

# Vermont Yankee

## 4Q/2008 Plant Inspection Findings

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### Initiating Events

**Significance:**  Oct 31, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Inadequate Preventative Maintenance Program for Reactor Building Crane**

A self-revealing Finding of very low safety significance was identified for Entergy not fully developing an adequate preventive maintenance (PM) program for the reactor building crane (RBC). As a result, on May 12, 2008, when the first loaded spent fuel storage cask was removed from the spent fuel pool (SFP) and was being lowered to a height of four inches above the refueling floor, the crane brakes did not engage and the spent fuel storage cask continued to be slowly lowered to the refueling floor. This issue was entered into the licensee's corrective action program as condition report CR VTY 2008-02043.

This issue is greater than minor because the finding resulted in the failure of the RBC brakes to engage during the lowering of a loaded spent fuel storage cask. The finding was determined to be of very low safety significance (Green) because the spent fuel storage cask remained under control of the reactor building crane, was in an approved load path, and the emergency braking system was available.

Inspection Report# : [2008006](#) (*pdf*)

**Significance:**  Oct 08, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Inadequate Design Change Review Causes Failure of Circulating Water System Pipe Supports**

A self-revealing finding of very low safety significance was identified because Entergy did not verify the technical adequacy of a design change prior to placing the circulating water system piping in east cooling tower cell 1-1 in service. As a result, four horizontal circulating water pipe support beams failed. Upon identification of the failure, Entergy decreased reactor power to 46 percent and removed both the east and west cooling towers from service for investigation and repair. Entergy's corrective actions included immediate replacement or repair of damaged and degraded structures, verification of design change acceptability, and implementation of several procedure and policy changes.

The performance deficiency was that Entergy did not perform an adequate design review as described in Entergy procedure EN-DC-115, "Engineering Change Development." The finding was more than minor because it was associated with the Design Control attribute of the Initiating Events Cornerstone and affects the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the inadequate design change analysis resulted in the failure of horizontal pipe supports in cooling tower cell 1-1 which damaged the circulating water system piping and resulted in a significant power reduction. The finding was determined to be of very low safety significance because it did not contribute to both the likelihood of a reactor scram and the likelihood that mitigating equipment or functions would not be available. The finding had a cross-cutting aspect related to resources in the area of Human Performance. Entergy did not ensure that complete, accurate and up-to-date design documentation was available to adequately construct portions of non-safety-related cooling tower cells. Specifically, Entergy did not provide detailed drawings or instructions supported by engineering calculations to implement a design change affecting the circulating water pipe horizontal support design [H.2(c)].

Inspection Report# : [2008009](#) (*pdf*)

**Significance:**  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Ineffective Reactor Building Crane Maintenance**

The NRC identified a non-cited violation for Entergy's failure to take timely corrective action, as required by 10CFR50.65(a)(1), after the reactor building crane (RBC) exceeded reliability performance goals. Specifically, from April 12, 2007, when the RBC was classified as (a)(1), until May 12, 2008, when the RBC brakes failed to function during the movement of a spent fuel storage cask, Entergy failed to take corrective actions in response to the RBC not meeting established goals. This issue was entered into the licensee's corrective action program as Condition Report CR 2008 2043.

The issue is greater than minor because the failure to implement timely corrective actions resulted in the failure of the RBC brakes during the movement of a spent fuel storage cask. The finding is not suitable for evaluation under the Significance Determination Process, but has been reviewed by NRC management and was determined to be a finding of very low safety significance (Green) because the spent fuel storage cask was in an approved load path, and the refuel floor allowed the brakes to engage when sufficient load was removed from the hoist. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, in that Entergy failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.

Inspection Report# : [2008003](#) (*pdf*)

**Significance:**  Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Work Order Results in Unplanned "A" Service Water Pump Inoperability**

A self-revealing non-cited violation (NCV) of Technical Specification 6.4, "Procedures," was identified for Entergy's failure to provide an adequate procedure for setting the "A" service water (SW) pump lower motor guide bearing during its replacement in May 2007. Specifically, work order (WO) 111249-14, "Replace "A" Service Water Pump Lower Motor Guide Bearing," did not provide adequate guidance to ensure proper verification of shaft lift to prevent loading the lower motor guide bearing. As a result, the bearing was improperly set which caused bearing degradation and unplanned "A" SW pump inoperability on February 12, 2008. Corrective actions taken or planned include replacement of the "A" SW pump motor and revisions to applicable procedures.

The finding is more than minor because it is associated with the equipment performance attribute of the Initiating Events Cornerstone and affects the associated Cornerstone objectives of limiting the likelihood of those events that upset plant stability. The finding is of very low safety significance because the estimated increase in core damage frequency was less than 1E-06, assuming the reactor was operating at full power and the "A" SW pump was unavailable for less than 3 days. The performance deficiency has a cross-cutting aspect in the area of Human Performance, Resources component, in that Entergy did not provide an adequate procedure for the installation of the lower motor guide bearing. [H.2(c)]

Inspection Report# : [2008002](#) (*pdf*)

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## **Mitigating Systems**

**Significance:**  Aug 15, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Testing of Safety Related Batteries**

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," in that, Entergy did not properly document and evaluate safety related battery test results. Specifically, the NRC identified three instances involving the rotating uninterruptible power supply system

and the alternate shutdown batteries where Entergy did not adequately evaluate test results to calculate battery capacity. In response, Entergy entered these issues into the corrective action program and demonstrated that there was sufficient margin to assure operability of the safety related batteries.

The finding is more than minor because it is associated with the human performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, 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 did not identify issues in a timely manner commensurate with their safety significance.

Inspection Report# : [2008008](#) (*pdf*)

**Significance:**  Aug 15, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Design Control for Emergency Diesel Generator Load Testing**

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 ensure that the design basis, as defined in calculations and the Updated Final Safety Analysis Report for manual emergency diesel generator (EDG) loading, was verified by a suitable testing program. Specifically, Entergy had not performed a suitable test to demonstrate that the 1B EDG was capable of loading to a value that demonstrated its calculated maximum load during a postulated accident scenario, as allowed in operating procedures. Entergy entered the issue into their corrective action program and completed an operability assessment, which demonstrated that the emergency diesel generators were capable of performing their design function.

The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in a loss of standby onsite power operability or functionality.

Inspection Report# : [2008008](#) (*pdf*)

**Significance:**  Aug 15, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Procedure for Station Blackout Load Shedding**

The team identified a finding of very low safety significance (Green) involving a non-cited violation of 10 CFR 50.63, "Loss of all Alternating Current Power," in that, Entergy did not ensure that adequate battery capacity would be available during a station blackout (SBO), as assumed in the station's SBO analysis. Specifically, unrecognized delays in performing a credited manual direct current (DC) load shedding operator action, as well as an incorrectly translated minimum battery voltage referenced in the station's SBO procedure, could have resulted in the 'B' station battery capacity being insufficient during an SBO. Entergy entered the issue into the corrective action program. Entergy also recalculated the 'B' station battery capacity and determined that sufficient battery capacity existed when realistic load shedding assumptions were applied (battery remained operable).

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

Inspection Report# : [2008008](#) (pdf)

**Significance:**  Apr 10, 2008

Identified By: NRC

Item Type: FIN Finding

### **B.5.b Phase 2 and 3 Mitigating Strategy**

This finding, affecting the Mitigating Systems Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(d)]. See inspection report for more details.

Inspection Report# : [2008007](#) (pdf)

**Significance:**  Apr 10, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **B.5.b Phase 2 and 3 Mitigating Strategy**

This finding, affecting the Mitigating Systems Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(c)]. See inspection report for more details.

Inspection Report# : [2008007](#) (pdf)

**Significance:**  Apr 10, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **B.5.b Phase 2 and 3 Mitigating Strategy**

This finding, affecting the Mitigating Systems Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(c)]. See inspection report for more details.

Inspection Report# : [2008007](#) (pdf)

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## **Barrier Integrity**

**Significance:**  Apr 10, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **B.5.b Phase 2 and 3 Mitigating Strategy**

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(c)]. See inspection report for more details.

Inspection Report# : [2008007](#) (*pdf*)

**Significance:**  Apr 10, 2008

Identified By: NRC

Item Type: FIN Finding

### **B.5.b Phase 2 and 3 Mitigating Strategy**

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(c)]. See inspection report for more details.

Inspection Report# : [2008007](#) (*pdf*)

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## **Emergency Preparedness**

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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**

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