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Millstone 3 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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Initiating Events

Significance: G Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Scope Safety Related Acoustic Valve Monitoring System into the Maintenance Rule

The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.65(b)(1), for Dominion's failure to include the safety-related Unit 2 Pressurizer Safety Valve, Acoustic Valve Monitoring System (AVMS) SSC within the scope of the maintenance rule program. Specifically, Dominion removed the Millstone Unit 2 AVMS, which is required to remain functional during and following a design bases event to provide indication to operators in the control room of significant abnormal degradation of the reactor coolant pressure boundary and monitor for loss of coolant due to an open safety relief valve, from the scope of the maintenance rule monitoring program. Dominion has documented this condition in their CAP as CR1049493.

The inspectors determined that the finding was more than minor because it was associated with the equipment performance attribute of the Initiating Events cornerstone and adversely affected the objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, Dominion's removal of AVMS from maintenance rule performance and condition monitoring and the failures observed have resulted in the complete loss of availability and reliability of each channel of AVMS such that they cannot perform their intended function. The finding was determined to be of very low safety significance (Green) because the conditions associated with the most applicable design basis event are bound by the small break loss of coolant accident (LOCA) analysis and did not affect other systems used to mitigate a LOCA. This finding has a cross-cutting aspect in the Human Performance cross-cutting area associated with Procedure Adherence, in that Millstone Maintenance Rule Expert Panel (MREP) members did not follow the Dominion maintenance rule program implementing procedure, ER-AA-MRL-100, which provides guidance for scoping systems into the maintenance rule.

Inspection Report# : 2016003 (*pdf*)

Significance: G Aug 01, 2014

Identified By: NRC

Item Type: FIN Finding

Inadequate Implementation of Dominion's Design Change Process

The NRC identified a finding of very low safety significance (Green), in that Dominion did not ensure correct implementation of their design change process procedure when establishing licensing basis requirements for removal of the SPS. Specifically, Dominion did not correctly evaluate the impact of removing the system on the requirements of General Design Criterion (GDC) 17 and did not address the failure mechanism of this new design in the design change documents, as required by their design change procedure. Dominion entered this issue into the corrective action program for resolution (CR 553967 and CR 551068).

The team determined that Dominion's failure to implement their design change process procedure was a performance deficiency. This performance deficiency was more than minor because it was associated with the design control attribute of the Initiating Events Cornerstone and affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown and power operations. The team performed a risk screening in accordance with IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power," using Exhibit 1, "Initiating Events Screening Questions," Section C, "Support System Initiators." The answer to the question in Section C would be NO, because the finding did not increase the likelihood of a loss of two transmission lines with one line out of service (OOS), and affect mitigation equipment. The team determined that this finding had a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because the design change process procedure was not adequately followed, in that the impact of the change on the current design basis and licensing bases was not evaluated correctly [H.8]

Inspection Report# : 2014011 (*pdf*)

Mitigating Systems

Significance: G Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Change of 'C' Charging Pump Testing Requirements Contrary to ASME OM

The inspectors identified a Green NCV of 10 CFR 50.55a(f) because Dominion did not perform all required inservice testing (IST) of the Unit 3 'C' charging pump, 3CHS*P3C, in accordance with the American Society of Mechanical Engineers (ASME) Operation and Maintenance (OM) Code. Specifically, from April 15, 2016, to the end of the inspection period, Dominion stopped the required Group A quarterly surveillances which could result in a condition where degradation of the charging pump would remain undetected by IST testing. Dominion entered this issue into their CAP as CR 1064337.

This finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, as it adversely affected the Equipment Performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Eliminating quarterly IST surveillance tests could challenge the reliability of the 'C' charging pump and allow degradation of the equipment remaining undetected. In accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," Section A, "Mitigating Systems, Structures or Components and Functionality," the finding screened to be of very low safety significance (Green), when the deficiency affecting the design or qualification whereupon the component maintains operability or functionality question was answered "yes." The 'C' charging pump has not yet experienced any failures. This finding has a cross-cutting aspect in Human Performance, Change Management, in accordance with IMC 0310, "Aspects within the Cross-Cutting Areas," where leaders use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, Dominion evaluated this change to the IST program without requesting

relief from the ASME Code requirements.

Inspection Report# : 2017001 (*pdf*)

Significance:  Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Routine Failure to Perform Engineering Evaluation of Long Term Scaffolding

The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to adequately implement procedure MA-AA-105, "Scaffolding," Revision 17. Specifically, Dominion routinely failed to perform engineering evaluations of long term scaffolding installed in the plant for greater than 90 days. Dominion has documented this condition within their corrective action program (CAP) as condition report CR1049493.

The inspectors determined that this finding was more than minor as it represents the routine failure to perform 10 CFR 50.59 engineering evaluations consistent with the requirements of procedures MA-AA-105 and CM-AA-400 which if left uncorrected, would have the potential to lead to a more significant safety concern as informed by IMC 0612, Appendix E, "Examples of Minor Issues," example 4.a. The finding screened to be of very low safety significance (Green), when all screening questions were answered "No" as the conditions identified did not challenge safety system functions. This finding has a cross-cutting aspect in the Problem Identification and Resolution, cross-cutting area associated with Resolution, in that under CR1049057, Dominion did not take effective corrective action to resolve and correct the identified gaps in the tracking and assessment of scaffolding installed for greater than 90 days as directed by MA-AA-105 and CM-AA-400, resulting in three further failures to evaluate long term scaffolding identified by the inspectors in the Unit 2 'A' Safeguards Room.

Inspection Report# : 2016004 (*pdf*)

Significance:  Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Untimely Corrective Action for Vital Inverters

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to take timely corrective actions to replace degraded diodes in Unit 3 vital inverters INV-1 and INV-2 upon receipt of information that called their reliability into question. Specifically, following two inverter failures, Dominion had not taken any corrective actions to replace degraded diodes in the Unit 3 vital inverters from the receipt of the Exelon Power Labs report on September 20 until the susceptible diodes were inspected and replaced on November 17 and 22. Dominion entered this issue into their CAP as CR1041301.

The inspectors found that Dominion's failure to take timely corrective action to replace degraded vital inverter diodes was a performance deficiency within Dominion's ability to foresee and correct. This performance deficiency was considered to be more than minor because it would affect the Mitigating Systems cornerstone equipment performance attribute objective to ensure the availability and reliability of vital 120V power. Specifically, manufacturing defects in the diodes caused these subcomponents to fail when they were expected to last the life of the inverter. The finding was evaluated in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," and determined to be of very low safety significance (Green) because although the failure challenged the reliability of the inverters, it did not result in a loss of operability or functionality. This finding has a cross-cutting aspect in the Human Performance cross-cutting area associated with Work Management, in that Dominion focused on managing the risk associated with voluntarily entering a 24 hour technical specifications (TS) limiting condition for operation (LCO) to replace the degraded diodes instead of the potential risk of another inverter failure.

Inspection Report# : 2016004 (*pdf*)

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Review Standing Orders

The inspectors identified a Green NCV of Technical Specification (TS) 6.8.1.a, for Dominion's failure to implement procedures as required by Regulatory Guide 1.33, Revision 2, Appendix A.1, "Administrative Procedures", during the performance of watch turnover. This resulted in multiple operators across multiple crews in both Unit 2 and 3 standing watch without performing a review of the applicable standing orders for up to 4 months from March to July 2016. Dominion entered the condition in their corrective action program (CAP) as condition report (CR)1042287.

The inspectors determined that the finding was more than minor because if left uncorrected the performance deficiency could lead to a more significant event. Specifically, the operators did not review TS amendments, emergency action level classifications, emergency operating procedures, and plant computer issues impacting the plant prior to taking watch. Without reviewing the standing orders to understand the information contained within, operators could potentially take improper actions to control the plant during evolutions and abnormal conditions. The finding was determined to be of very low safety significance (Green) because it did not affect design or qualification of a mitigating structure, system, and component (SSC), did not represent a loss of system function, and did not involve external event mitigation systems. The inspectors determined that the finding has a cross-cutting aspect in the Human Performance cross-cutting area associated with Field Presence, where leaders are commonly seen in the work areas of the plant observing, coaching, and reinforcing standards and expectations. Specifically, Dominion leadership observations in the control room or management review of monthly standing order audits could have discovered the deviation from standards and expectations.

Inspection Report# : 2016003 (*pdf*)

Significance:  Jul 22, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Implement Corrective Actions for Chronic Leakage at Residual Heat Removal Heat Exchanger Bottom Head Flanges

The inspectors identified a finding of very low safety significance involving a NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to correct conditions adverse to quality. Specifically, since 1985 Dominion has not corrected persistent leakage of borated water through the bottom head flanges of the Millstone Unit 3 RHS heat exchangers that is causing accumulating deposits of boric acid including discolored brown and black crystallized and liquid boric acid wastage. Dominion has scheduled repair of the 'A' RHS heat exchanger for refuel outage 3R18 in 2017 and 'B' for 3R19 in 2019. Dominion entered the issue into the corrective action program as condition report CR1041881.

This finding is more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," because if left uncorrected, this performance deficiency has the potential to lead to a more significant safety concern based upon Dominion's failure to correct persistent boric acid leakage with evidence of rust formation and failure to identify the source of the rust and/or bound total lifetime material loss and corrosion of internal components to ensure operability. Specifically, if left uncorrected the availability, reliability, and capability of both trains of RHS has potential to be adversely impacted due to the potential for failure of internal heat exchanger components causing a loss of integrity, internal blockage, or interfacing and/or external loss of coolant. In accordance

with Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions", Section A, "Mitigating Systems, Structures or Components and Functionality," the finding screened to be of very low safety significance (Green), because the finding did not represent an actual failure of a system, function, or train of equipment and did not involve equipment specifically designed to mitigate a seismic, flooding, or severe weather initiating event (e.g., seismic snubbers, flooding barriers, tornado doors). The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Work Management, because the organization failed to implement the process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, Dominion continued to defer and reschedule corrective action for repair of the flange connections.

Inspection Report# : 2016009 (*pdf*)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: VIO Violation

Repetitive Failures to Correct Unit 3 Turbine Driven Auxiliary Feedwater Pump Performance Issues

The inspectors identified a Green NOV of Title 10 of the Code of Federal Regulations (10 CFR) 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's repetitive failure to take effective corrective actions for significant conditions adverse to quality involving the degradation of the Unit 3 turbine driven auxiliary feedwater (TDAFW) pump turbine control valve linkage. Specifically, Dominion's corrective actions to correct the TDAFW control system have not fully considered all potential failure modes such that continued unreliable operation due to linkage and control systems problems resulted in an overspeed trip of the TDAFW system in February 2016. Inspectors have previously documented this condition under two separate violations of 10 CFR 50, Appendix B, Criterion XVI.

The performance deficiency 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. In accordance with IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined this issue required a detailed risk evaluation based on the finding representing an actual loss of function of a single train for greater than its technical specification (TS) allowed outage time. A Region I Senior Reactor Analyst (SRA) completed a detailed risk evaluation and concluded the risk significance of this issue was in the high E-8 range, or very low safety significance (Green). In accordance with IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014, this finding has a cross-cutting aspect in Human Performance, Design Margins, in that the organization failed to operate and maintain equipment within design margins. The Unit 3 TDAFW has little margin to inoperability. Dominion did not pursue a thorough review of the potential interactions of different failure modes after correcting the obvious causes from past failures, which contributed to the February 22, 2016, overspeed event.

Inspection Report# : 2016001 (*pdf*)

Barrier Integrity

Significance:  Jul 22, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Correct Inadequate Procedural Direction for Responding to a LOCA with Failure of an RSS Heat Exchanger Tube

The inspectors identified a finding of very low safety significance involving a NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to promptly correct a condition adverse to quality.

Specifically, Dominion did not take timely action to address a previously identified issue in which Millstone Unit 3 procedures did not adequately address mitigation and classification of a loss-of-coolant accident (LOCA) with a concurrent loss of containment caused by a recirculation spray system (RSS) heat exchanger tube rupture. In response, Dominion revised a procedure to provide the steps to respond to the event as described in the final safety analysis report (FSAR) and promulgated a briefing sheet to operators to ensure awareness of the issue and new procedure steps. Dominion entered the issue into the corrective action program as condition report CR1041881.

This finding is more than minor because it represented a challenge to the procedure quality attribute of the Barrier Integrity cornerstone to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The lack of procedural direction to mitigate an RSS heat exchanger tube rupture during a LOCA could result in challenging the integrity of the containment barrier. In accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 3, "Barrier integrity Screening Questions," Section B, "Reactor Containment," the finding screened to be of very low safety significance (Green), because the deficiency did not represent an actual open pathway in the physical integrity of reactor containment (valves, airlocks, etc.), containment isolation system (logic and instrumentation), and heat removal components. The inspectors determined that this finding has a cross-cutting aspect in the area of Human Performance, Conservative Bias, because Dominion staff considered a needed procedural revision to be lower priority based on confidence in the ability of operators to recognize, diagnose, and implement required actions given the event, rather than exhibiting a conservative bias to ensure the procedure provided a barrier to adverse consequences.

Inspection Report# : 2016009 (*pdf*)

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

Page Last Reviewed/Updated Wednesday, June 07, 2017

