding using Phase 1 of IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and determined it to be of very low safety significance (Green) because it did not represent a design or qualification deficiency, did not result in a loss of safety function, and did not screen as potentially risk-significant due to external events.

The inspectors determined that this finding had a cross-cutting aspect in the area of human performance related to work practices because Entergy personnel did not follow procedures during the replacement of a control room digital recorder. (H.4(b))

Enforcement: 10 CFR 50, Appendix B Criterion V "Instructions, Procedures, and Drawings" in part, requires that activities affecting quality shall be prescribed by documented instructions of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions. Contrary to the above, on November 24, 2009, maintenance personnel did not follow the instructions provided in the WO during replacement of the safety-related digital recorder NR-41. Because this issue was of very low safety significance and was entered into Entergy's corrective action program (IP2-2009-04860), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000247/2009005-03, Partial Loss of Control Room Indication during NI-41 Recorder Replacement)**

40A5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with site security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.2 Independent Spent Fuel Storage Installation (60855 and 60855.1)

a. Inspection Scope

On December 14, 2009, Entergy personnel completed its dry cask loading campaign for Unit 2. The inspectors reviewed documents and records associated with the operation of the Indian Point Energy Center (IPEC) Independent Spent Fuel Storage Installation (ISFSI), including training records for personnel involved with loading dry cask canisters. The inspectors met with reactor engineering personnel to review the fuel selection process and associated documentation. The video recording of the fuel bundles placed into the last loaded canister was reviewed by inspectors to verify proper bundle location. The inspectors review also included verification of the annual inventory and the location of each dry cask canisters on the ISFSI pad. The inspectors interviewed radiation protection personnel to review total dose per canister, ALARA goals, and neutron dose determinations. The inspectors also interviewed fire protection personnel to determine the follow up to assess the adequacy of the evaluation Entergy performed for all transient combustibles to be stored on the ISFSI pad. The documents reviewed during this inspection are listed in the Attachment.

b. Findings

Introduction: An NRC-identified NCV of very low safety significance (SLIV) of 10 CFR 72.212(b)(2)(ii), was identified because Entergy personnel did not evaluate a change to the written evaluation required by this paragraph using the requirements of 10 CFR 72.48(c), prior to storing transient combustibles on the ISFSI pad. The Holtec Final Safety Analysis Report (FSAR) and the Entergy 72.212 Evaluation Report, state that transient combustibles will not be stored on the ISFSI pad.

Description: On September 28, 2009, inspectors questioned whether a mobile lift was allowed per procedures to be stored on the ISFSI pad adjacent to unloaded HI-STORMs. Entergy personnel issued condition report CR-IP2-2009-03910. Station personnel removed the mobile lift off the pad but other transient combustibles, such as plywood and pallets, remained on the pad. During follow-up inspection related to the condition report, the inspectors determined that Entergy personnel were operating under an incorrect assumption that there were active and non-active portions of the ISFSI pad, and that it was acceptable to store transient combustibles and fueled vehicles on the ISFSI pad as long as they were kept at a minimum of 30 feet from loaded casks. The inspectors determined that there was no description of active and non-active portions of the ISFSI pad in Entergy procedures relating to dry cask storage. Entergy uses the Holtec dry cask system under the Certificate of Compliance number 1014 issued to Holtec. The inspectors identified that the Holtec FSAR and the Entergy 72.212 Evaluation Report stated that there will be no combustibles stored on the ISFSI pad. The Holtec FSAR also provided design information that included a worst case fire analysis which concluded that a 50 gallon fuel tank fire (from the vertical cask transporter fuel tank) would result in only minor impact on the HI-STORM.

The inspectors reviewed Entergy's control of combustibles corporate procedure which identified the Indian Point ISFSI pad as a Level 1 combustible control zone. The procedure defines Level 1 as a fire sensitive area where transient combustible loading is prohibited unless evaluated and approved via this procedure. In accordance with the Entergy corporate procedure, a transient combustible evaluation (TCE) should be performed prior to the combustibles being stored on the ISFSI pad. A TCE was performed by Entergy on October 19, 2009, after the inspectors identified and informed Entergy personnel that combustibles were being stored on the ISFSI pad. The TCE determined that the fire hazard from the combustibles stored on the pad presented less of a fire hazard than the scenario analyzed in the Holtec FSAR. The inspectors questioned whether the TCE was appropriate considering the licensing basis documentation in the Holtec FSAR and 72.212 Evaluation Report allowed no combustibles on the pad. The inspectors determined an evaluation in accordance with the requirements of 10 CFR 72.212(b)(2)(ii) was required to store combustibles on the ISFSI pad. Subsequent to inspector questions, Entergy personnel entered the issue into the corrective action program and all transient combustibles were removed from the pad.

Analysis: The Reactor Oversight Process (ROP) was not used in this case because inspections of ISFSI activities are covered under NRC Manual Chapter 2690 and are not considered applicable to evaluation under a reactor safety cornerstone in the ROP's Significance Determination Process (SDP).

It was determined that the failure to evaluate a change to the written evaluation required by 10 CFR 72.212 in accordance with requirements of 10 CFR 72.48(c) is a

performance deficiency that was reasonably within Entergy's ability to foresee and prevent. The finding was determined to be a Severity Level IV violation based on Supplement VI, Example D.2 of the NRC Enforcement Policy.

Enforcement: 10 CFR 72.212(b)(2)(ii) requires in part that a licensee shall evaluate any changes to the written evaluations required by this paragraph using the requirements of 10 CFR 72.48(c). Contrary to the above, prior to September 28, 2009, Entergy personnel did not evaluate changes to the written evaluation required by this paragraph. Specifically, the Entergy's 10 CFR 72.212 evaluation report determined that a fire suppression system is not used at the IPEC ISFSI pad because there are no combustible materials stored on the ISFSI. However, between September 28, 2009 and December 17, 2009, combustibles were stored on the ISFSI pad and the licensee did not evaluate this change using the requirements of 10 CFR 72.48(c). Because this violation was of very low safety significance, was not repetitive or willful, and was entered into the corrective action program, this violation is being treated as an NCV consistent with the NRC Enforcement Policy. **(NCV 05000247/2009-005-04, Transient Combustibles Stored on the ISFSI Pad)**

.3 Temporary Instruction 2515/175: Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review

The inspectors performed NRC Temporary Instruction (TI) 2515/175, ensured the completeness of the licensee's completed Attachment 1 from the TI, and forwarded that data to NRC Headquarters.

4OA6 Meetings, including Exit

On January 21, 2010, the inspectors presented the inspection results to Mr. Joseph Pollock and other Entergy managers and staff, who acknowledged the inspection results. Entergy staff identified documents which were to be considered proprietary and handled as such.

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 of Nuclear Safety Assurance
T. Orlando	Director, Engineering
B. Sullivan	Emergency Planning Manager
A. Williams	Site Operations Manager
S. Verrochi	System Engineering Manager
H. Anderson, Jr.	Licensing Specialist
R. Christman	Training Manager
J. Cottam	Fire Protection
G. Dahl	Licensing Specialist
J. Dinelli	Assistant Operations Manager
E. Goetchius	Training Instructor
G. Hocking	Supervisor, Radiation Protection Support
C. Kocsis	Training Instructor
D. Loope	Manager, Radiation Protection
T. McCaffrey	Acting Director, Nuclear Safety Assurance
T. McKee	LOR Program Administrator
B. Osmin	Senior Lead Engineer
S. Quinn	Security Supervisor
J. Reynolds	Acting Manager, Corrective Actions & Assessment
T. Salentino	Dry Cask Superintendent
S. Sandike	Specialist, Effluent & Environmental Monitoring
A. Singer	Licensed Operator Requalification Training Supervisor

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpened

05000247/2009-005-01	NOV	Incomplete Licensed Operator Medical Examinations
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Opened and Closed

05000247/2009-005-02	NCV	Siren Test Failure
05000247/2009-005-03	NCV	Partial Loss of Control Room Indication during NI 41 Recorder Replacement
05000247/2009-005-04	NCV	Transient Combustibles Stored on the ISFSI pad

LIST OF DOCUMENTS REVIEWED

Common Documents Used

Indian Point Unit 2 Updated Final Safety Analysis Report, Rev. 21
 Indian Point Unit 2 Individual Plant Examination of External Events, August 1992
 Indian Point Unit 2 Technical Specifications and Bases, Amendment 262
 Indian Point Unit 2 Technical Requirements Manual, Rev. 9
 Indian Point Unit 2 Control Room Narrative Logs
 Indian Point Unit 2 Plan of the Day

Section 1R01: Adverse Weather Protection

Procedures

2-SOP-30.1, Electric Heat Tracing, Rev. 25
 2-COL-11.5, Space Heating and Winterization, Rev. 28
 COL 30.1, Electric Heat Tracing, Rev. 25
 2-SOP-11.5, Space Heating and Winterization, Rev. 32

Condition Reports (CR-)

IP2-2006-01308	IP2-2006-04980	IP2-2007-00883	IP2-2009-00729
IP2-2007-03368			

Section 1R04: Equipment Alignment

Procedures

2-PT-Q024C, 23 EDG Fuel Oil Transfer Pump, Rev. 9
 2-COL-27.3.1, Diesel Generators, Rev. 25
 2-COL-4.2.1, Residual Heat Removal System, Rev. 26
 2-COL-4.1.1, Component Cooling System, Rev. 22
 2-SOP-4.1.2, Component Cooling System Operation, Rev. 34

Condition Reports (CR-)

IP2-2009-05261	IP2-2009-02977	IP2-2008-02406	IP2-2008-01705
IP2-2009-03666	IP2-2008-02091	IP2-2008-02037	IP2-2008-02054

Drawings

9321-LL-3133-20, Diesel Generator 23 Compressor Fuel, Oil Pump and Jacket Water and Lube, Oil Heaters, Sheet 4
 IP2--S-000284-14, Schematic for Diesel Generator 21
 9321-F-2030-39, Fuel Oil to Diesel Generators
 9321-F-3220-23, Wiring Diagram, Diesel Generators 21-22-23, Sheet 4
 9321-F-3217-06, Wiring Diagram, Diesel Generators 21-22-23, Sheet 1
 A227781-82, Flow Diagram Auxiliary Coolant System, Sheet 1

Miscellaneous

2-ARP-003, Diesel Generator, Low Fuel Level, Rev. 6
 2-ARP-SHF, CCR Electrical, Rev. 29
 2-IC-PC-I-L-1207S, Diesel Generator Fuel Oil Day Tank No. 21 Level, Rev. 3
 Maintenance Rule Basis Document Component Cooling Water (CCW), Rev. 02

Section 1R05: Fire Protection

Procedures

2-SOP-27.1.6, Instrument Bus DC Distribution System, Rev. 39

Condition Reports (CR-)

IP2-2009-04233 IP2-2009-05007*

Miscellaneous

IP2-RPT-03-00015, IP2 Fire Hazards Analysis, Rev. 2

PFP-253, IPEC Pre-Fire Plans, Rev. 0

PGI-00433, Combustible Loading Calculation, Rev. 4

Pre Fire Plan

PFP-252, Cable Spreading Room – Control Building, Rev. 0

Section 1R07: Heat Sink Performance

Calculations

FFX-00361-00, Minimum Wall Thickness Calculations for Tubes of Jacket Water Cooler and Lube Oil Cooler for EDG, Rev. 0

FMX-00295-00, Tube Plugging Limits for EDG LO and JW Coolers, Rev. 0

PGI-00087-00, EDG LO Cooler Sizing, Rev. 0

PGI-00387-00, Testing of the CCW Heat Exchangers at Power Operation, Rev. 0

Vendor Manual 755C, Instruction Book for ConEd Component Cooling HXS, Rev. 0

Test Results

2-HTX-004-CCW, Component Cooling Water Heat Exchanger Maintenance, dated 2/23/05, 12/12/06, and 2/17/09

0-HTX-405-EDG, EDG Lube Oil and Jacket Water Heat Exchanger Maintenance, dated 1/8/07, 7/16/08, 1/4/09, and 12/7/09

Eddy Current Inspection Reports for 22 CCW HX, dated 11/15/02, 2/15/05, 12/13/06, and 2/10/09

Eddy Current Inspection Reports for 23 EDG Jacket Water and Lube Oil HXs, dated 11/6/02, and 12/7/09

Modifications

EC10675, Timed Operation of the Zurn Strainer Circuitry, Rev. 4

EC12566, Material Upgrade of Service Water Strainer Blowdown System, Rev. 5

Conditions Reports (CR-)

IP2-2004-05064 IP2-2006-03916 IP2-2006-03917 IP2-2006-03929

IP2-2006-03941 IP2-2006-03962 IP2-2006-03964 IP2-2006-03965

IP2-2006-03974 IP2-2006-07009 IP2-2009-03355 IP2-2009-02085

IP3-2009-04739*

System Health Reports

Unit 2 Service Water System, First Quarter 2009, Second Quarter 2009, Third Quarter 2009

Drawings

9321-F-2033, Service and Cooling Water, Rev. 80
9321-F-2722, Nuclear Service Water System (sheet 1), Rev. 117
A209762-69, Nuclear Service Water System (sheet 2), Rev. 69
A234191, Flow Diagram Closed Cooling Water System, Rev. 45

Procedures

2-AOP-CCW-1, Loss of Component Cooling Water, Rev. 1
2-AOP-SW-1, Service Water Malfunction, Rev. 3
2-AOP-LICCW-1, Leakage into CCW System, Rev. 3
2-SOP-24.1, Service Water System Operation, Rev. 57
2-SOP-27.3.1.3, 23 EDG Manual Operation, Rev. 19
2-SOP-4.1.2, Component Cooling System Operation, Rev. 34

Program Documents

EN-DC-150, Condition Monitoring of Maintenance Rule Structures, Rev. 0
IP3-RPT-UNSPEC-03499, Indian Point Units 2&3 Eddy Current Program, Rev. 1
SEP-SW-001, NRC Generic Letter 89-13 Service Water Program, Rev. 2
EN-DC-340, Microbiologically Influenced Corrosion Monitoring Program, Rev. 0

Miscellaneous

ConEd Letter, S. Bram to NRC, dated 2/2/90, Response to GL 98-13
ConEd Letter, S. Bram to NRC, dated 7/19/91, Implementation Status of GL 98-13
ConEd Letter, S. Bram to NRC, dated 2/11/92, Updated Implementation Status of GL 98-13
ConEd Letter, S. Bram to NRC, dated 9/7/94, Service Water System Operational Performance Inspection
LO-IP3-2009-00019, IPEC Heat Sink Performance, dated 6/17/09

Section 1R11: Licensed Operator Requalification Program

Procedures

2-E-0, Reactor Trip or Safety Injection, Rev. 2
2-E-1, Loss of Reactor or Secondary Coolant, Rev. 0
2-ES-1.3, Transfer to Cold Leg Recirculation, Rev. 2
2-FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, Rev. 0
2-AOP-LEAK-1, Sudden Increase in Reactor Coolant System Leakage, Rev. 7
2-AOP-INST-1, Instrument/Controller Failures, Rev. 5

Miscellaneous

LRQ-SES-22, SG Pressure Channel Failure, RCS Leak, LBLOCA, Transition to ES-1.3 with Equipment Failures, Rev. 2
Radiological Emergency Data Form Drill, Notification #2, 10/6/09 at 8:02
Radiological Emergency Data Form Drill, Notification #3, 10/6/09 at 8:28

Section 1R12: Maintenance Effectiveness

Procedures

2-PT-M110, Appendix R DG Functional Test, Rev. 2
2-PT-M110, Appendix R DG Functional Test, Rev. 1, performed 06/12/08

Condition Reports (CR-)

IP2-2009-03053	IP2-2009-00721	IP2-2009-00199	IP2-2009-04021
IP2-2009-04038	IP2-2009-4042	IP2-2009-04259	IP2-2009-04744
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Drawings

501424, Station Blackout & Appendix R Diesel Generator Set PY800 Manual Double Wall U/L Listed – Fuel Oil Day Tank Mechanical, Rev. 0
501425, Station Blackout & Appendix R Diesel Generator Set Wiring Diagram Fuel Oil Day Tank Electrical, Rev. 0

Miscellaneous

Operators Risk Report, dated 10/2/09

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

IP-SMM-WM-101, On-Line Risk Assessment, Rev. 2
IP-SMM-WM-103, Control of Maintenance Activities Under Allowable Outage Time (AOT) Action Statements, Rev. 1

Condition Reports (CR-)

IP2-2009-04420

Miscellaneous

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Section 1R15: Operability Evaluations

Procedures

EN-OP-111, Operational Decision-Making Issue (ODMI) Process, Rev. 3
OAP-005, Narrative Logs, Rev. 2
OAP-017, Plant Surveillance and Operator Rounds, Rev. 6

Condition Reports (CR-)

IP2-2009-05300	IP2-2009-3527*	IP2-2009-2469	IP2-2009-3564
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Drawings

A208088-43, 480 Vac. Switchgears 21 & 22, Bus 2A, 3A, 5A & 6A
9321-F-2030, Flow Diagram Fuel Oil Diesel Generators, Rev. 39

Miscellaneous

3.8 Electrical Power, Technical Requirements Manual (TRM), Rev. 1
EC 5000033794, IP2 Station Blackout and Appendix R Diesel Generator Set, Rev. 1

Calculations

IP-CALC-06-00299, EDG Fuel Oil Day Tank Low Level Analytical Limit, Rev. 0

Work Orders

00199669

Section 1R19: Post-Maintenance TestingProcedures

2-PMP-008-CCW, Inspection/Repair of the Component Cooling Pump, Rev. 2
 MSL-B-007-A, Chesterton Seals (Series 123), Rev. 7
 CUP-B-002-A, Falk Type T10/T20 Steelflex Coupling, Rev. 8
 2-PT-Q034B, PCV-1310A and PCV-1310B Nitrogen Supply, Rev. 6
 2-PT-Q034, 22 Auxiliary Feed Pump, Rev. 26
 2-SOP-29.6, Fire Protection System Operation, Rev. 22
 0-VLV-413-MOV, Motor Operated Valve Minor Preventive Maintenance, Rev. 4
 PT-M54, Fan Cooler Units Operation, performed 11/16/09
 2-PT-M021B, Emergency Diesel Generator 22 Load Test, performed 11/10/09
 2-PT-2Y018F, Transfer Switch EDD-6 (22 EDG) Test, performed 11/10/09
 0-VLV-465-VSR, CLA-VAL Pressure Relief Valves Maintenance and Inspection, performed 10/30/09
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Condition Reports (CR-)

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00158732	51268377	51548550	52037213	51702237
52028737-01				

Miscellaneous

PGI-00518, AOV Component Level Calc. for 22 Auxiliary Feed Pump Discharge Flow Control Valves to Steam Generators, FCV-405A, FCV-405B, FCV-405C and FCV-405D, Rev. 1

Drawings

A227551, Fire Protection System Diagram, Rev. 63

Section 1R22: Surveillance TestingProcedures

2-PT-Q013-DS085, Valve FCV-405A IST Data Sheet, Rev. 20
 CR-IP2-2009-00666, Root Cause Analysis Report, CST Underground Recirculation Line Leak, Rev. 0
 EN-DC-325, Component Performance Monitoring, Rev. 4
 EN-DC-332, Inservice Testing, Rev. 0
 2-PT-Q001C, 23 Battery Surveillance and Charging, performed 12/14/09
 2-PTQ028A, 21 Residual Heat Removal Pump, performed 11/19/09
 2-PT-Q029A, 21 Safety Injection Pump, performed 10/22/09

Miscellaneous

IP2-AFW DBD, Auxiliary Feedwater System, Rev. 1
 PGI-00497, Auxiliary Feedwater System Air Operated Valve Functional and Maximum Expected Differential Pressure Calculation, Rev. 1
 IEEE 450, IEEE Recommended Practice for Maintenance, Testing and Replacement, dated 1995

Drawings

251783, Flow Diagram Auxiliary Coolant System Residual Heat Removal Pumps, Rev. 0

Section 1EP2: Alert and Notification System Evaluation

Procedures

Alert and Notification System for the Indian Point Energy Center Entergy Nuclear, Rev. 4

Indian Point Energy Center Emergency Preparedness Plan, Rev. 8

IP-EP-AD30, IPEC ATI Siren System Administration, Rev. 2

IP-EP-AD31, IPEC ATI Siren System Maintenance Administration, Rev. 0

Alert Notification System Test Failure Root Cause Evaluation Report, Rev. 1

IP-EP-AD35, IPEC ATI Siren Site Annual Preventive Maintenance, Rev. 2

IPEC ATI Siren Annual Preventive Maintenance Test Records, February 10, 2009

ANS related Condition Reports, December 2007 – December 2009

Section 1EP3: Emergency Preparedness Organization Staffing and Augmentation System

Procedures

IP-EP-AD9, Notification Systems Testing and Maintenance, Rev. 7

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Indian Point Energy Center Emergency Response Training Program Curriculum, Rev. 24

October 27, 2009, Entergy Nuclear Northeast, Indian Point Energy Center Emergency Preparedness Unit 3 Off-Hours Mobilization Staffing/Training Drill Performance Report, Drill Number 2009-5

September 17, 2009, Indian Point Energy Center Emergency Response Organization Off-hours Notification Test 3Q09

Section 1EP4: Emergency Action Level and Emergency Plan Changes

Procedures

EN-EP-305, Emergency Planning 10CFR50.54 (q) Review Program, Rev. 1

10 CFR 50.54(q) screenings and evaluations from December 2008 to November 2009

Section 1EP5: Correction of Emergency Preparedness Weaknesses

Procedures

EN-LI-102, Corrective Action Process, Rev. 13

QA-07-2008-IP-1, Quality Assurance Audit Report

QA-07-2009-IP-1, Quality Assurance Audit Report

QS-2008-IP-16, IPEC QA Follow-up of AFI from Emergency Plan Surveillance QS-2008-IP-16

QS-2008-IP-02, QA Evaluation of the IPEC 2/6/08 Training Drill

LO-IP3LO-2007-00185, IPEC Snapshot Self-Assessment Report, ANS Siren System Performance

IP3-LO-2009-00092, IPEC Focused Self-Assessment Report, EP INPO Based Focus Self Assessment

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 September 9, 2009 Entergy Nuclear Northeast, Indian Point Energy Center, Emergency Preparedness Unit 2 Training Drill Performance Report, Drill Number 2009-3

Sections 2OS1/2OS2: Access Control to Radiologically Significant Areas/ALARA Planning and Controls

Procedures

EN-LI-114, Performance Indicator Process, Rev. 4
 EN-RP-100, Radworker Expectations, Rev. 3
 EN-RP-101, Access Control for Radiologically Controlled Areas, Rev. 4
 EN-RP-102, Radiological Control, Rev. 2
 EN-RP-105, Radiation Work Permits, Rev. 7
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Condition Reports (CR-)

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Condition Reports (CR-)

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IP2-2009-4860

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Procedures

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Condition Reports (CR-)

IP2-2009-4860

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Condition Reports (CR-)

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*CR initiated as a result of this inspection.

LIST OF ACRONYMS

ADAMS	Agency-wide Document and Management System
ALARA	As Low As is Reasonably Achievable
AMP	Amplifier
ANS	Alert and Notification System
CCW	Component Cooling Water
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulations
CR	Condition Report
DMB	Digital Message Board
DRP	Division of Reactor Projects
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
ENTERGY	Entergy Nuclear Northeast
EP	Emergency Preparedness
EPZ	Emergency Planning Zone
ERO	Emergency Response Organization
FCU	Fan Cooler Unit
FCV	Flow Control Valve
FSAR	Final Safety Analysis Report
FZ	Fire Zone
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IPEC	Indian Point Energy Center
ISFSI	Independent Spent Fuel Storage Installation
IST	In-Service Test
LBLOCA	Large Break Loss-of-Coolant
LDE	Low Dose Equivalent
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
PI	Performance Indicator
PM	Preventative Maintenance
RHR	Residual Heat Removal
ROP	Reactor Oversight Process
RSPS	Risk Significant Planning Standard
RWP	Radiation Work Permit
SDE	Shallow Dose Equivalent
SDP	Significance Determination Process
SSC	Structures, Systems, and Components
SW	Service Water
TCE	Transient Combustible Evaluation
TEDE	Total Effective Dose Equivalent
TS	Technical Specifications
UFSAR	Updated Final Safety Evaluation Report
UHS	Ultimate Heat Sink
WO	Work Order