

## Millstone 3

### 4Q/2005 Plant Inspection Findings

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#### Initiating Events

**G****Significance:** Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO EVALUATE EXCEEDING SPECIFIED FIRE LOADING LIMIT FOR MAIN STEAM VALVE ENCLOSURE**

The inspectors identified a non-cited violation of License Condition 2.H to Facility Operating License NPF-49 for the failure to properly evaluate transient combustible fire loading for the Main Steam Valve Enclosure Building (Fire Area, MSV-1) from April 1999 to July 2005. Specifically, Dominion did not accurately account for the amount of transient combustibles present in the area which caused the licensee to unknowingly, and without evaluation, exceed the fire severity classification threshold for this area. The inspectors determined that the failure to properly evaluate the transient combustibles for the fire area MSV-1 was more than minor based on a similar example described in Manual Chapter 0612, "Power Reactor Inspection Reports", Appendix E, "Examples of Minor Issues", Section 4k. Specifically, the fire loading exceeded the fire hazard analysis and was not properly evaluated. This finding is associated with the initiating event cornerstone and involves the fire initiator attribute of the cornerstone. The safety significance of the finding was determined to be low based on the plywood being fire retardant and the increase in the fire loading remained significantly less than the maximum allowed by the higher severity classification of "low". This finding is related to the cross-cutting area of Problem Identification and Resolution in that neither the monthly inspection of the fire areas and permits nor the annual review of temporary fire permits identified the issue despite the condition having existed for approximately six years.

Inspection Report# : [2005003\(pdf\)](#)**G****Significance:** May 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**LESS THAN ADEQUATE CORRECTIVE ACTIONS FOR POTENTIAL RCS PRESSURE BOUNDARY DEGRADATION DUE TO BORIC ACID CORROSION**

The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action" in that DNC's did not promptly identify and correct a condition adverse to quality involving boric acid leaks in containment. The finding was more than minor because it affected the Initiating Events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations; if left uncorrected it could become a more significant concern, such as excessive leakage or the loss of RCS integrity. In addition, this performance deficiency is related to the cross-cutting area of problem identification and resolution in two respects. First, after approximately six days and several containment entries, DNC had not identified the presence of 12 additional boric acid leaks. Second, although aware of the leak on a loop drain isolation valve, DNC did not re-evaluate or resolve the leakage impact on adjacent safety-related SSCs until questioned by the inspectors. This finding was determined to be Green (very low safety significance) based on IMC 0609, Appendix A, Phase 1 SDP worksheet for at-power situations. The leakage is characterized as a LOCA initiator, but assuming worst case degradation, the leakage would not have resulted in exceeding a TS limit for identified RCS leakage or have adversely impacted other mitigating systems.

Inspection Report# : [2005012\(pdf\)](#)

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#### Mitigating Systems

**G****Significance:** Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO PROPERLY ASSESS AND CORRECT KNOWN WATER LEAKAGE INTO THE "B" EDG ROCKER ARM LUBE OIL SYSTEM**

The inspectors identified a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to properly assess compensatory actions and to take timely actions to correct the introduction of water into the Unit 3 'B' EDG rocker arm (RA) lubricating oil (LO) system. Following the discovery of elevated water content in the 'B' EDG RA LO system on June 17, 2005, and the determination on July 11, that the EDG was fully qualified, Dominion; 1) did not specify compensatory actions to ensure the EDG was maintained in a fully qualified status while the degradation continued to exist, 2) did not establish a threshold for water content in the RA LO system beyond which the EDG would be considered inoperable, and 3) did not schedule the timely completion of maintenance activities to correct the in-leakage. While Dominion took several actions in response to the discovery of water in the LO system, these actions were not sufficient to preclude the

development of significant water leakage into the RA LO system which resulted in the subsequent declaration of inoperability of the EDG on September 27, 2005, and the unavailability of the 'B' EDG for approximately 5 days while corrective maintenance was performed. This finding is related to the cross-cutting area of problem identification and resolution in that, once the source of the water contamination had been identified, Dominion did not properly assess compensatory actions and take effective corrective actions to preclude significant water in-leakage into the 'B' EDG RA LO system. The finding was more than minor because it affected the equipment performance attribute of the mitigating system cornerstone and the availability and reliability of the 'B' EDG to respond to initiating events. The inspectors determined that this finding was of very low safety significance because the finding was not a design or qualification deficiency, did not represent a loss of safety system function, did not represent an actual loss of safety function of a single train or one or more non-technical specification trains based on a 24 hour probabilistic risk assessment mission time, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events.

Inspection Report# : [2005005\(pdf\)](#)

**G**

**Significance:** Oct 15, 2005

Identified By: NRC

Item Type: FIN Finding

**FAILURE TO ADEQUATELY IMPLEMENT OPERABILITY DETERMINATION PROCEDURE ON THREE OCCASIONS**

The inspectors identified a finding where Dominion did not adequately implement their Operability Determination (OD) procedure on three occasions which affected the basis for operability for degraded conditions identified on safety-related systems. Dominion has initiated corrective actions to conduct an assessment of their current operability determination process, evaluate the assessment results, and implement corrective actions to improve their process. Specifically;

- Dominion did not perform a prompt operability determination for approximately 8 days to evaluate whether a fence installed over the Unit 2 turbine-driven auxiliary feedwater pump (TDAFWP) cubicle high energy line break blowout panel adversely impacted the panel's ability to perform its design function. After investigation, Dominion determined that a supporting engineering evaluation did not exist, declared all three auxiliary feedwater pumps inoperable, and took prompt action to reroute the fencing around the blowout panel.

- Dominion did not revise an operability determination on the Unit 2 charging system when new information discovered during system troubleshooting showed that the basis for the operability determination was in question. Dominion ultimately decided to close the operability determination to previous troubleshooting and maintenance activities associated with the degraded condition.

Dominion described as the basis for operability in a condition report (CR) that a technical evaluation existed that showed that a Unit 3 high pressure safety injection (SIH) pump could meet its mission time with an oil leak of up to six drops per minute. The referenced technical evaluation however, did not discuss mission time, but calculated the time to deplete a high pressure safety injection pump oil reservoir in the presence of a four drop per minute and six drop per minute leak.

This finding was more than minor because it affected the equipment performance attribute and the availability, reliability, and capability objective of the Mitigating System cornerstone. Specifically, Dominion did not adequately evaluate the availability of Mitigating Systems with degraded conditions to ensure their availability to perform the intended safety function. This finding was determined to be of very low safety significance (Green) since there was not a loss of function for the TDAFW and charging system examples and since the SIH pump would have completed its safety function within the Probabilistic Risk Assessment 24 hour evaluation time. This finding is related to the cross-cutting area of Problem Identification and Resolution (PI&R) because of the failure to conduct timely and adequate evaluations of degraded and non-conforming conditions.

Inspection Report# : [2005004\(pdf\)](#)

**G**

**Significance:** May 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO IMPLEMENT APPROPRIATE PMS ON THE TDAFW PUMP CONTROL VALVE**

The inspectors identified a Green non-cited violation of TS 6.8.1 regarding the deletion an 18-month control valve PM for TDAFW pump in August 2000 without performing a thorough change evaluation per CBM 105, Revision 004-03, Preventive Maintenance Program. This performance deficiency was a primary contributor to the TDAFW pump overspeed trip. This NRC-identified finding was of more than minor safety significance because it affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, because the PM was not completed, the reliability of the TDAFW pump was adversely affected. In evaluating this finding, the Significance Determination Process (SDP) (Phase 1) screening identified that a SDP workbook (Phase 2) evaluation was needed because the TDAFW pump was potentially inoperable in excess of its TS Allowed Outage Time of three days. Since the Phase 2 evaluation exceeded a risk threshold, an NRC Region I Senior Reactor Analyst (SRA) conducted a Phase 3 evaluation to more accurately account for the exposure time and to appropriately credit operator actions to recover the TDAFW pump after it automatically tripped on April 17. The Phase 3 evaluation determined that this finding represented a change in core damage probability of low to mid E-7, which is of very low risk significance (Green).

Inspection Report# : [2005012\(pdf\)](#)

**G**

**Significance:** May 18, 2005

Identified By: NRC

Item Type: FIN Finding

**IMPROPER EVENT DIAGNOSIS LED TO E-PLAN DECLARATION**

The inspectors identified a Green finding because procedure MP-14-MMM, Revision 006-01, "Operations" was not adequately implemented. The team identified problems with crew diagnosis and communications during the event which led to an emergency plan declaration when

actual conditions for that declaration did not exist. This NRC-identified finding is considered to be of more than minor safety significance because if left uncorrected, ineffective monitoring and diagnosis of plant conditions during significant plant events could lead to a more significant safety concern. In addition, this performance deficiency is related to the cross cutting area of human performance in that, during the actual event, the operating crew did not diagnose that the MSSVs were functioning as designed and crew briefings did not provide a complete perspective of known plant conditions. This finding was not suitable for the an NRC SDP evaluation, but was reviewed by NRC management in accordance with IMC 0612, Section 05.04c and determined to be of very low safety significance (Green).

Inspection Report# : [2005012\(pdf\)](#)

**G**

**Significance:** May 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **EOP E-0 STEP NOT PERFORMED AS REQUIRED**

The inspectors identified a Green non-cited violation of Technical Specification (TS) 6.8.1 because the operating crew did not take control of reactor coolant system (RCS) temperature in accordance with Step 21 of Emergency Operating Procedure (EOP), E-0, "Reactor Trip or Safety Injection". Consequently, the main steam safety valves (MSSVs) automatically operated to control RCS temperature for approximately 30 minutes longer than was necessary. This NRC-identified finding is considered to be of more than minor significance because it adversely impacts the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the unnecessary cycling of the MSSVs increased the chance that a previously cycled MSSV would not open or would fail to reseal following an additional opening. The finding was determined to be Green (very low safety significance) in accordance with IMC 0609, Appendix A, Phase 1 SDP worksheet for at-power situations.

Inspection Report# : [2005012\(pdf\)](#)

**G**

**Significance:** May 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **SIMULATOR RESPONSE DID NOT ADEQUATELY MODEL MSSV RESPONSE**

The inspectors identified a Green non-cited violation for failure of the Millstone Unit 3 simulator to correctly model main steam safety valve operation as required by 10 CFR 55.46(c)(1), "Plant-Referenced Simulators." This NRC- identified finding is more than minor because it affected the human performance attribute of the mitigating systems cornerstone. This finding was evaluated using the Operator Requalification Human Performance SDP (IMC 0609 Appendix I) because it is a requalification training issue related to simulator fidelity. The SDP, Appendix I, Block 12, requires the inspector to determine if deviations between the plant and simulator could result in negative training or could have a negative impact on operator actions. "Negative Training" is defined, in a later version of the standard (ANSI 3.5-1993), as "training on a simulator whose configuration or performance leads the operator to incorrect response or understanding of the reference unit." During the event of April 17, 2005, operators were influenced by negative training on the simulator to erroneously believe that a safety valve in the plant was stuck open when it was actually still functioning as designed.

Inspection Report# : [2005012\(pdf\)](#)

**G**

**Significance:** May 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FALSE OR MISLEADING CONTROL ROOM INDICATIONS**

The inspectors identified a Green non-cited violation in that DNC did not comply with 10 CFR 50, Appendix B, Criterion III, "Design Control," regarding the suitability of a control room indicator in providing information needed by operators to ensure appropriate decision making while implementing emergency operating procedures. This violation is related to the misleading control room indication for Charging/Safety Injection (CHG/SI) flow indication which led operators to take improper actions in EOP E-0, "Reactor Trip or Safety Injection" because the flow indicator (3SIH-FI917), despite the existence of adequate injection flow to the core, indicated zero gallons per minute (GPM) flow. This self-revealing finding was of more than minor safety significance because it was associated with the design control 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. The finding was determined to be Green (very low safety significance) based upon IMC 0609, Appendix A, Phase 1 SDP worksheet for at-power situations. The inspectors determined that the finding represented a design deficiency that did not result in a loss function per Generic Letter (GL) 91-18, Revision 1.

Inspection Report# : [2005012\(pdf\)](#)

**G**

**Significance:** Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO PROMPTLY EVALUATE AND CORRECT A DEGRADED CONDITION ASSOCIATED WITH THE DIVIDER PLATE FOR ALL THREE RPCCW HXS**

The inspector identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for Dominion's failure to take prompt and appropriate corrective actions to address a condition adverse to quality. Specifically, Dominion did not promptly evaluate and correct a degraded condition associated with the divider plate for all three reactor plant component cooling water (RPCCW) heat exchangers

(HXs). The inspector determined that this issue was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone, and it potentially affected the objective to ensure the availability and reliability of the RPCCW HXs. The finding was of very low safety significance (Green), because the finding was a qualification deficiency confirmed not to result in loss of a function. The issue was similarly of very low risk in the Initiating Events cornerstone because the finding did not increase the likelihood of a reactor trip or a loss of service water (SW) event. The finding was associated with the cross-cutting area of problem identification and resolution (PI&R) in that Dominion's inadequate evaluation and untimely corrective actions for a degraded condition potentially affected the RPCCW HXs.

Inspection Report# : [2005002\(pdf\)](#)

G

**Significance:** Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO ADEQUATELY IMPLEMENT TESTING PROCEDURES FOR RESTORING THE "A" EDG TO SERVICE**

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," for the failure to adequately implement post-maintenance test (PMT) procedures for restoring the "A" emergency diesel generator (EDG) to service following maintenance of the neutral breaker. On March 1, 2005, Dominion conducted maintenance and double testing of the "A" EDG neutral breaker. The Maintenance Department turned the breaker over to Operations for final post-maintenance testing and restoration. After racking in the breaker, Operations noted that the red light on the front of the EDG neutral breaker panel did not light as expected. Contrary to the PMT acceptance criteria, Operations assessed that the PMT was satisfactorily completed and exited the EDG technical specification. The oncoming shift investigated and determined the red light was not lit because there was a problem with the neutral breaker trip circuit. Operations declared the EDG inoperable and re-entered the EDG technical specification. This issue was more than minor because it was associated with the reliability of the "A" EDG. The inspectors determined that the finding was of very low safety significance (Green) because it did not involve a design or qualification deficiency, represent an actual loss of safety function of the "A" EDG, or involve seismic, flooding, or severe weather initiating events. This finding was related to the cross-cutting area of Human Performance in that Dominion personnel signed the PMT as satisfactory and restored the EDG neutral breaker to an operable status although the acceptance criteria was not met.

Inspection Report# : [2005002\(pdf\)](#)

G

**Significance:** Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO TAKE PROMPT CORRECTIVE ACTIONS TO DETERMINE THE EXTENT OF CONDITION OF AIR TRAPPED IN THE RHR SUCTION AND DISCHARGE PIPING**

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," which requires, in part, that measures be established to assure that conditions adverse to quality are promptly identified and corrected. From May to October 2004, Dominion failed to properly assess and correct a degraded "A" Residual Heat Removal (RHR) system during an extent of condition examination for air found in the RHR discharge piping. Specifically, after discovering a significant amount of air in the "A" RHR piping system in May 2004, Dominion vented the system but did not adequately evaluate whether the corrective actions were effective in removing air from the RHR heat-exchanger tubing. As a result, Dominion did not evaluate the effect of the remaining air on the RHR and high pressure injection systems. Dominion subsequently instituted compensatory measures to vent the suction piping after every RHR pump run and performed a special procedure to flush the air out of the heat exchanger. This finding was more than minor because it affected the equipment performance attribute and the availability, reliability, and capability objective of the Mitigating system cornerstone. Specifically, Dominion's extent of condition evaluation did not determine that a significant volume of air remained in the "A" RHR heat exchanger tubing even though air was found in several other sections of piping subsequent to their initial corrective actions. This air could have caused the "A" RHR pump to become inoperable if enough air had migrated to the suction of the RHR pump and could have adversely affected high pressure injection pumps if air had migrated to crossover piping. This finding was determined to be of very low safety significance (Green) since an actual loss of RHR would not have occurred with the amount of air identified and no air pockets were subsequently identified in crossover piping to the charging and high pressure injection systems; the finding did not involve a design or qualification deficiency; or involve seismic, flooding, or severe weather initiating events. This finding was related to the cross-cutting area of Problem Identification and Resolution in that Dominion failed to perform an adequate extent-of-condition review to fully evaluate the effect of air that had been introduced into the "A" RHR system.

Inspection Report# : [2005002\(pdf\)](#)

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## **Barrier Integrity**

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**Significance:** Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO ADEQUATELY PERFORM POST-MAINTENANCE TESTING ON HYDROGEN RECOMBINER**

The inspectors identified a non-cited violation of Technical Specification (TS) 3.6.4.2, "Electric Hydrogen Recombiners," which requires that two independent hydrogen recombiner systems remain Operable. On February 22, 2005, Dominion performed maintenance on the "A" train hydrogen monitor. On February 23, 2005, Dominion identified that pipe fittings for the "A" train hydrogen monitor had been disassembled,

however, a post-maintenance test had not been conducted to prove operability of the system. Dominion performed a leak test on February 24, 2005, however, the test failed. Dominion's investigation determined that the leakage was from a mechanical joint that had been worked on December 2, 2004, but that this joint had not been disturbed during the February 22, 2005, maintenance. Additionally, Dominion determined that following the work in December 2004 no post-maintenance leak test had been performed to verify system operability. The inspectors identified that the leakage would have resulted in the shutdown of the "A" hydrogen recombiner, under post-accident conditions. Therefore, the train would not have been considered operable from December 2, 2004 to March 1, 2005. Following the identification of the failed joint, Dominion repaired the joint, leak tested the system, and restored the "A" train hydrogen monitor to service. This issue was more than minor because it was associated with the Barrier Integrity cornerstone attribute of configuration control in that it affected containment boundary preservation and maintaining containment design parameters. The failure to specify adequate PMT resulted in loose mechanical joints in the system not being detected which would have allowed an open pathway to the atmosphere from containment during post accident conditions. Additionally, Dominion postulated that the post accident leakage from these joints would have caused a radiation monitor alarm which would have isolated the "A" hydrogen recombiner. This violation was evaluated using an IMC 0609, Appendix H, "Containment Integrity Significance Determination Process," Phase 2 analysis, and was determined to be of very low safety significance (Green). Specifically, the leak was not of the magnitude to recycle the containment atmosphere in a 24 hour period, post event. This finding was related to the cross-cutting issue of Human Performance in that Dominion failed to adequately perform post-maintenance testing to ensure incorrect maintenance activities were identified prior to returning the hydrogen monitor to service.

Inspection Report# : [2005002\(pdf\)](#)

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## Emergency Preparedness

**Significance:**  Dec 31, 2005

Identified By: NRC

Item Type: FIN Finding

### **INEFFECTIVE CORRECTIVE ACTIONS TO PREVENT SERO QUALIFICATION LAPSES**

The inspector identified a Green finding for the failure to take effective corrective actions in that since 2004, on several occasions, staff assigned to the site emergency response organization (SERO) did not maintain their qualifications current. The corrective actions taken to prevent recurrence of this problem were not effective as highlighted by repeat examples of lapsed SERO qualifications. Individuals identified during the inspection with the lapsed qualifications were immediately removed from the SERO callout system until their training was completed. The cause of the finding is related to the cross-cutting element of problem identification and resolution in that the corrective actions taken were not effective in preventing reoccurrence. The finding is more than minor because it is associated with the EP cornerstone attribute of emergency response organization readiness (training). It affects the cornerstone objective of ensuring the capability to implement measures to protect the health and safety of the public during an emergency. Specifically, Dominion's corrective actions to ensure personnel maintained their SERO qualifications current were ineffective and did not prevent recurrence. This finding is not suitable for SDP evaluation, but has been reviewed by NRC management and is determined to be a finding of very low safety significance.

Inspection Report# : [2005005\(pdf\)](#)

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## Occupational Radiation Safety

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## Public Radiation Safety

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## Physical Protection

[Physical Protection](#) information not publicly available.

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## Miscellaneous

Last modified : March 03, 2006