Surry 2
3Q/2016 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Insufficient Gasket Crush on Pressurizer Spray Valve Body to Bonner Joint
A self-revealing, Green non-cited violation (NCV) of Surry Technical Specification (TS) 6.4.A.7 was identified because 2-RC-PCV-2455A, the Unit 2 "A" pressurizer (PZR) spray valve, developed a body to bonnet mechanical joint leak as a result of the failure of the joint upper gasket to adequately seal the joint. The gasket inadequately sealed the body to bonnet joint due to a misalignment of the cage and the cage spacer assembly with the valve body. This misalignment caused the reactor coolant system (RCS) allowable unidentified leak rate to approach the TS limit on July 13, 2015, and subsequently required an unplanned Unit 2 shutdown. This issue was documented in the licensee's corrective action program (CAP) as condition report (CR) 1002302.

The inspectors concluded that the failure of the licensee to have the instructions necessary to successfully accomplish the purpose of 0-MCM-0414-13, "Copes-Vulcan 4 inch, 1500 pound Control Valve, Model D-1000 with Bellows Overhaul," Revision 3, as required by Dominion procedure SPAP-0504, "Technical Procedure Writers Guide," Revision 9, and to correctly measure and resolve the upper gasket crush on "A" PZR spray valve, was a performance deficiency (PD). Using IMC 0612, Appendix B, Issue Screening, dated September 7, 2012, the inspectors determined that the PD was more than minor because it was associated with the procedural quality attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset stability and challenge critical safety functions during shutdown as well as power operations. Using IMC 0609.04, "Initial Characterization of Findings," Table 2, dated June 19, 2012; 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 the deficiency did not cause a loss of mitigation equipment relied upon to transition the plant to a stable shutdown condition. This finding has a cross-cutting aspect in the consistent process aspect of the human performance area, H.13, because the licensee did not use a systematic approach to evaluate all available data in deciding to return the "A" PZR spray valve to service during the spring 2014 refueling outage (RFO). (Section 1R12)
Inspection Report# : 2015004 *(pdf)*

Significance: G Dec 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Inadequate Testing Procedue Causes and Emergency Bus to Deenergize
A self-revealing, Green NCV of Surry TS 6.4.A.7 was identified because the Unit 2 "H" emergency bus was lost during performance of 2-PT-2.33A, "Emergency Bus Undervoltage and Degraded Protection Test "H" Train," on September 16, 2015. An inadequate procedure allowed steps in the procedure to continue without verification that a tripped relay had not reset. Specifically, 2-PT-2.33A did not have instructions necessary to validate the state of the normally energized undervoltage (UV) relays once power was restored to the relay. This allowed an UV relay to remain in a deenergized state when the next relay was tested. As a consequence, the two of three coincidence was met for the Unit 2 "H" emergency bus to deenergize and automatically start and load the #2 emergency diesel generator

(EDG) onto the Unit 2 “H” bus. This issue was documented in the licensee’s CAP as CR 1009999.

The inspectors concluded that the failure of the licensee to have the instructions necessary to successfully accomplish the purpose of 2-PT-2.33A, as required by Dominion procedure SPAP-0504, was a PD. Using IMC 0612, Appendix B, “Issue Screening,” dated September 7, 2012, the inspectors determined that the performance deficiency was more than minor because it was associated with the procedural quality attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset stability and challenge critical safety functions during shutdown as well as power operations. Using IMC 0609.04, “Initial Characterization of Findings,” Table 2, dated June 19, 2012; the finding was determined to affect the Initiating Events Cornerstone. The inspectors screened the finding using IMC 0609, Appendix A, “SDP for Findings at-Power,” dated June 19, 2012, and determined that it screened as Green because the deficiency did not involve the complete or partial loss of a support system that contributes to the likelihood, or cause, an initiating event and affected mitigation equipment. This finding has a cross-cutting aspect in the documentation aspect of the human performance area, H.7, because the licensee did not create and maintain complete and accurate documentation to validate that an emergency bus UV relay had been restored to its normal energized state during testing. (Section 1R12)
Inspection Report# : 2015004 *(pdf)*

Significance: G Dec 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Inadequate Procedure Causes Main Turbine and Reactor Trip
A self-revealing Green NCV of Surry TS 6.4.A.7 was identified because Unit 2 tripped during performance of 2-OP-TM-001, “Turbine – Generator Startup to 20% - 25% Turbine Power,” on July 21, 2015. An inadequate procedure allowed the main turbine (MT) governor valves to open rapidly during MT overspeed protection controller (OPC) testing, increasing MT first stage pressure above the P-2 and P-7 reactor protection system (RPS) permissive step points, and subsequently causing a reactor trip. Specifically, 2-OP-TM-001 did not have the minimum level of information needed to ensure that there was no speed error between MT speed and the setter position before initiating the OPC test. This allowed the test to be conducted with a speed error that caused the governor valves to open rapidly at the end of the test and subsequently cause a reactor trip. This issue was documented in the licensee’s CAP as CR 1003328.

The inspectors concluded that the failure of the licensee to have the minimum level of information needed to ensure task critical actions in 2-OP-TM-001 and for operators to avoid error traps in conducting the MT OPC test, as required by Dominion procedure SPAP-0504, was a PD. Using IMC 0612, Appendix B, “Issue Screening,” dated September 7, 2012, the inspectors determined that the performance deficiency was more than minor because it was associated with the procedural quality attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset stability and challenge critical safety functions during shutdown as well as power operations. Using IMC 0609.04, “Initial Characterization of Findings,” Table 2, dated June 19, 2012; the finding was determined to affect the Initiating Events Cornerstone. The inspectors screened the finding using IMC 0609, Appendix A, “SDP for Findings at-Power,” dated June 19, 2012, and determined that it screened as Green because the deficiency did not involve the complete or partial loss of a support system that contributes to the likelihood, or cause, an initiating event and affected mitigation equipment. This finding has a cross-cutting aspect in the documentation aspect of the human performance area, H.7, because the licensee did not create a complete procedure for testing the MT overspeed protection. (Section 40A3)
Inspection Report# : 2015004 *(pdf)*

Mitigating Systems

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 Mar 31, 2016
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Perform a 10 CFR 50.59 Evaluation for Blocking Ventilation to Main Steam Valve Houses
An NRC-identified finding of very low safety significance and an associated Severity Level IV NCV of 10 CFR 50.59, "Changes, Tests, and Experiments," was identified when the licensee failed to perform and maintain a written evaluation to demonstrate that a procedure change did not require a license amendment. Specifically, the licensee implemented a change to procedure 0-OP-ZZ-021, "Severe Weather Preparation," Revision 12, to allow installation of tarpaulins over the main steam valve house (MSVH) ventilation louvers thereby changing the Updated Final Safety Analysis Report (UFSAR) facility design without maintaining supporting calculations.

The licensee's failure to perform a 10 CFR 50.59 evaluation was a performance deficiency (PD). The inspectors determined that the PD 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. Specifically, the change allowed the ventilation of the MSVH to be blocked and the lack of engineering calculations resulted in a condition where there was a reasonable doubt about the operability of the auxiliary feedwater (AFW) pumps for their required mission time. Using Manual Chapter 0609.04, "Initial Characterization of Findings," Table 2, dated June 19, 2012; the finding was determined to adversely affect the Mitigating Systems Cornerstone. The inspectors screened the finding using Inspection Manual Chapter (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 PD did not affect the design or qualification of the AFW system and it did not represent an actual loss of system safety function. Using IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014, the inspectors determined that the finding had a cross-cutting aspect in the procedure adherence component of the human performance area, H.8, because the licensee failed to follow processes, procedures and work instructions for the 50.59 applicability review when changing the severe weather preparation procedure.
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Additionally, the failure to perform a 10 CFR 50.59 evaluation was determined to be more-than-minor in accordance with the guidance in the NRC Enforcement Manual for traditional enforcement violations, because the MSVH louvers were actually covered and there was a reasonable likelihood that the lack of MSVH ventilation could affect the operability of the AFW pumps for their required mission time. The failure constitutes a violation of 10 CFR 50.59, which impacts the regulatory process and therefore, was evaluated through the traditional enforcement process. The SDP, which was used to evaluate this performance deficiency, does not specifically consider the impact on the regulatory process. Thus, although related to a common regulatory concern, it is necessary to address both the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated performance deficiency. (Section 1R01)
Inspection Report# : 2016001 *(pdf)*

Significance: G Dec 31, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Charging Pump Service Water Pump Failure Due to Inadequate Preventative Maintenance
A self-revealing Green NCV of Surry TS 6.4.D was identified because the preventative maintenance cleaning of the six inch service water (SW) piping upstream of the SW rotating strainers was deferred with insufficient technical justification. Specifically, the licensee did not follow procedure ER-AA-PRS-1010, "Preventative Maintenance Task Basis & Maintenance Strategy," and provide justification for a differing disposition when they deferred the cleaning of the six inch SW header three times. A lack of maintenance on this piping allowed excessive biofouling and subsequent blockage of the SW rotating strainer to occur. This was discovered when the Unit 1 and 2 "A" charging service water (CHSW) pumps experienced a zero flow rate during performance of 0-OPT-VS-001, "Control Room Air Conditioning System Pump and Valve Inservice Testing," Revision 43, on July 24, 2015. This issue was documented in the licensee's CAP as CR 1003878.

The inspectors concluded that the failure of the licensee to provide technical justification to defer the preventative maintenance of the six inch SW header was a PD. Using IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, 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 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, "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 work management aspect of the human performance area, H.5, because the licensee did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, ER-AA-102, "Operability Determination," Revision 15 was not followed to ensure the management of risk commensurate to the work and the need for coordination with different groups was obtained. (Section 4OA2)
Inspection Report# : 2015004 *(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

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