

Turkey Point 3 4Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Perform an Adequate Design Verification

Green: A self-revealing finding was identified for the licensee's failure to ensure an adequate design change was implemented during Unit 3 and Unit 4 instrument air compressor system upgrade modifications completed in 2013. Specifically, plant modifications EC 246991 and EC 246990 were accepted and placed in service by the licensee without verifying the control logic configuration would function properly and load under all conditions. As a result, the diesel-driven compressors would not load and pressurize the instrument air header in the event of a loss of instrument air pressure while in the standby mode of operation. Corrective actions included an immediate modification to the standby compressor loading control circuit to ensure the machine loaded automatically and revising general procedural guidance for compressor operation. The licensee entered this performance deficiency in their corrective action program as AR 01983607.

The performance deficiency was more than minor because it was associated with the design 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 have an adequate design for controlling the operation of the standby instrument air compressor resulted in a reactor trip due to the loss of instrument air pressure. The inspectors screened the issue under the initiating events cornerstone using Attachment 4 (June 19, 2012) and Exhibit 1 (June 19, 2012) of Appendix A to Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (June 2, 2011). The inspectors concluded that a detailed risk evaluation would be required because the finding was associated with the loss of a support system that resulted in a reactor trip and affected equipment that could be used by plant operators to mitigate the resulting plant transient. A senior reactor analyst (SRA) performed a detailed risk evaluation of this issue. The NRC model for Turkey Point was adjusted by: 1) increasing the initiating event frequency for a loss of instrument air (LOIA) event by one order-of-magnitude, and 2) the failure-to-run probability of the backup air compressors was set equal to 1.0. The change in core damage frequency results were below the 1E-6 threshold and the issue was determined to be of very low risk significance (Green). The finding was associated with a cross-cutting aspect in the resources component of the human performance area because the licensee failed to ensure instrument air system equipment was available and adequate to support nuclear safety (H.1).

Inspection Report# : [2014005](#) (*pdf*)

Significance: G Dec 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Fully Implement Emergency Operating Procedure 3-EOP-ES-0.1, Reactor Trip Response

Green: A self-revealing non-cited violation (NCV) of TS 6.8.1, Procedures, was identified when the licensee failed to fully implement procedure 3-EOP-ES-0.1, "Reactor Trip Response." Specifically, the licensee failed to take effective action to implement Step 25 of 3-EOP-ES-0.1 and maintain pressurizer pressure and level within their required bands

in order to stabilize plant conditions following a loss of instrument air and a reactor plant trip. Corrective actions included training licensed operators on the implementation of EOP-ES-0.1. The licensee entered this performance deficiency in their corrective action program as action request 1983618.

The performance deficiency was more than minor because it was associated with the human performance 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 shutdown as well as power operations. The inspectors screened the issue under the initiating events cornerstone using Attachment 4 (June 19, 2012) and Exhibit 1 (June 19, 2012) of Appendix A to IMC 0609, "Significance Determination Process" (June 2, 2011). The inspectors concluded that a detailed risk evaluation would be required by a senior reactor analyst (SRA) because the finding was associated with a transient initiator and operator actions to utilize equipment to mitigate the associated plant transient. The NRC model for Turkey Point was adjusted by setting the failure probability of the power-operated relief valve (PORV) to remain closed during an event equal to 1.0. This represented the impact of failing to follow the emergency operating procedures resulting in lifting the PORVs during the event. The change in core damage frequency results were below the 1E-6 threshold and the issue was thus determined to be of very low risk significance (Green). This finding was associated with a cross-cutting aspect in the training component of the human performance area because the licensee failed to ensure licensed operator training provided knowledge that the reactor coolant pump seals could operate for a short period of time without seal flow (H.9).

Inspection Report# : [2014005](#) (pdf)

Significance: G Mar 07, 2014

Identified By: NRC

Item Type: FIN Finding

Failure to Properly Program the Turbine Generator Digital Control System Load Drop Anticipatory Circuit Results in a Manual Reactor Trip

A self-revealing green finding was identified for the failure to establish new digital software set points for the load drop anticipatory (LDA) logic circuit associated with an extended power uprate (EPU) digital turbine electro-hydraulic control (EHC) system design modification. Specifically, the software for the LDA logic circuit was programmed to reset at a value that would not be reached during a normal reactor plant shutdown before the turbine control system sensed a loss of load condition and closed the turbine control valves. As a result, during a planned Unit 3 reactor plant shutdown, the LDA control logic unexpectedly closed the turbine control valves at 25 percent reactor power. The operators then manually tripped the unit based on the indication of loss of turbine load in the control room. Licensee Unit 3 software engineering change (EC) package 246849 change request notice (CRN) 253 Attachment 5, "Turbine Control Initial Values," instructed the programmer to set the LDA disarm value to 50 percent turbine load. Contrary to this instruction, the programmer set the disarm value to 50 pounds per square inch gauge (psig) steam pressure. The failure of the programmer to establish the proper set point value in the LDA reset logic was a performance deficiency.

The performance deficiency was more than minor because it was associated with the equipment reliability attribute of the initiating events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The finding was determined to be of very low safety significance (Green) based on Exhibit 1, "Initiating Events Screening Questions," found in Inspection Manual Chapter 0609, Significance Determination Process, Appendix A, "Significance Determination Process for Findings At-Power" (dated June 19, 2012). This was due to the fact that the finding did not result in a loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined the cause of this finding was associated with a cross cutting aspect of procedure adherence. Specifically, the licensee set the turbine control valve LDA reset point to 50 psig instead of 50 percent turbine load as prescribed in EC 246849. (H.8) (Section 40A3.1)

Inspection Report# : [2014008](#) (pdf)

Mitigating Systems

Significance: G Aug 20, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Identify and Correct Unsealed Condulet to Prevent Water Intrusion

A self-revealing, non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the licensee's failure to implement corrective actions to prevent water intrusion into electrical conduits that affected safety related equipment. Specifically, the licensee failed to establish corrective actions to prevent water intrusion into the power supply for the Unit 3 B train (3B) pressurizer back-up heaters. After discovery of the condition, the licensee completed immediate corrective actions to apply waterproofing sealant to an unsealed condulet elbow that was the source of the pressurizer back-up heater water intrusion. The licensee entered this issue into their corrective action program as ARs 1985831 and 1986395.

This finding was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to implement corrective actions to prevent water intrusion events which resulted in the inoperability of 3B pressurizer back-up heaters. The inspectors evaluated the significance of the finding under the mitigating systems cornerstone using Table 2 of Attachment 4 (dated June 19, 2012) and Exhibits 2 and 4 of Appendix A (dated June 19, 2012) to Inspection Manual Chapter 0609, "Significance Determination Process," (dated June 2, 2011). The inspectors determined the finding was of very low safety significance (i.e., Green) because the exhibit criteria did not screen to a detailed risk assessment. A cross-cutting aspect was not identified because this performance deficiency occurred in 2007 and there have been no recent opportunities for the licensee to apply current processes and procedures for this issue. Therefore, the inspectors concluded that the performance deficiency was not indicative of current licensee performance.

Inspection Report# : [2014004](#) (*pdf*)

Significance: G Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

TS Channel Calibration of ESF Steam Line Protection Channel III Not Performed

A Green self-revealing non-cited violation (NCV) of TS Section 3.3.2, "Engineered Safety Features Actuation Instrumentation," (ESF) was identified when the licensee failed to perform the channel calibration of Unit 3 ESF steam pressure protection channel III within the required 18-month frequency which resulted in operation with steam generator pressure transmitter PT-3-495 inoperable for approximately 10 months. This issue was placed in the licensee's CAP as AR 1938191. Corrective actions included replacing PT-3-495, performing an extent of condition on all other work orders completed during the extended power uprate (EPU) outage to ensure TS compliance, and revising the surveillance tracking program procedure to require verification that the required surveillance testing is completed prior to crediting non-dedicated work orders.

The performance deficiency was more than minor because it was associated with the human 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 perform the channel calibration surveillance test procedure for transmitter PT-3-495 within the 18-month required frequency resulted in 10 months of channel inoperability. The finding was screened using Exhibit 1, Mitigating Systems Screening Questions, found in Inspection Manual Chapter 0609, Significance Determination Process,

Appendix A, Significance Determination Process for Findings At-Power (June 19, 2012). The inspectors determined the finding was of very low safety significance (Green) because the finding did not affect design or qualification, did not represent a loss of system function, and did not represent an actual loss of function of a technical specification train of equipment. The finding was associated with a cross-cutting aspect in the work management component of the human performance area because the licensee failed to implement their process for planning, controlling, and executing required surveillance tests (H.5). (Section 40A2.3)

Inspection Report# : [2014002](#) (*pdf*)

Significance:  Feb 28, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Properly Implement Time Critical Operator Action Program Procedure

The team identified a green non-cited violation of Technical Specification 6.8.1, “Procedures and Programs,” for the licensee’s failure to implement procedure 0-ADM-232, Time Critical Action Program, to ensure time critical actions (TCAs) important to mitigate design basis events could be performed in the required time. The failure to implement this procedure was a performance deficiency. No documentation existed to demonstrate that the TCA to restore power to the battery chargers during a station blackout could be performed within the required time (30 minutes). The team also identified a TCA to locally isolate the auxiliary feedwater for a faulted steam generator that did not have a job performance measure to demonstrate the successful completion of the action. The licensee entered this issue into the corrective action program as action requests 01944453, 01945532, 01943321, 01943425, and 01943697. For TCAs where no validation documentation could be determined, the licensee completed tabletop exercises, simulator exercises, and field walkdowns to ensure that all of the TCAs to mitigate design basis events could be completed within the required action times.

The performance deficiency was determined to be more than minor because it was associated with the Human 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 licensee did not implement 0-ADM-232 adequately to ensure that the TCAs listed in Attachment 1 of the procedure were properly validated; consequently, the licensee could not demonstrate that TCAs could be successfully executed in accordance with the design basis. The team determined the finding to be of very low safety significance (Green) because the finding was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; and did not represent a loss of system and/or function. The team determined this finding was associated with the cross-cutting aspect of Procedure Adherence in the area of Human Performance because although the procedure was recently revised to include all necessary requirements to maintain the time critical action program, the licensee failed to follow procedure 0-ADM-232, which resulted in several TCAs not being properly validated. [H.8] (Section 1R21.2)

Inspection Report# : [2014007](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Non Compliance With HRA Entry Requirements

Green: A self-revealing NCV of Technical Specification (TS) 6.12.1, High Radiation Area, was identified when a worker did not comply with a radiological barrier and entered a high radiation area (HRA) without proper authorization. Specifically, on March 24, 2014, a worker entered a HRA without a survey meter, without being made aware of radiological conditions in the area, and without a health physics technician (HPT) escort and subsequently received a dose rate alarm. Upon identification, the licensee immediately restricted the worker's access to the Radiologically Controlled Area (RCA) and put out a site wide information notice to increase worker awareness of HRA entry requirements. This condition has been placed into the licensee's corrective action program as action request (AR) 01951254.

The finding was determined to be more than minor because it was related to the Occupational Radiation Safety cornerstone attribute of Human Performance (radiation worker proficiency) and adversely affected the cornerstone attribute to ensure the adequate protection of worker health and safety. Specifically, because the worker failed to comply with TS requirements for entry into a HRA he was not knowledgeable of area radiological conditions. The finding was evaluated in accordance with IMC 0609, Appendix C, where it was determined to be Green because it did not involve ALARA planning or work controls, was not an overexposure, did not contain a substantial potential for an overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Avoid Complacency (H.12) because the worker failed to apply the human performance tools of self and peer checks prior to entering into an HRA.

Inspection Report# : [2014005](#) (*pdf*)

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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