

Millstone 3

3Q/2014 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Jul 21, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Provide Adequate Maintenance Instructions for the Turbine Driven Auxiliary Feedwater Pump Governor Control Valve Linkage

The inspectors identified a self-revealing Green NCV of TS 6.8.1, “Procedures and Programs,” when Dominion did not maintain an adequate maintenance procedure to ensure reliable performance of the TDAFW system. Specifically, TDAFW properly started following the August 9, 2013, reactor trip, but was subsequently shut down after observed flow and pressure oscillations. Dominion staff discovered the control valve linkage misaligned due to a loose cam follower bearing retaining nut. As part of the repair, Dominion implemented a revision to the C MP 711 procedure to require application of thread-locker to the cam follower bearing retaining nut during reassembly. Additionally, Dominion entered this issue in their CAP as CR 522896.

The finding was more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the maintenance procedure did not provide sufficient written instructions to ensure adequate torque of the retaining nut and thereby reliable performance of the TDAFW system three months after reassembly. The finding was evaluated using IMC 0609, Attachment 4 and Appendix A, Exhibit 2.A, and determined to be of very low safety significance (Green) since it was not associated with a design or qualification deficiency, not a loss of system/function, and not an actual loss of its TS function. This finding had a cross-cutting aspect in the area of Human Performance, Documentation, in that licensee organizations are expected to create and maintain complete, accurate, and up-to-date documentation. Specifically, Dominion did not maintain a comprehensive, high-quality maintenance procedure that was thorough to assure assembly of critical TDAFW components. [H.7]

Inspection Report# : [2014008](#) (*pdf*)

Significance: **TBD** Jul 21, 2014

Identified By: Self-Revealing

Item Type: AV Apparent Violation

Failure to Identify and Promptly Correct a Condition Adverse to Quality

The inspection team identified a self-revealing apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion XVI, “Corrective Action,” involving Dominion’s failure to promptly identify and

correct a condition adverse to quality. Specifically, the Unit 3 turbine-driven auxiliary feedwater (TDAFW) pump was operated from May 2013 through February 2014 in an adverse configuration due to the installation of an incorrect cam follower bearing. As a result of this adverse configuration, the pump experienced three overspeed trips during the subject timeframe. As a consequence, Dominion violated Technical Specification (TS) 3.7.1.2, since TDAFW was determined to be either failed or unreliable for greater than the TS allowed outage time. Dominion installed the correct cam follower, entered this issue in their corrective action program (CAP) as condition report (CR) 538743 and CR 531536, and completed a root cause evaluation (RCE) (RCE 001111).

The issue was determined to be more than minor since it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, operation of the TDAFW pump with the incorrect spherical bearing reduced the reliability of a risksignificant, safety-related mitigating system. The issue was evaluated in accordance with IMC 0609, Appendix A, Exhibit 2, and was determined to require a detailed risk evaluation based on the finding representing an actual loss of function of a single train for greater than its TS allowed outage time. The detailed risk evaluation concluded that the increase in core damage frequency of this issue is in the mid to high E-6 range, or White (low to moderate safety significance). The dominant core damage sequences involved fire scenarios resulting in control room abandonment that rely upon the TDAFW pump as the primary source of make-up to the steam generators and decay heat removal. This finding had a cross-cutting aspect in Human Performance, Consistent Process, where individuals use a consistent, systematic approach to make decisions and risk insights are incorporated as appropriate. Specifically, Dominion did not implement consistent, systematic approaches to resolve the condition as evidenced by their inadequate and inconsistent use of CAP and troubleshooting. [H.13]

Inspection Report# : [2014008](#) (pdf)

Significance:  Feb 23, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000423/2014002-01, Failure to Evaluate Test Results Outside of Acceptance Criteria for 'A' Service Water Pump

•Green. The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion XI, "Test Control," because Dominion did not properly evaluate test results outside of the acceptance criteria for the Unit 3 'A' service water (SW) pump. Specifically, on February 23, when the 'A' SW pump did not meet its acceptance criteria for running amps, Dominion did not fully evaluate pump operability under all conditions. Dominion's immediate corrective actions included entering the issue into their corrective action program (CAP) and placing the pump in pull to lock status until the issue could be resolved.

The inspectors determined that Dominion's failure to properly evaluate test results outside of the acceptance criteria for the 'A' SW pump in accordance with the requirements of 10 CFR 50, Appendix B, Criterion XI, to assure that test requirements have been satisfied was a performance deficiency that was within Dominion's ability to foresee and correct, and should have been prevented. This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, without proper evaluation of the test results, Dominion kept a component in service that was later determined to be non-functional. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency was not a design or qualification deficiency, did not involve an actual loss of safety function, did not represent actual loss of a safety function of a single train for greater than its technical specification (TS) allowed outage time, and did not screen as potentially risk-significant due to a seismic, flooding, or severe weather initiating event, and did not represent an actual loss of function of a non-TS train of equipment designated as high

safety significant. This finding has a cross-cutting aspect in the area of Human Performance, Design Margins, in that Dominion did not operate and maintain the pump within design margins, where margins are carefully guarded and changed only through a systematic and rigorous process. [H.6] (Section 1R15)

Inspection Report# : [2014002](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: FIN Finding

FIN 05000423/2013005-01), Inadequate Operability Determination for the TDAFW Pump following an Overspeed Trip

Green. The inspectors identified a Green Finding (FIN) for the failure to follow Dominion Procedure OP-AA-102, “Operability Determinations,” and establish adequate compensatory measures to restore reliability to the Unit 3 Turbine Driven Auxiliary Feedwater (TDAFW) Pump following overspeed trips on November 4 and December 18, 2013. The inspectors determined that the performance deficiency was within Dominion’s ability to foresee and correct. Dominion entered this issue into their corrective action program (CAP) (CR531536, CR532536 and CR535411), established additional compensatory measures to address degraded pump reliability, and scheduled additional maintenance activities to more thoroughly investigate the cause of the overspeed trips.

The inspectors determined the performance deficiency was more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Failure to adequately establish effective compensatory measures resulted in a decrease in the reliability of the auxiliary feedwater (AFW) system to mitigate events. The inspectors determined that, after further compensatory measures were established, the TDAFW pump maintained its operability, the AFW system maintained all safety functions, and the finding was of very low safety significance (Green). This finding has a cross-cutting aspect in the area of human performance, in that Dominion did not use conservative assumptions in decision making and did not adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action (H.1.b). (Section 1R15)

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Oct 04, 2013

Identified By: NRC

Item Type: FIN Finding

FIN 05000423/2013004-02, Inadequate Operability Determination for the Turbine Drive Auxiliary Feedwater (TDAFW) Pump

Green. The inspectors identified a finding (FIN) for Dominion’s failure to complete an adequate and timely operability determination as required by OP-AA-102, “Operability Determination,” to assess governor control oscillations following completion of maintenance on the turbine driven auxiliary feedwater (TDAFW) pump 3FWA*P2 on May 17, 2013. The inspectors determined that the failure to adequately evaluate pump operability was a performance deficiency that was within Dominion’s ability to foresee and correct. Dominion entered this issue into their corrective action program (CAP) as CR528526 and repaired the TDAFW pump governor on August 12, 2013, prior to return to power following the reactor shutdown on August 9, 2013.

The inspectors determined the performance deficiency was more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Failure to adequately assess operability resulted in a decrease in the reliability of the auxiliary feedwater (AFW) system to mitigate events. In addition, the performance deficiency is similar to examples 1.a and 2.a of IMC 0612, Appendix E, “Examples of Minor Issues.”

The inspectors determined that the finding was of very low safety significance (Green) because the performance deficiency did not represent a loss of system safety function or a loss of safety function of a single train for greater than its Technical Specification allowed outage time. This finding has a cross-cutting aspect in the area of Human Performance, in that Dominion uses conservative assumptions in decision making and adopts a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action (H.1(b)). (Section 1R15)

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

Barrier Integrity

Significance:  Oct 04, 2013

Identified By: NRC

Item Type: VIO Violation

(VIO 05000423/2013004-01, Inadequate Corrective Actions to Restore Degraded Unit 3 Main Feedwater Isolation Valves

Green. The inspectors identified a cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” for Dominion’s continued failure to take timely and effective corrective actions for conditions adverse to quality involving the degradation of the closing capability of four Unit 3 main feedwater isolation valves. Dominion had deferred correcting this condition over a period of six years (three refueling outages) which the inspectors noted in NCV 05000423/2012010-01, a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action.” Dominion has since deferred repairs from the April 2013 refueling outage until the October 2014 outage. The violation is cited because Dominion has failed to restore compliance or demonstrate objective evidence of plans to restore compliance at the first opportunity in a reasonable period of time following initial identification in 2007 and documentation in 2012 NRC inspection reports. Dominion entered the issue into their CAP as CR507299 and plans to modify the valves in the 2014 refueling outage.

The inspectors determined this issue was more than minor because it is similar to the more than minor examples, 4.f and 4.g of IMC 0612, Appendix E, “Examples of Minor Issues.” Specifically, Dominion did not correct a condition adverse to quality in a timely manner and resulted in a situation that impacted the operability of the feedwater isolation valves. Additionally, the finding is more than minor because it is associated with the design control attribute of the Barrier Integrity cornerstone, and adversely affected the cornerstone’s objective of providing reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. The inspectors determined that the finding was of very low safety significance (Green) because the issue did not represent an actual open pathway in the physical integrity of the reactor containment. In the event of a ruptured feedwater line, the train ‘A’ main feedwater regulating valves and bypass valves would remain capable of closing to isolate feedwater flow.

This finding had a cross-cutting aspect in the Human Performance area, Resources component, because Dominion did not maintain long term plant safety by minimizing long-standing equipment issues and ensuring maintenance and engineering backlogs which are low enough to support safety. Specifically, Dominion deferred the feedwater isolation valve replacement project from 3RFO15 to 3RFO16 because the design change could not be issued to support online work on the project required prior to the outage. Additionally, there were a number of outstanding technical issues for the design change that were not resolved in time despite the condition existing since 2007 (H.2(a)). (Section 1R15)

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

Emergency Preparedness

Significance:  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

.NCV 05000336/2014003-03 and 05000423/2014003-03, Failure to Adequately Maintain EALs

Green. The inspectors identified a Green NCV associated with emergency preparedness planning standard 10 CFR 50.47(b)(4) and the requirements of Sections IV.B and IV.C of Appendix E to 10 CFR Part 50. Specifically, Dominion did not maintain the Millstone Units 2 and 3 emergency action level (EAL) schemes for assessing a loss of forced flow cooling during refueling operations. Dominion entered this issue into the corrective action program and implemented temporary corrective actions which included procedure changes to direct operators to the shutdown safety assessment checklists to determine representative RCS temperature increases in order to assess the initiating conditions for this situation.

The inspectors determined that the failure by Dominion to provide site specific criteria for operators to adequately implement the EALs for a loss of forced flow cooling during refueling was a performance deficiency that was reasonably within their ability to foresee and prevent. The finding is more than minor because it is associated with the Procedure Quality attribute of the Emergency Planning Cornerstone and affected the cornerstone objective to ensure that Dominion is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. In accordance with the IMC 0609, Appendix B, "Emergency Preparedness Significance Determination," the inspectors determined that this finding is of very low safety significance because the performance deficiency was an issue where two EAL initiating conditions (ICs) had been rendered ineffective such that an Unusual Event and an Alert would not be declared, or declared in a degraded manner for a loss of forced flow cooling during refueling. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Identification, in that Dominion did not implement a CAP with a low threshold for identifying issues. Dominion's self-assessment for two previous NCVs regarding EAL deficiencies failed to identify the lack of specific criteria to assess the ICs for EALs UE1.2 and EA2.1 for a loss of forced cooling flow during refueling [P.1]. (Section 40A5)

Inspection Report# : [2014003](#) (*pdf*)

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 : November 26, 2014