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Susquehanna 1 – Quarterly Plant Inspection Findings

3Q/2017 – Plant Inspection Findings

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Initiating Events

Significance: G Dec 31, 2016

Identified By: NRC

Item Type: FIN Finding

Auxiliary Bus Load Shed when a Daisy Chained Neutral was Interrupted during Maintenance

A finding of very low safety significance (Green) for failure to develop an adequate work plan for replacement of a voltage potential indicating light on a breaker on the Unit 2 'B' auxiliary bus was self-revealed when the Unit 2 'B' reactor recirculation pump (RRP) tripped, along with other non-safety related loads on November 14, 2016, resulting in a rapid unplanned power change and transition to single loop operation. Specifically, operations and maintenance personnel did not recognize that disconnecting the neutral wires from the light socket would interrupt power to all of the degraded voltage relays for the auxiliary bus. Therefore, the relays de-energized when the maintenance was performed, tripping all the breakers on the bus. Susquehanna's immediate corrective actions included stabilizing the plant, entering single loop operations, and entering the issue into their corrective action program (CAP). Additionally, Susquehanna performed a maintenance department stand down to communicate immediate lessons learned from the event while a more thorough causal analysis was conducted. The performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone and affected its objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, implementation of work instructions resulted in the trip of the Unit 2 'B' RRP, 'B' and 'D' circulating water (CW) pumps, 'B' and 'D' condensate pumps, and the 'B' service water (SW) pump, which caused an automatic trip of the 'C' reactor feed pump and runback of the 'A' RRP, resulting in a rapid power reduction to 32 percent rated thermal power (RTP). The inspectors evaluated the finding in accordance with IMC 0609, Appendix A "The SDP for Findings At-Power," dated June 19, 2012, Exhibit 1 for the Initiating Events cornerstone and determined the finding was of very low safety significance (Green) because it did not cause a reactor trip. This finding was determined to have a cross-cutting aspect in the area of Human Performance, Work Management because Susquehanna did not implement a process of planning work activities such that nuclear safety is the overriding priority, including the identification and management of risk commensurate with the work. Specifically, Susquehanna

did not recognize the risk of interrupting a daisy chained neutral when planning a minor maintenance work order and did not recognize the impact of the work activity in the field.

Inspection Report# : 2016004 (*pdf*)

Mitigating Systems

Significance:  Jul 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Assess and Manage Risk Associated with Emergent Work

Inspection Report# : 2017002 (*pdf*)

Significance:  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Assessment of Fire Brigade Performance during an Unannounced Drill

The inspectors identified a Green NCV of Susquehanna Unit 1 and 2 Operating License Condition 2.C.6, Fire Protection, because Susquehanna did not adequately assess an unannounced fire brigade drill, as required by the fire protection program. Susquehanna entered this issue into the corrective action program (CAP) for resolution as condition report (CR) CR-2017-10767 and is conducting an apparent cause evaluation to determine the most appropriate corrective actions. The performance deficiency (PD) was more than minor since the deficiency was associated with the protection against external events (fire) attribute of the Mitigating Systems cornerstone and impacted its objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety Significance (Green) in accordance with D.1 of IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." Because the finding involved fire brigade training requirements, the fire brigade demonstrated the ability to meet the required times for fire extinguishment for the fire drill scenarios, and the finding did not significantly affect the fire brigade's ability to respond to a fire, the finding screened as Green. This finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Self and Independent Assessments, because Susquehanna did not conduct assessments of their activities to assess performance and identify areas of improvement. Specifically, the Susquehanna self-evaluation of fire brigade performance was not of sufficient depth, appropriately objective, or self-critical.

Inspection Report# : 2017002 (*pdf*)

Significance:  Dec 31, 2016

Identified By: Self-Revealing

Item Type: FIN Finding

Failure Rates Exceed (20%) Twenty Percent for Biennial Requalification Exam

A self-revealing finding was identified associated with inadequate licensed operator performance during the annual licensed operator requalification operating test and biennial written examination. Specifically, 17 of 71 operators (23.9%) failed at least one portion of the requalification examinations. This finding is more than minor because it is associated with the Mitigating Systems cornerstone attribute of human performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, 17 of 71 licensed operators failed to demonstrate a satisfactory understanding of the required knowledge and abilities required to safely operate the facility under normal, abnormal, and emergency conditions. The inspectors evaluated this performance deficiency using IMC 0609, "SDP", Appendix I, "Licensed Operator Requalification SDP." This finding is of very low safety significance (Green) because the finding is related to requalification exam results, did not result in a failure rate of greater than 40 percent and all 17 operators were

remediated and successfully retested prior to returning to licensed duties. This finding has a cross-cutting aspect in the area of Human Performance, Training, because Susquehanna did not provide adequate operator requalification training to maintain a knowledgeable, technically competent workforce.

Inspection Report# : 2016004 (*pdf*)

Significance:  Dec 31, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Promptly Correct a Condition Adverse to Quality with LPCI Swing Bus Automatic Transfer Switches

A finding of very low safety significance (Green) and associated NCV of Title 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion XVI, "Corrective Action," was self-revealed when Susquehanna failed to assure that conditions adverse to quality were promptly identified and corrected on two separate occasions. Both examples resulted in the failures of safety-related automatic transfer switches (ATs) associated with the low pressure coolant injection (LPCI) swing buses. Corrective actions included enhancing the work instructions for all applicable ATs based off original equipment manufacturer (OEM) input and scheduling the enhanced work instructions to be performed on the four swing bus ATs during their next scheduled bus outages. Inspectors determined that the finding was more than minor because it was associated with the Equipment Performance attribute of the Reactor Safety - Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). In both examples, the failure to correct conditions adverse to quality resulted in the loss of power to the LPCI swing bus and inoperability of the respective division of LPCI. In accordance with IMC 0609.04, "Initial Characterization of Findings," dated June 19, 2012, inspectors and Exhibit 2 of IMC 0609, Appendix A, "The SDP for Findings At-Power," dated June 19, 2012, inspectors determined that the finding was of very low safety significance (Green). Specifically, though a single train was inoperable for greater than its technical specification (TS) allowed outage time, in consultation with regional senior reactor analysts, inspectors determined it did not represent an actual loss of function. The finding is related to the cross-cutting area of Problem Identification and Resolution, Evaluation, because Susquehanna did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, Susquehanna either failed to evaluate deficiencies encountered during maintenance or failed to ensure that corrective actions aligned with and corrected the identified causes.

Inspection Report# : 2016004 (*pdf*)

Significance:  Oct 21, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Specify and Maintain Safety-Related Quality Standards and Materials Essential for Reactor Core Isolation Cooling

The team identified a Green non-cited violation of Title 10 of the Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion III, "Design Control," for the failure to classify and maintain reactor core isolation cooling (RCIC) system components as safety-related as specified by Updated Final Safety Analysis Report Table 3.2-1 and Section 7.1.1. Specifically, although Talen, the operator of Susquehanna Steam Electric Station, classified the RCIC system as safety-related, this classification did not extend to the Unit 1 and Unit 2 RCIC barometric condenser relief valves. The team determined failure of the non-safety related barometric condenser relief valves could result in a loss of RCIC lube oil cooling and failure of RCIC to perform its design basis safety function. Talen entered the issue into the corrective action program as condition report 2016-23615 and performed an immediate operability determination, which concluded RCIC remained operable. The finding was more than minor because it was associated with the Design Control 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. The team evaluated this finding using IMC 0609, Attachment 4, "Initial Characterization of Findings,"

and IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2 - Mitigating System Screening Questions. The team determined the finding screened as very low safety significance (Green), because the finding was a design deficiency which did not result in an actual loss of functionality of the RCIC system. This finding was not assigned a cross-cutting aspect because the performance deficiency occurred during original plant design and did not reflect current licensee performance.

Inspection Report# : 2016007 (*pdf*)

Barrier Integrity

Significance: G Mar 31, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Human Performance Error Results in Loss of Secondary Containment Safety Function

A self-revealing finding of very low safety significance (Green) and associated NCV of TS 5.4.1, "Procedures," was identified for failure to implement procedures that resulted in a secondary containment fan trip and associated loss of safety function. Susquehanna's immediate corrective actions included restoring the secondary containment system to an operable configuration, and entering the issue into their corrective action program (CAP). Inspectors determined that the finding was more than minor because it was associated with the Human Performance attribute (Routine OPS/Maintenance Performance) of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers (Secondary Containment) protect the public from radionuclide releases caused by accidents or events. The failure to adequately implement procedures for operation and maintenance of the secondary containment resulted in the inoperability of Zone 3 secondary containment and an associated loss of safety function. In accordance with IMC 0609.04, "Initial Characterization of Findings," dated October 7, 2016, and Exhibit 3 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012, the inspectors determined that this finding was of very low safety significance (Green) because the performance deficiency only impacted the radiological barrier function of secondary containment. This finding had a cross-cutting aspect in the area of Human Performance, Teamwork because individuals and work groups did not communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety was maintained.

Specifically, personnel did not conduct a re-brief of the team after the plan deviated from what was originally briefed, and the team did not adequately respond to challenges from workers in the field about whether it was appropriate to commence load center restoration with work still in progress.

Inspection Report# : 2017001 (*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 : November 29, 2017

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