Vermont Yankee
4Q/2009 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Dec 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Entergy did not assess and manage the increase in risk that resulted from maintenance activities that impacted the availability of the low pressure coolant injection (LPCI) subsystem
On December 4, 2009, Entergy conducted a test of the high pressure coolant injection (HPCI) system as a retest following maintenance activities. Operations personnel placed both trains of the residual heat removal (RHR) system in the torus cooling mode to maintain the torus within limits contained within the emergency operation procedures. Because this alignment made the LPCI mode inoperable, Operations personnel entered the appropriate Limiting Condition of Operation in the Technical Specifications for this condition. However, the inspectors noted that the LPCI subsystem was not included as part of the risk assessment, and questioned its accuracy. The condition of concern was a loss of coolant accident followed by a loss of normal power and the failure of one emergency diesel to start. This would result in a loop drain condition to the torus for one train of LPCI, and that train would not be fully available to perform its coolant injection function. The inspectors noted that there was no dedicated operator, and the recovery actions were not proceduralized as required by EN-WM-104, “On Line Risk Assessment,” to maintain availability. Entergy entered this issue into the CAP (CR 2009-4234), and initiated a preliminary investigation to review the effectiveness of Maintenance Rule accounting for LPCI unavailability while in the torus cooling mode.

Analysis: The performance deficiency is that Entergy did not conduct an adequate risk assessment for maintenance activities that impacted the availability of the LPCI subsystem. This issue was within Entergy’s ability to foresee and correct, and should have been prevented. Traditional Enforcement did not apply, as the issue did not have actual or potential safety consequence, had no willful aspects, nor did it impact the NRC’s ability to perform its regulatory function. A review of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, “Minor Examples,” revealed that the finding is similar to Example 7.f, in that, the elevated overall plant risk when correctly assessed would put the plant into a higher risk category. The LPCI subsystem is considered risk significant because it is identified as such in Table 2 of the NRC’s Phase 2 Significance Determination Process notebook for Vermont Yankee.

Using IMC 0612, “Power Reactor Inspection Reports,” Appendix B, Section 3, Item 5(a), the finding is more than minor because Entergy’s risk assessment did not consider risk significant SSCs (i.e., LPCI subsystem) that were unavailable during the maintenance activity. The finding is associated with the Configuration Control attribute of the Mitigating Systems cornerstone, and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Because this finding involves the licensee’s assessment and management of risk associated with performing maintenance activities under all plant operating or shutdown conditions, the inspectors used IMC 0609, Appendix K, “Maintenance Risk Assessment and Risk Management Significance Determination Process,” to evaluate this finding. The inspectors determined that the finding is of very low safety significance (Green) because the incremental core damage probability deficit was less than 1.0E-6. This finding has a cross-cutting aspect in the Human Performance cross-cutting area, Work Control component, because Entergy did not appropriately plan and incorporate risk insights in work activities that impacted the availability of the LPCI subsystem. [H.3(a)]

Inspection Report# : 2009005 *(pdf)*

Significance: G Sep 30, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to initiate corrective action condition reports for all deficient items identified during cooling tower inspections.
The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” in that Entergy did not initiate corrective action condition reports (CRs) for all deficient items identified during Cooling Tower (CT) inspections. Entergy entered this issue into their corrective action program (CAP) and performed an operability assessment which determined that the safety related function of the CTs was always available.
The inspectors determined that the finding was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, deficiencies might not be tracked to resolution, management attention or other independent reviews would not be appropriately applied, and the need for operability determinations may be missed. The finding was determined to be of very low safety significance (Green) because the finding did not involve a design or qualification deficiency resulting in loss of operability or functionality, did not result in a loss of system safety function, and did not screen as potentially risk significant due to external initiating events. This finding had a cross-cutting aspect in the “Work Practices” component of the Human Performance cross-cutting area because Entergy did not follow procedures and initiate CRs to identify cooling tower deficiencies as required by operating procedure (OP) 52114.

Inspection Report# : 2009004 *(pdf)*

Significance: G Jun 03, 2009
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Take Adequate Corrective Actions for a HPCI System Functional Failure
The team identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” for Entergy’s failure to take adequate corrective actions for a condition adverse to quality involving an issue that had the potential to negatively impact the high pressure coolant injection (HPCI) system. Specifically, Entergy failed to take timely and appropriate corrective actions commensurate with the safety significance (potential repeat functional failure of the HPCI system due to degraded direct current (DC) contactors) of the issue. Entergy’s short-term corrective actions included a visual inspection of several affected DC breaker cubicles, a HPCI system operability evaluation, and interim guidance to plant operators. Entergy entered the condition into their CAP (CR 2009-1489) and performed a root cause evaluation. The finding is more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the adverse condition represented a challenge to the reliability of the HPCI system due to the system’s vulnerability to a repeat
functional failure. The finding was determined to be of very low safety significance (Green) because it: was not a design or qualification deficiency confirmed not to result in loss of operability; did not represent 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; did not represent an actual loss of safety function of one or more non-technical specification trains for equipment designated as risk-significant per 10 CFR 50.65 for greater than 24 hours; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Entergy failed to take appropriate corrective actions to address a safety issue in a timely manner, commensurate with the safety significance and complexity [P.1.d]. Specifically, Entergy did not take appropriate corrective actions to adequately address the extent of condition for a HPCI functional failure in June 2007 due to degraded DC contactors prior to April 2009.
Inspection Report# : 2009006 *(pdf)*

Significance: G Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation

Failure to write a condition report (CR) for an adverse condition associated with water accumulating in the turbine building supply fan housing plenum area.
The inspectors identified a Green non-cited violation (NCV) of Vermont Yankee Technical Specifications Section 6.4, "Procedures," for Vermont Yankee's failure to take action to correct a specific and foreseen malfunction of a plant component. Specifically, Vermont Yankee failed to initiate a condition report (CR) for an adverse condition associated with water accumulating in the turbine building supply fan housing plenum area, which led to the inoperability of the 'A' emergency diesel generator (EDG) on January 21, 2009 for four hours. Vermont Yankee operations and maintenance personnel stopped the source of the water accumulation and restored the 'A' EDG to operable status. This NCV has since been entered into the Vermont Yankee corrective action program (CAP).

The finding was more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone; and, it affected the cornerstone objective of ensuring the reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the 'A' EDG was rendered inoperable for approximately four hours, but less than the seven-day Technical Specifications (TS) 3.10 allowed outage time. The finding had a cross-cutting aspect in the "Corrective Action Program" component of the Problem Identification and Resolution (PI&R) cross-cutting area because Vermont Yankee did not identify within the CAP the rising water level in the turbine building supply fan housing plenum area in a timely manner commensurate with its safety significance [P.1(a)]. (Section 1R12).

Inspection Report# : 2009002 *(pdf)*

Significance:  Mar 31, 2009
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to perform procedurally required engineering evaluations for scaffolding.
The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for Vermont Yankee's failure to routinely perform procedurally required engineering evaluations for scaffold bracing attached to pipe supports. Specifically, Vermont Yankee failed to perform engineering evaluations on 27 out of 32 scaffolds with horizontal bracing attached to safety related pipe supports. Subsequently, each scaffold was evaluated and documented by Vermont Yankee engineering and no immediate safety issues were found. This NCV has been entered into the Vermont Yankee corrective action program (CAP).

The performance deficiency was more than minor because if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, installing scaffold bracing on pipe supports without engineering approval could place a pipe support in an unanalyzed seismic condition, which could lead to failure in a seismic event. The finding had a cross-cutting aspect in the "Work Practices" component of the Human Performance cross-cutting area because Vermont Yankee did not implement adequate management oversight of contractor work activities regarding scaffold procedural compliance. [H.4(c)]. (Section 4OA2).

Inspection Report# : 2009002 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

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