Surry 2
4Q/2015 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 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)*

Significance: G Sep 30, 2015
Identified By: NRC
Item Type: FIN Finding
Charging Pump Cubicle Floor Drain Backflow Preventer Failures during Unit 1 Safeguards Building Flooding
A self-revealing, Green finding was identified because the instructions section of the procedure used to test floor drain back flow preventers (BFPs) did not include the instructions necessary to successfully fulfill the purpose of the procedure. A lack of testing methodology instructions allowed BFPs to be installed in the Unit 1 and Unit 2 charging (CH) pump cubicle floor drains that would not prevent backflow into the cubicles during low flow conditions. This was discovered when the Unit 1 and 2 CH pump cubicles filled with approximately two inches of water during the Unit 1 Safeguards building basement flooding event on May 20, 2015. This issue was documented in the licensee's corrective action program (CAP) as condition reports (CRs) 580231 through 242.

The inspectors concluded that the failure of the licensee to have the instructions necessary to successfully fulfill the purpose of 0-MPM-1900-02, "Flood Protection Floor Drain Back Water Stop Valve Replacement" as required by Dominion procedure SPAP-0504, "Technical Procedure Writers Guide," and to correctly test the CH pump cubicle floor drain BFPs to prove functionality, was a performance deficiency (PD). Specifically, 0-MPM-1900-2 did not have instructions on the flow rate to fill the test stand and to observe that the BFP seats at a specified flow rate. 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 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. Specifically, the lack of complete testing instructions for BFPs allowed BFPs to be installed in the CH pump cubicle floor drains that would not seal during all flooding scenarios; and once cocked to the side during low flow, then had the potential to pass much higher flow rates into the CH pump cubicles. 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 Manual Chapter 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 involved the degradation of equipment specifically designed to mitigate a flooding initiating event, but did not involve the total loss of any safety function. This finding has a cross-cutting aspect in the documentation aspect of the human performance area, H.7, because the licensee did not have an adequate test procedure to ensure that the floor drain BFPs would seal during low flow backflow conditions. (Section 1R12)

Inspection Report# : 2015003 *(pdf)*

Significance: G Sep 30, 2015
Identified By: Self-Revealing
Item Type: NCV Non-Cited Violation
Failure to Follow Procedure during Maintenance Results in Service Water Header Inoperability
A self-revealing, Green NCV of Technical Specifications (TS) 6.4.D was identified for failure to follow procedure WM-AA-101, "Work Order Planning," Revision 1. Specifically, the licensee inappropriately revised a work order which resulted in the actuator and hand wheel assembly on 1-SW-495, the 1D Service Water (SW) header inlet isolation valve, being rotated incorrectly. The incorrect rotation resulted in the 1D SW header being inoperable from November 19, 2013, the time the 1D SW header was placed in service following 1-SW-495 replacement, until the issue was corrected on April 11, 2014. This issue was documented in the licensee's CAP as CR 544361.

The inspectors determined that the failure to follow procedure WM-AA-101, "Work Order Planning," Revision 1, was a performance deficiency that was within the licensee's ability to foresee and correct and should have been prevented. The inspectors determined that the finding was more than minor because it was associated with the human 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. Specifically, the rotation of the actuator and hand wheel assembly of 1-SW-495 resulted in the inoperability of the 1D SW header from November 19, 2013 until April 11, 2014. Using IMC 0609.04, Initial Characterization of Findings, Table 2, dated June 19, 2012, and IMC 0609 Appendix A, "SDP for Findings at-Power," dated June 19, 2012, the inspectors determined that a detailed risk evaluation was required because the finding represented an actual loss of system function for greater than the TS allowed outage time for both the main control room (MCR) air conditioning system and the charging SW system during the two periods where only one SW header was operable. The finding had a cross-cutting aspect in human performance, work management, H.5, because the organization did not appropriately control or implement the maintenance activity associated with 1-SW-495 and also did not identify the need for coordination with other groups when the scope of the planned work was changed. (Section 4OA3)

Inspection Report# : 2015003 *(pdf)*

Significance: G Sep 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Verify Adequacy of Class 1E 125VDC Branch Circuit Breaker Design
The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for

the licensee's failure to verify or check the adequacy of design of the Class 1E 125 volt direct current (VDC) molded case circuit breakers (MCCBs). The licensee entered the issue into their CAP as CRs 559872 and 59875 and performed an immediate determination of operability, which determined the Class 1E 125VDC switchgear to be operable.

The licensee's failure to assure the quality levels of MCCBs through the specification of requirements known to promote high quality, such as requirements for design, for the de-rating of components, for manufacturing, quality control, inspection, calibration, and test, as specified by IEEE 279, Section 4.3, was a performance deficiency. The performance deficiency was determined to be 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 failure to adequately assess the electrical rating of electrical components could prevent the Class 1E 125VDC circuits from performing their safety function. The team determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component, which maintained its operability or functionality. The team determined that no cross-cutting aspect was applicable because the finding was not indicative of current licensee performance. (Section 4OA5)

Inspection Report# : 2015003 *(pdf)*

Significance: G May 29, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Implement In-service Testing and Inservice Inspections for Charging Cross-tie Components.
The inspectors identified a Green NCV of 10 CFR 50.55(a) for the licensee's failure to implement in-service testing (IST) and in-service inspections (ISI) for charging cross-tie components. The licensee entered this issue into their corrective action program as CRs 581385 and 581386.

The licensee failed to scope the charging cross-tie manual isolation valves and piping into the ISI and IST programs. This was a performance deficiency that resulted in the subsequent failure to perform ISI and IST activities required by the ASME OM Code-2004 and 10 CFR 50.55a(f) and (g). The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone. Specifically, the site's failure to perform required inspections and testing for charging cross-tie components, since 1989, resulted in a lack of reasonable assurance that the charging cross-tie function could perform its required function. The finding was screened in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process," and determined to be of low safety significance (Green) because it did not affect the ability to reach and maintain a stable plant condition within the first 24 hours of a fire event. No cross cutting aspect was assigned because the performance deficiency did not occur within the last three years. (Section 1R05.05.02)
Inspection Report# : 2015008 *(pdf)*

Significance: G May 29, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Multiple Design Deficiencies in the Fire Protection Program

The inspectors identified a Green NCV of Surry's Operating License, Condition 3.I, Fire Protection, for design control deficiencies in the fire protection program. The licensee entered this issue into their corrective action program as condition report CRs 581390.

The licensee's failure to adequately implement the design control requirements in the fire protection program as required by Topical Report, DOM-QA-1, "Dominion Nuclear Facility Quality Assurance Program Description," Section 3.2, "Design Control Program" was a performance deficiency. The finding was more than minor because it was associated with the design control attribute and affected the Mitigating Systems cornerstone. Specifically, design control deficiencies resulted in a lack of assurance that the design control requirements were being adequately implemented within the fire protection program. The finding was screened in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process," and determined to be of low safety significance (Green) because it finding did not affect the ability to reach and maintain a stable plant condition within the first 24 hours of a fire event. No cross cutting aspect was assigned because the performance deficiency did not occur within the last three years. (Section 1R05.11.02)
Inspection Report# : 2015008 *(pdf)*

Significance: G Mar 31, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Identify Charging Service Water Pipe Leak
An NRC-identified, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because the licensee failed to promptly identify a condition adverse to quality associated with the material condition of the Unit 2 charging service water (CH/SW) piping. Specifically, the NRC resident inspectors identified a leak in the discharge piping of the Unit 2 "A" CH/SW pump on November 24, 2014. The licensee had previously identified a leak on the Unit 1 "B" CH/SW pump discharge piping on June 16, 2014. The issue was documented in the licensee's corrective action program (CAP) as condition report (CR) 563166.

The licensee's failure to identify a condition adverse to quality associated with the material condition of the Unit 2 "A" CH/SW piping was a performance deficiency (PD). 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. Specifically, not having compensatory actions in place for CH/SW "Green Thread" piping that has been prone to through-wall leaks, left the licensee susceptible to undetected leaks from the CH/SW piping systems. 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 Manual Chapter 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 CH/SW system and the leak rate did not represent an actual loss of system safety function. This finding has a cross-cutting aspect in the evaluation component of the problem identification and resolution, 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 compensatory actions for a long-term corrective action on CH/SW piping that has had a recent history of developing through-wall leaks. (Section 1R12)

Inspection Report# : 2015001 *(pdf)*

Barrier Integrity

Significance: G Jun 30, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to conduct a detailed visual examination of the concrete-liner interface for the Unit 1 containment
An NRC-identified NCV of 10 CFR 50.55a, "Codes and Standards," was identified for the licensee's failure to conduct a detailed visual examination of the concrete-liner interface for the Unit 1 containment, per the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) Section XI, Subsection IWE 1241, Table IWE-2500-1, Category E-C, Item E 4.11. This issue was documented in the licensee's CAP as CR 578448.

The licensee's failure to conduct a detailed visual examination of the concrete-liner interface of the Units 1 and 2 containment in accordance with the ASME BPVC Section XI, Subsection IWE 1241, Table IWE-2500-1, Category E-C, Item E 4.11, was a PD that was within the licensee's ability to foresee and correct. Using Manual Chapter 0612, Appendix B, Issue Screening, dated September 7, 2012, the inspectors determined that the PD was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, detailed visual inspections of the containment metallic liner provides assurance that the liner remains capable of performing its intended safety function, and in the absence of such inspections, corrosive conditions could progress to challenge that capability. Using Manual Chapter 0609.04, "Initial Characterization of Findings," dated June 19, 2012, the finding was determined to affect the Barrier Integrity 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 the finding was of very low safety-significance (Green) because the finding did not represent an actual open pathway in the physical integrity of the reactor containment. The team determined that no cross cutting aspect was applicable to this performance deficiency because this finding was not indicative of current licensee performance. (Section 1R08)

Inspection Report# : 2015002 *(pdf)*

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

Significance: N/A May 29, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Perform Required 50.59 Evaluations and Failure to Update the UFSAR for Plant Changes Associated with RCP Seal Cooling During Fire Events
Green: The inspectors identified a Green NCV of 10 CFR 50.59 and 10 CFR 50.71(e) for the licensee's failure to perform 50.59 evaluations; and failure to update the UFSAR for plant changes associated with reactor coolant pump (RCP) seal cooling during fire events. The licensee entered this issue into their corrective action program as condition report CRs 5813388.

The licensee's revision of fire safe shut down procedures; and the installation of a different reactor coolant pump seal package without completing the required 50.59 evaluations was a performance deficiency. Additionally, the licensee's failure to update the UFSAR as required by 10 CFR 50.71(e) was a performance deficiency. The UFSAR did not adequately describe the charging cross-tie function; and did not adequately describe the fire protection program's procedural isolation of the RCP seals for the entire duration of an Appendix R event. In accordance with the Reactor Oversight Process, the performance deficiencies were more than minor because they were associated with the design control attribute of the Mitigating Systems Cornerstone. The performance deficiencies were also assessed using traditional enforcement because the NRC's ability to perform its regulatory function such as, license amendment reviews and inspections was affected. The finding was screened in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process," and determined to be of low safety significance (Green) because it did not affect the ability to reach and maintain a stable plant condition within the first 24 hours of a fire event. No cross cutting aspect was assigned because these performance deficiencies did not occur within the last three years. (Section 1R05.11.01)
Inspection Report# : 2015008 *(pdf)*

Last modified : March 01, 2016