

# Indian Point 2

## 1Q/2010 Plant Inspection Findings

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### Initiating Events

**Significance:**  Mar 30, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Improper Generrex Isolation Caused Reactor Trip**

A self-revealing finding (FIN) of very low safety significance was identified for the licensee's failure to provide procedures that were appropriate to the task, and did not follow the procedures that existed for isolating the Generrex exciter system on the main generator. Specifically, on January 11, 2010, the licensee failed to properly isolate one rectifier exciter bank on the Generrex system to the main generator while repairing a leak in the associated cooling water line. Entergy did not ensure that the procedural direction was adequate to ensure that the workers could recognize when the exciter rectifier disconnect switches were in the fully open position. In addition, the supervisors did not stop the maintenance in the face of uncertainty when presented with several compelling indications that the 24 exciter rectifier bank had not been isolated including detecting unexpected voltage in the 24 exciter rectifier cabinet and a high temperature alarm associated with the exciter rectifier. The combination of procedural omission and supervisory errors resulted in a reactor trip and damage to the Generrex system. As a result, the rectifier bank was not properly isolated electrically while the cooling water to the rectifier was isolated. This resulted in overheating the exciter bank control circuits which caused a main turbine trip and a reactor trip from 100% power.

This finding is more than minor because the performance deficiencies caused a reactor trip. The finding is associated with both the procedure quality and human performance attributes of the Reactor Safety Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The inspectors performed a Phase 1 screening in accordance with IMC 0609 "Significance Determination Process" and determined that the finding is of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available. The finding has a cross-cutting aspect in the area of human performance, decision making component, with the aspect that the licensee makes safety-significant or risk significant decisions using a systematic process, especially when faced with uncertain or unexpected plant conditions, to ensure safety is maintained.

Inspection Report# : [2010002](#) (*pdf*)

**Significance:**  Apr 03, 2009

Identified By: NRC

Item Type: FIN Finding

#### **Inadequate Design Change Package for Installation of Main Boiler Feed Pump Control System Tubing**

•Green. The inspectors documented a self-revealing finding of very low safety significance because Entergy engineers did not provide adequate guidance in a design change package for installation of tubing in the 21 main boiler feed water pump (MBFP) control system that eventually led to the tubing failure and an unplanned trip of the reactor plant. Entergy's design change procedure required that instructions delineating installation precautions be provided in the design change package. Entergy's corrective actions included repair of the affected tubing, identifying and replacing similar tubing on the 22 MBFP, and examining Unit 3 MBFPs to identify the extent of the condition. Entergy staff placed this issue into the corrective action program and performed a root cause analysis.

The finding was more than minor because it was associated with the design control attribute of the Initiating Events cornerstone and affected its objective to limit the likelihood of events that affect plant stability and challenge critical safety functions during shutdown, as well as power operations. Specifically, the incorrectly installed MBFP control tubing resulted in a loss of the 21 MBFP and, ultimately, a reactor trip due to low steam generator water level. The inspectors determined that the finding was of very low safety significance (Green) using the Phase 2 Indian Point Unit 2 risk-informed inspection notebook, in accordance with IMC 0609, Appendix A, "Determining the Significance of

The inspectors determined there was no cross-cutting issue associated with the finding because the performance deficiency did not reflect current licensee performance. Specifically, the performance deficiency occurred several years ago and was outside the current assessment period, and procedures have since been improved in the design control, work control and vendor control processes that reduced the likelihood of vendors working on equipment without sufficient training or work instructions.

Inspection Report# : [2009003](#) (pdf)

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## Mitigating Systems

**Significance:**  Mar 30, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Isolation of Service Water to All Emergency Diesel Generators**

A self-revealing violation of Technical Specification (TS) Limiting Condition of Operation (LCO) 3.8.2 dispositioned as a noncited violation (NCV) was identified for the licensee’s failure to maintain service water cooling to the emergency diesel generators (EDGs) while in mode 5. Specifically, on March 13, 2010, the licensee isolated all cooling water flow to the EDGs for a period of three minutes. This condition was corrected after an annunciator in the control room warned the operators of the condition and the operators promptly directed the restoration of cooling water to the EDGs.

The inspectors determined that Entergy’s failure to maintain cooling water flow to the standby EDGs was a violation of TS LCO 3.8.2, which requires “Two EDGs to be capable of supplying two safeguards power trains of the onsite AC electrical power distribution subsystem(s) required by LCO 3.8.10.” Failure to assure adequate service water cooling to the EDGs, if left uncorrected, could have caused the EDGs to fail from a lack of cooling. This finding is more than minor because it is associated with the configuration control attribute of the mitigating systems cornerstone and adversely affected the objective to assure the availability, reliability and capability of systems that respond to initiating events to prevent core damage. The finding was determined to be of very low safety significance (Green) because the licensee analyzed the adverse condition and determined that the EDGs could have operated without any cooling water for the period of 3 minutes. The finding has a cross-cutting aspect in the area of human performance, component of work practices, with the aspect that licensee did not appropriately coordinate work activities by incorporating actions to address the impact of work on different job activities, and did not plan work activities to support equipment reliability by limiting safety systems unavailability and reliance on manual actions.

Inspection Report# : [2010002](#) (pdf)

**Significance:** SL-IV Dec 31, 2009

Identified By: NRC

Item Type: VIO Violation

### **Incomplete Licensed Operator Medical Examinations**

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.

Inspection Report# : [2009005](#) (*pdf*)

**Significance:**  Dec 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Partial Loss of Control Room indication during NI-41 recorder replacement.**

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.

Inspection Report# : [2009005](#) (*pdf*)

**Significance:**  Aug 14, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Evaluate the Impact on Breaker Coordination for the Westinghouse Amptector Type LSG Trip Unit Discriminator Feature**

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in that Entergy did not verify the adequacy of design because they did not evaluate the impact of the installed Amptector discriminator instantaneous trip feature on breaker coordination. Following identification Entergy entered the issue into the corrective action program and performed an operability assessment and extent-of-condition review.

The finding was more than minor because it was associated with the design control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of the 480Vac bus to respond to initiating events to prevent undesirable consequences. Specifically, load center Bus 6A (and 2A, 3A and 5A) would be incapable of meeting the design basis function when required if the incoming line breaker to the load center bus were to trip due to lack of coordination for a fault on a non-Class 1E circuit during a design basis accident. The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in loss of operability or functionality.

This finding was not assigned a cross-cutting aspect because the underlying cause was not indicative of current

performance.

Inspection Report# : [2009007](#) (pdf)

**Significance:**  Aug 14, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Ensure That the CCW Pump Hydraulic Performance Test Procedures Had Acceptance Criteria That Incorporated the Limits from Applicable Design Documents**

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in that Entergy did not to ensure that the component cooling water pump hydraulic performance test procedures had acceptance criteria which incorporated applicable design limits sufficient to ensure continued pump operability. Specifically, if the pump flow rate had degraded to the lower limit of the acceptance band, as listed in the test acceptance criteria, the pump would not have been able to meet the design basis flow requirements at the minimum acceptable differential pressure listed in the test procedure. In addition, the

test acceptance criteria for design basis flow rate and differential pressure had no allowance for measurement uncertainty of the test instruments. In response to this deficiency, Entergy's short-term corrective actions included initiation of a corrective action condition report and completion of an operability determination for the affected equipment.

The finding was more than minor because it was associated with the design control attribute of the Mitigating Cornerstone and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the test acceptance criteria did not ensure that the No. 23 component cooling water pump remained capable of performing its safety function under design basis conditions. The finding had very low safety significance because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Entergy's initial operability review, issue prioritization, and subsequent evaluation did not adequately assess actual pump performance.

Inspection Report# : [2009007](#) (pdf)

**Significance:**  Aug 14, 2009

Identified By: NRC

Item Type: FIN Finding

**Failure to Identify Several Degraded City Water System Pipe Supports in the Utility Tunnel**

The team identified a finding of very low safety significance because Entergy did not identify or evaluate material deficiencies of the city water system, as required by EN-LI-102, "Corrective Action Process." Specifically, Entergy did not identify or evaluate several degraded pipe supports on city water system piping in the utility tunnel, which represented reasonable doubt on system operability. The city water system provides a backup water supply for the condensate storage tank, fire fighting water supply, and provides alternate cooling to selected safety-related and risk significant pumps. The finding was not a violation because the city water piping, in the utility tunnel, is not safety-related, and the utility tunnel is not a safety-related or seismic structure. Entergy entered this issue into the corrective action program, assessed operability and extent-of- condition, and repaired one of the non-functioning pipe supports to restore additional margin.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. Specifically, the piping system could have potentially collapsed if additional pipe supports became degraded. The team determined the finding was of very low safety significance because it was not a design or qualification deficiency, did not represent of an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Entergy did not adequately implement the corrective action program with a low

threshold for identifying issues.

Inspection Report# : [2009007](#) (pdf)

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## Barrier Integrity

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## Emergency Preparedness

**Significance:**  Dec 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### Siren Test Failure

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.

Inspection Report# : [2009005](#) (pdf)

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## Occupational Radiation Safety

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## Public Radiation Safety

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## Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

**Significance:** SL-IV Dec 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Transient Combustibles Stored on the ISFSI pad**

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.

Inspection Report# : [2009005](#) (*pdf*)

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