

Turkey Point 3 2Q/2014 Plant Inspection Findings

Initiating Events

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*)

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate procedure to vent 3B SGFP results in AFW actuation

A self-revealing non-cited violation of Technical Specification 6.8.1, "Procedures," was identified for the licensee's failure to maintain an adequate procedure for venting the 3B steam generator feed pump (SGFP). Specifically, the licensee had failed to remove temporary instructions in Section 5.4 of procedure 3-NOP-074, "Steam Generator Feedwater System," to jumper the contacts on the 3B SGFP breaker such that the breaker appeared 'open' to the auxiliary feedwater (AFW) actuation logic, and as a result, AFW was inadvertently actuated and had to be secured by operators during a start of the 3B SGFP from the control room. The licensee entered the issue into the corrective

action program as action request 1855704 and took corrective actions to revise 3-NOP-074 by removing the jumper installation steps from the procedure.

The inspectors determined that the performance deficiency was more than minor because it was associated with the procedure quality 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 remove the procedural instructions for installing a jumper in the 3B SGFP control circuit resulted in an inadvertent AFW actuation and required operators to take action to temporarily secure the ability of AFW to feed the steam generators. 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 resources component of the human performance area because the licensee failed to ensure an accurate and up-to-date procedure was maintained for operation of the feedwater system [H.2(c)]. (Section 4OA2)

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

Significance:  Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to follow procedure to switch running SGFPs results in AFW actuation

A self-revealing non-cited violation of Technical Specification 6.8.1, "Procedures," was identified for the licensee's failure to implement Section 2.0 of procedure 3-NOP-074, "Steam Generator Feedwater System," for starting the 3A steam generator feedwater pump (SGFP). Specifically, the licensee failed to implement 3-NOP-074 and ensure that a second condensate pump (CP) was running before starting a second SGFP which resulted in a loss of normal feedwater to the steam generators and an actuation of auxiliary feedwater (AFW). Operators took action to secure AFW flow to the steam generators to limit plant cool down and opened the reactor trip breakers to obtain additional reactivity shut down margin. Operators also took action to start the A standby steam generator feed pump (SBSGFP) to maintain level in the SGs and both trains of AFW were returned to operable standby status. The licensee entered the issue into their corrective program as action request 1856476.

The inspectors determined that 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 power operations. Specifically, the failure to ensure that a second CP was running prior to starting 3A SGFP resulted in the trip of the running SGFP 3B and AFW actuation in response to the loss of normal feedwater supply. 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 failed to ensure proper supervisory oversight of work activities related to nuclear safety and prevent the loss of running SGFPs [H.4(c)]. (Section 4OA2)

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

Significance:  Sep 30, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to provide adequate instructions during maintenance on the gland seal steam system

A self-revealing finding was identified due to the licensee's failure to provide adequate work instructions for throttling the Unit 3 gland seal steam bypass valve. As a result of the licensee's inadequate work instructions, an operator

opened the spill bypass valve on the gland seal steam system until system steam pressure dropped and allowed air in-leakage through the turbine gland seals. This resulted in a reactor trip and the main condenser was unavailable for reactor decay heat removal until vacuum could be restored. The licensee entered this issue into their corrective action program as action request 1847369 and revised the system operating procedure to address operation of the bypass line around the spillover control valve.

The inspectors determined the performance deficiency was more than minor because it 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 provide adequate work instructions for the operation of the gland seal steam spillover bypass valve resulted in a reactor trip with the main condenser unavailable for reactor decay heat removal until vacuum could be restored. The inspectors screened the finding and determined that the finding was a transient initiator contributor which required a detailed risk analysis because the finding resulted in a reactor trip with a loss of condenser vacuum. A bounding analysis was performed by a regional Senior Reactor Analyst who concluded that the finding resulted in an increase in core damage frequency of less than 1E-6/year and, therefore, was a Green finding of very low safety significance. The finding was associated with a cross-cutting aspect in the work control component of the human performance area because the licensee did not adequately incorporate the need for planned contingencies, compensatory actions or abort criteria to ensure that throttling the gland seal steam spillover bypass valve would not result in a reactor trip and loss of the main condenser [H.3(a)]. (Section 40A2)

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

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Safety injection flow path not isolated due to manual valve out of position

The inspectors identified a self-revealing non-cited violation of the limiting condition for operation specified by Unit 3 Technical Specification (TS) 3.4.9.3, "Overpressure Mitigating Systems," which occurred as a result of the licensee's failure to locally verify the closed position of manual valve 3-990 in accordance with OP-AA-100-1000, "Conduct of Operations." The licensee's failure to locally verify the closed position of manual valve 3-990 resulted in an unisolated high pressure safety injection flow path to the RCS for eight hours and 40 minutes which was greater than the TS 3.4.9.3 allowed outage time of four hours. Compliance with the TS was restored when the licensee isolated the flow path at the completion of in-service testing on February 28, 2013. Additionally, the licensee took corrective actions to fix the reach rod assembly and revised the procedures for verifying valve position and work order planning. The issue was entered into the licensee's corrective action program as action request 1852222.

The performance deficiency was more than minor because it was associated with the configuration control attribute of the initiating events cornerstone and adversely impacted the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, the performance deficiency resulted in an open high pressure flow path to the reactor coolant system that degraded the overpressure mitigating system's ability to prevent a low temperature overpressure (LTOP) event. The inspectors assessed the finding using the initiating events cornerstone and evaluated the significance of the finding using Appendix G, "Shutdown Operations Significance Determination Process," of Manual Chapter 0609. The inspectors determined that the finding required a detailed risk assessment because it was associated with a non-compliance with an LTOP technical specification. 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 an inadvertent safety injection actuation, where the power-operated relief valves fail resulting in a through wall crack of the reactor coolant system. The finding was associated with a cross-cutting aspect in the resources component of the human performance area because the licensee failed to ensure that the work package contained adequate instructions for installation of roll pins instead of set screws in the reach rod assembly for valve 3-990 [H.2(c)].

(Section 40A3)

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

Mitigating Systems

Significance:  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

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

Last modified : August 29, 2014