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## Turkey Point 3 – Quarterly Plant Inspection Findings

### 2Q/2017 – Plant Inspection Findings

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### Initiating Events

**Significance:** G Mar 31, 2017

Identified By: NRC

Item Type: FIN Finding

#### **Inadequate Operational Decision-Making Procedure Implementation Results in Feedwater Heater Water Hammer**

Green: A self-revealing finding was identified for the failure to adequately implement OP-AA-105-1000, "Operational Decision Making" (ODM) procedure that was used to establish plant conditions for the repair of the Unit 3 condensate tube leak in the 3B feedwater heater (FWH). The failure to implement all the steps of OP-AA-105-1000, "Operational Decision Making," to establish plant conditions for the repair of the Unit 3 condensate tube leak in the 3B FWH was a performance deficiency.

The performance deficiency was determined to be more than minor because it was associated with the configuration control and procedure quality attributes of the initiating events cornerstone and adversely affected the cornerstone's objective to limit the likelihood of events that upset plant stability. Specifically, not implementing the ODM procedure steps 2.3, "Rigorous Evaluation," and Steps 2.5, "Effective Implementation," of Attachment 3, resulted in an incorrect revision to procedure 3-ONOP-081.02 which led field operators to close the extraction steam to the 5B FWH too quickly and without due-precaution to prevent a rapid decrease in the 5B FWH shell pressure and caused significant water hammer and resulted in a fast load reduction and reactor trip. Using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue had very low safety significance (Green) because the event did not cause both a reactor trip and a loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The finding was assigned a cross-cutting aspect of resources in the area of human performance, in that, leaders ensure that personnel, equipment, procedures, and other resources were available and adequate to support nuclear safety. Specifically, the ODM team did not ensure that the revised procedure was adequate to preclude water hammer. [H.1].  
Inspection Report# : 2017001 (*pdf*)

**Significance:** G Mar 18, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**Inadequate Foreign Materials Exclusion Controls for Thermo-Lag Activities Renders Electrical Equipment Inoperable and Results in a High Energy Arc Flash**

A self-revealing Green (NCV) of Technical Specification (TS) 6.8.1.a., "Procedures and Programs," was identified for the failure to appropriately implement foreign material exclusion (FME) controls during Thermo-Lag fire barrier modifications. Specifically, maintenance procedure 0-GMP-102.21, "Installation, Modification and Maintenance of Thermo-Lag Fire Barrier System," Rev. 0C, did not include instructions in sufficient detail to prevent foreign material used in the installation of Thermo-Lag fire barriers from entering nearby electrical equipment and was a performance deficiency (PD) which affected the operation of two redundant safety-related battery chargers and caused a high energy arc fault (HEAF) that damaged the 3A 4kV switchgear bus. After the HEAF, the licensee promptly ceased all Thermo-Lag installation activities. The licensee completed a root cause evaluation in Action Request (AR) 2192198 and revised the installation procedure to prevent foreign material from entering nearby electrical equipment.

The PD was more than minor because it caused both a reactor trip and resulted in the unavailability of the 3A 4kV switchgear bus. The inspectors evaluated the significance of this finding by utilizing IMC 0609 Attachment 4, "Initial Characterization of Findings," and IMC 0609 Appendix A, "The Significance Determination Process for Findings At-Power," and determined the finding's significance could not be screened to Green because it caused both a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. Therefore a detailed risk evaluation was required to complete the significance determination. Based upon the results of the evaluation the finding was considered to be Green, or equivalent to low safety significance. The cross-cutting aspect (CCA) that best corresponds to the root cause as described in IMC 0310, "Aspects Within the Cross-Cutting Areas," was "Resources;" leaders ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety (H.1).

Inspection Report# : 2017002 (*pdf*)

**Mitigating Systems**

**Significance:** G Mar 18, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Implement Fire Detection**

A NRC-identified Green finding was identified for the licensee's failure to follow plant procedure O-ADM-016, "Fire Protection Program," Rev. 19. Specifically, the licensee failed to properly implement fire watches following a HEAF on the 3A 4kV switchgear bus.

The inspectors determined that the licensee's failure to implement fire detection was a PD. This PD was more than minor because it was associated with the reactor safety mitigating systems cornerstone, and if a fire was not detected in the 3B 4kV switchgear room there was a potential for the B train of equipment to lose function which could have resulted in the unavailability of both the A and B trains of equipment post incident. The finding is not greater than Green because a risk analysis of the PD was performed and determined the risk increase in core damage frequency due to the PD was equivalent to a Green finding of very low safety significance due to the short exposure period. Because site personnel failed to reset fire detectors and implement fire watches in appropriate areas following the incident; and during interviews, inspectors identified that fire drills did not emphasize post incident activities, the inspectors concluded the finding had a CCA in the area of Human Performance associated with the "Training;" the organization provides training and ensures knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values (H.9).

Inspection Report# : 2017002 (*pdf*)

**Significance:** G Sep 28, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**Improper ECC Fuse Installation**

Green: A self-revealed Green finding and associated Non-cited Violation (NCV) of Technical Specification (TS) Limiting Condition for Operation (LCO) 3.6.2.2 was identified for the failure to properly insert the control power fuse for the 3B Emergency Containment Cooler (ECC) fan. The ECC unit was determined to be inoperable for greater than the allowed outage time of 72 hours and the actions required by TS LCO 3.6.2.2, Action A, were not taken. An immediate corrective action was taken to adjust the fuse holder clips on the 3B ECC breaker to provide a tight fit. Additional corrective actions initiated by the licensee in AR 2108256 included a review of recently replaced similar breakers on Units 3 and 4 to identify and schedule inspection of fuse tightness.

The inspectors determined that the finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the 3B ECC was not available to automatically start upon receipt of a safety injection signal, and during periods with two ECCs concurrently inoperable, the ECC system would not have been able to perform its specified safety function. To determine the significance of the finding, a Senior Reactor Analyst performed a bounding risk assessment by failing all three containment coolers in the Turkey Point Standardized Plant Analysis Risk (SPAR) model for the entire exposure time of 72 days. The dominant accident sequence was a very small loss of coolant accident (LOCA) where high head safety injection fails for independent reasons. The delta-core damage frequency (CDF) due to the performance deficiency was 1E-8. The low risk result was driven by the low frequency of LOCAs, the limited exposure time, and the low risk value of the containment coolers themselves. The finding was determined to be of very low safety significance (Green). This finding was assigned a cross cutting aspect associated with the avoid complacency element of the human performance area because the licensee failed to confirm fuse holder tightness following implementation of breaker maintenance. The licensee failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while executing successful outcomes. [H.12]

Inspection Report# : 2016003 (*pdf*)

**Significance:** G Sep 13, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Provide Adequate Guidance to Prevent LCSWGR Heat-up**

Green: The NRC identified a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to provide adequate procedural guidance to ensure that the temperature in the Load Center Switchgear Room (LCSWGR) remains below the design temperature of 104 °F. The licensee entered the issue into the corrective action program and updated the procedure to include a specific guidance to the operator during a loss of air conditioning.

This performance deficiency was determined to be more than minor because it was associated with the Procedure Quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to provide adequate procedural guidance to prevent operators from opening the east door (el. 18') in the 3A Switchgear Room (SWGR) when the Emergency Diesel Generator (EDG) 3A is operating (i.e., under Loss of Offsite Power conditions) would cause temperatures to rise above the room design temperature of 104 °F. The team determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design of a mitigating structure, system, or component (SSC), and the SSC maintained its

operability or functionality. This finding was not assigned a cross-cutting aspect because the issue did not reflect present licensee performance.

Inspection Report# : 2016007 (*pdf*)

**Significance:** G Sep 13, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Correct Reactor Coolant Loop Check Valve 312-A's Failure to Fully Seat**

Green: The NRC identified a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," for the licensee's failure to correct an identified condition adverse to quality involving a failure of charging system check valve 3-312A to fully seat due to internal component wear. The licensee entered the issue into the corrective action program and took corrective actions to replace the valve's internal components.

This performance deficiency was determined to be more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to take appropriate corrective actions to address internal component degradation of check valve 3-312A adversely impacts the capability of charging system to isolate and provide back leakage protection to the Chemical Volume and Control System (CVCS) from the Reactor Coolant System (RCS). The team determined the finding to be of very low safety significance (Green) because the valve's safety related function of opening to provide a boration flowpath to the RCS was maintained. This finding was not assigned a cross-cutting aspect because the issue did not reflect present licensee performance.

Inspection Report# : 2016007 (*pdf*)

## **Barrier Integrity**

**Significance:** G Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

### **Failure to Perform 100 Percent General Visual Examinations of Containment Moisture Barriers Associated with Containment Liner Leak Chase Test Connections**

A NRC-identified Green NCV of 10 CFR 50.55a, "Codes and Standards," was identified for the failure to perform general visual examinations of moisture barrier materials in the reactor containment leak-chase channel test connections in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI, Subsection IWE. The licensee performed the required examinations in Unit 3 during the April 2017, refueling outage and initiated corrective actions to revise the physical configuration of leak chase areas and review the In-service Inspection (ISI) Plan. This issue has been entered into the licensee's corrective action program as AR 02196637.

The failure to conduct the required visual examination of all moisture barriers in accordance with the ASME BPV Code requirements was a PD. The PD was more than minor significance per IMC 0612, Appendix B, "Issue Screening," because the current Containment ISI Plan did not adequately implement the ASME BPV Code inspection requirements for the examination of moisture barriers, and if left uncorrected, had the potential to lead to a more significant concern. The finding was of very low safety significance, or Green, per IMC 0609 because it did not, based on inspections performed following discovery, represent an actual open pathway in the physical integrity of the reactor containment. Because the licensee did not effectively evaluate and appropriately implement the ASME BPV Code requirements in the Containment ISI Plan when a reasonable opportunity was available through the licensee's review of NRC Information Notice (IN) 2014-07 and Regulatory Issue Summary (RIS) 2016-07, the inspectors determined the finding had a CCA in the operating experience component of the problem identification and resolution cross-cutting area, in that the organization systematically and effectively collects, evaluates, and implements relevant internal and external

operating experience in a timely manner (P.5).

Inspection Report# : 2017002 (*pdf*)

## **Emergency Preparedness**

## **Occupational Radiation Safety**

## **Public Radiation Safety**

## **Security**

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

## **Miscellaneous**

Current data as of : September 05, 2017

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