

# Vermont Yankee

## 2Q/2012 Plant Inspection Findings

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### Initiating Events

**Significance:**  Oct 11, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Loss of Shutdown Cooling due to Tag Out Error**

A self-revealing NCV of very low safety significance of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified because drawing B-191301, Sheet 576, “Control Wiring Diagram – Emergency Heater Drain Valve Diagram” was not of the appropriate quality to allow tagging activities to be accomplished in accordance with the drawing. As a result of the vague drawing, the wrong breaker was selected to be tagged out, resulting in an unexpected loss of shutdown cooling. Entergy took immediate corrective action to restore shutdown cooling and entered this issue into their corrective action program as CR-VTY-2011-04203.

The inspectors determined that Entergy’s tag out of the distribution breaker to Vital AC subpanel “A” due to a low quality drawing is a performance deficiency that was within Entergy’s ability to foresee and correct, and should have been prevented. This finding is more than minor because it is similar to the more than minor statement in example 4.b in IMC 0612, Appendix E, “Examples of Minor Issues,” where an operator inadvertently operated the wrong component and caused a transient. The inspectors evaluated the finding using IMC 0609, Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings” and determined that the finding impacts the Initiating Events cornerstone. The finding required further review using IMC 0609, Appendix G, “Shutdown Operations Significance Determination Process” because the issue affected the safety of the reactor during a refueling outage. The inspectors determined that this finding was of very low safety significance (Green), using IMC 0609, Appendix G, Checklist 7, “BWR Refueling Operation with RCS Level >23’.” This determination was based on the fact that the finding did not degrade Entergy’s ability to recover decay heat removal once lost, and that the temperature increase was low enough that it did not represent a loss of control. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Resources component, because components in the tagging database were not labeled correctly [H.2(c)].

Inspection Report# : [2011005](#) (pdf)

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### Mitigating Systems

**Significance:**  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Risk Assessment for Isolating the Condensate Pumps’ Minimum Flow Line’s Automatic Flow Control Valve**

The inspectors identified a non-cited violation (NCV) of 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” paragraph (a)(4), for Entergy’s failure to conduct an adequate risk assessment prior to isolating the condensate pumps’ minimum flow automatic control valve. Specifically, the inspectors identified that Entergy personnel had not analyzed the impact to plant risk with the condensate pumps’ minimum flow line to the main condenser isolated. Entergy’s corrective actions included declaring and announcing to site personnel the plant risk to be “Orange,” protecting further equipment, and initiating CR-VTY-2012-2074.

The inspectors determined that the issue was more than minor because the overall elevated plant risk put the plant into a higher risk category established by Entergy. The inspectors determined the significance of the finding using IMC

0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process." The finding was determined to be of very low safety significance (Green) because the Incremental Core Damage Probability Deficit for the timeframe that the condensate pumps were unavailable was less than 1E-6 (approximately 2E-7). The inspectors determined that the finding had a cross-cutting aspect in the Human Performance cross-cutting area, Resources component, because the equipment relied upon to perform the risk assessment, EOOS, did not include the condensate system automatic minimum flow control valve, which was not adequate to ensure nuclear safety.

Inspection Report# : [2012003](#) (pdf)

**Significance:**  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Risk Assessment for Not Considering the Increased Risk of a Plant Transient when Securing a Feedwater Pump**

The inspectors identified a NCV of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," paragraph (a)(4) for Entergy's failure to conduct an adequate risk assessment prior to securing the "C" feedwater pump. Specifically, the inspectors identified that Entergy personnel had not analyzed the impact to plant risk of securing the "C" feedwater pump. Entergy's corrective actions included briefing operators that securing a feedwater pump was a HRE-TRAN, i.e. an activity considered to raise the likelihood of an initiating event that is likely to result in a plant trip, and initiating CR-VTY-2012-2160 and CR-VTY-2012-2894.

The inspectors determined that the issue was more than minor because the overall elevated plant risk put the plant into a higher risk category established by Entergy. The inspectors determined the significance of the finding using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process." The finding was determined to be of very low safety significance (Green) because the Incremental Core Damage Probability Deficit for the timeframe that the "C" feedwater pump was being secured was less than 1E-6 (approximately 4E-9). The inspectors determined that the finding had a cross-cutting aspect in the Human Performance cross-cutting area, Resources component, because the procedure describing HRE-TRAN was not sufficiently clear and complete in its description to ensure nuclear safety.

Inspection Report# : [2012003](#) (pdf)

**Significance:**  Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure of the "B" UPS Tachometer Coupling Due to Age and Inadequate Corrective Actions**

A self-revealing, NCV of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," was identified because Entergy did not promptly correct an adverse condition resulting in the failure of the "B" uninterruptible power system (UPS) motor generator (MG) set direct current (DC) tachometer coupling. Specifically, Entergy personnel did not promptly replace or verify the physical condition of the "B" tachometer coupling when it was known that it was aged and susceptible to age-related failure. Entergy's corrective actions included replacing the "B" tachometer coupling, establishing a 12 year preventive maintenance replacement frequency, and initiating CR-VTY-2011-03686, CR-VTY-2011-03744, CR-VTY-2011-05335, CR-VTY-2011-05337, and CR-VTY-2012-01096.

The inspectors determined that Entergy personnel's decision to not replace the "B" UPS MG set tachometer coupling prior to its failure in service without an interim check of its physical condition was a performance deficiency that was reasonably within Entergy's ability to foresee and correct and should have been prevented. This finding is more than minor because there is no sufficiently similar example in IMC 0612, Appendix E, "Examples of Minor Issues," and it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the "B" UPS MG set failed in service affecting the overall system redundancy and reliability and resulted in 22 hours of unavailability. The inspectors determined the significance of the finding using IMC 0609.04, "Phase 1 - Initial Screening and Characterization of Findings." The finding was determined to be of very low safety significance (Green) because it did not represent a loss of system

safety function, a loss of safety function of a single train for greater than its technical specification allowed outage time (MG-UPS-1B), and did not screen as potentially risk significant due to external initiating events. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, within the Decision-Making component, because Entergy personnel did not use conservative assumptions in decision making and did not adopt a requirement to demonstrate that the proposed action to delay the coupling replacement until June 2012 was safe rather than a requirement to demonstrate that it was unsafe in order to disapprove the action [H.1(b)].

Inspection Report# : [2012002](#) (pdf)

**Significance:**  Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure of the “D” Service Water Pump Due to Low Oil and Inadequate Corrective Actions**

A self-revealing, NCV of 10 CFR 50 Appendix B, Criterion XVI, “Corrective Action,” was identified because Entergy personnel did not promptly correct an adverse condition resulting in the unplanned unavailability of the “D” service water pump. Specifically, Entergy personnel did not maintain a clear oil sight glass and did not identify a low oil level for the upper motor bearing prior to damage to the bearing. Entergy’s corrective actions included initiating a condition report, CR-VTY-2012-00483, performing an apparent cause evaluation, and replacing the motor and sight glass.

The inspectors determined that Entergy’s failure to maintain a proper oil level for the upper motor bearing of the “D” service water pump was a performance deficiency that was reasonably within Entergy’s ability to foresee and correct and should have been prevented. This finding is more than minor because no sufficiently similar example is present in IMC 0612, Appendix E, “Examples of Minor Issues,” and it is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the “D” service water pump failed in service affecting overall safety system redundancy and reliability and resulted in three days of unavailability. The inspectors determined the significance of the finding using IMC 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” The finding was screened to be of very low safety significance (Green) because it did not represent a loss of system safety function, a loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to external initiating events. The inspectors determined that this finding had a cross-cutting aspect in the Problem Identification area, within the Corrective Action Program component, because Entergy personnel did not implement a corrective action program with a low threshold for identifying issues and as a result, the stained sight glass was not recognized as an adverse condition [P.1(a)].

Inspection Report# : [2012002](#) (pdf)

**Significance:**  Dec 31, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadvertent Trip of an Emergency Diesel Generator’s Fuel Rack**

A self-revealing NCV of very low safety significance of 10 CFR 50 Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified because Entergy personnel used instructions that were not appropriate to the circumstances resulting in an inadvertent trip of the “A” emergency diesel generator (EDG) fuel rack. Entergy’s corrective actions included promptly restoring the “A” EDG to an operable state, removing the qualifications for the auxiliary operator and field support supervisor involved in the event, and initiating CR-VTY-2011-05483.

There was a self-revealing performance deficiency in that Entergy personnel performed an activity affecting quality which was not prescribed by instructions appropriate to the circumstances resulting in an inadvertent trip of the “A” EDG fuel rack. This finding is more than minor because it is associated with the human performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the inadvertent trip of the “A” EDG fuel rack resulted in the unplanned unavailability of the “A” EDG. The inspectors determined the

significance of the finding using IMC 0609.04, “Phase 1 – Initial Screening and Characterization of Findings.” The finding was determined to be of very low safety significance because it did not represent a loss of system safety function, a loss of safety function of a single train for greater than its technical specification allowed outage time, and did not screen as potentially risk significant due to external initiating events. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance, work practices component, because Entergy did not ensure supervisory oversight of work activity such that nuclear safety was supported [H.4(c)].

Inspection Report# : [2011005](#) (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:**  Dec 31, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Incomplete Inventory for Spent Resin Shipment**

A self-revealing NCV of very low safety significance of 10 CFR 20.1501 was identified because Entergy personnel failed to indicate the total radionuclide activity on the radioactive waste manifest for a radioactive waste shipment. 10 CFR 20.1501 requires licensees to make surveys that may be necessary to comply with the regulations of this part. 10 CFR 20.2006 (b) specifies that radioactive shipments intended for ultimate disposal must document a NRC uniform low level radioactive waste manifest in accordance with Appendix G. Appendix G, I.B.4, specifies that the shipper shall indicate the total radionuclide activity in the shipment on the radioactive waste manifest. VY radioactive waste shipment no. 2011-85 arrived at a radioactive waste processing facility on September 19, 2011, and subsequent radiation surveys by the receiving personnel identified radiation levels exceeding those indicated on the radioactive waste manifest. Entergy staff initiated CR-VTY-2011-03902, determined the shipment actually contained 17 curies of radioactive waste instead of 13.4 curies, revised the NRC form 541, and sent the revision to the radioactive waste processor to correct this error.

The inspectors determined that failing to indicate the total radionuclide activity on the radioactive waste manifest for a radioactive waste shipment is a performance deficiency that was within Entergy’s ability to foresee and correct. This finding is more than minor since it affects the public radiation safety cornerstone objective, because not adequately accounting for all of the radioactive wastes in shipment no. 2011-85 had the potential for misclassifying wastes non-conservatively in subsequent radioactive waste processing and final shipment activities to a low level burial ground facility. The inspectors evaluated the finding using IMC 0609, Appendix D, “Public Radiation Safety Significance Determination Process.” The inspectors determined the finding to be of very low safety significance (Green) because the error was corrected at the waste processor rather than after shipment to a waste disposal facility and did not affect low level burial ground nonconformance as evaluated under 10 CFR 61, “Licensing Requirements for Land Disposal of Radioactive Wastes.” The inspectors determined that this finding had a cross-cutting aspect in the area of human performance, work control component, because Entergy did not appropriately coordinate work activities by incorporating actions to address the need for interdepartmental coordination and communication. Specifically, the

impact of flushing a reactor water cleanup resin transfer line by the ALARA group on the radwaste shipping group was not sufficiently communicated or coordinated to ensure all solid radioactive wastes discharged from the plant into the waste container were accounted for in a subsequent radioactive waste shipment [H.3(b)].

Inspection Report# : [2011005](#) (*pdf*)

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## Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## Miscellaneous

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