Millstone 2
2Q/2008 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Maintenance Instructions Causes Reactor Coolant System Unidentified Leakage in Excess of Technical Specification Limits
The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings” for Dominion’s failure to provide adequate maintenance instructions in the authorized work order (AWO) for replacing the gaskets on the Unit 2 B LPSI pump suction line. Specifically, the AWO did not have torquing requirements for the flanged connection. As a result, the flanged joint was overtorqued, causing the flexitallic gasket to fail. Spiral winding debris from the gasket became lodged in 2-SI-432, the B LPSI pump suction isolation valve, preventing the valve from closing and causing an unidentified reactor coolant system (RCS) leak in excess of technical specification (TS) limits. Dominion took immediate action to locate and remove the spiral winding material from plant systems, took prompt action to repair valve 2-SI-432, and entered this issue into their corrective action system.

This finding was more than minor because it is associated with the human performance attribute of the initiating event cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding has a cross cutting aspect in the area of Human Performance, Resources, because Dominion did not ensure complete, accurate, and up-to-date work packages for the replacement of the gaskets in the B LPSI pump suction line. [H.2(c)]. (Section 4OA3)

Inspection Report# : 2008003 *(pdf)*

Mitigating Systems

Significance: G Mar 31, 2008
Identified By: NRC
Item Type: FIN Finding
Failure to Evaluate a Unit 2 Charging System Non conforming Condition against the Current Licensing Bases
The inspectors identified a finding for Dominion’s failure to evaluate a non-conforming plant condition against the current licensing basis (CLB) as required by Dominion procedure OP-AA-102-1101, Revision 0, “Development of Technical Basis to Support Operability Determinations.” Specifically, Dominion, in multiple instances, failed to evaluate the impact that a potential common mode charging system failure would have on the Updated Final Safety Analysis Report Chapter 14.6.1, “Inadvertent Opening of Power Operated Relief Valves (PORVs),” event, the analysis of record for which credited both charging and safety injection availability. Corrective actions for this issue included the initiation of an operations standing order and crew briefings to ensure all crews understood the CLB related to Unit 2 charging and the need to implement the compensatory action for this chapter 14.6.1 event, and a subsequent operability determination (OD) revision to ensure charging was properly evaluated and documented within the OD.
This finding is more than minor because, if left uncorrected, the issue would become a more significant safety concern. Specifically, degraded and non-conforming plant conditions must be evaluated against their credited functions in the CLB to ensure the adverse condition is properly evaluated for operability. This finding was determined to be of very low safety significance (Green) because it did not result in a loss of charging system operability or functionality. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program component, because Dominion did not thoroughly evaluate a Unit 2 charging system non-conforming condition against the CLB [P.1(c)].

Inspection Report# : 2008002 *(pdf)*

Significance: G Mar 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify Unacceptable Unit 2 Charging Pump Surveillance Test Data
The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XI, "Test Control," for Dominion's failure to adequately evaluate surveillance test results to ensure test acceptance criteria had been met on June 20, 2007. Specifically, the inspectors identified that the "A" charging pump pulsation dampener surveillance test had incorrect data (i.e., testing duration time) and had been accepted as satisfactorily complete, although the test data was outside the surveillance acceptance criteria. The test, in part, demonstrated that nitrogen gas from a failed charging pump discharge dampener would not migrate into the common suction line prior to the credited operator action to shut the pump's suction valve. A subsequent review determined the surveillance test data was incorrect and the "A" charging pump was operable. Dominion's corrective actions for this issue included briefings to provide additional coaching and heighten awareness to the Unit 2 operations shift crews, a review of actual surveillance computer data and review of subsequent surveillances to ensure system operability, and the creation of a trend condition report including other related human performance errors (CR-08-03220).
This finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the failure to identify out of specification data could result in the failure to identify inoperable equipment. The inspectors also concluded that if the failure to properly evaluate charging pump discharge dampener test data was not corrected, a more significant concern could exist (i.e. common mode failure of charging). The finding was determined to be of very low significance (Green), because it was a deficiency confirmed not to result in loss of safety function. The performance deficiency had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program component, because Dominion did not identify out of specification test data [P.1(a)].
Inspection Report# : 2008002 *(pdf)*

Significance: G Mar 31, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Identify a Service Water Bypass Flow Path following a Failed IST
The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to identify a condition adverse to quality after the "B" service water (SW) pump failed a Technical Specification in-service test (IST). Specifically, on March 9, 2008, Dominion declared the "B" Service Water (SW) pump operable, despite a failed IST flow surveillance. Dominion based this declaration on the incorrect assumption that the failed pump differential pressure (dp) was indicative of faulty test equipment vice an actual equipment issue. On March 10, 2008, Dominion determined that the unacceptable "B" SW dp was caused by back pressure from the running "C" SW pump through the shut "B" swing pump cross connect valve (2-SW-79B). The inspectors identified that Dominion did not have a reasonable basis to consider the IST invalid based on the information available at the time. Corrective actions for this issue included implementing an alternate plant configuration to ensure train separation, performing an assessment to evaluate past operability and to establish a bounding service water temperature at which the "B" service water pump would be considered inoperable, and incorporating the 2-SW-97B leakage repair in the 2R18 refueling outage.
This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating System cornerstone, and affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, Dominion concluded that the "B" SW pump IST containing unacceptable dp data was invalid based, in part, on an inability to justify the results (i.e. high dp and nominal flow). Consequently, the "B" SW pump was inappropriately declared operable and the actual degraded condition was not promptly identified and corrected. This finding is of very low safety significance (Green) because it did not result in a confirmed loss of service water train operability. This finding has a cross cutting aspect in the area Human Performance, Decision Making Component, because Dominion did not use conservative assumptions in restoring "B" SW pump operability following a failed IST surveillance [H.1(b)].
Inspection Report# : 2008002 *(pdf)*

Significance: G Feb 29, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to take adequate corrective actions for a condition affecting control room operability and temperature limits post-trip
The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to take adequate corrective actions for a condition adverse to quality involving the potential for Unit 2 control room temperature heat-up challenging equipment operability and personnel habitability thresholds following a reactor trip. Specifically, in 2007, Dominion's associated operability review, issue prioritization, and subsequent evaluation did not adequately consider post-trip time critical operator tasks, operator training, and control room heat up rate calculations. As a result, Dominion incorrectly concluded that no further action was needed to ensure that control room temperature limits were not exceeded. Dominion's short-term corrective actions included review of a control room heat-up calculation, providing interim direction to the operating crews concerning control room air conditioning (A/C) restoration, and updating applicable emergency operating procedures to ensure adequate control room cooling was maintained.
The finding is more than minor because it was associated with the procedural quality attribute for the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems (and personnel) that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, Dominion did not ensure that control room temperature limits would not be exceeded for non-accident post-trip events involving a loss of control room A/C which could directly impact the reliability of safety-related equipment operated from the control room. This finding is of very low significance because it did not result in the loss of operability or functionality.
This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not properly evaluate a condition adverse to quality including properly classifying, prioritizing, and evaluating for operability (P.1.c)
Inspection Report# : 2008006 *(pdf)*

Significance: G Feb 29, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to take adequate corrective actions for a Unit 2 charging system common mode failure vulnerability
The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to take adequate corrective actions for a condition adverse to quality involving a longstanding degraded condition impacting the Unit 2 charging pumps. Specifically, since January 2006, Dominion did not take timely and appropriate corrective actions commensurate with the potential safety significance as the condition presented a potential common cause failure of the charging pumps. Dominion's short-term corrective actions included corrective maintenance on degraded charging pump internal check valves, a reasonable assurance of continued operability evaluation, and development of a charging pump troubleshooting plan.
The finding is more than minor because it affected 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 (i.e., core damage). Specifically, the degraded condition resulted in unplanned unavailability of the safety-related charging pumps and represented a challenge to the reliability of the charging system due to the common mode failure vulnerability. The finding was determined to be of very low safety significance (Green) because it was a design deficiency confirmed not to result in loss of system safety function.
This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not take appropriate corrective actions to address a safety issue and adverse trend in a timely manner, commensurate with the safety significance and complexity of the issue (P.1.d)
Inspection Report# : 2008006 *(pdf)*

Significance: G Nov 14, 2007
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Ensure ESF Building Protection from Missiles Generated by a Design Based Tornado
Green. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to identify that the engineered safety featured (ESF) building was not

adequately protected against the effects of postulated missiles generated by a design basis tornado. Specifically, the inspectors identified that Dominion had missed multiple opportunities from May 2007 through November 2007 to identify significant challenges in shutting the normally open ESF building tornado doors. When shut, these doors ensure that the associated portion of the ESF building is protected from a spectrum of postulated missiles generated by a design basis tornado. Corrective actions for this issue included performing an operability assessment to address immediate operability/functionality concerns and an engineering evaluation to address the door's material condition. In addition, Dominion plans to develop long term corrective action and implement that action prior to entering a season of increased tornado risk.

This finding was more than minor because it was associated with the protection against external factors (i.e. tornado) attribute of the Mitigating System Cornerstone, and affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, Dominion did not ensure safety related systems and components were adequately protected against postulated missiles generated by a design basis tornado. The inspectors, in consultation with the Region I Senior Reactor Analyst, determined that this finding was of very low risk significance (Green), because, given the low initiating event probability and segregation of the safety-related equipment within cubicles in the ESF building, the probability of two or more trains of a single safety function being adversely impacted by this condition is extremely low. This finding has a cross cutting aspect in the area of Problem Identification and Resolution (PI&R), Corrective Action Program, because Dominion did not identify that significant time delays would have interfered with the station's ability to protect safety-related equipment in the ESF buildings from a design basis tornado in a timely manner [P.1(a)].

Inspection Report# : 2007005 *(pdf)*

Barrier Integrity

Significance:  Feb 29, 2008
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to take adequate corrective actions for a condition adverse to quality involving a non-conservative IST procedure
The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure, in January 2005, to take adequate corrective actions for a condition adverse to quality involving a non conservative in-service test (IST) procedure for two safety injection (SI) valves (2 SI 659/660). Specifically, Dominion did not update a supporting calculation and make the appropriate changes to the associated IST acceptance criteria for these SI valves. These valves have a design basis function to close on a safety recirculation actuation signal to prevent radioactive release to the environment through the normally vented refueling water storage tank (RWST). In February 2008, Engineering performed a prompt operability determination and determined that the valves remained operable (based on the most recent IST results, calculation review, valve design margin, trend data, and engineering judgment).
The finding is more than minor because it affected the reactor coolant system equipment and barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. Specifically, Dominion's non-conservative leakage test did not provide reasonable assurance that the SI valves would provide adequate isolation to preclude a post-accident release through the vented RWST. In addition, the finding is similar to NRC IMC 0612, Appendix E, Example 3.j, because a calculation error resulted in a condition where there was a reasonable doubt on the operability of the associated SI valves. This finding is of very low significance because it did not represent an actual open pathway in the physical integrity of reactor containment.
Inspection Report# : 2008006 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Last modified : August 29, 2008