

Turkey Point 4 3Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to verify 1B feedwater heater drain valve closed

A self-revealing finding was identified when the licensee failed to follow procedure 0-ADM-222, Drain and Vent Rig Controls, while installing a temporary drain hose on Turkey Point Unit 4 in-service equipment. Operations and maintenance workers failed to verify a drain line flow path was isolated on the 1B feed water heater prior to removing a pipe valve cap that resulted in an unexpected lowering of condenser vacuum. Operators took action to close the open drain line isolation valve and terminate the plant transient. The licensee captured this condition in their corrective action program as AR 1819010.

The licensee's failure to verify the closed position of 1B feed water heater drain valve 4-30-128, as required by procedure 0-ADM-222, prior to removing the pipe cap was a performance deficiency. The inspectors determined the performance deficiency was more than minor using IMC 0612, Appendix B, Issue Screening, because the performance deficiency was associated with the configuration control attribute of the initiating events cornerstone, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, the failure to verify the position of 4-30-128 resulted in lowering condenser vacuum that could have led to a reactor trip and the unavailability of the main condenser. The inspectors evaluated the finding using the significance determination process for findings at power of IMC 0609, Appendix A, Exhibit 1, Transient Initiators. The inspectors determined the finding was of very low safety significance (Green) because the finding did not result in a reactor trip and a loss of mitigation equipment relied upon to transition the plant to a stable shutdown condition. The finding was associated with a cross-cutting aspect in the work practices component of the human performance area because the licensee did not define and effectively communicate expectations, or follow the procedural requirement to physically verify valve position during the drain hose installation work [H.4(b)]. (Section 1R11.2)

Inspection Report# : [2012005](#) (*pdf*)

Mitigating Systems

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Power operated relief valve inoperable for greater than allowed outage time due to lifted heads

A self-revealing non-cited violation of the limiting condition for operation specified by Unit 4 Technical Specification (TS) 3.4.9.3, "Overpressure Mitigating System," was identified due to the inoperability of a reactor coolant system (RCS) power-operated relief valve (PORV) for longer than the TS allowed outage time (AOT) of 24 hours. Specifically, the licensee failed to control the wiring configuration of the pressure comparator circuit for PORV PCV-

4-456 and, as a result, the PORV would not have automatically responded to an overpressure event. The licensee corrected the wiring configuration error upon discovery and entered this issue into the corrective action program as action request 1868533.

The inspectors determined the performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely impacted the objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to control the wiring configuration of PCV-4-456 resulted in the PORV being unable to automatically respond to an RCS overpressure event. The inspectors assessed the finding in the mitigating systems cornerstone and evaluated the significance using Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process." The inspectors determined that the finding required a detailed risk assessment because it was associated with a non-compliance with low temperature overpressure (LTOP) Technical Specifications. A Senior Reactor Analyst in NRC headquarters determined that the risk significance of the issue was very low (i.e., Green). The dominant accident sequence was an over-pressurization event caused by the pressurizer heaters, where the remaining PORV fails resulting in a through wall crack of the reactor coolant system. This finding was associated with a cross-cutting aspect in the work practices component of the human performance area because the licensee had not effectively communicated expectations regarding procedural compliance, and as a result, personnel did not implement procedural requirements to maintain plant configuration using wiring lift and land sheets; causing leads that affected the operability of PORV PCV-4-456 to not be re-landed [H.4(b)]. (Section 40A3)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Timely Corrective Actions to Test Molded Case Circuit Breakers

The NRC identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to establish a test program to demonstrate that safety-related 120 VAC and 125 VDC molded case circuit breakers (MCCBs) would be able to reliably perform their intended safety functions, specifically protective tripping. The team identified that since 2005 and 2006, when the lack of periodic testing of the molded case circuit breakers was identified; no interim measures were taken to correct the nonconforming condition. Additionally, the team identified that the licensee failed to scope the protective tripping function of the MCCBs in the maintenance rule program. Upon identification by the team, the licensee entered these issues into their correction action program as ARs 1675539, 1676808, 1788355, and 1852219. As immediate corrective actions, the licensee tested 35 breakers which performed satisfactorily. The results of this testing and an action to develop a long-term test program for the entire 120 VAC and 125 VAC MCCBs were documented in AR 1852219. A license amendment will also be pursued to allow for more TS outage time in order to remove and replace the more difficult MCCBs. The licensee's failure to implement prompt and effective corrective actions to ensure that safety-related molded case circuit breakers were adequately tested was a performance deficiency. The performance deficiency was more than minor because it adversely affected the mitigating systems cornerstone attribute of equipment performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter 0609.04, Initial Screening and Characterization of Findings, the inspectors conducted a Phase 1 Significance Determination Process screening using Exhibit 2 of Appendix A to Manual Chapter 0609 and determined the finding to be of very low safety significance (Green) because it was a qualification deficiency confirmed not to result in the loss of operability or functionality. Because the licensee did not ensure that the necessary resources were available and adequate to maintain long term plant safety through the minimization of preventative maintenance deferrals, this finding is assigned a cross-cutting aspect in the resources component of the human performance area [H.2(a)].

Inspection Report# : [2013002](#) (*pdf*)

Significance: G Mar 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Correct Flow-Induced Vibration Leads to CCW Piping Weld Failures

A Green self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, was identified when the licensee failed to implement corrective actions that addressed low stress high cycle fatigue of component cooling water (CCW) relief valve RV-4-747B piping caused by flow induced vibration. As a result, CCW system flow induced vibration resulted in weld cracks and system pressure boundary leakage in November 2012. The licensee repaired the weld failures and installed a pipe support on the line to minimize flow induced vibration on the associated pipe in February 2013 during a scheduled refueling outage. The licensee documented this condition in their corrective action program as action request (AR) 1824939. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to implement corrective actions to address CCW system flow induced vibration resulted in weld cracks and CCW system pressure boundary leakage in November 2012. The inspectors evaluated the finding under the mitigating systems cornerstone and used Inspection Manual Chapter (IMC) 0609, Appendix G, Attachment 1, Shutdown Operations Significance Determination Process Phase 1, Checklist 4, PWR Refueling Operation, dated May 25, 2004. The inspectors determined the finding was of very low safety significance (Green) because the finding did not require a quantitative assessment of risk significance since each item on the Checklist 4 was met during the time the condition existed and while the 4B residual heat removal (RHR) train was removed from service to repair the weld leak. The finding was associated with a cross-cutting aspect in the corrective action program component of the problem identification and resolution area because the licensee did not complete engineering evaluations necessary to support modifications that would prevent CCW system RV-4-747B piping weld failures caused by flow induced vibration. [P.1(c)]

Inspection Report# : [2013002](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

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