

Millstone 2

2Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: FIN Finding

FIN 05000336/2010003-02, Failure to Properly Plan Work Activities for “D” Circulating Water Bay Outage Results in Manual Reactor Trip.

•Green. A self-revealing finding (FIN) of very low safety significance was identified for Dominion’s failure to properly plan the work associated with the “D” circulating water (CW) bay outage in accordance with procedure WM-AA-3000, “Managing Complex Work.” The work plan failed to properly sequence work activities to prevent fouling the “C” CW screens. The subsequent fouling of the “C” CW travelling screen resulted in an automatic trip of the “C” CW pump. The loss of the second pump in a condenser bay required the operators to manually trip the reactor. Dominion entered this issue into their corrective action program.

This finding is more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, “Examples of Minor Issues,” Example 4b, in that the implementation of the inadequate work plan caused a reactor trip. The finding was associated with the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The inspectors determined that the finding was of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors determined that this finding had a cross cutting aspect in the area of Human Performance, Work Control, because Dominion did not appropriately plan the bay cleaning and demucking work activity to address the risk of impacting the other CW bays. [H.3(a)] (Section 40A3).

Inspection Report# : [2010003](#) (*pdf*)

Significance:  Dec 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2009-03 RCS Drain Down Loss of Configuration Control

Green. A self revealing NCV (Green) finding of Technical Specification 6.8.1(a) was identified for the failure to adequately implement procedures during partial draining of the reactor coolant system (RCS) in preparation for defueling the core. On October 10, 2009, Dominion did not properly align the reactor vessel vent path prior while partially draining the RCS as required by OP 2301E, "Draining the RCS (ICCE)." This resulted in a loss of positive configuration control during an infrequently conducted risk-significant evolution. A plant equipment operator did not properly lock open the vent valve during a valve lineup prior to the drain down. Dominion entered this issue into their corrective action program as CR-351853. Corrective action was taken to reinforce the standards for valve line ups and independent verification, as well as enhancing the valve line up procedure.

This issue is more than minor because it was associated with the Initiating Events cornerstone objective to limit the likelihood of those events that challenge critical safety functions during shutdown operations. Dominion did not align valve 2-RC-447 to vent the reactor vessel head during a partial RCS drain down in preparation for defueling the core. This resulted in the reactor vessel remaining full of water while the pressurizer and steam generator (SG) tubes were being drained without realizing that the RCS level indication did not accurately reflect the level in the reactor vessel. This condition constituted a loss of positive control of reactor vessel level during the RCS drain down. The finding has a cross-cutting aspect in the area of human performance, component of work practices, where the licensee defines and effectively communicates expectations regarding procedural compliance and personnel follow procedures (H.4.b) (Section 1R20).

Significance:  Oct 06, 2009

Identified By: NRC

Item Type: FIN Finding

FIN 05000336/2009005-02 Implementation of Design Change results in Rapid Shutdown of Reactor

Green. A self-revealing (Green) finding was identified for Dominion's failure to take adequate precautions and/or adequately schedule maintenance on Unit 2's motor operated disconnect switch (MOD) for their main transformer. Specifically, on October 6, 2009, maintenance personnel began performing a design change to the MOD with Unit 2 on-line at 100% power. While decoupling the vertical shaft of the MOD, the switch shifted. The shift resulted in arching across the phase conductor resulting in increasing conductor temperatures. If temperatures were allowed to continue to rise, the switch would have failed resulting in a turbine trip due to a load reject which would have caused a reactor trip. Dominion recognized the situation and performed a rapid shutdown of the Unit 2 reactor. Dominion has taken corrective action to modify a number of procedures and entered this issue into their corrective action system (CR351109).

This finding is more than minor because it was associated with the equipment performance attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Dominion did not adequately assess and manage the risk involved in implementing design change notice (DCN) DM2-00-093-09, resulting in the need to perform a rapid shutdown of the reactor on October 6, 2009. The inspectors performed a Phase 1 screening, in accordance with IMC 0609, "Significance Determination Process," and determined that the finding is of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available. The finding has a cross-cutting aspect in the area of human performance, licensee plans and coordinates work activities, consistent with nuclear safety including the inclusion of risk insights, because Dominion did not adequately implement work scheduling and include risk insights and compensatory measures (H.3.a)(Section 1R20).

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: FIN Finding

(FIN 05000336/2009004-01 Inadequate and Untimely Corrective Actions Causes Reactor Trip)

Green. A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to provide timely and effective corrective actions for known degraded conditions on the Unit 2 VR-11 and VR 21 120 volt AC non-vital instrument power supplies. Specifically, VR-11 and VR-21 were known to cycle on and off repeatedly whenever an electrical disturbance on the grid affected the input supply voltages from their respective regulating transformers. The degraded condition on the instrument buses had not been corrected despite numerous prior opportunities and ultimately led to a reactor trip on July 3, 2009. Dominion entered this issue into their corrective action program (CR340569 and CR340579). Interim corrective actions included the installation of dedicated uninterrupted power supplies (UPS) for the Electric Hydraulic Control (EHC) system and feedwater level control system loads prior to reactor startup. Final corrective actions to install a larger UPS to power the VR-11 and VR-21 DC buses are under engineering evaluation.

This finding is more than minor because it was associated with the Equipment Performance attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Dominion did not implement effective interim corrective actions, nor did they take timely final corrective actions to prevent recurrence of the power cycling of the VR-11 and VR 21 instrument buses in time to prevent a reactor trip on July 3, 2009. The inspectors performed a Phase 1 screening, in accordance with IMC 0609, "Significance Determination Process," and determined that the finding is of very low safety significance (Green) because it did not contribute to the likelihood that mitigation equipment or functions would not be available. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Dominion did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance

and complexity [P.1.d].

Inspection Report# : [2009004](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2010003-01, Failure to Properly Evaluate a Degraded Governor Results in “A” EDG

Inoperability

•Green. A self revealing non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion XVI, “Corrective Action” was identified for Dominion’s failure to properly evaluate a condition adverse to quality involving the Unit 2 “A” Emergency Diesel Generator (EDG). Dominion’s corrective actions included replacing the EDG governor and entering the issue into their corrective action process.

This finding is 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, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Dominion’s inadequate evaluation of the degraded condition of the governor of the “A” EDG, which resulted from the March 17, 2010 surveillance, did not result in adequate corrective action to address the cause of the rapid load fluctuation. As a result, on May 12, 2010, the “A” EDG again experienced a rapid load fluctuation during surveillance and was declared inoperable. The inspectors determined that the finding was of very low safety significance (Green) because it did not result in a loss of safety function, a loss of safety function of a single train for greater than its technical specification allowed outage time, or a loss of a risk-significant non-technical specification train of equipment. Additionally, it is not risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross cutting aspect in the area of Human Performance, Decision Making, because Dominion did not use conservative assumptions in its decision making when they could not conclude that the EDG load fluctuations would not recur. [H.1(b)] (Section 4OA2).

Inspection Report# : [2010003](#) (pdf)

Significance:  Nov 15, 2009

Identified By: NRC

Item Type: FIN Finding

FIN 05000336/2009005-04 Inadequate and Untimely Corrective Actions Causes Loss of Annunciators and Declaration of a NOUE

Green. A self-revealing (Green) finding was identified for Dominion’s failure to provide effective corrective actions for known degraded conditions on the VR-11 and VR 21 120 volt AC non-vital instrument power supplies. Specifically, VR-11 and VR-21 were known to cycle on and off repeatedly whenever an electrical disturbance on the grid affected the input supply voltages from their respective regulating transformers. The degraded condition on the instrument buses had not been corrected despite prior opportunities. This condition led to a loss of annunciators and declaration of a Notification of an Unusual Event (NOUE) on November 15, 2009. This degraded electrical system response had previously caused a Unit 2 reactor trip on May 22, 2008, and again on July 3, 2009 and as well as several other events.

This finding is more than minor because it was associated with the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring capability of systems that respond to initiating events to prevent undesirable consequences. The main board annunciators provide operators with critical notification and assessment capability during plant upset or transient conditions. Annunciators are used to direct operators to appropriate alarm response procedures (ARP), which further direct operators to Abnormal Operating Procedures (AOP) and direct entry conditions into Emergency Operating Procedures (EOP). Annunciators also provide early warning to operators of adverse trends in key plant parameters before the degradation becomes critical. The

Emergency Action Level (EAL) basis for the loss of annunciators EU3 states in part, "This EAL [is] intended to recognize the difficulty associated with monitoring changing plant conditions with the use of a major portion of the annunciation or indication equipment." No violation of regulatory requirements occurred because the annunciator system is not safety-related. Because this finding does not involve a violation of regulatory requirements and has very low safety significance, it is identified as a Green finding. Dominion took immediate action by documenting the issue in CR-358168 and expediting the installation of the uninterruptable power supply (UPS) for VR-11 and VR-21. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Dominion did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (P.1.d) (Section 40A3).

Inspection Report# : [2009005](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

(NCV 05000336/2009004-02 Inadequate Procedures Caused a Leak from the Charging Header into the Auxiliary Building Drain System)

Green. A violation of 10 CFR 50, Appendix B, Criteria V dispositioned as an NCV was identified for Dominion's failure to provide adequate operating procedures that were appropriate for the circumstances to operate the Unit 2 charging pumps during reactor shutdown. Specifically, on July 9, 2009, the operators were required to raise pressurizer level while drawing a bubble in the pressurizer in preparation for transitioning from mode 5 to mode 4. Dominion started the "B" positive displacement charging pump without first opening the charging header isolation valves and damaged two relief valves in the charging line. Neither of the operating procedures in use for this evolution required the charging header isolation valves to be opened.

This event was more than minor because if left uncorrected, the performance deficiency had a potential to lead to a more significant safety concern. This finding is associated with the equipment performance attribute of the mitigating systems cornerstone. The finding has a cross-cutting aspect in the area of human performance, maintaining complete accurate and up-to-date procedures, because Dominion did not provide an operating procedure that was appropriate for accomplishing the task under the circumstances [H.2.c].

Inspection Report# : [2009004](#) (pdf)

Barrier Integrity

Significance:  Nov 15, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2009005-01, TS Surveillance Channel Calibration of ICCMS Not Performed

Green. A NRC identified NCV of very low safety significance (Green) was identified for Dominion's failure to perform a channel calibration of the Unit 2 Inadequate Core Cooling Monitoring System (ICCMS) every 18 months as required by technical specification (TS) 4.3.3.8. Dominion entered the issue into their corrective action program and concluded that the ICCMS was operable, and performed a risk assessment of the missed surveillance in accordance with TS 4.0.3 and determined that the completion of the surveillance could be delayed up to the 18 month surveillance interval without a significant increase in risk.

This finding was more than minor because it is associated with the procedure quality attribute of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding) protect the public from radionuclide releases caused by accidents or events. Specifically, in 1997, Dominion incorrectly revised the surveillance procedure SP 2407A so that it no longer met the requirements of TS 4.3.3.8. The finding was determined to be of very low safety significance (Green) because it is associated with the fuel barrier. This finding does not have a cross cutting aspect because the performance deficiency is not indicative of current performance (Section 1R15).

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

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