Surry 2 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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Initiating Events

Mitigating Systems

Significance: G Jun 30, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Have Work Instructions Impacting MER 5 Flood Barrier
An NRC-identified, NCV of Surry Technical Specification (TS) 6.4.A.7 was identified because the mechanical equipment room (MER) 5 flood dike was not installed in accordance with the manufacturer's installation procedures after it was removed for maintenance. Specifically, work order (WO) 38103734871, procedure GMP-013, "Removal and Installation of Flood Protection Dikes and Secondary Flood Shields and Placing MER 3 in Extended Access," Revision 22, and drawing 11548-FC-6L, Flood Protection Dike Details MER 5 Turbine Building Unit 2, Revision 0, did not provide instructions, procedures, or drawing specifics that took into account the manufacturer instructions of using epoxy to ensure a water tight seal; and failed to use the materials as listed in drawing 11548-FC-6L during the reinstallation of MER 5 flood dike. The issue was documented in the licensee's corrective action program (CAP) as condition reports (CR) 1068357, 1068357, and 1068528.

The inspectors determined that not having and following work instructions and drawings appropriate to the reinstallation of MER 5 flood dike is a performance deficiency (PD). This PD is more than minor because it is associated with the protection against external factors attribute of the 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. Specifically, on May 2, 2017, the licensee failed to ensure WO 38103734871, procedure GMP-013, and drawing 11548-FC-6L had detailed manufacturer instructions to use epoxy to ensure a water tight seal and failed to use the materials as listed in drawing 11548-FC-6L. Using IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012, and IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined that the finding was of very low safety significance (Green) because the finding is a deficiency affecting the design or qualification of a mitigating structure,

system, or component (SSC), in this case the main control room (MCR) chillers in MER 5, in which the SSC in question maintained its operability. This finding has a cross-cutting aspect in the area of human performance associated with teamwork, in that, individuals and work groups failed to communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, while preparing for and performing MER 5 flood dike reinstallation using WO 38103734871, procedure GMP-013, and drawing 11548-FC-6L, the licensee utilized a new foam material, but the different departments in the organization (specifically Supply, Engineering, and Maintenance) failed to work together to evaluate the supplied manufacturer material and any specific requirements needed for installation (H.4). (Section 1R06)

Inspection Report# : 2017002 *(pdf)*

Significance: G Mar 31, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Maintain Requalification Examination Integrity (Section 1R11.1)
Green. An NRC-identified NCV of 10 CFR 55.49, "Integrity of examinations and tests," was identified for the licensee's failure to adhere to the requirements of TR-AA-730, Licensed Operator Biennial and Annual Operating Requalification Exam Process, Revision 9. TR-AA-730 was the procedure that the licensee used to implement industry standard ACAD 07-001, Guidelines for the Continuing Training of Licensed Personnel. ACAD 07-001 is a methodology which can be used to fulfill 10 CFR 55.59(c), "Requalification program requirements" and 10 CFR 55.4, "Systems approach to training (SAT)." This violation has been entered into the licensee's corrective action program (CAP) as condition report (CR) 1058649. The performance deficiency was determined to be more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern with the administration of the operating exams. The inspectors assessed the significance in accordance with Manual Chapter 0609, Significance Determination Process, Appendix I, Licensed Operator Requalification Significance Determination Process (SDP). The finding was determined to be of very low safety significance (Green) because there was no evidence that a licensed operator had actually gained an unfair advantage on an examination required by 10 CFR 55.59. The finding was directly related to the cross-cutting aspect of Complacency in the cross-cutting area of Human Performance because the training staff was aware of the TR-AA-730 requirements for annual operating exam scenario overlap, but justified an alternative method of exam security that was used in the past. [H.12] (Section 1R11.1)

Inspection Report# : 2017001 *(pdf)*

Significance: G Feb 17, 2017
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to verify or check the adequacy of a design change in the Recirculation Spray Service Water Valve Pits. (Section 4OA2.1)
Green: The inspectors identified a non-cited violation of Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to verify or check the adequacy of the design of bulkheads in the recirculation spray service water motor operated valve pits. Specifically, the design allowed for unsealed penetrations in bulkheads and the licensee failed to demonstrate that the unsealed penetrations would not adversely affect the ability of the bulkheads to provide adequate train separation during a postulated pipe rupture. The licensee entered the issue into the CAP as Condition Report (CR) 1060189 and sealed the penetrations.
This performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and it adversely affected the cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the

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capability to maintain train separation between the Recirculation Spray Service Water header motor operated valves was adversely affected due to the presence of degraded penetrations through the flood barriers. 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 current licensee performance. (Section 4OA2).
Inspection Report# : 2017008 *(pdf)*

Significance: G Oct 09, 2016
Identified By: Self-Revealing
Item Type: FIN Finding
Inadequate Design Change Post Maintenance Testing Causes Water Intrusion into Station Service Transformer and a Reactor Trip (Section 4OA3)
Green. A self-revealing finding was identified because the test requirements section of the station service transformer (SST) design change (DC) was not comprehensive in that it did not test that the isolated phase bus ducting terminal boxes were constructed to prevent water intrusion into the boxes. This was discovered during a significant rainfall event partially caused by Hurricane Matthew, which filled up the "A" SST terminal box with water and eventually shorted the "A" phase of the main generator causing a Unit 2 main generator, main turbine, and subsequent reactor trip on October 9, 2016. As corrective action, sealant was applied to the SST terminal boxes on all seams and bolt holes; and weep holes with drain assemblies were installed on each box. This issue was documented in the licensee's CAP as CR 1049987.

The inspectors reviewed Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Screening," dated September 7, 2012, and determined the PD was more than minor because it was associated with the design control attribute of the Initiating Events Cornerstone, and it 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. Using IMC 0609.04, "Initial Characterization of Findings," Table 2, dated October 7, 2016, the finding was determined to affect the Initiating Events Cornerstone. The inspectors screened the finding using Manual Chapter 0609, Appendix A, "SDP for Findings at-Power," dated June 19, 2012, and determined that it screened as Green because although the deficiency did cause a reactor trip, it did not cause a loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the Operating Experience aspect of the Problem Identification and Resolution area, P.5, because the licensee did not evaluate and implement relevant external operating experience. (Section 4OA3)

Inspection Report# : 2016004 *(pdf)*

Significance: G Sep 30, 2016
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Identify Non-Functioning Service Water Seismic Support Causes Service Water Pipe Crack
Green. A self-revealing, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI was identified because the licensee failed to promptly identify a condition adverse to quality associated with the material condition of the "B" Emergency Service Water (ESW) pump diesel cooling water outlet valve, 1-SW-3. Specifically, the "B" ESW pump diesel cooling water outlet piping flange downstream of 1-SW-3 was found cracked on April 7, 2016. While repairing the cracked pipe flange, the licensee discovered that the fasteners on one baseplate for the 1-SW-3 seismic supports were severed by corrosion. A material deficiency with the second 1-SW-3 seismic support was identified by the NRC in August, 2014. The current issue was documented in the licensee's corrective action program (CAP) as Condition Report (CR) 1033107.

The inspectors determined that failure to identify a condition adverse to quality associated with the material condition of the "B" ESW pump piping was a performance deficiency (PD). Specifically, not having compensatory actions or periodic inspections of the 1-SW-3 support baseplates in place when there was a known material condition that caused these baseplates to become periodically wetted by service water (SW), inhibited the licensee's ability to detect that the assumptions in the engineering evaluation, which proved that the two supports remained fully qualified for all design basis loading conditions, had become invalid. The inspectors determined that the PD was more than minor because it was associated with the equipment performance attribute of the 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. Using IMC 0609.04, Initial Characterization of Findings, Table 2, dated June 19, 2012, IMC 0609 Appendix A, "Significance Determination Process (SDP) for Findings at-Power," dated June 19, 2012, and Exhibit 4 of Appendix A, "External Events Screening Questions", the inspectors determined that a detailed risk evaluation was required because the finding assumed that the safety function of the "B" ESW pump was unavailable and represented a degradation to one train of a system that supports a risk significant system. A Senior Reactor Analyst performed a bounding risk evaluation by using the Surry Standardized Plant Analysis Risk (SPAR) model and failing the "B" ESW pump for a year. The additional risk of the "B" and "C" pumps out simultaneously for a limited exposure time, and the "A" and "B" pumps for a similar limited exposure time were added to the result.
The delta-Core Damage Frequency (CDF) due to the performance deficiency was determined to be 6.3E-8 (Green).
This finding has a cross-cutting aspect in the evaluation component of the problem identification and resolution area (P.2), because the organization did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the license did not institute periodic inspections of the 1-SW-3 supports when conditions were present that could challenge the assumptions of their design basis loading.
Inspection Report# : 2016003 *(pdf)*

Significance: G Sep 22, 2016
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Change of Surveillance Frequency Caused the Charging Service Water Header to Become Biologically Fouled (Section 1R12)
Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI was identified because the surveillance procedure frequency used to flush the service water (SW) piping in Machinery Equipment Room (MER)-3 and MER-4 was changed from two weeks to four weeks without sufficiently considering the effects of river conditions on biological growth and without getting management permission to change the periodicity. As a result of the periodicity change, the "B" charging (CH) and main control room (MCR) SW header became blocked with biological growth and was declared inoperable on September 22, 2016, during the performance of 0-OSP-VS-012, "High Flow Flush of SW Strainers and Piping in MER 3 and MER 4." As immediate corrective action, the licensee cleaned the clogged SW strainer and completed the backflushing of the SW header. The SW flushing periodicity was restored to a two week frequency to be seasonally and risk assessed and reduced as heavy fouling season ends. This issue was documented in the licensee's corrective action program (CAP) as CR 1048251.

The inspectors reviewed Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Screening," dated September 7, 2012, and determined the performance deficiency (PD) was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using IMC 0609.04, "Initial Characterization of Findings," Table 2, dated June 19, 2012, the finding was determined to affect the Mitigating Systems Cornerstone. The inspectors screened the finding using IMC 0609, Appendix A, "Significance Determination Process (SDP) for Findings at-Power," dated June 19, 2012, and

determined that it screened as Green because the deficiency did not affect the design or qualification of the charging pump service water pump system and it did not represent a loss of system safety function. This finding has a cross-cutting aspect in conservative bias aspect of the human performance area, H.14, because the licensee did not use decision making-practices that emphasize prudent choices over those that are simply allowed. (Section 1R12

Inspection Report# : 2016004 *(pdf)*

Barrier Integrity
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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