

# Vermont Yankee

## 3Q/2007 Plant Inspection Findings

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### Initiating Events

**Significance:**  Sep 28, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Inspection program Resulted in a Partial Collapse of a Non-Safety Related Cooling Tower Cell**

. A self-revealing NCV of TS 6.4, "Procedures," was identified for Entergy's failure to effectively incorporate readily available industry operating experience (OE) into the cooling tower (CT) inspection program and processes. Specifically, Entergy had not recognized the importance of performing hands-on inspections of CT structural members which were located in heavily loaded and normally inaccessible areas for detecting degraded conditions. As a result of not performing adequate inspections of "B" and "C" columns within the fill area, a partial collapse of non-safety CT cell 2-4 occurred on August 21, 2007. This event resulted in Entergy rapidly reducing reactor power from 100 percent to approximately 35 percent power, although no significant degradation of the safety-related cell was identified.

The performance deficiency is that Entergy did not incorporate readily available OE into the CT inspection process and procedures to detect degraded structural components. This finding is more than minor because it is associated with the Equipment Performance 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. The inspectors conducted a Phase 1 screening in accordance with IMC 0609, Appendix A. 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. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience, because Entergy did not implement and institutionalize OE through changes to station processes and procedures for the CT, as appropriate.

Inspection Report# : [2007004](#) (*pdf*)

**Significance:**  Sep 28, 2007

Identified By: NRC

Item Type: FIN Finding

#### **Reactor Scram During Troubleshooting Due to Inadequate Main TSV Preventive Maintenance**

A self-revealing Finding of very low safety significance was identified for Entergy's failure to specify adequate preventive maintenance (PM) for main turbine stop valve number two (TSV-2). As a result, during troubleshooting activities on the TSV-2 bypass control mechanism, a reactor scram occurred when all four main turbine stop valves closed.

The performance deficiency is the failure of Entergy to have an adequate PM strategy for TSV-2. This finding is more than minor because it is associated with the Equipment Performance 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, during troubleshooting of the TSV-2 bypass control mechanism, an automatic reactor scram occurred. The inspectors conducted a Phase 1 screening of the finding in accordance with IMC 0609, Appendix A. 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 has a cross-cutting aspect in the area of Human Performance, Resources component, because Entergy did not maintain an effective PM program for TSV-2. Specifically, the PM for TSV-2 did not specify a periodic activity to inspect, rebuild, and lubricate the bell crank assembly portion of the bypass control mechanism.

Inspection Report# : [2007004](#) (*pdf*)

**G****Significance:** Mar 31, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

**Failure to Establish Minimum Thread Engagement for the “A” SW Pump Packing Gland Studs Results in Unplanned Unavailability**

. A self-revealing finding was identified because Entergy mechanics did not meet station expectations for establishing minimum thread engagement when installing packing gland studs into the “A” service water pump stuffing box during the replacement of pump packing. The lack of adequate stud engagement ultimately resulted in the gland studs backing out of the stuffing box and the extrusion of packing from the “A” service water pump. Entergy personnel took immediate actions to re-install the gland studs, replace the extruded packing, and return the “A” service water pump to available status approximately 10 hours later.

The finding is more than minor because it is associated with the Equipment Performance attributes of both the Initiating Events and Mitigating Systems Cornerstones and because it affects the associated Cornerstone objectives of limiting the likelihood of those events that upset plant stability and ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors conducted a Phase 2 analysis and determined that the finding was of very low safety significance.

Inspection Report# : [2007002](#) (*pdf*)**G****Significance:** Mar 31, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

**Error Made by Electrical Maintenance Department Technicians Results in the Need for a Reactor Power Reduction**

A self-revealing finding was identified due to a procedure performance error made by Electrical Maintenance Department technicians while performing switchyard testing. As a result, one of three 345 kilovolt offsite power lines and one of two 115 kilovolt power supplies to the startup transformers were inadvertently isolated requiring control room operators to reduce reactor power to approximately 65 percent to meet grid stability limits. This procedure performance error was entered into Entergy’s corrective action program for resolution.

The finding is more than minor because it is associated with the Equipment Performance-Maintenance attribute of the Initiating Events Cornerstone and affected the associated cornerstone objective of limiting the likelihood of those events that upset plant stability (i.e., performance of a power reduction). The finding is of very low safety significance because performing the power reduction did not contribute to the likelihood of both a reactor trip and the unavailability of mitigating equipment. The cause of this finding is related to the cross-cutting area of Human Performance, in that, technicians failed to follow procedures. [H.4(b)]

Inspection Report# : [2007002](#) (*pdf*)

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## Mitigating Systems

**G****Significance:** Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Design Control Associated with CST Vortexing Analysis**

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion III, “Design Control.” Specifically, Entergy did not use an appropriate method for calculating the effects of vortexing within the condensate storage tank which could have impacted high pressure coolant injection system and reactor core isolation cooling system performance under certain accident conditions. This design control issue was entered into Entergy’s corrective action program for resolution. Immediate corrective actions taken by Entergy included maximizing the available volume of water in the condensate storage tank and requiring control room operators to manually realign the suction of the high pressure coolant injection and reactor core isolation cooling systems from the condensate storage tank to the torus if level decreased below 17.5 percent.

The finding is more than minor because it is associated with the Design Control attribute of the Mitigating Systems Cornerstone and because it affects the associated Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesired consequences. The finding is of very low safety significance because it did not result in a loss of operability of either the high pressure coolant injection system or the reactor core isolation cooling system. The cause of this finding is related to the cross-cutting area of Problem Identification and Resolution, in that, Entergy did not effectively evaluate relevant internal and external operating experience related to non-conservative condensate storage tank vortexing analyses. [P.2(a)]

Inspection Report# : [2007002](#) (*pdf*)

**Significance:** **G** Mar 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure to Follow Procedure Results in Unplanned “A” Emergency Diesel Generator Shutdown and Unavailability**

. A self-revealing NCV of Vermont Yankee Technical Specification 6.4, “Procedures,” was identified when operators failed to follow a surveillance procedure for the emergency diesel generator fuel oil transfer system. As a result, the “A” diesel automatically shut down and was declared unavailable when its fuel oil supply was isolated. Entergy restored the system to a standby alignment and entered this issue into their corrective action program.

The finding is more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone and because it affects the associated Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because it did not result in a loss of system safety function; did not represent actual loss of safety function of a single train for greater than its Technical Specification allowed outage time; and was not risk significant due to seismic, flooding, or severe weather initiating events. The cause of this finding has a cross-cutting aspect in the area of Human Performance, in that, personnel failed to follow the established procedure. [H.4 (b)]

Inspection Report# : [2007002](#) (*pdf*)

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

**Significance:** **W** Oct 06, 2006

Identified By: NRC

Item Type: FIN Finding

### **Radioactive Material Shipment Package Dose Rate Exceeded**

The inspector identified a self-revealing finding, involving a failure to properly prepare and ship a package containing radioactive material in a manner that assured, under conditions normally incident to transport, conformance with Department of Transportation (DOT) radiation level limitations specified by 49 CFR 173.441(a), i.e., 200 millirem per hour (mrem/h) on any external surface of the package. Accordingly, the finding was also considered an apparent

violation of the requirements of 10 CFR 71.5 and 49 CFR 173.441(a). The finding involved an August 31, 2006 radioactive material shipment, via an exclusive-use open transport vehicle, that was determined to have 820 mrem/h on the external surface of a package upon receipt at the shipping destination. The licensee entered this performance deficiency in its corrective action program; completed a root cause evaluation; and initiated corrective measures, including various process improvements to prevent recurrence.

This finding is more than minor since it affected the Public Radiation Safety cornerstone, and involved an occurrence in the licensee's radioactive material transportation program that was contrary to DOT regulations. The significance of this finding is considered as having low to moderate safety significance, since the radiation level was greater than two times the limit (400 mrem/h), but less than five times the limit (1000 mrem/h) specified by the DOT regulatory requirement. Though the surface of the package was inaccessible to the public during transport, that aspect was fortuitous and not the result of design or package preparation by the licensee; and the condition had the potential to adversely affect personnel who would normally receive the package or respond to an incident involving the package, with a reasonable expectation that the package conformed with DOT radiation limitations. This finding is documented within the licensee's corrective action system as CR-VTY-2006-02723.

Inspection Report# : [2006011](#) (*pdf*)

Inspection Report# : [2007009](#) (*pdf*)

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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

Last modified : December 07, 2007