

Millstone 2

Initiating Events

G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)

G**Significance:** Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)G**Significance:** Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)G**Significance:** Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

G**Significance:** Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety

function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

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Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

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Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

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Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

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Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

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Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception.

Inspection Report# : [2001003\(pdf\)](#)



Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)



Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)



Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)

Inspection Report# : [2001007\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRC's Significant Determination Process and,

based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)

Barrier Integrity



Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

G**Significance:** Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

G**Significance:** May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line

break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding. Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : April 01, 2002

Millstone 2

Initiating Events

G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)

G

Significance: Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

G

Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which

involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)

G

Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

G

Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)**Significance:** N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the

duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)

W

Significance: Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2001007\(pdf\)](#)

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to

translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRCs Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseat during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseat. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

Barrier Integrity

G

Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

G**Significance:** Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

G**Significance:** May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line

break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding. Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : April 01, 2002

Millstone 2

Initiating Events



Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)



Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)



Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)



Significance: Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)



Significance: Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)



Significance: Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)

Mitigating Systems



Significance: Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not

credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)

Inspection Report# : [2001007\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRCs Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well

below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing.

The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)



Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)



Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation. Inspection Report# : [2001004\(pdf\)](#)

G

Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks. Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected. Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception. Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment. Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)

Barrier Integrity

G

Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

G**Significance:** Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

G**Significance:** May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a

related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC

findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Last modified : March 29, 2002

Millstone 2

Initiating Events

G**Significance:** Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)G**Significance:** Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified. Inspection Report# : [2001004\(pdf\)](#)

G

Significance: Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation. Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation. Inspection Report# : [2000014\(pdf\)](#)

Mitigating SystemsG

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate

review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)



Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)

Inspection Report# : [2001007\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the

available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRCs Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were

proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initiated that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)

G

Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

G

Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

Barrier Integrity

Significance:  Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

G**Significance:** Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

G**Significance:** May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: 1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating

equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.
Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Last modified : March 28, 2002

Millstone 2

Initiating Events

G**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)G**Significance:** Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)G**Significance:** Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)G**Significance:** Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety

significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)

Mitigating Systems

G

Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)**Significance:** N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the

duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)

W

Significance: Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)

Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to

translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRCs Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initiated that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)

G

Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

Barrier Integrity

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

G

Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

G

Significance: May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings

related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: 1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the

individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2001004\(pdf\)](#)

Last modified : March 28, 2002

Millstone 2

Initiating Events

G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)

G

Significance: Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

G

Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)**Significance:** N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)



Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)

Inspection Report# : [2001007\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRCs Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly

completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

G

Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)

Barrier Integrity

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

G

Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection



Significance: G May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability

of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: 1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : March 27, 2002

Millstone 2

Initiating Events

G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)G**Significance:** Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)

G**Significance:** Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)G**Significance:** Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)G**Significance:** Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

G**Significance:** Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety

function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

G

Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)

G

Significance: Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)

Inspection Report# : [2001007\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRC's Significant Determination Process and,

based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)

Barrier Integrity



Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

G**Significance:** Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

G**Significance:** May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line

break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding. Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : March 26, 2002

Millstone 2

Initiating Events



Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)



Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)



Significance: Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)



Significance: Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded

its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)

G

Significance: Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

G

Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

G

Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not

only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

G

Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

G

Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)G**Significance:** Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)G**Significance:** Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)W**Significance:** Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)Inspection Report# : [2001007\(pdf\)](#)G**Significance:** Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform

its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRCs Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which

involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.
Inspection Report# : [2000007\(pdf\)](#)

Barrier Integrity



Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)



Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection



Significance: May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding. Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification. Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump. Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation. Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a

related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : March 01, 2002

Millstone 2

Initiating Events



Significance: May 12, 2001

Identified By: NRC

Item Type: FIN Finding

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser.

Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)



Significance: May 12, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink.

Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)



Significance: Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)**Significance:** Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)**Significance:** Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)**Significance:** Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

**Significance:** Feb 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM AN OPERABILITY DETERMINATION ON THE POTENTIAL TO PRESSURIZE THE UNIT 2 ATMOSPHERIC DUMP VALVES (ADV) ACTUATORS GREATER THAN THEIR DESIGN LIMIT

A non-cited violation of 10 CFR 50 Appendix B, Criteria V, for failure to perform an operability determination in accordance with procedures for the potential to pressurize the Unit 2 atmospheric dump valves (ADV) actuators greater than their design limit. However, the failure to perform on operability determination was considered to have a very low safety significance because, a

subsequently performed license operability determination provided a reasonable basis for concluding that when the final evaluation is complete, the ADVs will be shown to be capable of performing their safety function in the existing configuration.

Inspection Report# : [2001015\(pdf\)](#)



Significance: Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)



Significance: Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)



Significance: May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)



Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel

racks.

Inspection Report# : [2001002\(pdf\)](#)**Significance:** Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)**Significance:** N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception. Regarding the September 2000 failure of the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump, the team determined that the licensee addressed key corrective action aspects of the event including the failure to implement timely corrective actions in response to degraded conditions. However, the team determined that the licensee did not thoroughly evaluate and identify other contributing causes. Specifically, the licensee did not fully evaluate the issues associated with a loose locking nut that was important to the operation of the governor, nor did they evaluate issues associated with inaccurate vendor technical information. Further, the licensee's evaluation of past operability was weak because observed anomalies were not considered in the determination. While the team considers the supplemental inspection for the failure of the TDAFW completed, an unresolved item was identified to review the licensee's evaluation of past operability and reportability of the governor failure.

Inspection Report# : [2001003\(pdf\)](#)**Significance:** Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)**Significance:** Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)**Significance:** Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report#: [2000015\(pdf\)](#)**Significance:** Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report#: [2000015\(pdf\)](#)**Significance:** Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report#: [2000011\(pdf\)](#)Inspection Report#: [2001007\(pdf\)](#)**Significance:** Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical

Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only. Inspection Report# : [2000011\(pdf\)](#)



Significance: Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRCs Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting

fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)

Barrier Integrity

G

Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)G

Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: N/A May 11, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE SURVEY OF A CONTAMINATED TOOL RESULTED IN THE TOOL BEING INAPPROPRIATELY RELEASED FROM THE SITE AND RECEIVED BY AN OFF-SITE VENDOR

10 CFR 20.1501 requires, in part, that licensees make radiation surveys that are necessary to comply with 10 CFR Part 20. Contrary to this requirement, an inadequate survey of a contaminated tool resulted in the tool being inappropriately released from the site and received by an off-site vendor on 3/27/2002. The vendor determined that the tool had fixed contamination levels of approximately 300 counts per minute over a small area. No significant dose resulted to a member of the public from this activity. The tool was subsequently returned to the licensee. The issue involving this matter was addressed by various corrective actions and entered into the corrective action process as Condition Report 02-03753. This issue is being treated as a Non-Cited Violation.

Inspection Report# : [2002003\(pdf\)](#)

Physical Protection



Significance: May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A Feb 01, 2002

Identified By: NRC

Item Type: FIN Finding

OVERALL THE LICENSEE IDENTIFIED PROBLEMS AT AN APPROPRIATE THRESHOLD AND ENTERING THEM INTO THE CAP FOR RESOLUTION

Overall the licensee identified problems at an appropriate threshold and entering them into the CAP for resolution. The identification of repetitive trends appeared proper. However, the use of trend cause codes to identify possible precursor trends was limited. No deficiencies were identified in completed operability determinations. The significance level 1 root cause evaluations reviewed during the inspection sufficiently identified likely causal factors and corrective actions. The significance level 2 apparent cause evaluations generally appeared appropriate. The selected effectiveness reviews were of good quality. Several instances were identified where the evaluation of problems documented in significance level 2 and level "N" condition reports were either not adequately evaluated or prioritized for completion, or were not completed in sufficient detail to provide for timely and effective corrective actions. Two instances involving Unit 2 atmospheric steam dump valves and a Unit 3 emergency diesel air start check valve were determined to be green findings. Corrective actions appeared appropriate. The effectiveness reviews selected were of good quality, including several where the reviewer appropriately identified inadequate corrective actions. Some safety-related pump bearing oil problems concerns continue to occur, but previous corrective actions may not have had time to correct existing issues.

Inspection Report# : [2001015\(pdf\)](#)

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent

power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: 1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator

voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.
Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : July 22, 2002

Millstone 2

Initiating Events

Significance:  May 12, 2001

Identified By: NRC

Item Type: FIN Finding

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)

Significance:  May 12, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal

operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)

Significance:  Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)

Significance:  Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)

Significance:  Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)

Significance:  Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

Significance:  Jun 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE BARRIER REQUIREMENTS DESCRIBED IN THE PLANT FIRE HAZARDS ANALYSIS

The licensee did not maintain a 3-hour rated fire barrier as described in the plant Fire Hazards Analysis. Specifically, the inspectors identified a penetration into the north wall of the west DC switchgear room that had not been sealed. The inspectors determined that the safety significance of the degraded fire barrier was very low since it did not separate redundant safe shutdown equipment. The failure to maintain a 3-hour rated fire barrier as described in the Fire Hazards Analysis is a non-cited violation of License Condition 2.C. (3) to Facility Operating License DRP-65. This violation is documented in the licensee's corrective action program as CR-02-07000

Inspection Report# : [2002004\(pdf\)](#)

Significance:  Feb 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM AN OPERABILITY DETERMINATION ON THE POTENTIAL TO PRESSURIZE THE UNIT 2 ATMOSPHERIC DUMP VALVES (ADV)s ACTUATORS GREATER THAN THEIR DESIGN LIMIT

A non-cited violation of 10 CFR 50 Appendix B, Criteria V, for failure to perform an operability determination in accordance with procedures for the potential to pressurize the Unit 2 atmospheric dump valves (ADV)s actuators greater than their design limit. However, the failure to perform on operability determination was considered to have a very low safety significance because, a subsequently performed license operability determination provided a reasonable basis for concluding that when the final evaluation is complete, the ADVs will be shown to be capable of performing their safety function in the existing configuration.

Inspection Report# : [2001015\(pdf\)](#)

Significance:  Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

Significance:  Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

Significance:  May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was

important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)

Significance:  Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception. Regarding the September 2000 failure of the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump, the team determined that the licensee addressed key corrective action aspects of the event including the failure to implement timely corrective actions in response to degraded conditions. However, the team determined that the licensee did not thoroughly evaluate and identify other contributing causes. Specifically, the licensee did not fully evaluate the issues associated with a loose locking nut that was important to the operation of the governor, nor did they evaluate issues associated with inaccurate vendor technical information. Further, the licensee's evaluation of past operability was weak because observed anomalies were not considered in the determination. While the team considers

the supplemental inspection for the failure of the TDAFW completed, an unresolved item was identified to review the licensee's evaluation of past operability and reportability of the governor failure.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test

acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)

Significance:  Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)

Significance:  Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)

Inspection Report# : [2001007\(pdf\)](#)

Significance:  Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical

Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)

Significance:  Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)

Significance:  Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRC's Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)

Significance:  Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a

result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)



Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations

Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)

Significance:  Jul 01, 2000


Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

Significance:  Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

Significance:  May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential

mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.
Inspection Report# : [2000007\(pdf\)](#)

Barrier Integrity

Significance:  Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: N/A May 11, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE SURVEY OF A CONTAMINATED TOOL RESULTED IN THE TOOL BEING INAPPROPRIATELY RELEASED FROM THE SITE AND RECEIVED BY AN OFF-SITE VENDOR

10 CFR 20.1501 requires, in part, that licensees make radiation surveys that are necessary to comply with 10 CFR Part 20. Contrary to this requirement, an inadequate survey of a contaminated tool resulted in the tool being inappropriately released from the site and received by an off-site vendor on 3/27/2002. The vendor determined that the tool had fixed contamination levels of approximately 300 counts per minute over a small area. No significant dose resulted to a member of the public from this activity. The tool was subsequently returned to the licensee. The issue involving this matter was addressed by various corrective actions and entered into the corrective action process as Condition Report 02-03753. This issue is being treated as a Non-Cited Violation.

Inspection Report# : [2002003\(pdf\)](#)

Physical Protection

Significance:  May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A Feb 01, 2002

Identified By: NRC

Item Type: FIN Finding

OVERALL THE LICENSEE IDENTIFIED PROBLEMS AT AN APPROPRIATE THRESHOLD AND ENTERING THEM INTO THE CAP FOR RESOLUTION

Overall the licensee identified problems at an appropriate threshold and entering them into the CAP for resolution. The identification of repetitive trends appeared proper. However, the use of trend cause codes to identify possible precursor trends was limited. No deficiencies were identified in completed operability determinations. The significance level 1 root cause evaluations reviewed during the inspection sufficiently identified likely causal factors and corrective actions. The significance level 2 apparent cause evaluations generally appeared appropriate. The selected effectiveness reviews were of good quality. Several instances were identified where the evaluation of problems documented in significance

level 2 and level "N" condition reports were either not adequately evaluated or prioritized for completion, or were not completed in sufficient detail to provide for timely and effective corrective actions. Two instances involving Unit 2 atmospheric steam dump valves and a Unit 3 emergency diesel air start check valve were determined to be green findings. Corrective actions appeared appropriate. The effectiveness reviews selected were of good quality, including several where the reviewer appropriately identified inadequate corrective actions. Some safety-related pump bearing oil problems concerns continue to occur, but previous corrective actions may not have had time to correct existing issues. Inspection Report# : [2001015\(pdf\)](#)

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been

noted within the last six months: 1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.
Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : August 29, 2002

Millstone 2

Initiating Events

Significance:  May 12, 2001

Identified By: NRC

Item Type: FIN Finding

OPERATORS FAILED TO INITIATE A PROCEDURALLY REQUIRED MANUAL REACTOR AND TURBINE TRIP

Technical Specification 6.8.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A of Regulatory Guide 1.33, Revision 2, February 1978, specifies other expected transients that may be applicable as an example of a procedure for combating emergencies and other significant events. The licensee established AOP 2517, "Circulating Water Malfunctions," Revision 0, as the implementing procedure for a loss of circulating water system cooling to the main condenser. Contrary to the above, on April 29, 2001, with the "C" and "D" circulating water pumps not operating, operators failed to manually trip the reactor and the turbine as required by AOP 2517, Step 3.1.b.1. This resulted in an automatic turbine trip and subsequent reactor trip. The licensee entered this violation into its corrective action program as CR 01-04636. The licensee did not adequately evaluate the scope of work involved in the overhaul of the "D" circulating pump in that the authorized work affected the operating "C" circulating water pump. The inadequate control of maintenance activities resulted in a trip of the operating "C" circulating water pump, a loss of main condenser vacuum, an automatic turbine trip, and an automatic reactor trip on April 29, 2001. The failure to implement adequate work controls was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)

Significance:  May 12, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE FAILED TO ADEQUATELY ASSESS AND MANAGE THE RISK ASSOCIATED WITH PREVENTIVE MAINTENANCE ON THE CIRCULATING WATER SYSTEM

10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillances, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 7, 2001, the licensee failed to adequately assess and manage the risk associated with preventive maintenance work performed in the Unit 2 "A" circulating water intake bay, in that, the potential consequences of non-safety related work management decisions were not properly evaluated with respect to causing an initiating event (i.e., a reactor trip). This resulted in the loss of cooling water flow to the "A" and "B" main condenser waterboxes and a subsequent manual reactor trip required by the licensee's response procedures. The licensee entered this violation into its corrective action program as CR 01-04910. The licensee did not adequately evaluate the effect of securing and tagging the traveling screen for the "B" circulating pump for diver safety during the performance of work on the "A" circulating water pump. At the start of the work on May 7, 2001, the licensee had both historic information and current information from the adjacent Unit 3 operating staff that unfavorable seaweed conditions were present in Niantic Bay, which is the plant's ultimate heat sink. Inadequate human performance in evaluating the effect of planned diver protection measures on the operating "B" circulating water pump resulted in the inability to recover from the fouling of the traveling screen by seaweed, a trip of the "B" circulating water pump, and a manual reactor trip in accordance with the licensee's abnormal operating procedure for loss of condenser vacuum. The failure to adequately evaluate the scope of tagging was of very low safety significance because the main condenser remained available as a heat removal path. No violation of NRC requirements was identified.

Inspection Report# : [2001004\(pdf\)](#)

Significance:  Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS TO PREVENT RELIEF VALVE LIFTS WHEN TWO CHARGING PUMPS WERE PLACED IN OPERATION

The licensee failed to implement timely and effective corrective actions to address recurrent lifting of a letdown line relief valve during periods when two charging pumps are placed in operation, such as during implementation of the abnormal operating procedure for a rapid downpower. This failure is considered a violation of 10 CFR 50, Appendix B, Criterion XVI. This condition is of very low safety significance because, although the multiple relief valve lifts slightly increased the frequency of initiating events involving a loss of reactor coolant system inventory, mitigating equipment was unaffected. The violation is being treated as a Non-Cited Violation.

Inspection Report# : [2001002\(pdf\)](#)

Significance:  Feb 10, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE ADEQUATE FEEDWATER CONTROL SYSTEM PERFORMANCE AS REQUIRED BY THE MAINTENANCE RULE

Due to inadequate initial evaluation of feedwater control (FWC) system failures, the licensee failed to identify that the FWC system had exceeded its reliability performance criteria in August 2000. As a result, goal setting and monitoring were not performed as required by paragraphs (a)(1) and (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." The degraded reliability of the FWC system was of very low safety significance because although FWC system failures increase the frequency of initiating events, potential FWC system failures are unlikely to prevent the feedwater system from performing its accident mitigation function of providing adequate feedwater to the steam generators for decay heat removal. This violation of 10 CFR 50.65 was classified as a Non-Cited Violation.

Inspection Report# : [2000014\(pdf\)](#)

Significance:  Dec 30, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

INADEQUATE CONTROL OF STEAM GENERATOR WATER LEVEL CONTROL SYSTEM WORK

The licensee inappropriately authorized performance of work on the steam generator water level control system in that the licensee failed to adequately verify that the equipment could be released for work under the existing conditions. Human performance error in the evaluation and approval of the work scope was considered a direct cause of the finding. The inadequate control of maintenance resulted in closure of the feedwater regulating valve for the No. 2 steam generator for approximately 30 seconds and loss of about two-thirds of the margin between the normal steam generator water level and the reactor trip setpoint. The reactor trip was avoided by prompt recovery actions by the maintenance technician and plant operators. Although this condition created a potential for a plant transient, this finding was of very low safety significance because feedwater flow to the No. 1 steam generator was not interrupted by the maintenance activity and the feedwater flow to the No. 2 steam generator was recovered.

Inspection Report# : [2000013\(pdf\)](#)

Significance:  Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE FAILED TO INITIATE PERFORMANCE MONITORING OF THE CONTROL ROD DRIVE SYSTEM AGAINST ESTABLISHED GOALS

The NRC found that the licensee failed to establish appropriate performance goals and monitor system performance

against those goals after the plant-level performance criterion for unplanned scrams was exceeded and significant unplanned capability loss was accrued due to ineffective corrective and preventive maintenance of the control rod drive system. Since exceeding the plant level performance criterion in February 2000, the plant has experienced additional control rod drive problems including dropped control rods on May 30, 2000, that forced a reactor shutdown from Operational Mode 2, "Startup." Based on the increased initiating event frequency related to the degraded performance of the control rod drive system in maintaining commanded rod position, the Significance Determination Process classifies this condition as one of very low safety significance. This violation of paragraph (a)(2) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Mitigating Systems

Significance: TBD Sep 28, 2002

Identified By: NRC

Item Type: URI Unresolved item

LICENSEE'S FAILURE TO IMPLEMENT APPROPRIATE PREVENTIVE MAINTENANCE TO THE EDG EXHAUST DAMPER SOLENOID VALVE

The inspectors identified a violation of 10 CFR 50.65(a)(2) concerning a failure to demonstrate that the condition of a component was being effectively controlled through preventive maintenance. A solenoid operated valve in the "A" emergency diesel generator (EDG) ventilation system failed and no preventive maintenance had been specified for the component, contrary to the vendor's recommendations. The failure of the "A" EDG's ventilation exhaust damper rendered the EDG incapable of performing its required safety function. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "A" EDG. The inspectors evaluated the significance of this finding using the SDP Phase 1 worksheets and the SDP Phase 2 risk-informed inspection notebook (Revision 1) for Millstone Unit 2. Based on the results of the SDP Phase 2 evaluation, a SDP Phase 3 evaluation must be performed. However, the information necessary to complete the SDP Phase 3 evaluation was not available at the conclusion of the inspection period and therefore this issue will be tracked as an unresolved item pending a final significance determination.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO ADEQUATELY ESTABLISH, IMPLEMENT, AND MAINTAIN PROCEDURES COVERING THE CLEANING, INSPECTION AND LUBRICATION OF COUPLINGS

The inspectors identified a non-cited violation (NCV) of technical specification 6.8.1 concerning an inadequate preventive maintenance procedure, which caused a failure of the "C" charging pump high speed coupling and rendered the "C" charging pump incapable of performing its required safety function. Specifically, vendor manual instructions related to grease removal and seal inspections were not translated into the licensee's procedures. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "C" charging pump to perform its required safety function. However, this finding was of very low safety significance (Green) based on a Phase 1 Significance Determination Process evaluation because the finding did not represent an actual loss of the charging system's safety function or an actual loss of charging pumps for greater than the technical specification allowed outage time. Because the finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO CORRECTLY CONCLUDE THAT THE PROPOSED ALTERNATE INJECTION PATH WOULD SUBJECT THE "A" HPSI PIPING AND NOZZLE TO THERMAL TRANSIENTS WHICH WERE OUTSIDE OF THE FSAR DESIGN BASIS

The inspectors identified a Severity Level IV non-cited violation (NCV) of 10 CFR 50.59 involving a procedure change to allow the use of the "A" high pressure safety injection (HPSI) flow path as an alternate charging flow path in Mode 3. The licensee's safety evaluation failed to accurately assess the temperature transients in piping associated with this flow path. The procedure change was developed during a forced shutdown of Unit 2 and the HPSI system piping and nozzle were subjected to thermal transients that were not bounded by the Final Safety Analysis Report (FSAR). This finding is associated with the Mitigating Systems cornerstone and it had the potential to impact the NRC's ability to perform its regulatory function. However, because of the potential for the thermal transients to impact the integrity of the HPSI system under subsequent operational conditions, the inspectors evaluated the finding in accordance with Appendix "A" of the Significance Determination Process. The inspectors determined that the impact from thermal cycles in excess of the FSAR analyses was of very low safety significance (Green) because a subsequent licensee analysis showed there would be no actual loss of the system's safety function. Because the finding is of very low safety significance and because the finding was captured in the licensee's corrective action program, this finding is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO PROMPTLY IDENTIFY AND CORRECT CVCS WELD SUSCEPTIBILITY TO FATIGUE FAILURES

The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, for inadequate corrective actions to promptly identify and correct welds susceptible to fatigue failure following two weld failures in the chemical and volume control system (CVCS) which occurred in July 1999 and November 2001. This finding is associated with the Mitigating Systems cornerstone and it affected the reliability of the charging system. The failure to promptly identify and correct susceptible welds in the CVCS system resulted in two additional weld failures, on like welds, during August 2002. The finding was of very low safety significance (Green) because neither weld failure would have prevented the CVCS discharge header from completing its safety function while the Unit was at power. Because the finding is of very low safety significance and the finding was captured in the licensee's corrective action program, this finding is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Jun 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE BARRIER REQUIREMENTS DESCRIBED IN THE PLANT FIRE HAZARDS ANALYSIS

The licensee did not maintain a 3-hour rated fire barrier as described in the plant Fire Hazards Analysis. Specifically, the inspectors identified a penetration into the north wall of the west DC switchgear room that had not been sealed. The inspectors determined that the safety significance of the degraded fire barrier was very low since it did not separate redundant safe shutdown equipment. The failure to maintain a 3-hour rated fire barrier as described in the Fire Hazards Analysis is a non-cited violation of License Condition 2.C. (3) to Facility Operating License DRP-65. This violation is documented in the licensee's corrective action program as CR-02-07000

Inspection Report# : [2002004\(pdf\)](#)

Significance:  Feb 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM AN OPERABILITY DETERMINATION ON THE POTENTIAL TO PRESSURIZE

THE UNIT 2 ATMOSPHERIC DUMP VALVES (ADV) ACTUATORS GREATER THAN THEIR DESIGN LIMIT

A non-cited violation of 10 CFR 50 Appendix B, Criteria V, for failure to perform an operability determination in accordance with procedures for the potential to pressurize the Unit 2 atmospheric dump valves (ADV) actuators greater than their design limit. However, the failure to perform an operability determination was considered to have a very low safety significance because, a subsequently performed license operability determination provided a reasonable basis for concluding that when the final evaluation is complete, the ADVs will be shown to be capable of performing their safety function in the existing configuration.

Inspection Report# : [2001015\(pdf\)](#)

Significance:  Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INEFFECTIVE CORRECTIVE ACTIONS FOR TDAFW PUMP STEAM SUPPLY LINE STEAM TRAP GASKET FAILURE

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to prevent recurrence of a gasket failure on a steam trap in the main steam admission line to the turbine driven auxiliary feedwater (TDAFW) pump. The licensee's corrective actions specified in January 2000 to obtain and use gaskets rated for continuous main steam temperature were not correctly completed and resulted in the subsequent failure of the TDAFW pump steam trap body-to-bonnet gasket in August 2001. This finding had a credible impact on safety because a steam leak in the TDAFW pump room could have prevented access to the room by plant personnel under emergency conditions. Although this finding affected the availability of the TDAFW pump, the inspectors determined that this finding was of very low safety significance because the size of the steam leak would not have prevented the TDAFW pump from fulfilling its design basis safety function. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001007\(pdf\)](#)

Significance:  Aug 11, 2001

Identified By: Licensee

Item Type: FIN Finding

LICENSEE'S ON-SITE FIRE BRIGADE TEAM RECEIVED A FAILING GRADE FOLLOWING AN UNANNOUNCED FIRE DRILL DUE TO DEGRADATION OF A FIRE PROTECTION DEFENCE-IN-DEPTH FEATURE

The NRC evaluated the drill failure utilizing the NRC's Significant Determination Process (SDP), as well as the fire protection risk significance screening methodology. The NRC concluded the following regarding the drill failure associated with the on-site fire brigade: 1) if left uncorrected, would result in a more significant safety concern regarding the ability to manually suppress fires in other areas of the plant, particularly involving safety-related equipment that are relied upon for the safe shutdown of the unit, 2) constituted a degradation of a credited fire protection feature not only for the area involved with the drill, but for other plant areas that rely on credited manual fire suppression activities to mitigate the effect of fires on the plant and, 3) was mitigated by the presence of a passive fire-rated boundary for protection that was never challenged during the simulated fire. As a result, the degradation of the fire brigade as evidenced by their performance during the fire drill was considered to be of very low safety significance (Green), and is considered a finding, however, no violations of NRC requirements were identified.

Inspection Report# : [2001006\(pdf\)](#)

Significance:  May 12, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CONTROL OF HIGH ENERGY LINE BREAK BARRIERS

The licensee failed to adequately control barriers protecting essential mitigating equipment from the effects of a

potential high energy line break (HELB) during maintenance activities. While the licensee had the "B" switchgear room doors open for compensatory cooling, a previously identified problem with turbine building ventilation prevented automatic closure of the turbine building doors. This condition created a path for the effects of a HELB in the turbine building to affect equipment in the nearby "B" DC switchgear room. Although the affected mitigating equipment was important, the condition was of very low safety significance due to the short exposure time and the low probability of a HELB in the turbine building. This violation of Technical Specification 6.8.1 requirements to adequately implement work control procedures is being treated as a Non-Cited Violation.

Inspection Report# : [2001004\(pdf\)](#)



Significance: Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

INADVERTENT START OF THE "A" EMERGENCY DIESEL GENERATOR

Technical Specification 6.8.1.c. requires that procedures covering surveillance activities be adequately implemented. On January 31, 2001, an operator failed to adequately implement the surveillance procedure addressing a periodic air-roll of the "A" emergency diesel generator (EDG) (OP 2346A, "Emergency Diesel Generators") in that the operator failed to effectively trip the diesel engine fuel rack prior to the air roll. As a result, the diesel started, control room operators emergency tripped the diesel, and an additional hour of unavailability accrued for the "A" EDG. This condition is in the licensee's corrective action program as CR-01-00783, and the licensee has identified corrective actions to enhance OP 2346A by adding steps to ensure the effective tripping of the EDG fuel racks.

Inspection Report# : [2001002\(pdf\)](#)



Significance: Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT CONDITIONS ADVERSE TO QUALITY, I.E., NCVS, WERE NOT PROPERLY ADDRESSED

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, due to a failure to properly evaluate and correct conditions adverse to quality. Specifically, four Non-Cited Violations issued in the last year were not fully addressed in the licensee's corrective action program. Although the associated equipment or plant condition was corrected, the subject of the violation (e.g., failure to revise or use appropriate procedures) was not resolved. The safety significance was determined to be very low because the physical deficiencies were corrected.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE PERFORMED AN ADEQUATE ROOT CAUSE EVALUATION AND EXTENT OF CONDITION REVIEW

Regarding the August 2000 failure of the Unit 2 "C" high pressure safety injection (HPSI) pump, the team determined that Millstone performed an adequate root cause evaluation and extent of condition review. The root cause was determined to be blockage of oil to the bearing oil reservoir due to an impinged mechanical interface. This blockage was caused by inadequate work practices and poor vendor support. There were missed opportunities that may have prevented the pump from becoming inoperable, including a 1993 industry operating experience and a similar event at Unit 3 on a non-safety related pump. The corrective actions were generally appropriate to preclude recurrence, with one exception. Regarding the September 2000 failure of the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump, the team determined that the licensee addressed key corrective action aspects of the event including the failure to implement timely corrective actions in response to degraded conditions. However, the team determined that the licensee did not thoroughly evaluate and identify other contributing causes. Specifically, the licensee did not fully evaluate the issues associated with a loose locking nut that was important to the operation of the governor, nor did they evaluate issues associated with inaccurate vendor technical information. Further, the licensee's evaluation of past operability was weak because observed anomalies were not considered in the determination. While the team considers

the supplemental inspection for the failure of the TDAFW completed, an unresolved item was identified to review the licensee's evaluation of past operability and reportability of the governor failure.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN VENDOR DESIGN INFORMATION ACCURATE FOR THE TDAFW PUMP

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion III, due to a failure to ensure that design information was accurate and correctly translated into the applicable procedures. Specifically, the vendor technical manuals and drawings for the TDAFW pump governor and turbine were not consistent, and did not reflect the installed configuration. The safety significance was determined to be very low because similar vendor technical information deficiencies had not affected other safety-related equipment.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTION TO PRECLUDE RECURRENCE OF THE HPSI LOW OIL EVENT OF AUGUST 2000

The NRC identified a Non-Cited Violation of 10CFR50, Appendix B, Criterion XVI, due to a failure to implement corrective actions to preclude repetition. Specifically, relative to the HPSI pump event, the revision to the associated maintenance procedure did not include guidance to address the specific contributing causal factor and would not have prevented the same event from happening. The safety significance was determined to be very low because the swing pump would normally be available and can be aligned to the affected HPSI train.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY TRANSLATE DESIGN INFORMATION INTO PROCEDURE FOR THE BATTERY SERVICE TEST ACCEPTANCE CRITERIA

The NRC found that the licensee had failed to control the inputs and assumptions used in the calculations for determining battery sizing. The failure to correctly provide adequate design inputs and assumptions for the design margin correction factor in the above calculations was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins and testing. The team found that the licensee had used the incorrect discharge current in the turbine battery surveillance test performed in April 2000. The test results indicated a battery capacity of 140% when, in actuality, a capacity of less than 100% was demonstrated by the test. The failure to use the correct discharge current in the above surveillance test was considered to have low risk significance (GREEN) because there was negligible impact to the operability of the system based on compensating margins. The team found that the licensee had failed to provide adequate review of the acceptance criteria for the battery surveillance discharge tests. The problems identified included incorrect minimum voltage for the service test acceptance criteria for both the safety-related station batteries and the Technical Specification (TS) required turbine batteries, both TS surveillance tests. The team evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green). This is based on a review of the 18 month surveillance tests that indicates that the lowest measured voltage at the end of the duty cycle is above 115 VDC and, therefore the batteries would perform the safety functions. This failure to properly translate design information into test acceptance criteria is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This violation is considered a Non-Cited Violation (50-336/00015-01) consistent with Section VI.A of the Enforcement Policy.

Inspection Report# : [2000015\(pdf\)](#)

Significance:  Oct 20, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROVIDE ADEQUATE CONTROLS ON TESTING FOR THE BATTERY CHARGER VOLTMETERS AND UNDER-VOLTAGE RELAYS

The NRC found that the licensee had missed their prescribed calibration on the instruments for the battery charger voltmeters. The failure to maintain the calibration frequency was considered to have low risk significance because it would not prevent the system from performing its required safety function due to the compensating margins. The failure to perform the required calibrations as identified in the design documents was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control."

Inspection Report# : [2000015\(pdf\)](#)

Significance:  Sep 30, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE OF TURBINE-DRIVEN AUXILIARY FEEDWATER PUMP SPEED CONTROL

Following operator identification that the speed control for the turbine-driven auxiliary feedwater (TDAFW) pump was at times unresponsive and erratic during surveillance testing, the licensee failed to take prompt corrective action, consistent with the pump's importance to safety, to address the degraded condition. Consequently, during the subsequent surveillance test 28 days later, operators were unable to increase the speed of the TDAFW pump from its starting speed. At its starting speed, the pump could not develop sufficient discharge pressure to provide feedwater to the steam generators. The NRC considered the failure to take prompt corrective actions a violation of Criterion XVI, "Corrective Actions," of 10 CFR Part 50, Appendix B. The inability to increase pump speed was a condition of low to moderate safety significance (White) because, although the exposure time was moderate, the TDAFW pump is an important accident mitigation component and prompt operator recovery of the pump was not credible. NOV was issued by Enforcement Action 00-236 letter dated December 6, 2000.

Inspection Report# : [2000011\(pdf\)](#)

Inspection Report# : [2001007\(pdf\)](#)

Significance:  Sep 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO VERIFY OIL FLOW TO HIGH PRESSURE SAFETY INJECTION PUMP BEARING FOLLOWING MAINTENANCE ACTIVITIES

During routine surveillance on the "C" high pressure safety injection (HPSI) pump, a plant equipment operator identified that the outboard bearing housing lacked adequate oil to maintain the bearing coated with oil. The licensee concluded that pump operation for greater than 4 hours with the available oil inventory was questionable. The NRC concluded that the lack of adequate oil resulted from a combination of inadequate maintenance procedures, which failed to ensure the automatic oil makeup bubbler was functioning properly following maintenance to address oil leaks, and the design of the bubbler, which allowed an internal component to block makeup flow to the bearing. Although the pump was not available to perform its long-term cooling function for a moderately long period, the condition was found to be of very low safety significance due to the availability of a spare pump that could be easily placed in service. The failure to implement and maintain adequate procedural guidance was considered a violation of Technical Specification 6.8.1.a., and is being treated as a Non-Cited Violation. The NRC also found that the licensee failed to extend the corrective action plan to other safety-related pumps in both Millstone Units 2 and 3, in that the proposed corrective action for verification of oil flow from the oil bubbler to the bearing housings following maintenance addressed the Unit 2 HPSI pumps only.

Inspection Report# : [2000011\(pdf\)](#)

Significance:  Sep 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE DESIGN CONTROL MEASURES LEAD TO FAILURE TO DISABLE CLOSING CAPABILITY FOR VALVE AS REQUIRED BY APPENDIX R

On April 22, 2000, the licensee identified that the closing capability for valve 2-SI-651, the outboard shutdown cooling system suction isolation valve, had not been disabled with the plant in Modes 1, 2, and 3, as required by the licensee's Appendix R Compliance Report. The valve closing capability is disabled by removing the closing coils from the motor controller for this valve to ensure that a fire-induced hot-short would not cause the valve to fail in the closed position. The licensee implemented a design change in early 1999 that relocated the valve motor controller, but the modification had not resulted in corresponding changes to equipment labels and operating procedures. As a result, from March 1999 to April 2000, electricians had been removing coils from the abandoned motor controller, which failed to disable the closing capability of the valve. This failure to translate design changes into appropriate procedures is considered a violation of Criterion III, "Design Control," of 10 CFR Part 50, Appendix B. The inspector evaluated this condition using the significance determination process and found the condition to be of very low safety significance (Green) in that it would not prevent the plant from being maintained indefinitely in hot shutdown. This violation is being treated as a Non-Cited Violation.

Inspection Report# : [2000011\(pdf\)](#)

Significance:  Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE'S FAILURE TO IMPLEMENT NECESSARY COMPENSATORY MEASURES FOR INOPERABLE SWITCHGEAR COOLING SYSTEMS

When operators removed safety-related switchgear cooling systems from service, they failed to recognize that compensatory measures were required to ensure operability of the associated switchgear for certain design basis conditions, as specified in Section 11 of the Unit 2 Technical Requirements Manual. As a result, the licensee failed to take appropriate action as required by Unit 2 Technical Specifications 3.8.2.1 and 3.8.2.3, for an inoperable vital 480 volt load center and an inoperable train of vital DC switchgear respectively. This technical specification violation is being treated as a non-cited violation. The loss of switchgear cooling events were evaluated using the NRC's Significant Determination Process and, based on the short exposure time and the availability of the redundant train, the condition was found to be of very low safety significance.

Inspection Report# : [2000009\(pdf\)](#)

Significance:  Aug 12, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY CORRECTIVE ACTIONS TO ENSURE CORRECT DIESEL GENERATOR VOLTAGE REGULATOR SETTINGS

Following surveillance testing and operation of the "B" emergency diesel generator (EDG) on July 5, 2000, the licensee failed to restore the automatic voltage regulator to the position specified in the associated surveillance procedure. As a result, the "B" EDG output voltage was well below normal at its next start and was close to rendering the "B" EDG inoperable. Because no actual loss of safety function occurred, the condition was evaluated through the Significance Determination Process as a condition of very low safety significance. This condition is identical to a previous violation associated with the failure to restore the automatic voltage regulator to its required position on July 7, 1999, but the licensee had not implemented corrective actions associated with that violation. This failure to implement timely corrective actions for a condition adverse to quality, as required by Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation.

Inspection Report# : [2000009\(pdf\)](#)

Significance:  Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE FIGHTING STRATEGIES

The NRC identified that the licensee had not adequately maintained fire fighting strategies, which could reduce the effectiveness of manual fire fighting. This failure to adequately maintain manual fire fighting implementing procedures as required by Unit 2 Technical Specification 6.8.1.f is being treated as a non-cited violation. Because manual fire suppression is the principal method of fighting fires only in areas where safe-shutdown equipment trains are separated by at least three-hour rated fire barriers, the Fire Protection Significance Determination Process characterizes a reduction in manual fire suppression effectiveness alone as a condition of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

Significance:  Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT A PROCEDURE COVERING THE FILLING OF THE CHILLED WATER SYSTEM

The NRC found that inadequate instructions for filling the chilled water system following maintenance led to the common-cause failure of both vital DC switchgear cooling trains due to air binding of the associated vital chilled water pumps. This failure to adequately implement procedures for filling the chilled water system as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. Evaluation using the NRC Significance Determination Process revealed that the safety significance of this common cause failure of vital DC switchgear cooling was very low because the exposure time was short, the normal cooling system was in operation, the compensatory measures for loss of cooling were proceduralized, and the vital DC switchgear cooling trains are only initiated for events involving a loss of offsite power or safety injection.

Inspection Report# : [2000008\(pdf\)](#)

Significance:  Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH AND IMPLEMENT A PROCEDURE COVERING CONTROL OF MAINTENANCE WORK

The NRC found that the licensee inappropriately authorized performance of a work order for replacement of the "D" reactor coolant pump seal when reactor coolant system (RCS) level was above the elevation of the seal. Although RCS level was below the seal prior to removal, the inadequate control of maintenance activities resulted in control room operators being unaware that an opening in the RCS existed during RCS draining activities. This failure to adequately establish and implement procedures for control of maintenance activities as required by Unit 2 Technical Specification 6.8.1.a is being treated as a non-cited violation. The NRC evaluated this condition using the Shutdown Operations Significance Determination Process and concluded that the condition was of very low safety significance because the licensee had planned and implemented appropriate controls to reduce RCS level below the opening created by the seal removal. The NRC also found that the licensee's corrective action plan for this condition was inadequate in that it did not address the work control process.

Inspection Report# : [2000008\(pdf\)](#)

Significance:  Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO ADDRESS RBCCW RELIEF VALVES LIFTING IN THE EVENT OF A LOSS OF NORMAL POWER

The NRC identified that the licensee had not provided adequate justification for operability of the reactor building closed cooling water (RBCCW) system when multiple thermal relief valves lifted during pump starts under conditions simulating a loss of normal power. The licensee had determined that lifting of RBCCW relief valves was acceptable once three relief valves that had failed to reseal during testing were gagged. However, the NRC found that the licensee had failed to take adequate corrective actions to address the increased probability of failure of the RBCCW system due to loss of inventory through relief valves that fail to reseal. This violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because the condition was addressed prior to Unit 2 startup from refueling by gagging other relief valves, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: Jul 01, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE OF THE LICENSEE TO IMPLEMENT ANY PERIODIC OR POST-MAINTENANCE TEST TO VERIFY ADEQUATE RBCCW TRAIN INDEPENDENCE

The NRC identified that the licensee had not implemented measures to ensure adequate train independence for the reactor building closed cooling water (RBCCW) system. This violation of Criterion XI, "Test Control," of 10 CFR Part 50, Appendix B, is being treated as a non-cited violation. Because no loss of function of the train separation valves was identified, no actual loss of safety function occurred, and the Significance Determination Process screened this condition as one of very low safety significance.

Inspection Report# : [2000008\(pdf\)](#)

G

Significance: May 13, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY THAT THE "A" HPSI TRAIN INJECTION VALVES WERE INOPERABLE AND REVIEW THAT CONDITION RELATIVE TO TECHNICAL SPECIFICATION 3.0.5 REQUIREMENTS

With the Unit 2 reactor at 100 percent power, the on-coming Unit Supervisor identified that the previous shift had operated for a period of 25 minutes with the "A" high pressure safety injection (HPSI) train and the "B" emergency diesel generator (EDG) inoperable for surveillance testing. The NRC concluded that the condition resulted from poor surveillance scheduling practices and inadequate operator awareness of equipment status. There were several opportunities to identify the condition, including a specific surveillance procedure verification in which an operator incorrectly initialed that the "A" HPSI train was operable. This failure to follow the procedure is being treated as a Non-Cited Violation. The NRC used the Significance Determination Process to evaluate the risk significance of this event for the loss of offsite power initiating event, which involves both the EDGs and the HPSI system as potential mitigation equipment. The NRC assumed that both the "A" HPSI train and the "B" EDG were readily recoverable. Because of the short time the condition existed, this issue was determined to be of very low risk significance.

Inspection Report# : [2000007\(pdf\)](#)

Barrier Integrity

G

Significance: Sep 29, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

LICENSEE FAILED TO COMPLETE A VERIFICATION OF ISOLATION TIME TEST FOR CONTAINMENT ISOLATION VALVE 2-MS-220A

Technical Specification 4.6.3.1.1.b requires, in part, that each isolation valve testable during plant operation shall be

demonstrated operable immediately prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by exercising each power operated valve through one complete cycle of full travel and measuring the isolation time. Contrary to the above, the licensee failed to complete a verification of isolation time test for containment isolation valve 2-MS-220A (a steam generator blowdown flow control valve) following maintenance activities performed on this valve on July 16, 1999. The licensee entered this violation into its corrective action program as CR 01-02062.

Inspection Report# : [2001007\(pdf\)](#)

Significance:  Feb 02, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERATIONALLY-CRITICAL DRAWINGS IN THE CONTROL CURRENT

The NRC identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, due to a failure to maintain design documents accurate. Specifically, six drawings classified as "operationally-critical" and located in the Unit 2 control room, for safety-related equipment, were not maintained current. The safety significance was determined to be very low because there has been no actual degradation of plant equipment due to this problem.

Inspection Report# : [2000017\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: N/A May 11, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE SURVEY OF A CONTAMINATED TOOL RESULTED IN THE TOOL BEING INAPPROPRIATELY RELEASED FROM THE SITE AND RECEIVED BY AN OFF-SITE VENDOR

10 CFR 20.1501 requires, in part, that licensees make radiation surveys that are necessary to comply with 10 CFR Part 20. Contrary to this requirement, an inadequate survey of a contaminated tool resulted in the tool being inappropriately released from the site and received by an off-site vendor on 3/27/2002. The vendor determined that the tool had fixed contamination levels of approximately 300 counts per minute over a small area. No significant dose resulted to a member of the public from this activity. The tool was subsequently returned to the licensee. The issue involving this matter was addressed by various corrective actions and entered into the corrective action process as Condition Report 02-03753. This issue is being treated as a Non-Cited Violation.

Inspection Report# : [2002003\(pdf\)](#)

Physical Protection

Significance:  May 12, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

PROTECTED AREA GATE OPEN WITHOUT COMPENSATORY ACTIONS

On February 5, 2001, the licensee identified that a gate that constituted a portion of the Protected Area barrier was in the fully open position without compensatory actions in place. This condition was contrary to the licensee's NRC approved Physical Security Plan, which states in part, that "Gates that constitute a portion of the protected area boundary area are constructed of the same or equivalent materials that are used for the protected area fence... . All gates are locked and alarmed when not in use...." This issue is more than minor in that, if left uncorrected, the same condition could result in unauthorized entry into the Protected Area. Since there was no malevolent act, no actual intrusion occurred, and there have not been greater than two similar findings in the past four quarters, the Significance Determination Process classifies this finding as one of very low safety significance (Green). This condition is a violation of 10 CFR 73.40, which requires that each licensee maintain physical security in accordance with their NRC-approved Physical Security Plan (NCV 05000336,423/2001-004-05). This issue was entered into the licensee's corrective action program as CR-01-01032.

Inspection Report# : [2001004\(pdf\)](#)

Miscellaneous

Significance: N/A Feb 01, 2002

Identified By: NRC

Item Type: FIN Finding

OVERALL THE LICENSEE IDENTIFIED PROBLEMS AT AN APPROPRIATE THRESHOLD AND ENTERING THEM INTO THE CAP FOR RESOLUTION

Overall the licensee identified problems at an appropriate threshold and entering them into the CAP for resolution. The identification of repetitive trends appeared proper. However, the use of trend cause codes to identify possible precursor trends was limited. No deficiencies were identified in completed operability determinations. The significance level 1 root cause evaluations reviewed during the inspection sufficiently identified likely causal factors and corrective actions. The significance level 2 apparent cause evaluations generally appeared appropriate. The selected effectiveness reviews were of good quality. Several instances were identified where the evaluation of problems documented in significance level 2 and level "N" condition reports were either not adequately evaluated or prioritized for completion, or were not completed in sufficient detail to provide for timely and effective corrective actions. Two instances involving Unit 2 atmospheric steam dump valves and a Unit 3 emergency diesel air start check valve were determined to be green findings. Corrective actions appeared appropriate. The effectiveness reviews selected were of good quality, including several where the reviewer appropriately identified inadequate corrective actions. Some safety-related pump bearing oil problems concerns continue to occur, but previous corrective actions may not have had time to correct existing issues.

Inspection Report# : [2001015\(pdf\)](#)

Significance: N/A May 12, 2001

Identified By: NRC

Item Type: FIN Finding

ADVERSE TREND IN MANAGING RISK DURING MAINTENANCE

The NRC noted development of an apparent trend related to inadequate identification of risk-significant aspects of maintenance activities and the implementation of appropriate measure to manage that risk. The following specific deficiencies have been noted within the last six months: (1) In December 2000, the NRC identified that inappropriate work controls were implemented for maintenance, which resulted in the inadvertent closure of one feedwater regulating valve with the plant operating at 100 percent power (FIN 50-336/2000-013-01). (2) In April 2001, the NRC identified that inadequate work controls were implemented for work on in-service equipment, which resulted in a reactor trip. (3) In May 2001, the NRC identified that inadequate control of tagging implemented for worker protection affected the operation of in-service equipment and resulted in a reactor trip. (4) In April 2001, the NRC identified that inadequate control of doors during maintenance resulted in the potential for a high energy line break (HELB) to affect equipment used to mitigate the HELB event. These issues have a related cause in that they represent inadequate human performance in identifying risk significant aspects of maintenance activities and implementing necessary measures to manage the risk. They also have a direct impact on safety because of the increased frequency of initiating events and

the increased potential for failure of essential mitigating equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

LICENSEE'S PERFORMANCE IN THE AREA OF PROBLEM IDENTIFICATION AND RESOLUTION WAS GENERALLY ADEQUATE

The licensee's performance in the area of problem identification and resolution at Millstone Units 2 and 3 was generally adequate. The licensee's staff usually identified risk significant problems at an appropriate threshold, and the problems were classified at an appropriate significance level. The engineering and maintenance backlogs, as well as the corrective action backlog, appeared to be adequately managed. In general, the majority of the issues reviewed were dealt with adequately when entered into the corrective action program; however, the team noted that a number of NRC findings identified over the past year concerned the cross-cutting area of problem identification and resolution. The majority of these findings related to Unit 2, with respect to the prioritization and evaluation of problems, and the effectiveness of corrective actions. The team also noted that many of the corrective actions were extended considerably beyond the original scheduled completion date. Additionally, while procedures allowed waiving of a root cause analyses for significant conditions adverse to quality, about half of the root cause analyses were waived without providing adequate documented justification.

Inspection Report# : [2000017\(pdf\)](#)

Significance: N/A Feb 02, 2001

Identified By: NRC

Item Type: FIN Finding

WEAKNESSES TO THE PRIORITIZATION AND EVALUATION OF PROBLEMS AND CORRECTIVE ACTION EFFECTIVENESS

The weaknesses with respect to the prioritization and evaluation of problems and corrective action effectiveness, as reflected in NRC findings identified over the past year, represent a substantive cross-cutting issue. Most notable was the failure to promptly address anomalous indications in the governor for the Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump in August 2000. Further, after the failure of the TDAFW pump, the evaluation of the problems with the governor was not thorough and did not address other contributors to the failure. Other examples included the failure to implement timely corrective actions to ensure correct voltage regulator settings for a Unit 2 emergency diesel generator, which resulted in a second identical occurrence one year later; and the failure to incorporate a corrective action to prevent recurrence of the inoperability of the Unit 2 "C" high pressure safety injection pump.

Inspection Report# : [2000017\(pdf\)](#)

Significance: SL-IV Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

POTENTIAL COMPROMISE OF ANNUAL REQUALIFICATION EXAMINATION

The licensee allowed licensed personnel that had completed their requalification examination to mingle with personnel that were yet to be tested without a proctor being present. This situation created the potential to compromise the integrity of the requalification examination. Also, the licensee did not have a procedure to describe expected security during requalification examinations. This examination integrity issue has been entered into the licensee's corrective action program. Although the significance of this finding is very low due to no evidence of actual compromise, the issue is more than minor because, if left uncorrected, it affects the ability of the NRC to accurately assess licensed operator performance. This violation of 10 CFR 55.49 is being treated as a non-cited violation.

Inspection Report# : [2000013\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INADEQUATE POST MAINTENANCE RESTORATION AND TESTING ACTIVITIES

The NRC noted development of an apparent trend related to inadequate post-maintenance restoration and testing activities. The following specific deficiencies have been noted within the last six months: (1) In May 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the subsequent common cause failure of both vital DC switchgear cooling trains (NCV 50-336/2000-008-02). (2) In May 2000, the NRC identified that appropriate post-maintenance and periodic tests had not been developed to ensure adequate train independence for the reactor building closed cooling water system (NCV 50-336/2000-008-05). (3) In September 2000, the NRC identified that inadequate post-maintenance restoration and testing activities resulted in the "C" high pressure safety injection pump being in an undetected degraded state for 28 days, in that the outboard bearing of the pump lacked adequate oil for long-term operation (NCV 0500336/2000-011-02). These issues have a related cause in that they represent inadequate human performance in identifying and implementing necessary measures to ensure equipment will perform acceptably in service. They also have a direct impact on safety because of the potential or actual existence of undetected conditions that could prevent satisfactory performance of necessary event mitigation functions. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Sep 30, 2000

Identified By: NRC

Item Type: FIN Finding

APPARENT TREND - INCOMPLETE OR UNTIMELY IMPLEMENTATION OF CORRECTIVE ACTIONS TO ADDRESS DEGRADED CONDITIONS

The NRC noted development of an apparent trend related to untimely or incomplete measures to address known conditions affecting the operability of essential mitigation equipment. The following specific deficiencies have been noted within the last six months: 1) In May 2000, the NRC identified that the licensee's took incomplete corrective actions when multiple reactor building closed cooling water system relief valves lifted during pump starts under conditions simulating a loss of normal power in that the licensee failed to address the increased probability of system failure created by lifting relief valves (NCV 50-336/2000-008-04). (2) In August 2000, the NRC identified that the licensee had failed to implement timely corrective actions to ensure correct emergency diesel generator voltage regulator settings, which resulted in a second occurrence of low output voltage one year after the first occurrence (NCV 50-336/2000-009-03). (3) In September 2000, the NRC identified that the licensee had not implemented timely corrective actions in response to operator identification that the turbine-driven auxiliary feedwater pump speed control was unresponsive and erratic (AV 50-336/2000-011-01). (4) In September 2000, the NRC identified that the licensee had not implemented complete corrective actions to ensure proper operation of safety related pump bearing oiler bubblers following maintenance in that actions were limited to the Unit 2 high pressure safety injection pump bearing housings (NCV 50-336/2000-011-02). These issues have a related cause in that they represent known degraded conditions that were addressed incompletely or in an untimely manner. They also have a direct impact on safety because of the increased potential for or actual failure of important event mitigation equipment. This performance trend is considered a substantive cross-cutting issue, separate from the individual issues, and is considered a finding.

Inspection Report# : [2000011\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

INADEQUATE PERFORMANCE OF DESIGN CHANGE REVIEWS

The NRC identified the following three examples where plant design changes were not translated into appropriate specifications and procedures due to inadequate performance of design change reviews: (1) following the implementation of a reactor protection system (RPS) wiring modifications, four technical specification (TS) surveillance procedures affected by the modification were not appropriately revised; (2) following replacement of the turbine-driven auxiliary feedwater pump (TDAFP) impeller, non-conservative technical specification and surveillance procedure acceptance criteria were not revised to be consistent with the resulting changes in pump performance; (3) following calculation of revised RPS trip setpoint and allowable values, a non-conservative technical specification allowable value was not revised. Because these conditions were administrative in nature and did not affect the operability of the systems, these design control violations were individually classified as violations of minor significance and were not subject to formal enforcement action.

Inspection Report# : [2000009\(pdf\)](#)

Last modified : December 02, 2002

Millstone 2

Initiating Events

Mitigating Systems

G**Significance:** Dec 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CORRECTIVE ACTION TO PREVENT RECURRENCE OF EDG EXHAUST DAMPER SOLENOID VALVE FAILURE

The inspectors identified a failure to determine the cause and take corrective action to preclude repetition of the May 2000 "A" emergency diesel generator (EDG) room ventilation exhaust damper solenoid valve failure. Following an "A" EDG ventilation system solenoid valve failure, the identified condition was not adequately investigated and the root cause never fully determined to prevent recurrence of a similar failure in August 2002. The failure of the "A" EDG's ventilation exhaust damper rendered the EDG incapable of performing its required safety function. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "A" EDG. The inspectors evaluated the significance of this finding using the SDP Phase 1 worksheets and the SDP Phase 2 risk-informed inspection notebook (Revision 1) for Millstone Unit 2. Based on the results of the SDP Phase 2 evaluation, a SDP Phase 3 evaluation was performed. The SDP Phase 3 evaluation concluded that the finding was of very low safety significance (Green) following application of refined operator recovery credit. The increase in core damage frequency was greater than $1.0E-7$, but less than $1.0E-6$ due to internal initiating events. The issue was determined to be a violation of 10 CFR 50, Appendix, B, Criterion XVI, Corrective Action. Because the finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy. As a result, URI 50-336/02-05-02 is closed. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to determine the root cause and take effective corrective action to preclude repetition as causal factors.

Inspection Report# : [2002006\(pdf\)](#)G**Significance:** Nov 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - HIGH ENERGY LINE BREAK IMPACT ON OPERABILITY OF THE MOTOR-DRIVEN AUXILIARY FEEDWATER PUMPS

The inspectors identified that a small line high energy line break (HELB) in the turbine building could cause a loss of both motor-driven auxiliary feedwater pumps. The loss of the pumps would be the result of the motor bearings overheating and failing due to the high ambient room temperatures caused by the small line HELB. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the Significance Determination Process because the inadequate cooling of the auxiliary feedwater (AFW) pump motor bearings was a design deficiency of the AFW system that did not result in an actual loss of system function. The issue was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to identify a condition adverse to quality as a causal factor.

Inspection Report# : [2002012\(pdf\)](#)G**Significance:** Nov 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - AVAILABILITY OF SERVICE WATER SYSTEM FOLLOWING A FLOODING EVENT

The inspectors identified that the design bases of the service water system (SWS) pertaining to pump operation following a flooding event were not correctly translated into instruction because, (1) the need to and the steps that are required to restore operability of the SWS within two hours were not included in the applicable plant procedure; and (2) the steps required to initiate manual blowdown of the SWS strainers were not included in the applicable plant procedure. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the Significance Determination Process (SDP) because the inadequate service water system restoration procedure was a system design deficiency that did not result in an actual loss of system function. The issue was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to identify a condition adverse to quality as a causal factor.

Inspection Report# : [2002012\(pdf\)](#)

**Significance:** Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH, IMPLEMENT, AND MAINTAIN PROCEDURES COVERING THE CLEANING, INSPECTION AND LUBRICATION OF PUMP COUPLINGS

The inspectors identified an inadequate preventive maintenance procedure, which caused a failure of the "C" charging pump high speed coupling and rendered the "C" charging pump incapable of performing its required safety function. Specifically, vendor manual instructions related to grease removal and seal inspections were not translated into the licensee's procedures. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "C" charging pump to perform its required safety function. However, this finding was of very low safety significance (Green) based on a Phase 1 Significance Determination Process evaluation because the finding did not represent an actual loss of the charging system's safety function or an actual loss of charging pumps for greater than the technical specification allowed outage time. The issue was determined to be a violation of Technical Specification 6.8.1, Procedures. Because the finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)**Significance:** Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE 50.59 EVALUATION IN SUPPORT OF AN ALTERNATE INJECTION PATH WOULD SUBJECT HIGH PRESSURE SAFETY INJECTION PIPING AND NOZZLE TO THERMAL TRANSIENTS NOT BOUNDED BY DESIGN

The inspectors identified an inadequate 10 CFR 50.59 evaluation involving a procedure change to allow the use of the "A" high pressure safety injection (HPSI) flow path as an alternate charging flow path in Mode 3. The licensee's safety evaluation failed to accurately assess the temperature transients in piping associated with this flow path. The procedure change was developed during a forced shutdown of Unit 2 and the HPSI system piping and nozzle were subjected to thermal transients that were not bounded by the Final Safety Analysis Report (FSAR). This finding is associated with the Mitigating Systems cornerstone and it had the potential to impact the NRC's ability to perform its regulatory function. However, because of the potential for the thermal transients to impact the integrity of the HPSI system under subsequent operational conditions, the inspectors evaluated the finding in accordance with Appendix "A" of the Significance Determination Process. The inspectors determined that the impact from thermal cycles in excess of the FSAR analyses was of very low safety significance (Green) because a subsequent licensee analysis showed there would be no actual loss of the system's safety function. The issue was determined to be a violation of 10 CFR 50.59, Changes, tests, and experiments. Because the finding is of very low safety significance and because the finding was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)**Significance:** Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO PROMPTLY IDENTIFY AND CORRECT CVCS WELD SUSCEPTIBILITY TO FATIGUE FAILURES

The inspectors identified inadequate corrective actions to promptly identify and correct welds susceptible to fatigue failure following two weld failures in the chemical and volume control system (CVCS) which occurred in July 1999 and November 2001. This finding is associated with the Mitigating Systems cornerstone and it affected the reliability of the charging system. The failure to promptly identify and correct susceptible welds in the CVCS system resulted in two additional weld failures, on like welds, during August 2002. The finding was of very low safety significance (Green) because neither weld failure would have prevented the CVCS discharge header from completing its safety function while the Unit was at power. The issue was determined to be a violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Because the finding is of very low safety significance and the finding was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)**Significance:** Jun 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE BARRIER REQUIREMENTS DESCRIBED IN THE PLANT FIRE HAZARDS ANALYSIS

The inspectors identified a penetration into the north wall of the west DC switchgear room that had not been sealed to maintain a 3-hour rated fire barrier, as described in the plant Fire Hazards Analysis. The inspectors determined that the safety significance of the degraded fire barrier was very low since it did not separate redundant safe shutdown equipment. The issue was determined to be a violation of License Condition 2.C. (3) to Facility Operating License DRP-65, Fire Protection Program. Because the finding is of very low safety significance and the finding

was captured in the licensee's corrective action program, the finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002004\(pdf\)](#)



Significance: Feb 01, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM AN OPERABILITY DETERMINATION ON THE POTENTIAL TO PRESSURIZE THE UNIT 2 ATMOSPHERIC DUMP VALVES (ADV)s ACTUATORS GREATER THAN THEIR DESIGN LIMIT

The Problem Identification and Resolution team inspectors identified a failure to perform an operability determination in accordance with procedures for the potential to pressurize the Unit 2 atmospheric dump valves (ADV)s actuators greater than their design limit. However, the failure to perform on operability determination was considered to have a very low safety significance because, a subsequently performed license operability determination provided a reasonable basis for concluding that when the final evaluation is complete, the ADVs will be shown to be capable of performing their safety function in the existing configuration. The issue was determined to be a violation of 10 CFR 50, Appendix B, Criteria V, Instructions, Procedures and Drawings. Because the finding is of very low safety significance and was captured in the licensee's corrective action program, the finding is being treated as a non-cited violation, consistent with section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2001015\(pdf\)](#)

Barrier Integrity

Significance: TBD Dec 28, 2002

Identified By: NRC

Item Type: URI Unresolved item

REACTOR COOLANT SYSTEM LEAKAGE

Technical Specification 3.4.6.2 states that reactor coolant system leakage shall be limited to no pressure boundary leakage in Modes 1 through 4. Contrary to this requirement, on February 19 and 22, 2002 while shutdown (Mode 5), the licensee's visual inspections found small boron deposits on two pressurizer heater penetrations indicating that a small leak was present during the previous operating cycle. The licensee also conducted helium leak tests which found that the RCP seal cooler had been leaking at an estimated rate to be less than 0.003 gal/min during the previous operating cycle. Both components are part of the reactor coolant pressure boundary. The risk significance of this issue is under review.

Inspection Report# : [2002006\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety



Significance: May 11, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

INADEQUATE SURVEY OF A CONTAMINATED TOOL RESULTED IN THE TOOL BEING INAPPROPRIATELY RELEASED FROM THE SITE AND RECEIVED BY AN OFF-SITE VENDOR

10 CFR 20.1501 requires, in part, that licensees make radiation surveys that are necessary to comply with 10 CFR Part 20. Contrary to this requirement, an inadequate survey of a contaminated tool resulted in the tool being inappropriately released from the site and received by an off-site vendor on 3/27/2002. The vendor determined that the tool had fixed contamination levels of approximately 300 counts per minute over a small area. No significant dose resulted to a member of the public from this activity. The tool was subsequently returned to the licensee. The issue involving this matter was addressed by various corrective actions and entered into the corrective action process as Condition Report 02-03753. This issue is being treated as a non-cited violation consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002003\(pdf\)](#)

Physical Protection

Miscellaneous

Significance: N/A Feb 01, 2002

Identified By: NRC

Item Type: FIN Finding

PROBLEM IDENTIFICATION AND RESOLUTION TEAM INSPECTION RESULTS

Overall the licensee identified problems at an appropriate threshold and entered them into the CAP for resolution. The identification of repetitive trends appeared proper. However, the use of trend cause codes to identify possible precursor trends was limited. No deficiencies were identified in completed operability determinations. The significance level 1 root cause evaluations reviewed during the inspection sufficiently identified likely causal factors and corrective actions. The significance level 2 apparent cause evaluations generally appeared appropriate. The selected effectiveness reviews were of good quality. Several instances were identified where the evaluation of problems documented in significance level 2 and level "N" condition reports were either not adequately evaluated or prioritized for completion, or were not completed in sufficient detail to provide for timely and effective corrective actions. Corrective actions appeared appropriate. The effectiveness reviews selected were of good quality, including several where the reviewer appropriately identified inadequate corrective actions. Some safety-related pump bearing oil problem concerns continue to occur, but previous corrective actions may not have had time to correct existing issues.

Inspection Report# : [2001015\(pdf\)](#)

Last modified : March 25, 2003

Millstone 2

1Q/2003 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CORRECTIVE ACTION TO PREVENT RECURRENCE OF EDG EXHAUST DAMPER SOLENOID VALVE FAILURE

The inspectors identified a failure to determine the cause and take corrective action to preclude repetition of the May 2000 "A" emergency diesel generator (EDG) room ventilation exhaust damper solenoid valve failure. Following an "A" EDG ventilation system solenoid valve failure, the identified condition was not adequately investigated and the root cause never fully determined to prevent recurrence of a similar failure in August 2002. The failure of the "A" EDG's ventilation exhaust damper rendered the EDG incapable of performing its required safety function. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "A" EDG. The inspectors evaluated the significance of this finding using the SDP Phase 1 worksheets and the SDP Phase 2 risk-informed inspection notebook (Revision 1) for Millstone Unit 2. Based on the results of the SDP Phase 2 evaluation, a SDP Phase 3 evaluation was performed. The SDP Phase 3 evaluation concluded that the finding was of very low safety significance (Green) following application of refined operator recovery credit. The increase in core damage frequency was greater than 1.0E-7, but less than 1.0E-6 due to internal initiating events. The issue was determined to be a violation of 10 CFR 50, Appendix, B, Criterion XVI, Corrective Action. Because the finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy. As a result, URI 50-336/02-05-02 is closed. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to determine the root cause and take effective corrective action to preclude repetition as causal factors.

Inspection Report# : [2002006\(pdf\)](#)

Significance:  Nov 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - HIGH ENERGY LINE BREAK IMPACT ON OPERABILITY OF THE MOTOR-DRIVEN AUXILIARY FEEDWATER PUMPS

The inspectors identified that a small line high energy line break (HELB) in the turbine building could cause a loss of both motor-driven auxiliary feedwater pumps. The loss of the pumps would be the result of the motor bearings overheating and failing due to the high ambient room temperatures caused by the small line HELB. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the Significance Determination Process because the inadequate cooling of the auxiliary feedwater (AFW) pump motor bearings was a design deficiency of the AFW system that did not result in an actual loss of system function. The issue was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is related to the

Problem Identification and Resolution cross-cutting area with failure to identify a condition adverse to quality as a causal factor.

Inspection Report# : [2002012\(pdf\)](#)

Significance:  Nov 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - AVAILABILITY OF SERVICE WATER SYSTEM FOLLOWING A FLOODING EVENT

The inspectors identified that the design bases of the service water system (SWS) pertaining to pump operation following a flooding event were not correctly translated into instruction because, (1) the need to and the steps that are required to restore operability of the SWS within two hours were not included in the applicable plant procedure; and (2) the steps required to initiate manual blowdown of the SWS strainers were not included in the applicable plant procedure. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the Significance Determination Process (SDP) because the inadequate service water system restoration procedure was a system design deficiency that did not result in an actual loss of system function. The issue was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to identify a condition adverse to quality as a causal factor.

Inspection Report# : [2002012\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH, IMPLEMENT, AND MAINTAIN PROCEDURES COVERING THE CLEANING, INSPECTION AND LUBRICATION OF PUMP COUPLINGS

The inspectors identified an inadequate preventive maintenance procedure, which caused a failure of the "C" charging pump high speed coupling and rendered the "C" charging pump incapable of performing its required safety function. Specifically, vendor manual instructions related to grease removal and seal inspections were not translated into the licensee's procedures. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "C" charging pump to perform its required safety function. However, this finding was of very low safety significance (Green) based on a Phase 1 Significance Determination Process evaluation because the finding did not represent an actual loss of the charging system's safety function or an actual loss of charging pumps for greater than the technical specification allowed outage time. The issue was determined to be a violation of Technical Specification 6.8.1, Procedures. Because the finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE 50.59 EVALUATION IN SUPPORT OF AN ALTERNATE INJECTION PATH WOULD SUBJECT HIGH PRESSURE SAFETY INJECTION PIPING AND NOZZLE TO THERMAL TRANSIENTS NOT BOUNDED BY DESIGN

The inspectors identified an inadequate 10 CFR 50.59 evaluation involving a procedure change to allow the use of the "A" high pressure safety injection (HPSI) flow path as an alternate charging flow path in Mode 3. The licensee's safety evaluation failed to accurately assess the temperature transients in piping associated with this flow path. The procedure

change was developed during a forced shutdown of Unit 2 and the HPSI system piping and nozzle were subjected to thermal transients that were not bounded by the Final Safety Analysis Report (FSAR). This finding is associated with the Mitigating Systems cornerstone and it had the potential to impact the NRC's ability to perform its regulatory function. However, because of the potential for the thermal transients to impact the integrity of the HPSI system under subsequent operational conditions, the inspectors evaluated the finding in accordance with Appendix "A" of the Significance Determination Process. The inspectors determined that the impact from thermal cycles in excess of the FSAR analyses was of very low safety significance (Green) because a subsequent licensee analysis showed there would be no actual loss of the system's safety function. The issue was determined to be a violation of 10 CFR 50.59, Changes, tests, and experiments. Because the finding is of very low safety significance and because the finding was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO PROMPTLY IDENTIFY AND CORRECT CVCS WELD SUSCEPTIBILITY TO FATIGUE FAILURES

The inspectors identified inadequate corrective actions to promptly identify and correct welds susceptible to fatigue failure following two weld failures in the chemical and volume control system (CVCS) which occurred in July 1999 and November 2001. This finding is associated with the Mitigating Systems cornerstone and it affected the reliability of the charging system. The failure to promptly identify and correct susceptible welds in the CVCS system resulted in two additional weld failures, on like welds, during August 2002. The finding was of very low safety significance (Green) because neither weld failure would have prevented the CVCS discharge header from completing its safety function while the Unit was at power. The issue was determined to be a violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Because the finding is of very low safety significance and the finding was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Jun 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN FIRE BARRIER REQUIREMENTS DESCRIBED IN THE PLANT FIRE HAZARDS ANALYSIS

The inspectors identified a penetration into the north wall of the west DC switchgear room that had not been sealed to maintain a 3-hour rated fire barrier, as described in the plant Fire Hazards Analysis. The inspectors determined that the safety significance of the degraded fire barrier was very low since it did not separate redundant safe shutdown equipment. The issue was determined to be a violation of License Condition 2.C. (3) to Facility Operating License DRP-65, Fire Protection Program. Because the finding is of very low safety significance and the finding was captured in the licensee's corrective action program, the finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002004\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 29, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to label a radioactive material package prior to shipping the package to a low level burial facility

The licensee did not label a package containing radioactive waste prior to shipping the package to a low level burial facility. This self-revealing NCV of 49 CFR 172.400 is greater than minor because if left uncorrected, an incorrectly labeled radioactive waste package could lead to a more significant safety concern if the integrity of the shipping package was compromised and the radiological risk, associated with the package contents, could not be promptly determined. Further program procedures did not provide adequate guidance to ensure packages were properly labeled in accordance with Department of Transportation requirements. This finding was of very low safety significance since the motor vehicle was properly placarded as a radioactive shipment, shipping documentation contained the information to identify the radioactive material, and emergency information was included with the shipping papers.

Inspection Report# : [2003002\(pdf\)](#)

Physical Protection

Miscellaneous

Last modified : May 30, 2003

Millstone 2

2Q/2003 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  May 30, 2003

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CORRECTIVE ACTIONS FOR LONG-STANDING PROBLEMS WITH CONDENSER STEAM DUMP CONTROL SYSTEM

The team identified a lack of adequate corrective action for a longstanding problem with the Unit 2 condenser steam dump valve control circuit. In May of 2000 and in April of 2002, the licensee identified problems with the configuration and performance of condenser steam dump control wiring. These problems remained uncorrected up to the time of the March 7, 2003, reactor trip and resulting transient. Although problems with the control signal and valves were repeatedly entered into the corrective action program, the cause was not determined and effective actions were not taken to correct this equipment problem. A primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution. This finding is associated with both the Design Control and Equipment Performance attributes of the Mitigating Systems Cornerstone. The finding is more than minor because it affects the mitigating systems objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was considered to be of very low safety significance (Green) because it did not result in a loss of safety function of the system.

Inspection Report# : [2003006\(pdf\)](#)

Significance:  May 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

CHARGING PUMP RELIEF VALVES GAGGED WITHOUT PROCEDURES OR AUTHORIZATION

A violation of Technical Specification 6.8.1, "Procedures" occurred on March 7, 2003, when operators gagged charging pump relief valves without procedural controls or proper authorization. During efforts to restore flow from the charging system, a senior reactor operator in the field directed a plant equipment operator to install the relief valve gagging devices. Subsequently, the "C" charging pump was started and run with its discharge relief valve gagging device installed. This finding was more than minor because it affected the human performance and equipment performance attributes of the Mitigating Systems Cornerstone objective. This finding was considered to have very low safety significance (Green) using NRC Inspection Manual Chapter 0609, Appendix A, SDP Phase 1 screening, because the installation of the gagging devices did not result in damage to, or unavailability of, the charging system.

Inspection Report# : [2003006\(pdf\)](#)

Significance:  Dec 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CORRECTIVE ACTION TO PREVENT RECURRENCE OF EDG EXHAUST DAMPER SOLENOID VALVE FAILURE

The inspectors identified a failure to determine the cause and take corrective action to preclude repetition of the May 2000 "A" emergency diesel generator (EDG) room ventilation exhaust damper solenoid valve failure. Following an "A" EDG ventilation system solenoid valve failure, the identified condition was not adequately investigated and the root cause never fully determined to prevent recurrence of a similar failure in August 2002. The failure of the "A" EDG's ventilation exhaust damper rendered the EDG incapable of performing its required safety function. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "A" EDG. The inspectors evaluated the significance of this finding using the SDP Phase 1 worksheets and the SDP Phase 2 risk-informed inspection notebook (Revision 1) for Millstone Unit 2. Based on the results of the SDP Phase 2 evaluation, a SDP Phase 3 evaluation was performed. The SDP Phase 3 evaluation concluded that the finding was of very low safety significance (Green) following application of refined operator recovery credit. The increase in core damage frequency was greater than $1.0E-7$, but less than $1.0E-6$ due to internal initiating events. The issue was determined to be a violation of 10 CFR 50, Appendix, B, Criterion XVI, Corrective Action. Because the finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy. As a result, URI 50-336/02-05-02 is closed. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to determine the root cause and take effective corrective action to preclude repetition as causal factors.

Inspection Report# : [2002006\(pdf\)](#)



Significance: Nov 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - AVAILABILITY OF SERVICE WATER SYSTEM FOLLOWING A FLOODING EVENT

The inspectors identified that the design bases of the service water system (SWS) pertaining to pump operation following a flooding event were not correctly translated into instruction because, (1) the need to and the steps that are required to restore operability of the SWS within two hours were not included in the applicable plant procedure; and (2) the steps required to initiate manual blowdown of the SWS strainers were not included in the applicable plant procedure. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the Significance Determination Process (SDP) because the inadequate service water system restoration procedure was a system design deficiency that did not result in an actual loss of system function. The issue was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to identify a condition adverse to quality as a causal factor.

Inspection Report# : [2002012\(pdf\)](#)



Significance: Nov 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - HIGH ENERGY LINE BREAK IMPACT ON OPERABILITY OF THE MOTOR-DRIVEN AUXILIARY FEEDWATER PUMPS

The inspectors identified that a small line high energy line break (HELB) in the turbine building could cause a loss of both motor-driven auxiliary feedwater pumps. The loss of the pumps would be the result of the motor bearings overheating and failing due to the high ambient room temperatures caused by the small line HELB. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the Significance Determination Process because the inadequate cooling of the auxiliary feedwater (AFW) pump motor bearings was a

design deficiency of the AFW system that did not result in an actual loss of system function. The issue was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to identify a condition adverse to quality as a causal factor.

Inspection Report# : [2002012\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY ESTABLISH, IMPLEMENT, AND MAINTAIN PROCEDURES COVERING THE CLEANING, INSPECTION AND LUBRICATION OF PUMP COUPLINGS

The inspectors identified an inadequate preventive maintenance procedure , which caused a failure of the "C" charging pump high speed coupling and rendered the "C" charging pump incapable of performing its required safety function. Specifically, vendor manual instructions related to grease removal and seal inspections were not translated into the licensee's procedures. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "C" charging pump to perform its required safety function. However, this finding was of very low safety significance (Green) based on a Phase 1 Significance Determination Process evaluation because the finding did not represent an actual loss of the charging system's safety function or an actual loss of charging pumps for greater than the technical specification allowed outage time. The issue was determined to be a violation of Technical Specification 6.8.1, Procedures. Because the finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO TAKE ADEQUATE CORRECTIVE ACTIONS TO PROMPTLY IDENTIFY AND CORRECT CVCS WELD SUSCEPTIBILITY TO FATIGUE FAILURES

The inspectors identified inadequate corrective actions to promptly identify and correct welds susceptible to fatigue failure following two weld failures in the chemical and volume control system (CVCS) which occurred in July 1999 and November 2001. This finding is associated with the Mitigating Systems cornerstone and it affected the reliability of the charging system. The failure to promptly identify and correct susceptible welds in the CVCS system resulted in two additional weld failures, on like welds, during August 2002. The finding was of very low safety significance (Green) because neither weld failure would have prevented the CVCS discharge header from completing its safety function while the Unit was at power. The issue was determined to be a violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Because the finding is of very low safety significance and the finding was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE 50.59 EVALUATION IN SUPPORT OF AN ALTERNATE INJECTION PATH WOULD SUBJECT HIGH PRESSURE SAFETY INJECTION PIPING AND NOZZLE TO THERMAL TRANSIENTS NOT BOUNDED BY DESIGN

The inspectors identified an inadequate 10 CFR 50.59 evaluation involving a procedure change to allow the use of the "A" high pressure safety injection (HPSI) flow path as an alternate charging flow path in Mode 3. The licensee's safety evaluation failed to accurately assess the temperature transients in piping associated with this flow path. The procedure change was developed during a forced shutdown of Unit 2 and the HPSI system piping and nozzle were subjected to thermal transients that were not bounded by the Final Safety Analysis Report (FSAR). This finding is associated with the Mitigating Systems cornerstone and it had the potential to impact the NRC's ability to perform its regulatory function. However, because of the potential for the thermal transients to impact the integrity of the HPSI system under subsequent operational conditions, the inspectors evaluated the finding in accordance with Appendix "A" of the Significance Determination Process. The inspectors determined that the impact from thermal cycles in excess of the FSAR analyses was of very low safety significance (Green) because a subsequent licensee analysis showed there would be no actual loss of the system's safety function. The issue was determined to be a violation of 10 CFR 50.59, Changes, tests, and experiments. Because the finding is of very low safety significance and because the finding was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy.

Inspection Report# : [2002005\(pdf\)](#)

Barrier Integrity



Significance: May 30, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DIAGNOSE AND ENTER THE AOP FOR RCS LEAKAGE

The team identified a non-cited violation for the failure of Unit 2 operators to enter the abnormal operating procedure (AOP) for reactor coolant system (RCS) leakage when confronted with plant conditions that were consistent with the procedure entry conditions. A primary cause of this finding was related to the cross-cutting area of Human Performance. This finding was more than minor because it affects the RCS Barrier performance attribute of the Barrier Integrity Cornerstone objective, in that, failure to enter the applicable AOP and perform a timely containment entry to identify the source of RCS leakage reduced the assurance that the RCS barrier would protect the public from radionuclide releases. The finding is of very low safety significance because it did not increase the likelihood of any initiating events and it did not adversely impact any mitigating equipment.

Inspection Report# : [2003006\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety



Significance: Mar 29, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to label a radioactive material package prior to shipping the package to a low level burial facility

The licensee did not label a package containing radioactive waste prior to shipping the package to a low level burial facility. This self-revealing NCV of 49 CFR 172.400 is greater than minor because if left uncorrected, an incorrectly labeled radioactive waste package could lead to a more significant safety concern if the integrity of the shipping package was compromised and the radiological risk, associated with the package contents, could not be promptly determined. Further program procedures did not provide adequate guidance to ensure packages were properly labeled in accordance with Department of Transportation requirements. This finding was of very low safety significance since the motor vehicle was properly placarded as a radioactive shipment, shipping documentation contained the information to identify the radioactive material, and emergency information was included with the shipping papers.

Inspection Report# : [2003002\(pdf\)](#)

Physical Protection

Miscellaneous

Last modified : September 04, 2003

Millstone 2

3Q/2003 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  May 30, 2003

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CORRECTIVE ACTIONS FOR LONG-STANDING PROBLEMS WITH CONDENSER STEAM DUMP CONTROL SYSTEM

The team identified a lack of adequate corrective action for a longstanding problem with the Unit 2 condenser steam dump valve control circuit. In May of 2000 and in April of 2002, the licensee identified problems with the configuration and performance of condenser steam dump control wiring. These problems remained uncorrected up to the time of the March 7, 2003, reactor trip and resulting transient. Although problems with the control signal and valves were repeatedly entered into the corrective action program, the cause was not determined and effective actions were not taken to correct this equipment problem. A primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution.

This finding is associated with both the Design Control and Equipment Performance attributes of the Mitigating Systems Cornerstone. The finding is more than minor because it affects the mitigating systems objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was considered to be of very low safety significance (Green) because it did not result in a loss of safety function of the system.

Inspection Report# : [2003006\(pdf\)](#)

Significance:  May 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

CHARGING PUMP RELIEF VALVES GAGGED WITHOUT PROCEDURES OR AUTHORIZATION

A violation of Technical Specification 6.8.1, "Procedures" occurred on March 7, 2003, when operators gagged charging pump relief valves without procedural controls or proper authorization. During efforts to restore flow from the charging system, a senior reactor operator in the field directed a plant equipment operator to install the relief valve gagging devices. Subsequently, the "C" charging pump was started and run with its discharge relief valve gagging device installed.

This finding was more than minor because it affected the human performance and equipment performance attributes of the Mitigating Systems Cornerstone objective. This finding was considered to have very low safety significance (Green) using NRC Inspection Manual Chapter 0609, Appendix A, SDP Phase 1 screening, because the installation of the gagging devices did not result in damage to, or unavailability of, the charging system.

Inspection Report# : [2003006\(pdf\)](#)

Significance:  Dec 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CORRECTIVE ACTION TO PREVENT RECURRENCE OF EDG EXHAUST DAMPER SOLENOID VALVE FAILURE

The inspectors identified a failure to determine the cause and take corrective action to preclude repetition of the May 2000 "A" emergency diesel generator (EDG) room ventilation exhaust damper solenoid valve failure. Following an "A" EDG ventilation system solenoid valve failure, the identified condition was not adequately investigated and the root cause never fully determined to prevent recurrence of a similar failure in August 2002. The failure of the "A" EDG's ventilation exhaust damper rendered the EDG incapable of performing its required safety function. The finding impacted the Mitigating Systems cornerstone and affected the availability of the "A" EDG. The inspectors evaluated the significance of this finding using the SDP Phase 1 worksheets and the SDP Phase 2 risk-informed inspection notebook (Revision 1) for Millstone Unit 2. Based on the results of the SDP Phase 2 evaluation, a SDP Phase 3 evaluation was performed. The SDP Phase 3 evaluation concluded that the finding was of very low safety significance (Green) following application of refined operator recovery credit. The increase in core damage frequency was greater than $1.0E-7$, but less than $1.0E-6$ due to internal initiating events. The issue was determined to be a violation of 10 CFR 50, Appendix, B, Criterion XVI, Corrective Action. Because the finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a non-cited violation, consistent with Section VI.A of the NRC Enforcement Policy. As a result, URI 50-336/02-05-02 is closed. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to determine the root cause and take effective corrective action to preclude repetition as causal factors.

Inspection Report# : [2002006\(pdf\)](#)

Significance:  Nov 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - HIGH ENERGY LINE BREAK IMPACT ON OPERABILITY OF THE MOTOR-DRIVEN AUXILIARY FEEDWATER PUMPS

The inspectors identified that a small line high energy line break (HELB) in the turbine building could cause a loss of both motor-driven auxiliary feedwater pumps. The loss of the pumps would be the result of the motor bearings overheating and failing due to the high ambient room temperatures caused by the small line HELB. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the Significance Determination Process because the inadequate cooling of the auxiliary feedwater (AFW) pump motor bearings was a design deficiency of the AFW system that did not result in an actual loss of system function. The issue was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to identify a condition adverse to quality as a causal factor.

Inspection Report# : [2002012\(pdf\)](#)

Significance:  Nov 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - AVAILABILITY OF SERVICE WATER SYSTEM FOLLOWING A FLOODING EVENT

The inspectors identified that the design bases of the service water system (SWS) pertaining to pump operation following a flooding event were not correctly translated into instruction because, (1) the need to and the steps that are required to restore operability of the SWS within two hours were not included in the applicable plant procedure; and (2)

the steps required to initiate manual blowdown of the SWS strainers were not included in the applicable plant procedure. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the Significance Determination Process (SDP) because the inadequate service water system restoration procedure was a system design deficiency that did not result in an actual loss of system function. The issue was determined to be a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This issue is related to the Problem Identification and Resolution cross-cutting area with failure to identify a condition adverse to quality as a causal factor. Inspection Report# : [2002012\(pdf\)](#)

Barrier Integrity

Significance:  May 30, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DIAGNOSE AND ENTER THE AOP FOR RCS LEAKAGE

The team identified a non-cited violation for the failure of Unit 2 operators to enter the abnormal operating procedure (AOP) for reactor coolant system (RCS) leakage when confronted with plant conditions that were consistent with the procedure entry conditions. A primary cause of this finding was related to the cross-cutting area of Human Performance.

This finding was more than minor because it affects the RCS Barrier performance attribute of the Barrier Integrity Cornerstone objective, in that, failure to enter the applicable AOP and perform a timely containment entry to identify the source of RCS leakage reduced the assurance that the RCS barrier would protect the public from radionuclide releases. The finding is of very low safety significance because it did not increase the likelihood of any initiating events and it did not adversely impact any mitigating equipment.

Inspection Report# : [2003006\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 29, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to label a radioactive material package prior to shipping the package to a low level burial facility

The licensee did not label a package containing radioactive waste prior to shipping the package to a low level burial facility. This self-revealing NCV of 49 CFR 172.400 is greater than minor because if left uncorrected, an incorrectly labeled radioactive waste package could lead to a more significant safety concern if the integrity of the shipping

package was compromised and the radiological risk, associated with the package contents, could not be promptly determined. Further program procedures did not provide adequate guidance to ensure packages were properly labeled in accordance with Department of Transportation requirements. This finding was of very low safety significance since the motor vehicle was properly placarded as a radioactive shipment, shipping documentation contained the information to identify the radioactive material, and emergency information was included with the shipping papers.

Inspection Report# : [2003002\(pdf\)](#)

Physical Protection

Miscellaneous

Last modified : December 01, 2003

Millstone 2

4Q/2003 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

WEST 480 VAC SWITCHGEAR ROOM COMPENSATORY COOLING

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III (Design Control), for the failure to take measures to assure that the design basis was correctly translated into procedures for the installation of temporary cooling when normal cooling is lost to the West 480 Volt AC switchgear room and to verify that the design was effective. The required air flow and flow path for the West 480 Volt AC temporary room cooling that had been evaluated in the design calculation were not correctly translated to the applicable procedure developed to install the temporary equipment and to establish the air flow path in the room. These temporary room cooling measures are designed to be implemented on the loss of normal cooling to retain operability of the vital switchgear located in the room. When the failure of these compensatory measures was recognized, the licensee took additional action outside of the design basis to maintain room temperature below design temperature limits. The finding is more than minor because the failure to provide the appropriate direction for establishing temporary cooling to the affected vital switchgear room resulted in inadequate room cooling which, if left uncorrected, could have resulted in exceeding the design temperature limit of the safety related and risk significant electrical equipment in the room.

This finding is associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the containment SSC and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 Volt AC System or electro hydraulic control functions. This finding is related to licensee's problem identification & resolution process.

Inspection Report# : [2003010\(pdf\)](#)

Significance:  Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM ADEQUATE POST-MODIFICATION TEST OF DESIGN CHANGES TO THE CHARGING SYSTEM

The inspectors identified a non-cited violation for failure to comply with 10 CFR 50, Appendix B, Criterion III, Design Control, for two design changes which adversely affected the charging system and for which post-modification testing was not specified, or performed to ensure the charging system could fulfill its design function under anticipated conditions. However, the NCV was inadvertently left out of Inspection Report 05000336/2003004 dated November 10, 2003. As a result, the description of the issue and its safety significance is included in this report and the NCV will be

documented under this report number. This finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone objective. Specifically, the charging system was not capable of providing adequate high pressure injection to the reactor coolant system following an initiating event that resulted in the simultaneous auto-start of the two standby charging pumps. Inspection Report 05000336/2003004 contains a detailed description of the Phase 3 assessment of the safety significance of this issue. The inspectors concluded in this assessment that the performance deficiency was of very low safety significance (Green). This finding is related to licensee's problem identification & resolution process.

Inspection Report# : [2003010\(pdf\)](#)



Significance: May 30, 2003

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CORRECTIVE ACTIONS FOR LONG-STANDING PROBLEMS WITH CONDENSER STEAM DUMP CONTROL SYSTEM

The team identified a lack of adequate corrective action for a longstanding problem with the Unit 2 condenser steam dump valve control circuit. In May of 2000 and in April of 2002, the licensee identified problems with the configuration and performance of condenser steam dump control wiring. These problems remained uncorrected up to the time of the March 7, 2003, reactor trip and resulting transient. Although problems with the control signal and valves were repeatedly entered into the corrective action program, the cause was not determined and effective actions were not taken to correct this equipment problem. A primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution.

This finding is associated with both the Design Control and Equipment Performance attributes of the Mitigating Systems Cornerstone. The finding is more than minor because it affects the mitigating systems objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was considered to be of very low safety significance (Green) because it did not result in a loss of safety function of the system.

Inspection Report# : [2003006\(pdf\)](#)



Significance: May 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

CHARGING PUMP RELIEF VALVES GAGGED WITHOUT PROCEDURES OR AUTHORIZATION

A violation of Technical Specification 6.8.1, "Procedures" occurred on March 7, 2003, when operators gagged charging pump relief valves without procedural controls or proper authorization. During efforts to restore flow from the charging system, a senior reactor operator in the field directed a plant equipment operator to install the relief valve gagging devices. Subsequently, the "C" charging pump was started and run with its discharge relief valve gagging device installed.

This finding was more than minor because it affected the human performance and equipment performance attributes of the Mitigating Systems Cornerstone objective. This finding was considered to have very low safety significance (Green) using NRC Inspection Manual Chapter 0609, Appendix A, SDP Phase 1 screening, because the installation of the gagging devices did not result in damage to, or unavailability of, the charging system.

Inspection Report# : [2003006\(pdf\)](#)

Barrier Integrity

Significance:  May 30, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DIAGNOSE AND ENTER THE AOP FOR RCS LEAKAGE

The team identified a non-cited violation for the failure of Unit 2 operators to enter the abnormal operating procedure (AOP) for reactor coolant system (RCS) leakage when confronted with plant conditions that were consistent with the procedure entry conditions. A primary cause of this finding was related to the cross-cutting area of Human Performance.

This finding was more than minor because it affects the RCS Barrier performance attribute of the Barrier Integrity Cornerstone objective, in that, failure to enter the applicable AOP and perform a timely containment entry to identify the source of RCS leakage reduced the assurance that the RCS barrier would protect the public from radionuclide releases. The finding is of very low safety significance because it did not increase the likelihood of any initiating events and it did not adversely impact any mitigating equipment.

Inspection Report# : [2003006\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 29, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to label a radioactive material package prior to shipping the package to a low level burial facility

The licensee did not label a package containing radioactive waste prior to shipping the package to a low level burial facility. This self-revealing NCV of 49 CFR 172.400 is greater than minor because if left uncorrected, an incorrectly labeled radioactive waste package could lead to a more significant safety concern if the integrity of the shipping package was compromised and the radiological risk, associated with the package contents, could not be promptly determined. Further program procedures did not provide adequate guidance to ensure packages were properly labeled in accordance with Department of Transportation requirements.

This finding was of very low safety significance since the motor vehicle was properly placarded as a radioactive shipment, shipping documentation contained the information to identify the radioactive material, and emergency information was included with the shipping papers.

Inspection Report# : [2003002\(pdf\)](#)

Physical Protection

Miscellaneous

Last modified : March 02, 2004

Millstone 2

1Q/2004 Plant Inspection Findings

Initiating Events

Mitigating Systems



Significance: Feb 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT ADEQUATE DESIGN CONTROL AND SUITABLY TEST A MODIFICATION TO THE CHARGING SYSTEM

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion III, "Design Control," which requires that design control measures be established and implemented to assure that applicable regulatory requirements and the design basis for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. The charging system was modified to install pulsation dampeners, however, a suitable test program was not developed to ensure that the dampeners would remain available to support the charging system during postulated events.

This finding was more than minor because the condition of the pulsation dampeners subsequently degraded, which affected the design control and equipment performance attributes and the availability, reliability, and capability objective of the mitigating systems cornerstone. The degraded condition of the pulsation dampeners challenged the reliability of the charging system to mitigate design basis events. This finding was determined to be of very low safety significance (Green) based on the results of a bounding risk assessment.

Inspection Report# : [2004002\(pdf\)](#)



Significance: Feb 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT SAFETY INJECTION TANK LEAKAGE

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," which requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The licensee failed to take appropriate corrective actions in a timely manner to address and correct repeat instances, over a multiple year period, of safety injection tank (SIT) leakage at Unit 2. The finding was more than minor because it affected the equipment performance attribute and the availability, reliability, and capability of the mitigating systems cornerstone. The chronic leakage problem resulted in an increased unavailability of a high pressure safety injection system train during the periods of time when the system was realigned and used to fill the SITs. This finding was determined to be of very low safety significance (Green) since an actual loss of the safety system function had not occurred and the high pressure safety injection train was removed from service for less than the Technical Specification allowed outage time.

Inspection Report# : [2004002\(pdf\)](#)



Significance: Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

WEST 480 VAC SWITCHGEAR ROOM COMPENSATORY COOLING

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III (Design Control), for the failure to take measures to assure that the design basis was correctly translated into procedures for the installation of temporary cooling when normal cooling is lost to the West 480 Volt AC switchgear room and to verify that the design was effective. The required air flow and flow path for the West 480 Volt AC temporary room cooling that had been evaluated in the design calculation were not correctly translated to the applicable procedure developed to install the temporary equipment and to establish the air flow path in the room. These temporary room cooling measures are designed to be implemented on the loss of normal cooling to retain operability of the vital switchgear located in the room. When the failure of these compensatory measures was recognized, the licensee took additional action outside of the design basis to maintain room temperature below design temperature limits. The finding is more than minor because the failure to provide the appropriate direction for establishing temporary cooling to the affected vital switchgear room resulted in inadequate room cooling which, if left uncorrected, could have resulted in exceeding the design temperature limit of the safety related and risk significant electrical equipment in the room.

This finding is associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the

containment SSC and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 Volt AC System or electro hydraulic control functions. This finding is related to licensee's problem identification & resolution process.

Inspection Report# : [2003010\(pdf\)](#)

G

Significance: Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM ADEQUATE POST-MODIFICATION TEST OF DESIGN CHANGES TO THE CHARGING SYSTEM

The inspectors identified a non-cited violation for failure to comply with 10 CFR 50, Appendix B, Criterion III, Design Control, for two design changes which adversely affected the charging system and for which post-modification testing was not specified, or performed to ensure the charging system could fulfill its design function under anticipated conditions. However, the NCV was inadvertently left out of Inspection Report 05000336/2003004 dated November 10, 2003. As a result, the description of the issue and its safety significance is included in this report and the NCV will be documented under this report number. This finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone objective. Specifically, the charging system was not capable of providing adequate high pressure injection to the reactor coolant system following an initiating event that resulted in the simultaneous auto-start of the two standby charging pumps. Inspection Report 05000336/2003004 contains a detailed description of the Phase 3 assessment of the safety significance of this issue. The inspectors concluded in this assessment that the performance deficiency was of very low safety significance (Green). This finding is related to licensee's problem identification & resolution process.

Inspection Report# : [2003010\(pdf\)](#)

G

Significance: May 30, 2003

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CORRECTIVE ACTIONS FOR LONG-STANDING PROBLEMS WITH CONDENSER STEAM DUMP CONTROL SYSTEM

The team identified a lack of adequate corrective action for a longstanding problem with the Unit 2 condenser steam dump valve control circuit. In May of 2000 and in April of 2002, the licensee identified problems with the configuration and performance of condenser steam dump control wiring. These problems remained uncorrected up to the time of the March 7, 2003, reactor trip and resulting transient. Although problems with the control signal and valves were repeatedly entered into the corrective action program, the cause was not determined and effective actions were not taken to correct this equipment problem. A primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution.

This finding is associated with both the Design Control and Equipment Performance attributes of the Mitigating Systems Cornerstone. The finding is more than minor because it affects the mitigating systems objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was considered to be of very low safety significance (Green) because it did not result in a loss of safety function of the system.

Inspection Report# : [2003006\(pdf\)](#)

G

Significance: May 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

CHARGING PUMP RELIEF VALVES GAGGED WITHOUT PROCEDURES OR AUTHORIZATION

A violation of Technical Specification 6.8.1, "Procedures" occurred on March 7, 2003, when operators gagged charging pump relief valves without procedural controls or proper authorization. During efforts to restore flow from the charging system, a senior reactor operator in the field directed a plant equipment operator to install the relief valve gagging devices. Subsequently, the "C" charging pump was started and run with its discharge relief valve gagging device installed.

This finding was more than minor because it affected the human performance and equipment performance attributes of the Mitigating Systems Cornerstone objective. This finding was considered to have very low safety significance (Green) using NRC Inspection Manual Chapter 0609, Appendix A, SDP Phase 1 screening, because the installation of the gagging devices did not result in damage to, or unavailability of, the charging system.

Inspection Report# : [2003006\(pdf\)](#)

Barrier Integrity

G**Significance:** May 30, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DIAGNOSE AND ENTER THE AOP FOR RCS LEAKAGE

The team identified a non-cited violation for the failure of Unit 2 operators to enter the abnormal operating procedure (AOP) for reactor coolant system (RCS) leakage when confronted with plant conditions that were consistent with the procedure entry conditions. A primary cause of this finding was related to the cross-cutting area of Human Performance.

This finding was more than minor because it affects the RCS Barrier performance attribute of the Barrier Integrity Cornerstone objective, in that, failure to enter the applicable AOP and perform a timely containment entry to identify the source of RCS leakage reduced the assurance that the RCS barrier would protect the public from radionuclide releases. The finding is of very low safety significance because it did not increase the likelihood of any initiating events and it did not adversely impact any mitigating equipment.

Inspection Report# : [2003006\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Last modified : May 05, 2004

Millstone 2

2Q/2004 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT PROCEDURES FOR DRAINING THE RCS

The inspectors identified a non-cited violation of Technical Specification 6.8.1a for the failure to adequately implement procedures for draining the reactor coolant system (RCS). During the October 2003 refueling outage, Dominion drained down the RCS for an approximate 1.5 hour period with only one accurate means of level indication. The operator dedicated to monitoring refuel pool level was released from his duties prior to completion of the draindown and the operators in the control room were mis-reading the remote camera indication of the refuel pool level. Also, a recent revision of the procedure controlling the draindown had removed the steps required to conduct a valve line-up of the RCS mid-loop wide range level indicator (LI-112). As a result, LI-112 was not on scale as expected because it was isolated due to a previous maintenance activity. During this period, the only accurate means of refuel pool level was mass balance. This finding is more than minor because it is associated with the initiating event cornerstone attribute of configuration control during shutdown and affected the likelihood of causing a loss of reactor water inventory to the point that shutdown cooling could be lost. The significance was low because multiple corrective measures available to ensure reactor cooling were maintained. Operators could have stopped the draindown by closing one valve from the control room, the draindown would have been automatically terminated once low pressure safety injection pump pressure lost suction, and operators could have restored shutdown cooling if it was lost. This finding is related to the cross-cutting issue of Human Performance.

Inspection Report# : [2004006\(pdf\)](#)

Significance:  Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT PROCEDURES FOR STEAM GENERATOR FEED PUMP TESTING WHICH LED TO A REACTOR TRIP

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1a was identified for the failure to adequately implement procedures for Steam Generator Feed Pump (SGFP) testing which led to a reactor trip. On March 15, 2004, the Unit 2 reactor automatically tripped from 100% power while operators were performing quarterly testing of the "B" SGFP. An event review team eliminated equipment failure as a root cause and determined that the root cause of the reactor trip was most likely due to the operators failing to maintain the lockout control switch in position during the surveillance. The lockout control switch is a spring return switch which is held in place by an operator to lockout the SGFP trip circuit while testing the SGFP.

This finding is more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and is associated with an increase in the likelihood of an initiating event in that a reactor trip actually occurred. The significance of the finding was determined to be very low since this finding did not contribute to the likelihood of a primary or secondary loss of coolant accident initiator, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigation equipment or functions, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting issue of Human Performance.

Inspection Report# : [2004005\(pdf\)](#)

Significance:  Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT VENDOR TECHNICAL MANUAL REQUIREMENTS INTO WRITTEN PROCEDURES WHICH CONTROL THE ALIGNMENT AND OPERATION OF ELECTRICAL POWER SOURCES TO VITAL SHUTDOWN COOLING COMPONENTS

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1 was identified for the inadequate implementation of vendor technical manual requirements into operating procedures for vital shutdown cooling component power supplies. Specifically, an incorrect version of a vendor technical manual was used as the basis for establishing switch lineups in a procedure that paralleled two alternating current (AC) sources to a vital electrical panel. The incorrect steps allowed the two AC sources to be paralleled out of phase. The electrical panel was supplying power to shutdown cooling equipment and the improper switch lineup resulted in paralleling the two AC sources without synchronous protection. When the sources were paralleled, they were out of phase resulting in the loss of both power supplies and a temporary loss of shutdown cooling. Dominion restored power within 15 minutes, the shutdown cooling system configuration was regained, and control of reactor coolant system temperature was reestablished.

The finding is more than minor because it was associated with the initiating event cornerstone attribute of procedure quality and affected the likelihood of a loss of shutdown cooling (SDC) in that an actual loss of SDC occurred. However, the finding was determined to be of very low safety significance (Green) since there was not a significant loss of thermal margin and the finding did not degrade Dominion's ability to recover shutdown cooling once it was lost. This finding is related to Dominion's Problem Identification and Resolution process.

Inspection Report# : [2004005\(pdf\)](#)

Mitigating Systems

Significance:  Feb 27, 2004
Identified By: NRC

Item Type: NCV NonCited Violation
FAILURE TO IMPLEMENT ADEQUATE DESIGN CONTROL AND SUITABLY TEST A MODIFICATION TO THE CHARGING SYSTEM

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion III, "Design Control," which requires that design control measures be established and implemented to assure that applicable regulatory requirements and the design basis for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. The charging system was modified to install pulsation dampeners, however, a suitable test program was not developed to ensure that the dampeners would remain available to support the charging system during postulated events. This finding was more than minor because the condition of the pulsation dampeners subsequently degraded, which affected the design control and equipment performance attributes and the availability, reliability, and capability objective of the mitigating systems cornerstone. The degraded condition of the pulsation dampeners challenged the reliability of the charging system to mitigate design basis events. This finding was determined to be of very low safety significance (Green) based on the results of a bounding risk assessment.

Inspection Report# : [2004002\(pdf\)](#)

Significance:  Feb 27, 2004
Identified By: NRC

Item Type: NCV NonCited Violation
FAILURE TO CORRECT SAFETY INJECTION TANK LEAKAGE

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," which requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The licensee failed to take appropriate corrective actions in a timely manner to address and correct repeat instances, over a multiple year period, of safety injection tank (SIT) leakage at Unit 2.

The finding was more than minor because it affected the equipment performance attribute and the availability, reliability, and capability of the mitigating systems cornerstone. The chronic leakage problem resulted in an increased unavailability of a high pressure safety injection system train during the periods of time when the system was realigned and used to fill the SITs. This finding was determined to be of very low safety significance (Green) since an actual loss of the safety system function had not occurred and the high pressure safety injection train was removed from service for less than the Technical Specification allowed outage time.

Inspection Report# : [2004002\(pdf\)](#)

Significance:  Dec 31, 2003
Identified By: NRC

Item Type: NCV NonCited Violation
WEST 480 VAC SWITCHGEAR ROOM COMPENSATORY COOLING

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III (Design Control), for the failure to take measures to assure that the design basis was correctly translated into procedures for the installation of temporary cooling when normal cooling is lost to the West 480 Volt AC switchgear room and to verify that the design was effective. The required air flow and flow path for the West 480 Volt AC temporary room cooling that had been evaluated in the design calculation were not correctly translated to the applicable procedure developed to install the temporary equipment and to establish the air flow path in the room. These temporary room cooling measures are designed to be implemented on the loss of normal cooling to retain operability of the vital switchgear located in the room. When the failure of these compensatory measures was recognized, the licensee took additional action outside of the design basis to maintain room temperature below design temperature limits. The finding is more than minor because the failure to provide the appropriate direction for establishing temporary cooling to the affected vital switchgear room resulted in inadequate room cooling which, if left uncorrected, could have resulted in exceeding the design temperature limit of the safety related and risk significant electrical equipment in the room.

This finding is associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the containment SSSC and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 Volt AC System or electro hydraulic control functions.

This finding is related to licensee's problem identification & resolution process.

Inspection Report# : [2003010\(pdf\)](#)

Significance:  Dec 31, 2003
Identified By: NRC

Item Type: NCV NonCited Violation
FAILURE TO PERFORM ADEQUATE POST-MODIFICATION TEST OF DESIGN CHANGES TO THE CHARGING SYSTEM

The inspectors identified a non-cited violation for failure to comply with 10 CFR 50, Appendix B, Criterion III, Design Control, for two design changes which adversely affected the charging system and for which post-modification testing was not specified, or performed to ensure the charging system could fulfill its design function under anticipated conditions. However, the NCV was inadvertently left out of Inspection Report 05000336/2003004

dated November 10, 2003. As a result, the description of the issue and its safety significance is included in this report and the NCV will be documented under this report number. This finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone objective. Specifically, the charging system was not capable of providing adequate high pressure injection to the reactor coolant system following an initiating event that resulted in the simultaneous auto-start of the two standby charging pumps. Inspection Report 05000336/2003004 contains a detailed description of the Phase 3 assessment of the safety significance of this issue. The inspectors concluded in this assessment that the performance deficiency was of very low safety significance (Green). This finding is related to licensee's problem identification & resolution process. Inspection Report# : [2003010\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Feb 27, 2004

Identified By: NRC

Item Type: FIN Finding

PROBLEM IDENTIFICATION AND RESOLUTION TEAM INSPECTION RESULTS

The team determined that the licensee was generally effective at identifying discrepant conditions at an appropriate threshold and entering them into the corrective action program. Once entered into the system, issues were usually prioritized appropriately and in a timely fashion; and were properly evaluated commensurate with the safety significance. Overall, the evaluations reasonably identified the causes of the problem, the extent of the condition, and provided for corrective actions to address the causes. However, in some cases, the corrective action program was not effectively used to resolve and prevent problems. There were some instances where issue evaluations, as well as the associated corrective actions, were not effective in resolving problems. There were also some examples in which condition reports were characterized at a lower category than prescribed by the corrective action program.

Inspection Report# : [2004002\(pdf\)](#)

Last modified : September 08, 2004

Millstone 2

3Q/2004 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY ESTABLISH AND IMPLEMENT 10 CFR 50, APPENDIX B, CRITERION XVI, TO ADDRESS REPEATED LIFTING OF MAIN STEAM CODE SAFETY VALVES

The inspectors identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, for the failure to take effective corrective actions to preclude main steam code safety valves from lifting following design basis turbine trips/reactor trips from 100% power. Following two uncomplicated reactor trips at Unit 2 in March 2004, the inspectors noted that main steam code safety valves lifted and reseated. The inspectors determined that Unit 2 had a history of main steam code safety valves lifting and reseating following uncomplicated trips. The inspectors concluded that cycling main steam code safety valves following trips from full power increases the likelihood that they may not reseat. Dominion had not taken effective corrective actions to correct this longstanding issue. Dominion has undertaken a study (to complete by the end of 2004) to evaluate this system condition and to specify long term design changes which will be scheduled for completion in refueling outage 2R17 (fall of 2006). Dominion has entered this issue into their corrective action program. This issue is more than minor because it affects the equipment performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. Cycling of main steam code safety valves results in a greater likelihood that the valves will not reseat properly during an event. The finding was determined to have a very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Problem Identification and Resolution. Inspection Report# : [2004007\(pdf\)](#)

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

I&C TECHNICIANS AND OPERATIONS PERSONNEL DID NOT VERIFY ALL APPROPRIATE PREREQUISITES OR PERFORM ALL APPLICABLE PROCEDURAL STEPS WHICH THEN RESULTED IN THE ADVERTENT ACTUATION OF A SAFETY-RELATED SYST

The inspectors identified a non-cited violation of Technical Specification (TS) 6.8.1, for the failure to adequately implement post-maintenance testing following replacement of a pressurizer level instrument. On July 28, 2004, Operations and Maintenance personnel failed to meet a "Unit 2 Shutdown" procedural prerequisite and did not perform a procedure step to place charging pump controls in pull-to-lock during post-maintenance testing of pressurizer level control circuitry. As a result, both standby charging pumps started with one charging pump already operating. Dominion has specified training for both Operations and Maintenance organizations describing the circumstances of this event and management expectations for work evolution briefs, peer checking, and actions to be taken for unexpected conditions. Additionally, Maintenance management reinforced work practice expectations for the use of "N/A" in procedures and work planning process improvements. Dominion has entered this issue into their corrective action program. This issue is more than minor because it is associated with the human performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. The start of both standby charging pumps with one charging pump already operating was the precursor to the failure of the charging system on March 7, 2003. The finding was determined to have a very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Human Performance. Inspection Report# : [2004007\(pdf\)](#)

Significance:  Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT PROCEDURES FOR DRAINING THE RCS

The inspectors identified a non-cited violation of Technical Specification 6.8.1a for the failure to adequately implement procedures for draining the reactor coolant system (RCS). During the October 2003 refueling outage, Dominion drained down the RCS for an approximate 1.5 hour period with only one accurate means of level indication. The operator dedicated to monitoring refuel pool level was released from his duties prior to completion of the draindown and the operators in the control room were mis-reading the remote camera indication of the refuel pool level. Also, a recent revision of the procedure controlling the draindown had removed the steps required to conduct a valve line-up of the RCS mid-loop wide range level indicator (LI-112). As a result, LI-112 was not on scale as expected because it was isolated due to a previous maintenance activity. During this period, the only accurate means of refuel pool level was mass balance. This finding is more than minor because it is associated with the initiating event cornerstone attribute of configuration control during shutdown and affected the likelihood of

causing a loss of reactor water inventory to the point that shutdown cooling could be lost. The significance was low because multiple corrective measures available to ensure reactor cooling were maintained. Operators could have stopped the draindown by closing one valve from the control room, the draindown would have been automatically terminated once low pressure safety injection pump pressure lost suction, and operators could have restored shutdown cooling if it was lost. This finding is related to the cross-cutting issue of Human Performance.

Inspection Report# : [2004006\(pdf\)](#)

Significance:  Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT PROCEDURES FOR STEAM GENERATOR FEED PUMP TESTING WHICH LED TO A REACTOR TRIP

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1a was identified for the failure to adequately implement procedures for Steam Generator Feed Pump (SGFP) testing which led to a reactor trip. On March 15, 2004, the Unit 2 reactor automatically tripped from 100% power while operators were performing quarterly testing of the "B" SGFP. An event review team eliminated equipment failure as a root cause and determined that the root cause of the reactor trip was most likely due to the operators failing to maintain the lockout control switch in position during the surveillance. The lockout control switch is a spring return switch which is held in place by an operator to lockout the SGFP trip circuit while testing the SGFP.

This finding is more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and is associated with an increase in the likelihood of an initiating event in that a reactor trip actually occurred. The significance of the finding was determined to be very low since this finding did not contribute to the likelihood of a primary or secondary loss of coolant accident initiator, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigation equipment or functions, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting issue of Human Performance.

Inspection Report# : [2004005\(pdf\)](#)

Significance:  Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT VENDOR TECHNICAL MANUAL REQUIREMENTS INTO WRITTEN PROCEDURES WHICH CONTROL THE ALIGNMENT AND OPERATION OF ELECTRICAL POWER SOURCES TO VITAL SHUTDOWN COOLING COMPONENTS

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1 was identified for the inadequate implementation of vendor technical manual requirements into operating procedures for vital shutdown cooling component power supplies. Specifically, an incorrect version of a vendor technical manual was used as the basis for establishing switch lineups in a procedure that paralleled two alternating current (AC) sources to a vital electrical panel. The incorrect steps allowed the two AC sources to be paralleled out of phase. The electrical panel was supplying power to shutdown cooling equipment and the improper switch lineup resulted in paralleling the two AC sources without synchronous protection. When the sources were paralleled, they were out of phase resulting in the loss of both power supplies and a temporary loss of shutdown cooling. Dominion restored power within 15 minutes, the shutdown cooling system configuration was regained, and control of reactor coolant system temperature was reestablished.

The finding is more than minor because it was associated with the initiating event cornerstone attribute of procedure quality and affected the likelihood of a loss of shutdown cooling (SDC) in that an actual loss of SDC occurred. However, the finding was determined to be of very low safety significance (Green) since there was not a significant loss of thermal margin and the finding did not degrade Dominion's ability to recover shutdown cooling once it was lost. This finding is related to Dominion's Problem Identification and Resolution process.

Inspection Report# : [2004005\(pdf\)](#)

Mitigating Systems

Significance:  Feb 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT ADEQUATE DESIGN CONTROL AND SUITABLY TEST A MODIFICATION TO THE CHARGING SYSTEM

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion III, "Design Control," which requires that design control measures be established and implemented to assure that applicable regulatory requirements and the design basis for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. The charging system was modified to install pulsation dampeners, however, a suitable test program was not developed to ensure that the dampeners would remain available to support the charging system during postulated events.

This finding was more than minor because the condition of the pulsation dampeners subsequently degraded, which affected the design control and equipment performance attributes and the availability, reliability, and capability objective of the mitigating systems cornerstone. The

degraded condition of the pulsation dampeners challenged the reliability of the charging system to mitigate design basis events. This finding was determined to be of very low safety significance (Green) based on the results of a bounding risk assessment.

Inspection Report# : [2004002\(pdf\)](#)

G

Significance: Feb 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT SAFETY INJECTION TANK LEAKAGE

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," which requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The licensee failed to take appropriate corrective actions in a timely manner to address and correct repeat instances, over a multiple year period, of safety injection tank (SIT) leakage at Unit 2. The finding was more than minor because it affected the equipment performance attribute and the availability, reliability, and capability of the mitigating systems cornerstone. The chronic leakage problem resulted in an increased unavailability of a high pressure safety injection system train during the periods of time when the system was realigned and used to fill the SITs. This finding was determined to be of very low safety significance (Green) since an actual loss of the safety system function had not occurred and the high pressure safety injection train was removed from service for less than the Technical Specification allowed outage time.

Inspection Report# : [2004002\(pdf\)](#)

G

Significance: Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

WEST 480 VAC SWITCHGEAR ROOM COMPENSATORY COOLING

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III (Design Control), for the failure to take measures to assure that the design basis was correctly translated into procedures for the installation of temporary cooling when normal cooling is lost to the West 480 Volt AC switchgear room and to verify that the design was effective. The required air flow and flow path for the West 480 Volt AC temporary room cooling that had been evaluated in the design calculation were not correctly translated to the applicable procedure developed to install the temporary equipment and to establish the air flow path in the room. These temporary room cooling measures are designed to be implemented on the loss of normal cooling to retain operability of the vital switchgear located in the room. When the failure of these compensatory measures was recognized, the licensee took additional action outside of the design basis to maintain room temperature below design temperature limits. The finding is more than minor because the failure to provide the appropriate direction for establishing temporary cooling to the affected vital switchgear room resulted in inadequate room cooling which, if left uncorrected, could have resulted in exceeding the design temperature limit of the safety related and risk significant electrical equipment in the room.

This finding is associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the containment SSC and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 Volt AC System or electro hydraulic control functions. This finding is related to licensee's problem identification & resolution process.

Inspection Report# : [2003010\(pdf\)](#)

G

Significance: Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM ADEQUATE POST-MODIFICATION TEST OF DESIGN CHANGES TO THE CHARGING SYSTEM

The inspectors identified a non-cited violation for failure to comply with 10 CFR 50, Appendix B, Criterion III, Design Control, for two design changes which adversely affected the charging system and for which post-modification testing was not specified, or performed to ensure the charging system could fulfill its design function under anticipated conditions. However, the NCV was inadvertently left out of Inspection Report 05000336/2003004 dated November 10, 2003. As a result, the description of the issue and its safety significance is included in this report and the NCV will be documented under this report number. This finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone objective. Specifically, the charging system was not capable of providing adequate high pressure injection to the reactor coolant system following an initiating event that resulted in the simultaneous auto-start of the two standby charging pumps. Inspection Report 05000336/2003004 contains a detailed description of the Phase 3 assessment of the safety significance of this issue. The inspectors concluded in this assessment that the performance deficiency was of very low safety significance (Green). This finding is related to licensee's problem identification & resolution process.

Inspection Report# : [2003010\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Feb 27, 2004

Identified By: NRC

Item Type: FIN Finding

PROBLEM IDENTIFICATION AND RESOLUTION TEAM INSPECTION RESULTS

The team determined that the licensee was generally effective at identifying discrepant conditions at an appropriate threshold and entering them into the corrective action program. Once entered into the system, issues were usually prioritized appropriately and in a timely fashion; and were properly evaluated commensurate with the safety significance. Overall, the evaluations reasonably identified the causes of the problem, the extent of the condition, and provided for corrective actions to address the causes. However, in some cases, the corrective action program was not effectively used to resolve and prevent problems. There were some instances where issue evaluations, as well as the associated corrective actions, were not effective in resolving problems. There were also some examples in which condition reports were characterized at a lower category than prescribed by the corrective action program.

Inspection Report# : [2004002\(pdf\)](#)

Last modified : December 29, 2004

Millstone 2

4Q/2004 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY ESTABLISH AND IMPLEMENT 10 CFR 50, APPENDIX B, CRITERION XVI, TO ADDRESS REPEATED LIFTING OF MAIN STEAM CODE SAFETY VALVES

The inspectors identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, for the failure to take effective corrective actions to preclude main steam code safety valves from lifting following design basis turbine trips/reactor trips from 100% power. Following two uncomplicated reactor trips at Unit 2 in March 2004, the inspectors noted that main steam code safety valves lifted and reseated. The inspectors determined that Unit 2 had a history of main steam code safety valves lifting and reseating following uncomplicated trips. The inspectors concluded that cycling main steam code safety valves following trips from full power increases the likelihood that they may not reseat. Dominion had not taken effective corrective actions to correct this longstanding issue. Dominion has undertaken a study (to complete by the end of 2004) to evaluate this system condition and to specify long term design changes which will be scheduled for completion in refueling outage 2R17 (fall of 2006). Dominion has entered this issue into their corrective action program. This issue is more than minor because it affects the equipment performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. Cycling of main steam code safety valves results in a greater likelihood that the valves will not reseat properly during an event. The finding was determined to have a very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Problem Identification and Resolution. Inspection Report# : [2004007\(pdf\)](#)

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

I&C TECHNICIANS AND OPERATIONS PERSONNEL DID NOT VERIFY ALL APPROPRIATE PREREQUISITES OR PERFORM ALL APPLICABLE PROCEDURAL STEPS WHICH THEN RESULTED IN THE ADVERTENT ACTUATION OF A SAFETY-RELATED SYST

The inspectors identified a non-cited violation of Technical Specification (TS) 6.8.1, for the failure to adequately implement post-maintenance testing following replacement of a pressurizer level instrument. On July 28, 2004, Operations and Maintenance personnel failed to meet a "Unit 2 Shutdown" procedural prerequisite and did not perform a procedure step to place charging pump controls in pull-to-lock during post-maintenance testing of pressurizer level control circuitry. As a result, both standby charging pumps started with one charging pump already operating. Dominion has specified training for both Operations and Maintenance organizations describing the circumstances of this event and management expectations for work evolution briefs, peer checking, and actions to be taken for unexpected conditions. Additionally, Maintenance management reinforced work practice expectations for the use of "N/A" in procedures and work planning process improvements. Dominion has entered this issue into their corrective action program. This issue is more than minor because it is associated with the human performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. The start of both standby charging pumps with one charging pump already operating was the precursor to the failure of the charging system on March 7, 2003. The finding was determined to have a very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Human Performance. Inspection Report# : [2004007\(pdf\)](#)

Significance:  Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT PROCEDURES FOR DRAINING THE RCS

The inspectors identified a non-cited violation of Technical Specification 6.8.1a for the failure to adequately implement procedures for draining the reactor coolant system (RCS). During the October 2003 refueling outage, Dominion drained down the RCS for an approximate 1.5 hour period with only one accurate means of level indication. The operator dedicated to monitoring refuel pool level was released from his duties prior to completion of the draindown and the operators in the control room were mis-reading the remote camera indication of the refuel pool level. Also, a recent revision of the procedure controlling the draindown had removed the steps required to conduct a valve line-up of the RCS mid-loop wide range level indicator (LI-112). As a result, LI-112 was not on scale as expected because it was isolated due to a previous maintenance activity. During this period, the only accurate means of refuel pool level was mass balance. This finding is more than minor because it is associated with the initiating event cornerstone attribute of configuration control during shutdown and affected the likelihood of

causing a loss of reactor water inventory to the point that shutdown cooling could be lost. The significance was low because multiple corrective measures available to ensure reactor cooling were maintained. Operators could have stopped the draindown by closing one valve from the control room, the draindown would have been automatically terminated once low pressure safety injection pump pressure lost suction, and operators could have restored shutdown cooling if it was lost. This finding is related to the cross-cutting issue of Human Performance.

Inspection Report# : [2004006\(pdf\)](#)

G

Significance: Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT PROCEDURES FOR STEAM GENERATOR FEED PUMP TESTING WHICH LED TO A REACTOR TRIP

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1a was identified for the failure to adequately implement procedures for Steam Generator Feed Pump (SGFP) testing which led to a reactor trip. On March 15, 2004, the Unit 2 reactor automatically tripped from 100% power while operators were performing quarterly testing of the "B" SGFP. An event review team eliminated equipment failure as a root cause and determined that the root cause of the reactor trip was most likely due to the operators failing to maintain the lockout control switch in position during the surveillance. The lockout control switch is a spring return switch which is held in place by an operator to lockout the SGFP trip circuit while testing the SGFP.

This finding is more than minor because it is associated with the human performance attribute of the Initiating Events cornerstone and is associated with an increase in the likelihood of an initiating event in that a reactor trip actually occurred. The significance of the finding was determined to be very low since this finding did not contribute to the likelihood of a primary or secondary loss of coolant accident initiator, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigation equipment or functions, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting issue of Human Performance.

Inspection Report# : [2004005\(pdf\)](#)

G

Significance: Mar 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT VENDOR TECHNICAL MANUAL REQUIREMENTS INTO WRITTEN PROCEDURES WHICH CONTROL THE ALIGNMENT AND OPERATION OF ELECTRICAL POWER SOURCES TO VITAL SHUTDOWN COOLING COMPONENTS

A self-revealing non-cited violation of Technical Specification (TS) 6.8.1 was identified for the inadequate implementation of vendor technical manual requirements into operating procedures for vital shutdown cooling component power supplies. Specifically, an incorrect version of a vendor technical manual was used as the basis for establishing switch lineups in a procedure that paralleled two alternating current (AC) sources to a vital electrical panel. The incorrect steps allowed the two AC sources to be paralleled out of phase. The electrical panel was supplying power to shutdown cooling equipment and the improper switch lineup resulted in paralleling the two AC sources without synchronous protection. When the sources were paralleled, they were out of phase resulting in the loss of both power supplies and a temporary loss of shutdown cooling. Dominion restored power within 15 minutes, the shutdown cooling system configuration was regained, and control of reactor coolant system temperature was reestablished.

The finding is more than minor because it was associated with the initiating event cornerstone attribute of procedure quality and affected the likelihood of a loss of shutdown cooling (SDC) in that an actual loss of SDC occurred. However, the finding was determined to be of very low safety significance (Green) since there was not a significant loss of thermal margin and the finding did not degrade Dominion's ability to recover shutdown cooling once it was lost. This finding is related to Dominion's Problem Identification and Resolution process.

Inspection Report# : [2004005\(pdf\)](#)

Mitigating Systems

G

Significance: Feb 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT ADEQUATE DESIGN CONTROL AND SUITABLY TEST A MODIFICATION TO THE CHARGING SYSTEM

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion III, "Design Control," which requires that design control measures be established and implemented to assure that applicable regulatory requirements and the design basis for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. The charging system was modified to install pulsation dampeners, however, a suitable test program was not developed to ensure that the dampeners would remain available to support the charging system during postulated events.

This finding was more than minor because the condition of the pulsation dampeners subsequently degraded, which affected the design control and equipment performance attributes and the availability, reliability, and capability objective of the mitigating systems cornerstone. The

degraded condition of the pulsation dampeners challenged the reliability of the charging system to mitigate design basis events. This finding was determined to be of very low safety significance (Green) based on the results of a bounding risk assessment.

Inspection Report# : [2004002\(pdf\)](#)

G

Significance: Feb 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO CORRECT SAFETY INJECTION TANK LEAKAGE

The team identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action," which requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The licensee failed to take appropriate corrective actions in a timely manner to address and correct repeat instances, over a multiple year period, of safety injection tank (SIT) leakage at Unit 2. The finding was more than minor because it affected the equipment performance attribute and the availability, reliability, and capability of the mitigating systems cornerstone. The chronic leakage problem resulted in an increased unavailability of a high pressure safety injection system train during the periods of time when the system was realigned and used to fill the SITs. This finding was determined to be of very low safety significance (Green) since an actual loss of the safety system function had not occurred and the high pressure safety injection train was removed from service for less than the Technical Specification allowed outage time.

Inspection Report# : [2004002\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

G

Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

HIGH CONCENTRATION OF AIRBORNE RADIOACTIVE MATERIAL DURING FILTER TRANSFERS

Dominion did not use process or other engineering controls, to the extent practical, to control the concentration of radioactive material in air during handling of radioactive spent Unit 2 filters on September 29, 2004. As a result, elevated concentrations of radioactive material in air was generated and two workers sustained unplanned intakes of airborne radioactive material. This was a self-revealing, non-cited violation of 10 CFR 20.1701, "Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas, Use of Process or Other Engineering Controls." The finding was greater than minor, in that it was associated with the program and processes for exposure control and monitoring attribute of the Radiation Safety Cornerstone attributes and did affect the objective of the Cornerstone. The finding was determined to be of very low risk significance (Green) using NRC Manual Chapter 0609, Appendix C, in that it involved an ALARA exposure control finding, but the three year rolling average collective occupational dose for Millstone did not exceed 135 person-rem. Dominion suspended the work activity and initiated a root cause investigation. This finding was related to the cross-cutting area of Human Performance in that Dominion did not use process or engineering controls, to the extent practical, resulting in exposure of two workers to elevated concentrations of airborne radioactive material..

Inspection Report# : [2004008\(pdf\)](#)

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Feb 27, 2004

Identified By: NRC

Item Type: FIN Finding

PROBLEM IDENTIFICATION AND RESOLUTION TEAM INSPECTION RESULTS

The team determined that the licensee was generally effective at identifying discrepant conditions at an appropriate threshold and entering them into the corrective action program. Once entered into the system, issues were usually prioritized appropriately and in a timely fashion; and were properly evaluated commensurate with the safety significance. Overall, the evaluations reasonably identified the causes of the problem, the extent of the condition, and provided for corrective actions to address the causes. However, in some cases, the corrective action program was not effectively used to resolve and prevent problems. There were some instances where issue evaluations, as well as the associated corrective actions, were not effective in resolving problems. There were also some examples in which condition reports were characterized at a lower category than prescribed by the corrective action program.

Inspection Report# : [2004002\(pdf\)](#)

Last modified : March 09, 2005

Millstone 2

1Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: FIN Finding

FAILURE TO ADEQUATELY ADDRESS CONCERNS RELATED TO FREEZE PROTECTION OF THE OUTDOOR TEMPORARY AIR COMPRESSOR

The inspectors identified a self-revealing finding for the failure to adequately address issues related to the operation of an outdoor temporary air compressor and associated air dryer skid during cold weather conditions. On November 11, 2004, Dominion had identified that additional freeze protection actions were required to ensure the availability of the compressor during cold weather. Subsequently, the inspectors identified two occasions where actions taken to ensure availability of the compressor were not adequate. On December 17, 2004, the inspectors identified that a heat trace for the system dryer was deenergized. On February 1, 2005, the temporary air compressor failed causing the "B" instrument air compressor to start. Following the air transient, Dominion conducted an investigation and concluded that the cause of the temporary air compressor failure was freezing of the pre-filter on the air dryer skid. Dominion replaced the compressor, installed a tent around the air-dryer towers, and placed a heating unit inside the tent. The finding was more than minor because it affected the equipment performance attribute of the Initiating Events cornerstone objective of limiting the likelihood of events that upset plant stability at power. The performance issue associated with this finding was the failure to take adequate actions to ensure that adverse weather conditions did not affect the availability of the temporary instrument air system. The risk of this finding was determined to be of very low safety significance (Green), because, although the temporary air compressor system became unavailable, the standby instrument air compressor restored instrument air system pressure. The instrument air system pressure stabilized and recovered such that the instrument air header pressure did not cause a reactor trip. This finding was related to the cross-cutting area of Problem Identification and Resolution in that Dominion failed to take adequate corrective actions to prevent the air dryer skid from freezing.

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

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY ESTABLISH AND IMPLEMENT 10 CFR 50, APPENDIX B, CRITERION XVI, TO ADDRESS REPEATED LIFTING OF MAIN STEAM CODE SAFETY VALVES

The inspectors identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, for the failure to take effective corrective actions to preclude main steam code safety valves from lifting following design basis turbine trips/reactor trips from 100% power. Following two uncomplicated reactor trips at Unit 2 in March 2004, the inspectors noted that main steam code safety valves lifted and reseated. The inspectors determined that Unit 2 had a history of main steam code safety valves lifting and reseating following uncomplicated trips. The inspectors concluded that cycling main steam code safety valves following trips from full power increases the likelihood that they may not reseat. Dominion had not taken effective corrective actions to correct this longstanding issue. Dominion has undertaken a study (to complete by the end of 2004) to evaluate this system condition and to specify long term design changes which will be scheduled for completion in refueling outage 2R17 (fall of 2006). Dominion has entered this issue into their corrective action program. This issue is more than minor because it affects the equipment performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. Cycling of main steam code safety valves results in a greater likelihood that the valves will not reseat properly during an event. The finding was determined to have a very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Problem Identification and Resolution.

Inspection Report# : [2004007\(pdf\)](#)

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

I&C TECHNICIANS AND OPERATIONS PERSONNEL DID NOT VERIFY ALL APPROPRIATE PREREQUISITES OR PERFORM ALL APPLICABLE PROCEDURAL STEPS WHICH THEN RESULTED IN THE ADVERTENT ACTUATION OF A SAFETY-RELATED SYST

The inspectors identified a non-cited violation of Technical Specification (TS) 6.8.1, for the failure to adequately implement post-maintenance testing following replacement of a pressurizer level instrument. On July 28, 2004, Operations and Maintenance personnel failed to meet a "Unit 2 Shutdown" procedural prerequisite and did not perform a procedure step to place charging pump controls in pull-to-lock during post-maintenance testing of pressurizer level control circuitry. As a result, both standby charging pumps started with one charging pump already operating. Dominion has specified training for both Operations and Maintenance organizations describing the circumstances of this event and

management expectations for work evolution briefs, peer checking, and actions to be taken for unexpected conditions. Additionally, Maintenance management reinforced work practice expectations for the use of "N/A" in procedures and work planning process improvements. Dominion has entered this issue into their corrective action program. This issue is more than minor because it is associated with the human performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. The start of both standby charging pumps with one charging pump already operating was the precursor to the failure of the charging system on March 7, 2003. The finding was determined to have a very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Human Performance.
Inspection Report# : [2004007\(pdf\)](#)

G

Significance: Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ADEQUATELY IMPLEMENT PROCEDURES FOR DRAINING THE RCS

The inspectors identified a non-cited violation of Technical Specification 6.8.1a for the failure to adequately implement procedures for draining the reactor coolant system (RCS). During the October 2003 refueling outage, Dominion drained down the RCS for an approximate 1.5 hour period with only one accurate means of level indication. The operator dedicated to monitoring refuel pool level was released from his duties prior to completion of the draindown and the operators in the control room were mis-reading the remote camera indication of the refuel pool level. Also, a recent revision of the procedure controlling the draindown had removed the steps required to conduct a valve line-up of the RCS mid-loop wide range level indicator (LI-112). As a result, LI-112 was not on scale as expected because it was isolated due to a previous maintenance activity. During this period, the only accurate means of refuel pool level was mass balance. This finding is more than minor because it is associated with the initiating event cornerstone attribute of configuration control during shutdown and affected the likelihood of causing a loss of reactor water inventory to the point that shutdown cooling could be lost. The significance was low because multiple corrective measures available to ensure reactor cooling were maintained. Operators could have stopped the draindown by closing one valve from the control room, the draindown would have been automatically terminated once low pressure safety injection pump pressure lost suction, and operators could have restored shutdown cooling if it was lost. This finding is related to the cross-cutting issue of Human Performance.

Inspection Report# : [2004006\(pdf\)](#)

Mitigating Systems

G

Significance: Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT PROCEDURES TO CORRECTLY INSTALL TEMPORARY COOLING TO THE EAST 480 VOLT SWITCHGEAR

The inspectors identified a self-revealing non-cited violation of Technical Specification 6.8.1a, "Procedures and Programs," for the failure to adequately implement the procedure for installing temporary ventilation through the East 480 volt vital switchgear room when normal cooling was disabled for maintenance. The procedure establishes the required flow path in the switchgear room when compensatory cooling measures were required. On January 12, 2005, operators failed to perform the procedure step that opens doors to provide for an exhaust path to allow warm air to leave the switchgear room. The finding was greater than minor because the failure to install the compensatory cooling system, per the procedure, caused the air flow through the East 480 volt switchgear room to be below the minimum required to support cooling of the 480 volt system for initiating events (transients), mitigating systems, and barrier integrity systems. The finding was associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the containment structures, systems, and components and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected, a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 volt AC system or electro hydraulic control functions. This finding was related to the cross-cutting area of Human Performance in that both Engineering and Operations personnel failed to correctly implement the procedure for compensatory cooling.

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

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

HIGH CONCENTRATION OF AIRBORNE RADIOACTIVE MATERIAL DURING FILTER TRANSFERS

Dominion did not use process or other engineering controls, to the extent practical, to control the concentration of radioactive material in air during handling of radioactive spent Unit 2 filters on September 29, 2004. As a result, elevated concentrations of radioactive material in air was generated and two workers sustained unplanned intakes of airborne radioactive material. This was a self-revealing, non-cited violation of 10 CFR 20.1701, "Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas, Use of Process or Other Engineering Controls." The finding was greater than minor, in that it was associated with the program and processes for exposure control and monitoring attribute of the Radiation Safety Cornerstone attributes and did affect the objective of the Cornerstone. The finding was determined to be of very low risk significance (Green) using NRC Manual Chapter 0609, Appendix C, in that it involved an ALARA exposure control finding, but the three year rolling average collective occupational dose for Millstone did not exceed 135 person-rem. Dominion suspended the work activity and initiated a root cause investigation. This finding was related to the cross-cutting area of Human Performance in that Dominion did not use process or engineering controls, to the extent practical, resulting in exposure of two workers to elevated concentrations of airborne radioactive material..

Inspection Report# : [2004008\(pdf\)](#)

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : June 17, 2005

Millstone 2

2Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: FIN Finding

FAILURE TO ADEQUATELY ADDRESS CONCERNS RELATED TO FREEZE PROTECTION OF THE OUTDOOR TEMPORARY AIR COMPRESSOR

The inspectors identified a self-revealing finding for the failure to adequately address issues related to the operation of an outdoor temporary air compressor and associated air dryer skid during cold weather conditions. On November 11, 2004, Dominion had identified that additional freeze protection actions were required to ensure the availability of the compressor during cold weather. Subsequently, the inspectors identified two occasions where actions taken to ensure availability of the compressor were not adequate. On December 17, 2004, the inspectors identified that a heat trace for the system dryer was deenergized. On February 1, 2005, the temporary air compressor failed causing the "B" instrument air compressor to start. Following the air transient, Dominion conducted an investigation and concluded that the cause of the temporary air compressor failure was freezing of the pre-filter on the air dryer skid. Dominion replaced the compressor, installed a tent around the air-dryer towers, and placed a heating unit inside the tent. The finding was more than minor because it affected the equipment performance attribute of the Initiating Events cornerstone objective of limiting the likelihood of events that upset plant stability at power. The performance issue associated with this finding was the failure to take adequate actions to ensure that adverse weather conditions did not affect the availability of the temporary instrument air system. The risk of this finding was determined to be of very low safety significance (Green), because, although the temporary air compressor system became unavailable, the standby instrument air compressor restored instrument air system pressure. The instrument air system pressure stabilized and recovered such that the instrument air header pressure did not cause a reactor trip. This finding was related to the cross-cutting area of Problem Identification and Resolution in that Dominion failed to take adequate corrective actions to prevent the air dryer skid from freezing.

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

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY ESTABLISH AND IMPLEMENT 10 CFR 50, APPENDIX B, CRITERION XVI, TO ADDRESS REPEATED LIFTING OF MAIN STEAM CODE SAFETY VALVES

The inspectors identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, for the failure to take effective corrective actions to preclude main steam code safety valves from lifting following design basis turbine trips/reactor trips from 100% power. Following two uncomplicated reactor trips at Unit 2 in March 2004, the inspectors noted that main steam code safety valves lifted and reseated. The inspectors determined that Unit 2 had a history of main steam code safety valves lifting and reseating following uncomplicated trips. The inspectors concluded that cycling main steam code safety valves following trips from full power increases the likelihood that they may not reseat. Dominion had not taken effective corrective actions to correct this longstanding issue. Dominion has undertaken a study (to complete by the end of 2004) to evaluate this system condition and to specify long term design changes which will be scheduled for completion in refueling outage 2R17 (fall of 2006). Dominion has entered this issue into their corrective action program. This issue is more than minor because it affects the equipment performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. Cycling of main steam code safety valves results in a greater likelihood that the valves will not reseat properly during an event. The finding was determined to have a very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Problem Identification and Resolution.

Inspection Report# : [2004007\(pdf\)](#)

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

I&C TECHNICIANS AND OPERATIONS PERSONNEL DID NOT VERIFY ALL APPROPRIATE PREREQUISITES OR PERFORM ALL APPLICABLE PROCEDURAL STEPS WHICH THEN RESULTED IN THE ADVERTENT ACTUATION OF A SAFETY-RELATED SYST

The inspectors identified a non-cited violation of Technical Specification (TS) 6.8.1, for the failure to adequately implement post-maintenance testing following replacement of a pressurizer level instrument. On July 28, 2004, Operations and Maintenance personnel failed to meet a "Unit 2 Shutdown" procedural prerequisite and did not perform a procedure step to place charging pump controls in pull-to-lock during post-maintenance testing of pressurizer level control circuitry. As a result, both standby charging pumps started with one charging pump already operating. Dominion has specified training for both Operations and Maintenance organizations describing the circumstances of this event and

management expectations for work evolution briefs, peer checking, and actions to be taken for unexpected conditions. Additionally, Maintenance management reinforced work practice expectations for the use of "N/A" in procedures and work planning process improvements. Dominion has entered this issue into their corrective action program. This issue is more than minor because it is associated with the human performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. The start of both standby charging pumps with one charging pump already operating was the precursor to the failure of the charging system on March 7, 2003. The finding was determined to have a very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to both the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Human Performance.
Inspection Report# : [2004007\(pdf\)](#)

Mitigating Systems

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT PROCEDURES TO CORRECTLY INSTALL TEMPORARY COOLING TO THE EAST 480 VOLT SWITCHGEAR

The inspectors identified a self-revealing non-cited violation of Technical Specification 6.8.1a, "Procedures and Programs," for the failure to adequately implement the procedure for installing temporary ventilation through the East 480 volt vital switchgear room when normal cooling was disabled for maintenance. The procedure establishes the required flow path in the switchgear room when compensatory cooling measures were required. On January 12, 2005, operators failed to perform the procedure step that opens doors to provide for an exhaust path to allow warm air to leave the switchgear room. The finding was greater than minor because the failure to install the compensatory cooling system, per the procedure, caused the air flow through the East 480 volt switchgear room to be below the minimum required to support cooling of the 480 volt system for initiating events (transients), mitigating systems, and barrier integrity systems. The finding was associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the containment structures, systems, and components and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected, a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 volt AC system or electro hydraulic control functions. This finding was related to the cross-cutting area of Human Performance in that both Engineering and Operations personnel failed to correctly implement the procedure for compensatory cooling.

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

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

HIGH CONCENTRATION OF AIRBORNE RADIOACTIVE MATERIAL DURING FILTER TRANSFERS

Dominion did not use process or other engineering controls, to the extent practical, to control the concentration of radioactive material in air during handling of radioactive spent Unit 2 filters on September 29, 2004. As a result, elevated concentrations of radioactive material in air was generated and two workers sustained unplanned intakes of airborne radioactive material. This was a self-revealing, non-cited violation of 10 CFR 20.1701, "Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas, Use of Process or Other Engineering Controls." The finding was greater than minor, in that it was associated with the program and processes for exposure control and monitoring attribute of the Radiation Safety Cornerstone attributes and did affect the objective of the Cornerstone. The finding was determined to be of very low risk significance (Green) using NRC Manual Chapter 0609, Appendix C, in that it involved an ALARA exposure control finding, but the three year rolling average collective occupational dose for Millstone did not exceed 135 person-rem. Dominion suspended the work activity and initiated a root cause investigation. This finding was related to the cross-cutting area of Human Performance in that Dominion did not use

process or engineering controls, to the extent practical, resulting in exposure of two workers to elevated concentrations of airborne radioactive material..

Inspection Report# : [2004008\(pdf\)](#)

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : August 24, 2005

Millstone 2

3Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: FIN Finding

FAILURE TO ADEQUATELY ADDRESS CONCERNS RELATED TO FREEZE PROTECTION OF THE OUTDOOR TEMPORARY AIR COMPRESSOR

The inspectors identified a self-revealing finding for the failure to adequately address issues related to the operation of an outdoor temporary air compressor and associated air dryer skid during cold weather conditions. On November 11, 2004, Dominion had identified that additional freeze protection actions were required to ensure the availability of the compressor during cold weather. Subsequently, the inspectors identified two occasions where actions taken to ensure availability of the compressor were not adequate. On December 17, 2004, the inspectors identified that a heat trace for the system dryer was deenergized. On February 1, 2005, the temporary air compressor failed causing the "B" instrument air compressor to start. Following the air transient, Dominion conducted an investigation and concluded that the cause of the temporary air compressor failure was freezing of the pre-filter on the air dryer skid. Dominion replaced the compressor, installed a tent around the air-dryer towers, and placed a heating unit inside the tent. The finding was more than minor because it affected the equipment performance attribute of the Initiating Events cornerstone objective of limiting the likelihood of events that upset plant stability at power. The performance issue associated with this finding was the failure to take adequate actions to ensure that adverse weather conditions did not affect the availability of the temporary instrument air system. The risk of this finding was determined to be of very low safety significance (Green), because, although the temporary air compressor system became unavailable, the standby instrument air compressor restored instrument air system pressure. The instrument air system pressure stabilized and recovered such that the instrument air header pressure did not cause a reactor trip. This finding was related to the cross-cutting area of Problem Identification and Resolution in that Dominion failed to take adequate corrective actions to prevent the air dryer skid from freezing.

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

Mitigating Systems

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT PROCEDURES TO CORRECTLY INSTALL TEMPORARY COOLING TO THE EAST 480 VOLT SWITCHGEAR

The inspectors identified a self-revealing non-cited violation of Technical Specification 6.8.1a, "Procedures and Programs," for the failure to adequately implement the procedure for installing temporary ventilation through the East 480 volt vital switchgear room when normal cooling was disabled for maintenance. The procedure establishes the required flow path in the switchgear room when compensatory cooling measures were required. On January 12, 2005, operators failed to perform the procedure step that opens doors to provide for an exhaust path to allow warm air to leave the switchgear room. The finding was greater than minor because the failure to install the compensatory cooling system, per the procedure, caused the air flow through the East 480 volt switchgear room to be below the minimum required to support cooling of the 480 volt system for initiating events (transients), mitigating systems, and barrier integrity systems. The finding was associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the containment structures, systems, and components and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected, a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 volt AC system or electro hydraulic control functions. This finding was related to the cross-cutting area of Human Performance in that both Engineering and Operations personnel failed to correctly implement the procedure for compensatory cooling.

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

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

HIGH CONCENTRATION OF AIRBORNE RADIOACTIVE MATERIAL DURING FILTER TRANSFERS

Dominion did not use process or other engineering controls, to the extent practical, to control the concentration of radioactive material in air during handling of radioactive spent Unit 2 filters on September 29, 2004. As a result, elevated concentrations of radioactive material in air was generated and two workers sustained unplanned intakes of airborne radioactive material. This was a self-revealing, non-cited violation of 10 CFR 20.1701, "Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas, Use of Process or Other Engineering Controls." The finding was greater than minor, in that it was associated with the program and processes for exposure control and monitoring attribute of the Radiation Safety Cornerstone attributes and did affect the objective of the Cornerstone. The finding was determined to be of very low risk significance (Green) using NRC Manual Chapter 0609, Appendix C, in that it involved an ALARA exposure control finding, but the three year rolling average collective occupational dose for Millstone did not exceed 135 person-rem. Dominion suspended the work activity and initiated a root cause investigation. This finding was related to the cross-cutting area of Human Performance in that Dominion did not use process or engineering controls, to the extent practical, resulting in exposure of two workers to elevated concentrations of airborne radioactive material..

Inspection Report# : [2004008\(pdf\)](#)

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : November 30, 2005

Millstone 2

4Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: FIN Finding

FAILURE TO ADEQUATELY ADDRESS CONCERNS RELATED TO FREEZE PROTECTION OF THE OUTDOOR TEMPORARY AIR COMPRESSOR

The inspectors identified a self-revealing finding for the failure to adequately address issues related to the operation of an outdoor temporary air compressor and associated air dryer skid during cold weather conditions. On November 11, 2004, Dominion had identified that additional freeze protection actions were required to ensure the availability of the compressor during cold weather. Subsequently, the inspectors identified two occasions where actions taken to ensure availability of the compressor were not adequate. On December 17, 2004, the inspectors identified that a heat trace for the system dryer was deenergized. On February 1, 2005, the temporary air compressor failed causing the "B" instrument air compressor to start. Following the air transient, Dominion conducted an investigation and concluded that the cause of the temporary air compressor failure was freezing of the pre-filter on the air dryer skid. Dominion replaced the compressor, installed a tent around the air-dryer towers, and placed a heating unit inside the tent. The finding was more than minor because it affected the equipment performance attribute of the Initiating Events cornerstone objective of limiting the likelihood of events that upset plant stability at power. The performance issue associated with this finding was the failure to take adequate actions to ensure that adverse weather conditions did not affect the availability of the temporary instrument air system. The risk of this finding was determined to be of very low safety significance (Green), because, although the temporary air compressor system became unavailable, the standby instrument air compressor restored instrument air system pressure. The instrument air system pressure stabilized and recovered such that the instrument air header pressure did not cause a reactor trip. This finding was related to the cross-cutting area of Problem Identification and Resolution in that Dominion failed to take adequate corrective actions to prevent the air dryer skid from freezing.

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

Mitigating Systems

Significance:  Oct 15, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO TAKE TS ACTION WITH THE "B" EDG INOPERABLE

The inspectors identified a non-cited violation of Technical Specification (TS) 3.8.1.1, "AC Sources," since Dominion did not perform the required TS action (TS 3.8.1.1.b.3) after they discovered the "B" emergency diesel generator (EDG) was inoperable on May 18, 2005. Specifically, Dominion failed to verify that the steam-driven auxiliary feedwater pump was operable after declaring the "B" EDG inoperable. In addition, Dominion did not identify in the Licensee Event Report (LER) documenting this occurrence that TS 3.0.5, "Limiting Conditions for Operation," was also not entered during the time that the "B" EDG was inoperable. Dominion has entered this condition into their corrective action program (CR-05-11468) and updated the LER to reflect TS 3.0.5 applicability. This finding was more than minor because it affected the human performance attribute and the availability, reliability, and capability objective of the Mitigating System cornerstone. Specifically, Dominion did not verify the steam-driven auxiliary feedwater pump was operable upon the discovery that the "B" EDG was inoperable. This finding was determined to be of very low safety significance (Green) since the steam-driven auxiliary feedwater pump was subsequently determined to have been available to perform its function. This finding is related to the cross-cutting area of Human Performance in that operations personnel did not perform the required actions of TS 3.8.1.1.b.3 after they declared the "B" EDG inoperable on May 18, 2005.

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

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: Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT PROCEDURES TO CORRECTLY INSTALL TEMPORARY COOLING TO THE EAST 480 VOLT SWITCHGEAR

The inspectors identified a self-revealing non-cited violation of Technical Specification 6.8.1a, "Procedures and Programs," for the failure to adequately implement the procedure for installing temporary ventilation through the East 480 volt vital switchgear room when normal cooling was disabled for maintenance. The procedure establishes the required flow path in the switchgear room when compensatory cooling measures were required. On January 12, 2005, operators failed to perform the procedure step that opens doors to provide for an exhaust path to allow warm air to leave the switchgear room. The finding was greater than minor because the failure to install the compensatory cooling system, per the procedure, caused the air flow through the East 480 volt switchgear room to be below the minimum required to support cooling of the 480 volt system for initiating events (transients), mitigating systems, and barrier integrity systems. The finding was associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones, and the containment structures, systems, and components and barrier performance attribute of the barrier integrity cornerstone. Since more than one cornerstone was affected, a Reactor Safety Significance Determination Process Phase 2 analysis was performed. The analysis resulted in a finding of very low safety significance (Green) because the improper installation of the compensatory measures did not result in an actual loss of the supported 480 volt AC system or electro hydraulic control functions. This finding was related to the cross-cutting area of Human Performance in that both Engineering and Operations personnel failed to correctly implement the procedure for compensatory cooling.

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

Barrier Integrity

Emergency Preparedness

G

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\(pdf\)](#)

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : March 03, 2006

Millstone 2

1Q/2006 Plant Inspection Findings

Initiating Events

Significance:  Mar 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM EVALUATIONS ON BORIC ACID LEAKS

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 follow Boric Acid Corrosion Control Program (BACCP) procedures. Specifically, plant personnel routinely failed to perform boric acid leak evaluations as required per Dominion procedure DNAP-1004, "Boric Acid Corrosion Control Program," despite the specified threshold having been met. This finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of human performance and it affects the cornerstone's 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 licensee entered this condition into the corrective action program as CR-06-02088. This finding was characterized as a loss-of-coolant-accident (LOCA) initiator and was determined to be of very low safety significance (Green) because it did not result in exceeding the Technical Specification limit for identified reactor coolant system (RCS) leakage or affect other mitigation systems resulting in a total loss of their safety function. Corrective actions included a planned revision to the Boric Acid Corrosion Control program to ensure evaluations are performed and documented. In addition, the licensee conducted a Boric Acid Corrosion Control program peer review using another nuclear power station boric acid program owner. This finding is related to the cross-cutting area of human performance in that on at least 22 occasions, station personnel did not follow established station procedures requiring boric acid evaluation.

Inspection Report# : [2006006\(pdf\)](#)

Mitigating Systems

Significance:  Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO COMPLY WITH TS DURING WRNI SURVEILLANCES

The inspectors identified a Green NCV for the failure to comply with TS 3.3.1.1, "Reactor Protection Instrumentation," during routine monthly surveillance testing of the Wide Range Nuclear Instrument (WRNIs). During a review of control room logs from January 1, 2006 through March 31, 2006, the inspectors identified that Operations did not enter TS 3.3.1.1 on two occasions during WRNIs testing and take action per Table 3.3-1 to place the Reactor Coolant Flow-Low and Thermal Margin/Low Pressure protective channels in either the bypassed or tripped condition within 1 hour. Dominion took immediate action to inform the operators of this deficiency and entered this issue into their corrective action program under CR-06-02295 and CR-06-03586 for resolution. The failure by the operators to comply with TS was more than minor because it affected the configuration control attribute of the Mitigating Systems Cornerstone. Specifically, deliberate operator action was required to ensure that proper reactor protection system coincidence was maintained. Because there was no loss of safety function and the zero power mode switch was later verified to be in the "OFF" position, the failure to meet the TS action statement was considered to be of very low safety significance (Green). This finding is related to the cross-cutting aspects of problem identification and resolution in that Dominion did not identify the requirement to enter TS 3.3.1.1 for WRNIs during testing and failures and take action to place the Reactor Coolant Flow-Low and Thermal Margin/Low Pressure protective channel in either the bypassed or tripped condition within 1 hour.

Inspection Report# : [2006002\(pdf\)](#)

Significance:  Mar 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE SUITABILITY OF APPLICATIONS EVALUATION FOR DAMPENER MODIFICATION

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control" associated with the Unit 2 charging system pump discharge dampener modification. Specifically, the licensee's review of the design modification failed to adequately consider the suitability of the dampener in that a potential common mode failure mechanism associated with gas binding of the charging pump suction was not considered nor evaluated. This condition was entered into the licensee's corrective action program as CR-06-02382. Corrective actions include performing a root cause to, in part, determine why the design process and other organizational factors that installed the bladders did not identify the potential common mode failure. The finding was more than minor because it affected the availability, reliability, and capability objective of the Mitigating System Cornerstone and its associated design control attribute. Specifically, inadequate design control caused

Dominion to not fully consider the affects of a discharge dampener bladder failure on the common suction of the Unit 2 charging pumps, a condition which, on January 9, 2006, led to the momentary loss of the charging system. Based upon the IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening worksheets, this finding required a Phase 2 evaluation since the finding represented a loss of system safety function. Based upon the Phase 2 results, the Region 1 Senior Reactor Analyst (SRA) conducted a Phase 3 evaluation. The cumulative increase in core damage probability for this condition was determined to be in the low E-8 range and of very low safety significance (Green). This finding has a problem identification and resolution cross-cutting aspect in that evaluations and corrective actions performed by the licensee were inadequate to prevent charging system anomalies despite the identification of a small boric acid leak from the cap of the "B" charging pump discharge pulsation dampener, an indication of a failed pulsation dampener for which no corrective maintenance was performed.

Inspection Report# : [2006006\(pdf\)](#)

G

Significance: Oct 15, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO TAKE TS ACTION WITH THE "B" EDG INOPERABLE

The inspectors identified a non-cited violation of Technical Specification (TS) 3.8.1.1, "AC Sources," since Dominion did not perform the required TS action (TS 3.8.1.1.b.3) after they discovered the "B" emergency diesel generator (EDG) was inoperable on May 18, 2005. Specifically, Dominion failed to verify that the steam-driven auxiliary feedwater pump was operable after declaring the "B" EDG inoperable. In addition, Dominion did not identify in the Licensee Event Report (LER) documenting this occurrence that TS 3.0.5, "Limiting Conditions for Operation," was also not entered during the time that the "B" EDG was inoperable. Dominion has entered this condition into their corrective action program (CR-05-11468) and updated the LER to reflect TS 3.0.5 applicability. This finding was more than minor because it affected the human performance attribute and the availability, reliability, and capability objective of the Mitigating System cornerstone. Specifically, Dominion did not verify the steam-driven auxiliary feedwater pump was operable upon the discovery that the "B" EDG was inoperable. This finding was determined to be of very low safety significance (Green) since the steam-driven auxiliary feedwater pump was subsequently determined to have been available to perform its function. This finding is related to the cross-cutting area of Human Performance in that operations personnel did not perform the required actions of TS 3.8.1.1.b.3 after they declared the "B" EDG inoperable on May 18, 2005.

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

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\(pdf\)](#)

Barrier Integrity

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\(pdf\)](#)

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Mar 03, 2006

Identified By: NRC

Item Type: FIN Finding

PROBLEM IDENTIFICATION AND RESOLUTION TEAM INSPECTION RESULTS

The inspectors identified that the licensee was effective at identifying problems and entering them into the corrective action program (CAP). The licensee's effectiveness at problem identification was evidenced by the relatively few deficiencies were identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. The licensee effectively used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementing corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. Licensee audits and self-assessments were found to be generally effective. On the basis of interviews conducted during this inspection, workers at the site felt free to input safety concerns and issues into the CAP program. However, the inspectors did identify some missed opportunities to identify issues and enter them into their corrective action program. In addition, there were some instances where issue evaluations and corrective actions were not effective in resolving problems.

Inspection Report# : [2006006\(pdf\)](#)

Last modified : May 25, 2006

Millstone 2

2Q/2006 Plant Inspection Findings

Initiating Events

G**Significance:** Mar 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM EVALUATIONS ON BORIC ACID LEAKS

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 follow Boric Acid Corrosion Control Program (BACCP) procedures. Specifically, plant personnel routinely failed to perform boric acid leak evaluations as required per Dominion procedure DNAP-1004, "Boric Acid Corrosion Control Program," despite the specified threshold having been met. This finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of human performance and it affects the cornerstone's 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 licensee entered this condition into the corrective action program as CR-06-02088. This finding was characterized as a loss-of-coolant-accident (LOCA) initiator and was determined to be of very low safety significance (Green) because it did not result in exceeding the Technical Specification limit for identified reactor coolant system (RCS) leakage or affect other mitigation systems resulting in a total loss of their safety function. Corrective actions included a planned revision to the Boric Acid Corrosion Control program to ensure evaluations are performed and documented. In addition, the licensee conducted a Boric Acid Corrosion Control program peer review using another nuclear power station boric acid program owner. This finding is related to the cross-cutting area of human performance in that on at least 22 occasions, station personnel did not follow established station procedures requiring boric acid evaluation.

Inspection Report# : [2006006\(pdf\)](#)

Mitigating Systems

G**Significance:** Jun 30, 2006

Identified By: NRC

Item Type: FIN Finding

DID NOT IDENTIFY OR EVALUATE AIR VOIDS LOCATED IN AUXILIARY FEEDWATER SYSTEM

The inspectors identified a finding when Dominion did not recognize that a portion of the auxiliary feedwater (AFW) discharge header contained air voids after they determined that AFW flow instrumentation was behaving erratically as a result of air in the instrument line. Specifically, Dominion initiated a condition report after identifying that AFW flow instrumentation was air bound but closed out operability concerns based on air only affecting instrumentation and not the potential that air could exist in the discharge portion of the system. As a result, Dominion did not identify existing voids in AFW discharge piping or assess these air voids for impact on AFW operability. Dominion entered this condition into their corrective action program as CR-06-04677. Corrective actions for this issue included conducting ultrasonic testing of the discharge piping, quantifying the air voids in the system, and evaluating operability of the system with these air voids left in place. This finding is more than minor because it is associated with the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Dominion did not investigate or evaluate the existence of air voids in the AFW system discharge piping when air was identified in the system. This finding was determined to be of very low safety significance (Green) because it did not result in a loss of function once the existing air voids were identified and evaluated. This finding is related to the cross-cutting aspect of problem identification and resolution in that Dominion did not fully investigate the existence of air voids in other parts of the AFW system and as a result did not fully evaluate the impact of existing air voids in the AFW system discharge piping.

Inspection Report# : [2006003\(pdf\)](#)

G**Significance:** Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO COMPLY WITH TS DURING WRNI SURVEILLANCES

The inspectors identified a Green NCV for the failure to comply with TS 3.3.1.1, "Reactor Protection Instrumentation," during routine monthly surveillance testing of the Wide Range Nuclear Instrument (WRNIs). During a review of control room logs from January 1, 2006 through March 31, 2006, the inspectors identified that Operations did not enter TS 3.3.1.1 on two occasions during WRNIs testing and take action per Table 3.3-1 to place the Reactor Coolant Flow-Low and Thermal Margin/Low Pressure protective channels in either the bypassed or tripped condition within 1 hour. Dominion took immediate action to inform the operators of this deficiency and entered this issue into their corrective action program under CR-06-02295 and CR-06-03586 for resolution. The failure by the operators to comply with TS was more than minor because it affected the configuration control attribute of the Mitigating Systems Cornerstone. Specifically, deliberate operator action was required to ensure that proper reactor protection system coincidence was maintained. Because there was no loss of safety function and the zero power mode switch was later

verified to be in the "OFF" position, the failure to meet the TS action statement was considered to be of very low safety significance (Green). This finding is related to the cross-cutting aspects of problem identification and resolution in that Dominion did not identify the requirement to enter TS 3.3.1.1 for WRNIs during testing and failures and take action to place the Reactor Coolant Flow-Low and Thermal Margin/Low Pressure protective channel in either the bypassed or tripped condition within 1 hour.

Inspection Report# : [2006002\(pdf\)](#)



Significance: Mar 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE SUITABILITY OF APPLICATIONS EVALUATION FOR DAMPENER MODIFICATION

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control" associated with the Unit 2 charging system pump discharge dampener modification. Specifically, the licensee's review of the design modification failed to adequately consider the suitability of the dampener in that a potential common mode failure mechanism associated with gas binding of the charging pump suction was not considered nor evaluated. This condition was entered into the licensee's corrective action program as CR-06-02382. Corrective actions include performing a root cause to, in part, determine why the design process and other organizational factors that installed the bladders did not identify the potential common mode failure. The finding was more than minor because it affected the availability, reliability, and capability objective of the Mitigating System Cornerstone and its associated design control attribute. Specifically, inadequate design control caused Dominion to not fully consider the affects of a discharge dampener bladder failure on the common suction of the Unit 2 charging pumps, a condition which, on January 9, 2006, led to the momentary loss of the charging system. Based upon the IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening worksheets, this finding required a Phase 2 evaluation since the finding represented a loss of system safety function. Based upon the Phase 2 results, the Region 1 Senior Reactor Analyst (SRA) conducted a Phase 3 evaluation. The cumulative increase in core damage probability for this condition was determined to be in the low E-8 range and of very low safety significance (Green). This finding has a problem identification and resolution cross-cutting aspect in that evaluations and corrective actions performed by the licensee were inadequate to prevent charging system anomalies despite the identification of a small boric acid leak from the cap of the "B" charging pump discharge pulsation dampener, an indication of a failed pulsation dampener for which no corrective maintenance was performed.

Inspection Report# : [2006006\(pdf\)](#)



Significance: Oct 15, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO TAKE TS ACTION WITH THE "B" EDG INOPERABLE

The inspectors identified a non-cited violation of Technical Specification (TS) 3.8.1.1, "AC Sources," since Dominion did not perform the required TS action (TS 3.8.1.1.b.3) after they discovered the "B" emergency diesel generator (EDG) was inoperable on May 18, 2005. Specifically, Dominion failed to verify that the steam-driven auxiliary feedwater pump was operable after declaring the "B" EDG inoperable. In addition, Dominion did not identify in the Licensee Event Report (LER) documenting this occurrence that TS 3.0.5, "Limiting Conditions for Operation," was also not entered during the time that the "B" EDG was inoperable. Dominion has entered this condition into their corrective action program (CR-05-11468) and updated the LER to reflect TS 3.0.5 applicability. This finding was more than minor because it affected the human performance attribute and the availability, reliability, and capability objective of the Mitigating System cornerstone. Specifically, Dominion did not verify the steam-driven auxiliary feedwater pump was operable upon the discovery that the "B" EDG was inoperable. This finding was determined to be of very low safety significance (Green) since the steam-driven auxiliary feedwater pump was subsequently determined to have been available to perform its function. This finding is related to the cross-cutting area of Human Performance in that operations personnel did not perform the required actions of TS 3.8.1.1.b.3 after they declared the "B" EDG inoperable on May 18, 2005.

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



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\(pdf\)](#)

Barrier Integrity

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\(pdf\)](#)

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Mar 03, 2006

Identified By: NRC

Item Type: FIN Finding

PROBLEM IDENTIFICATION AND RESOLUTION TEAM INSPECTION RESULTS

The inspectors identified that the licensee was effective at identifying problems and entering them into the corrective action program (CAP). The licensee's effectiveness at problem identification was evidenced by the relatively few deficiencies were identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. The licensee effectively used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementing corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. Licensee audits and self-assessments were found to be generally effective. On the basis of interviews conducted during this inspection, workers at the site felt free to input safety concerns and issues into

the CAP program. However, the inspectors did identify some missed opportunities to identify issues and enter them into their corrective action program. In addition, there were some instances where issue evaluations and corrective actions were not effective in resolving problems.

Inspection Report# : [2006006\(pdf\)](#)

Last modified : August 25, 2006

Millstone 2

3Q/2006 Plant Inspection Findings

Initiating Events

Significance:  Mar 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM EVALUATIONS ON BORIC ACID LEAKS

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 follow Boric Acid Corrosion Control Program (BACCP) procedures. Specifically, plant personnel routinely failed to perform boric acid leak evaluations as required per Dominion procedure DNAP-1004, "Boric Acid Corrosion Control Program," despite the specified threshold having been met. This finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of human performance and it affects the cornerstone's 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 licensee entered this condition into the corrective action program as CR-06-02088. This finding was characterized as a loss-of-coolant-accident (LOCA) initiator and was determined to be of very low safety significance (Green) because it did not result in exceeding the Technical Specification limit for identified reactor coolant system (RCS) leakage or affect other mitigation systems resulting in a total loss of their safety function. Corrective actions included a planned revision to the Boric Acid Corrosion Control program to ensure evaluations are performed and documented. In addition, the licensee conducted a Boric Acid Corrosion Control program peer review using another nuclear power station boric acid program owner. This finding is related to the cross-cutting area of human performance in that on at least 22 occasions, station personnel did not follow established station procedures requiring boric acid evaluation.

Inspection Report# : [2006006\(pdf\)](#)

Mitigating Systems

Significance:  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTIONS TO PREVENT REPEAT VITAL AC 480V SWITCHGEAR COOLING DAMPER FAILURES

A Green self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not take effective corrective action to prevent the east 480 volt vital alternating current (AC) switchgear cooling damper (2-HV-274D) from failing on July 2, 2006. This damper had previously failed on August 26, 2003, after which Dominion specified corrective actions to replace the damper and revise the damper preventive maintenance (PM) schedule and activities. The damper was not replaced and the PM activities were not conducted as planned. As a result, on July 2, 2006, 2-HV-274D failed again. This finding was entered into Dominion's corrective action program (CR-06-06396). Corrective actions for the 2006 failure were similar to those in 2003. The finding is more than minor because it is associated with the equipment performance attributes under the Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstone objectives. Inspection Manual Chapter 0609, Appendix A, was used to determine the risk associated with this finding. Phase 1 of Appendix A requires that a Phase 2 analysis be performed when multiple cornerstones are affected. The Phase 2 analysis assumes that the 480 volt system is inoperable. Since Dominion implemented compensatory cooling measures prior to actual room temperatures exceeding design limits and the equipment remained operable, there was no entry condition for evaluating this finding in the Phase 2 tables. Therefore, this issue is considered to be of very low safety significance (Green). This finding is related to the cross-cutting aspect of Problem Identification and Resolution in that Dominion did not take effective actions to correct a condition adverse to quality after damper 2-HV-274D failed on August 28, 2003. As a result of the ineffective corrective actions, damper 2-HV-274D failed

again on July 2, 2006.

Inspection Report# : [2006004\(pdf\)](#)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: FIN Finding

DID NOT IDENTIFY OR EVALUATE AIR VOIDS LOCATED IN AUXILIARY FEEDWATER SYSTEM

The inspectors identified a finding when Dominion did not recognize that a portion of the auxiliary feedwater (AFW) discharge header contained air voids after they determined that AFW flow instrumentation was behaving erratically as a result of air in the instrument line. Specifically, Dominion initiated a condition report after identifying that AFW flow instrumentation was air bound but closed out operability concerns based on air only affecting instrumentation and not the potential that air could exist in the discharge portion of the system. As a result, Dominion did not identify existing voids in AFW discharge piping or assess these air voids for impact on AFW operability. Dominion entered this condition into their corrective action program as CR-06-04677. Corrective actions for this issue included conducting ultrasonic testing of the discharge piping, quantifying the air voids in the system, and evaluating operability of the system with these air voids left in place. This finding is more than minor because it is associated with the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Dominion did not investigate or evaluate the existence of air voids in the AFW system discharge piping when air was identified in the system. This finding was determined to be of very low safety significance (Green) because it did not result in a loss of function once the existing air voids were identified and evaluated. This finding is related to the cross-cutting aspect of problem identification and resolution in that Dominion did not fully investigate the existence of air voids in other parts of the AFW system and as a result did not fully evaluate the impact of existing air voids in the AFW system discharge piping.

Inspection Report# : [2006003\(pdf\)](#)

Significance:  Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO COMPLY WITH TS DURING WRNI SURVEILLANCES

The inspectors identified a Green NCV for the failure to comply with TS 3.3.1.1, "Reactor Protection Instrumentation," during routine monthly surveillance testing of the Wide Range Nuclear Instrument (WRNIs). During a review of control room logs from January 1, 2006 through March 31, 2006, the inspectors identified that Operations did not enter TS 3.3.1.1 on two occasions during WRNIs testing and take action per Table 3.3-1 to place the Reactor Coolant Flow-Low and Thermal Margin/Low Pressure protective channels in either the bypassed or tripped condition within 1 hour. Dominion took immediate action to inform the operators of this deficiency and entered this issue into their corrective action program under CR-06-02295 and CR-06-03586 for resolution. The failure by the operators to comply with TS was more than minor because it affected the configuration control attribute of the Mitigating Systems Cornerstone. Specifically, deliberate operator action was required to ensure that proper reactor protection system coincidence was maintained. Because there was no loss of safety function and the zero power mode switch was later verified to be in the "OFF" position, the failure to meet the TS action statement was considered to be of very low safety significance (Green). This finding is related to the cross-cutting aspects of problem identification and resolution in that Dominion did not identify the requirement to enter TS 3.3.1.1 for WRNIs during testing and failures and take action to place the Reactor Coolant Flow-Low and Thermal Margin/Low Pressure protective channel in either the bypassed or tripped condition within 1 hour.

Inspection Report# : [2006002\(pdf\)](#)

Significance:  Mar 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE SUITABILITY OF APPLICATIONS EVALUATION FOR DAMPENER MODIFICATION

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control" associated with the Unit 2 charging system pump discharge dampener modification. Specifically, the licensee's review of the design modification failed to adequately consider the suitability of the dampener in that a potential common mode failure mechanism associated with gas binding of the charging pump suction was not considered nor evaluated. This condition was entered into the licensee's corrective action program as CR-06-02382. Corrective actions include performing a root cause to, in part,

determine why the design process and other organizational factors that installed the bladders did not identify the potential common mode failure. The finding was more than minor because it affected the availability, reliability, and capability objective of the Mitigating System Cornerstone and its associated design control attribute. Specifically, inadequate design control caused Dominion to not fully consider the effects of a discharge dampener bladder failure on the common suction of the Unit 2 charging pumps, a condition which, on January 9, 2006, led to the momentary loss of the charging system. Based upon the IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening worksheets, this finding required a Phase 2 evaluation since the finding represented a loss of system safety function. Based upon the Phase 2 results, the Region 1 Senior Reactor Analyst (SRA) conducted a Phase 3 evaluation. The cumulative increase in core damage probability for this condition was determined to be in the low E-8 range and of very low safety significance (Green). This finding has a problem identification and resolution cross-cutting aspect in that evaluations and corrective actions performed by the licensee were inadequate to prevent charging system anomalies despite the identification of a small boric acid leak from the cap of the "B" charging pump discharge pulsation dampener, an indication of a failed pulsation dampener for which no corrective maintenance was performed.

Inspection Report# : [2006006\(pdf\)](#)

Significance:  Oct 15, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO TAKE TS ACTION WITH THE "B" EDG INOPERABLE

The inspectors identified a non-cited violation of Technical Specification (TS) 3.8.1.1, "AC Sources," since Dominion did not perform the required TS action (TS 3.8.1.1.b.3) after they discovered the "B" emergency diesel generator (EDG) was inoperable on May 18, 2005. Specifically, Dominion failed to verify that the steam-driven auxiliary feedwater pump was operable after declaring the "B" EDG inoperable. In addition, Dominion did not identify in the Licensee Event Report (LER) documenting this occurrence that TS 3.0.5, "Limiting Conditions for Operation," was also not entered during the time that the "B" EDG was inoperable. Dominion has entered this condition into their corrective action program (CR-05-11468) and updated the LER to reflect TS 3.0.5 applicability. This finding was more than minor because it affected the human performance attribute and the availability, reliability, and capability objective of the Mitigating System cornerstone. Specifically, Dominion did not verify the steam-driven auxiliary feedwater pump was operable upon the discovery that the "B" EDG was inoperable. This finding was determined to be of very low safety significance (Green) since the steam-driven auxiliary feedwater pump was subsequently determined to have been available to perform its function. This finding is related to the cross-cutting area of Human Performance in that operations personnel did not perform the required actions of TS 3.8.1.1.b.3 after they declared the "B" EDG inoperable on May 18, 2005.

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

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\(pdf\)](#)

Barrier Integrity

Significance:  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY AN ADVERSE CONDITION AFFECTING CONTROL ROOM EMERGENCY VENTILATION PERFORMANCE

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify and correct a condition adverse to quality affecting the "B" control room emergency ventilation (CREV) train's ability to operate as designed. On August 1, 2006, the "B" CREV train was declared inoperable after Operations detected an improper system flow balance. On August 3, 2006, the system was restored to service after troubleshooting activities were complete. However, the condition which resulted in the flow imbalance had not been identified or corrected. On August 6, 2006, the system was declared inoperable a second time after Operations detected a similar system flow imbalance. A second troubleshooting plan was developed which directed an inspection of the "B" exhaust fan belts. During the inspection, two "B" CREV exhaust fan belts were found stretched and scored. On August 10, 2006, the belts were replaced and operability was restored. This finding was entered into Dominion's corrective action program (CR-06-07115). Corrective actions for this issue included replacing the associated belts, an extent of condition review, the creation of a specific PM to periodically inspect the associated belts, and an evaluation to modify the operating procedure to extend the fan belt life. This finding is more than minor because it is associated with the Barrier Integrity Cornerstone attribute of maintaining the radiological barrier functionality of the control room. This issue is of very low safety significance (Green) since this finding only represented a degradation of the control room's radiological barrier function. This finding is related to the cross-cutting aspect of Problem Identification and Resolution because Dominion did not promptly identify or completely evaluate a condition adverse to quality prior to restoring the "B" control room emergency ventilation train system back to service on August 3, 2006, despite indications of 1) burning rubber smells when placing the "B" train in service (July 27, 2006 and August 2, 2006); and 2) system flow imbalances that only occurred with the "B" train in service (August 1, 2006, two occasions).

Inspection Report# : [2006004\(pdf\)](#)

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\(pdf\)](#)

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Mar 03, 2006

Identified By: NRC

Item Type: FIN Finding

PROBLEM IDENTIFICATION AND RESOLUTION TEAM INSPECTION RESULTS

The inspectors identified that the licensee was effective at identifying problems and entering them into the corrective action program (CAP). The licensee's effectiveness at problem identification was evidenced by the relatively few deficiencies were identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. The licensee effectively used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementing corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. Licensee audits and self-assessments were found to be generally effective. On the basis of interviews conducted during this inspection, workers at the site felt free to input safety concerns and issues into the CAP program. However, the inspectors did identify some missed opportunities to identify issues and enter them into their corrective action program. In addition, there were some instances where issue evaluations and corrective actions were not effective in resolving problems.

Inspection Report# : [2006006\(pdf\)](#)

Last modified : December 21, 2006

Millstone 2

4Q/2006 Plant Inspection Findings

Initiating Events

Significance:  Mar 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM EVALUATIONS ON BORIC ACID LEAKS

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 follow Boric Acid Corrosion Control Program (BACCP) procedures. Specifically, plant personnel routinely failed to perform boric acid leak evaluations as required per Dominion procedure DNAP-1004, "Boric Acid Corrosion Control Program," despite the specified threshold having been met. This finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of human performance and it affects the cornerstone's 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 licensee entered this condition into the corrective action program as CR-06-02088. This finding was characterized as a loss-of-coolant-accident (LOCA) initiator and was determined to be of very low safety significance (Green) because it did not result in exceeding the Technical Specification limit for identified reactor coolant system (RCS) leakage or affect other mitigation systems resulting in a total loss of their safety function. Corrective actions included a planned revision to the Boric Acid Corrosion Control program to ensure evaluations are performed and documented. In addition, the licensee conducted a Boric Acid Corrosion Control program peer review using another nuclear power station boric acid program owner. This finding is related to the cross-cutting area of human performance in that on at least 22 occasions, station personnel did not follow established station procedures requiring boric acid evaluation.

Inspection Report# : [2006006](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CONTROL OF OUTSIDE MAINTENANCE ACTIVITIES THAT RESULTED IN UNEXPECTED FLOODING OF BOTH EDG ROOMS

The inspectors identified a Green finding because Dominion did not adequately control maintenance activities that degraded the Unit 2 storm drainage system, which blocked a credited surface area runoff flow path protecting the Unit 2 emergency diesel generator (EDG) rooms from flooding in the event of rain. Consequently, on August 28, 2006, during a brief period of heavy rains, the Unit 2 storm drain system became overwhelmed due to the blocked rainwater runoff flow path causing flooding outside of the EDG access doors, ultimately leading to one-half to two inches of standing water in both EDG rooms. Additionally, Dominion did not identify degraded and missing sealant associated with the EDG room removable equipment hatch following this event. This finding was entered into Dominion's corrective action program (CR-06-07890, CR-06-09352, and CR-07-00475). Corrective actions included: removing the EDG fuel oil polishing tank that diverted surface water runoff to the EDG rooms, removing the filters that degraded the Unit 2 storm drainage system, performing a visual inspection of the yard drains, evaluating a change in the EDG flood door design and other similar flood gates to allow the doors to be more easily closed, and evaluating the Unit 2 EDG room design for single point flooding vulnerabilities. In addition, CR-06-09352 addresses corrective actions to maintain design assumptions for alternate rainwater runoff flow paths when degrading site storm drains. This finding is more than minor because it is associated with the Mitigating System external factors attribute (specifically, flood hazard) and affects the cornerstone objective of ensuring the availability, reliability, and capability of system's that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low safety significance (Green) by performing a Phase 1

evaluation in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, the water level in both EDG rooms did not reach an elevation that would result in a confirmed loss of EDG operability. This finding has a cross-cutting aspect in the area of Human Performance, work control component, because Dominion did not effectively coordinate outside maintenance activities and predetermined job site assumptions which resulted in unexpected flooding of both Unit 2 EDG rooms. Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT SURVEILLANCE PROCEDURES RESULTED IN A TEMPORARY LOSS OF SPENT FUEL POOL COOLING

A Green self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1, "Procedures," was identified because Operations did not adequately implement procedures while performing a surveillance to manually cycle the "C" reactor building component cooling water (RBCCW) outlet valve. This resulted in a temporary loss of RBCCW flow to the shutdown cooling heat exchanger which was aligned for cooling the spent fuel pool (SFP) while the reactor core was fully off-loaded. This issue has been entered into Dominion's corrective action program (CR-06-10565). Corrective actions for this issue included temporarily removing individuals from shift until interviewed by the Supervisor of Nuclear Shift Operations; and an action to create and implement required reading for all operators emphasizing diligence, controlled and deliberate actions, and proper place keeping and peer-checking during performance of any procedural guidance. This finding is more than minor because it is associated with the Human Performance attribute of the Spent Fuel Pool Cooling system function under the Barrier Integrity cornerstone and affected the cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents and events. The inspectors determined the NCV to be of very low safety significance based on NRC management review. Specifically, the finding represented a degradation in that spent fuel pool cooling was lost for four minutes, pool temperature did not significantly increase, and SFP cooling was promptly restored. This finding has a cross-cutting aspect in the area of Human Performance, Work Practice component, because Dominion's work practice techniques (placekeeping) were not effective in assuring procedural steps were implemented which resulted in a temporary loss of SFP cooling with the core off-loaded. Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY SCAFFOLDING RENDERED THE #1 STEAM GENERATOR MAIN STEAM ISOLATION VALVE COULD RENDER THE MAIN STEAM ISOLATION VALVLE INOPERABLE

A Green self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not identify that scaffolding had been constructed in a manner that would interfere with the Unit 2 #1 steam generator (SG) main steam isolation valve's (MSIV) ability to perform the intended safety function. Specifically, on August 29, 2006, Dominion constructed scaffolding adjacent to the MSIV to support replacing the operating cylinder. On October 7, 2006, the MSIV was declared inoperable after it failed to shut during the performance of MSIV stroke time testing. Dominion had multiple opportunities to identify the adverse consequences the scaffolding could have on the MSIV during scaffolding installation, engineering reviews prior to and following scaffolding installation, operations walkdowns of the area, and from site and industry operating experience available prior to the refueling outage. Corrective actions included removing a portion of the scaffolding to restore operability, reinforcing current scaffolding control process requirements, and modifying the scaffold evaluation process to ensure operability of safety-related structures, systems, and components (SSCs) potentially impacted by scaffolding installation. The finding was more than minor because it was associated with the equipment performance attribute for the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the scaffolding affected the MSIV steam generator isolation function. In addition, the finding was associated with the SSC and Barrier Performance attribute of the containment isolation function under the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. A phase 2 and 3 SDP was performed by an NRC regional senior reactor analysis (SRA) based on the finding affecting multiple cornerstones and the large early release frequency (LERF) contributor. The SRA determined that this finding represented a change in core damage frequency of approximately 6.0E-8, for the 40-day exposure period. The dominant sequences for this conditional risk assessment

involved main steam line break initiating events, coincident with the failure of the operator to isolate the steam line break and failure of the high pressure recirculation system. Based upon the dominant sequences involving main steam line breaks and a delta core damage frequency of less than E-7, LERF was determined not to be a risk consideration. Accordingly, this finding is of very low risk significance (Green). This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not identify this condition although multiple identification opportunities existed.

Inspection Report# : [2006005](#) (pdf)

Significance:  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTIONS TO PREVENT REPEAT VITAL AC 480V SWITCHGEAR COOLING DAMPER FAILURES

A Green self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not take effective corrective action to prevent the east 480 volt vital alternating current (AC) switchgear cooling damper (2-HV-274D) from failing on July 2, 2006. This damper had previously failed on August 26, 2003, after which Dominion specified corrective actions to replace the damper and revise the damper preventive maintenance (PM) schedule and activities. The damper was not replaced and the PM activities were not conducted as planned. As a result, on July 2, 2006, 2-HV-274D failed again. This finding was entered into Dominion's corrective action program (CR-06-06396). Corrective actions for the 2006 failure were similar to those in 2003. The finding is more than minor because it is associated with the equipment performance attributes under the Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstone objectives. Inspection Manual Chapter 0609, Appendix A, was used to determine the risk associated with this finding. Phase 1 of Appendix A requires that a Phase 2 analysis be performed when multiple cornerstones are affected. The Phase 2 analysis assumes that the 480 volt system is inoperable. Since Dominion implemented compensatory cooling measures prior to actual room temperatures exceeding design limits and the equipment remained operable, there was no entry condition for evaluating this finding in the Phase 2 tables. Therefore, this issue is considered to be of very low safety significance (Green). This finding is related to the cross-cutting aspect of Problem Identification and Resolution in that Dominion did not take effective actions to correct a condition adverse to quality after damper 2-HV-274D failed on August 28, 2003. As a result of the ineffective corrective actions, damper 2-HV-274D failed again on July 2, 2006.

Inspection Report# : [2006004](#) (pdf)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: FIN Finding

DID NOT IDENTIFY OR EVALUATE AIR VOIDS LOCATED IN AUXILIARY FEEDWATER SYSTEM

The inspectors identified a finding when Dominion did not recognize that a portion of the auxiliary feedwater (AFW) discharge header contained air voids after they determined that AFW flow instrumentation was behaving erratically as a result of air in the instrument line. Specifically, Dominion initiated a condition report after identifying that AFW flow instrumentation was air bound but closed out operability concerns based on air only affecting instrumentation and not the potential that air could exist in the discharge portion of the system. As a result, Dominion did not identify existing voids in AFW discharge piping or assess these air voids for impact on AFW operability. Dominion entered this condition into their corrective action program as CR-06-04677. Corrective actions for this issue included conducting ultrasonic testing of the discharge piping, quantifying the air voids in the system, and evaluating operability of the system with these air voids left in place. This finding is more than minor because it is associated with the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Dominion did not investigate or evaluate the existence of air voids in the AFW system discharge piping when air was identified in the system. This finding was determined to be of very low safety significance (Green) because it did not result in a loss of function once the existing air voids were identified and evaluated. This finding is related to the cross-cutting aspect of problem identification and resolution in that Dominion did not fully investigate the existence of air voids in other parts of the AFW system and as a result did not fully evaluate the impact of existing air voids in the AFW system discharge piping.

Inspection Report# : [2006003](#) (pdf)

G**Significance:** Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO COMPLY WITH TS DURING WRNI SURVEILLANCES

The inspectors identified a Green NCV for the failure to comply with TS 3.3.1.1, "Reactor Protection Instrumentation," during routine monthly surveillance testing of the Wide Range Nuclear Instrument (WRNIs). During a review of control room logs from January 1, 2006 through March 31, 2006, the inspectors identified that Operations did not enter TS 3.3.1.1 on two occasions during WRNIs testing and take action per Table 3.3-1 to place the Reactor Coolant Flow-Low and Thermal Margin/Low Pressure protective channels in either the bypassed or tripped condition within 1 hour. Dominion took immediate action to inform the operators of this deficiency and entered this issue into their corrective action program under CR-06-02295 and CR-06-03586 for resolution. The failure by the operators to comply with TS was more than minor because it affected the configuration control attribute of the Mitigating Systems Cornerstone. Specifically, deliberate operator action was required to ensure that proper reactor protection system coincidence was maintained. Because there was no loss of safety function and the zero power mode switch was later verified to be in the "OFF" position, the failure to meet the TS action statement was considered to be of very low safety significance (Green). This finding is related to the cross-cutting aspects of problem identification and resolution in that Dominion did not identify the requirement to enter TS 3.3.1.1 for WRNIs during testing and failures and take action to place the Reactor Coolant Flow-Low and Thermal Margin/Low Pressure protective channel in either the bypassed or tripped condition within 1 hour.

Inspection Report# : [2006002](#) (*pdf*)**G****Significance:** Mar 03, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE SUITABILITY OF APPLICATIONS EVALUATION FOR DAMPENER MODIFICATION

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control" associated with the Unit 2 charging system pump discharge dampener modification. Specifically, the licensee's review of the design modification failed to adequately consider the suitability of the dampener in that a potential common mode failure mechanism associated with gas binding of the charging pump suction was not considered nor evaluated. This condition was entered into the licensee's corrective action program as CR-06-02382. Corrective actions include performing a root cause to, in part, determine why the design process and other organizational factors that installed the bladders did not identify the potential common mode failure. The finding was more than minor because it affected the availability, reliability, and capability objective of the Mitigating System Cornerstone and its associated design control attribute. Specifically, inadequate design control caused Dominion to not fully consider the affects of a discharge dampener bladder failure on the common suction of the Unit 2 charging pumps, a condition which, on January 9, 2006, led to the momentary loss of the charging system. Based upon the IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening worksheets, this finding required a Phase 2 evaluation since the finding represented a loss of system safety function. Based upon the Phase 2 results, the Region 1 Senior Reactor Analyst (SRA) conducted a Phase 3 evaluation. The cumulative increase in core damage probability for this condition was determined to be in the low E-8 range and of very low safety significance (Green). This finding has a problem identification and resolution cross-cutting aspect in that evaluations and corrective actions performed by the licensee were inadequate to prevent charging system anomalies despite the identification of a small boric acid leak from the cap of the "B" charging pump discharge pulsation dampener, an indication of a failed pulsation dampener for which no corrective maintenance was performed.

Inspection Report# : [2006006](#) (*pdf*)

Barrier Integrity

G**Significance:** Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY AN ADVERSE CONDITION AFFECTING CONTROL ROOM EMERGENCY VENTILATION PERFORMANCE

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify and correct a condition adverse to quality affecting the "B" control room emergency ventilation (CREV) train's ability to operate as designed. On August 1, 2006, the "B" CREV train was declared inoperable after Operations detected an improper system flow balance. On August 3, 2006, the system was restored to service after troubleshooting activities were complete. However, the condition which resulted in the flow imbalance had not been identified or corrected. On August 6, 2006, the system was declared inoperable a second time after Operations detected a similar system flow imbalance. A second troubleshooting plan was developed which directed an inspection of the "B" exhaust fan belts. During the inspection, two "B" CREV exhaust fan belts were found stretched and scored. On August 10, 2006, the belts were replaced and operability was restored. This finding was entered into Dominion's corrective action program (CR-06-07115). Corrective actions for this issue included replacing the associated belts, an extent of condition review, the creation of a specific PM to periodically inspect the associated belts, and an evaluation to modify the operating procedure to extend the fan belt life. This finding is more than minor because it is associated with the Barrier Integrity Cornerstone attribute of maintaining the radiological barrier functionality of the control room. This issue is of very low safety significance (Green) since this finding only represented a degradation of the control room's radiological barrier function. This finding is related to the cross-cutting aspect of Problem Identification and Resolution because Dominion did not promptly identify or completely evaluate a condition adverse to quality prior to restoring the "B" control room emergency ventilation train system back to service on August 3, 2006, despite indications of 1) burning rubber smells when placing the "B" train in service (July 27, 2006 and August 2, 2006); and 2) system flow imbalances that only occurred with the "B" train in service (August 1, 2006, two occasions).

Inspection Report# : [2006004](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Mar 03, 2006

Identified By: NRC

Item Type: FIN Finding

PROBLEM IDENTIFICATION AND RESOLUTION TEAM INSPECTION RESULTS

The inspectors identified that the licensee was effective at identifying problems and entering them into the corrective action program (CAP). The licensee's effectiveness at problem identification was evidenced by the relatively few deficiencies were identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. The licensee effectively used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementing corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. Licensee audits and self-assessments were found to be generally effective. On the basis of interviews conducted during this inspection, workers at the site felt free to input safety concerns and issues into

the CAP program. However, the inspectors did identify some missed opportunities to identify issues and enter them into their corrective action program. In addition, there were some instances where issue evaluations and corrective actions were not effective in resolving problems.

Inspection Report# : [2006006](#) (*pdf*)

Last modified : March 01, 2007

Millstone 2

1Q/2007 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT A DEGRADED CONDITION OF THE 480V MCCS PER CRITERION XVI OF APPENDIX B TO 10 CFR PART 50

A Green NRC-identified NCV of Criterion XVI of Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," was identified for failure to promptly correct a degraded condition associated with the air conditioning (A/C) for the B61 480VAC motor control center (MCCs). Corrective actions included the B51 and B61 A/C units, implementation of compensatory cooling, restoring both A/C units by adding freon, and changing the vendor technical manual and equipment drawings to reflect the proper amount of freon charge. The finding was more than minor because the equipment performance attribute of the mitigating systems cornerstone and the objective of ensuring the availability of systems that respond to initiating events to prevent undesirable circumstances was affected. Specifically, the 480VAC MCCs provide vital power to a number of safety-related systems designed to mitigate design basis events. The inspectors determined this finding to be of very low safety significance (Green) through performance of a Phase 1 Significance Determination Process in accordance with Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Specifically, the finding did not result in a loss of function because the 480VAC MCC would have been able to perform their function of providing electrical power to their respective 480 volt emergency loads over a probabilistic risk assessment mission time of 24 hours. This finding is related to the cross-cutting aspect of problem identification and resolution in that Dominion did not take appropriate corrective actions to address the degraded A/C units in a timely manner, commensurate with their safety significance and complexity. Inspection Report# : [2007002](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CONTROL OF OUTSIDE MAINTENANCE ACTIVITIES THAT RESULTED IN UNEXPECTED FLOODING OF BOTH EDG ROOMS

The inspectors identified a Green finding because Dominion did not adequately control maintenance activities that degraded the Unit 2 storm drainage system, which blocked a credited surface area runoff flow path protecting the Unit 2 emergency diesel generator (EDG) rooms from flooding in the event of rain. Consequently, on August 28, 2006, during a brief period of heavy rains, the Unit 2 storm drain system became overwhelmed due to the blocked rainwater runoff flow path causing flooding outside of the EDG access doors, ultimately leading to one-half to two inches of standing water in both EDG rooms. Additionally, Dominion did not identify degraded and missing sealant associated with the EDG room removable equipment hatch following this event. This finding was entered into Dominion's corrective action program (CR-06-07890, CR-06-09352, and CR-07-00475). Corrective actions included: removing the EDG fuel oil polishing tank that diverted surface water runoff to the EDG rooms, removing the filters that degraded the Unit 2 storm drainage system, performing a visual inspection of the yard drains, evaluating a change in the EDG flood door design and other similar flood gates to allow the doors to be more easily closed, and evaluating the Unit 2 EDG room design for single point flooding vulnerabilities. In addition, CR-06-09352 addresses corrective actions to maintain design assumptions for alternate rainwater runoff flow paths when degrading site storm drains. This finding is more than minor because it is associated with the Mitigating System external factors attribute (specifically, flood hazard) and affects the cornerstone objective of ensuring the availability, reliability, and capability of system's that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low safety significance (Green) by performing a Phase 1

evaluation in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, the water level in both EDG rooms did not reach an elevation that would result in a confirmed loss of EDG operability. This finding has a cross-cutting aspect in the area of Human Performance, work control component, because Dominion did not effectively coordinate outside maintenance activities and predetermined job site assumptions which resulted in unexpected flooding of both Unit 2 EDG rooms. Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT SURVEILLANCE PROCEDURES RESULTED IN A TEMPORARY LOSS OF SPENT FUEL POOL COOLING

A Green self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1, "Procedures," was identified because Operations did not adequately implement procedures while performing a surveillance to manually cycle the "C" reactor building component cooling water (RBCCW) outlet valve. This resulted in a temporary loss of RBCCW flow to the shutdown cooling heat exchanger which was aligned for cooling the spent fuel pool (SFP) while the reactor core was fully off-loaded. This issue has been entered into Dominion's corrective action program (CR-06-10565). Corrective actions for this issue included temporarily removing individuals from shift until interviewed by the Supervisor of Nuclear Shift Operations; and an action to create and implement required reading for all operators emphasizing diligence, controlled and deliberate actions, and proper place keeping and peer-checking during performance of any procedural guidance. This finding is more than minor because it is associated with the Human Performance attribute of the Spent Fuel Pool Cooling system function under the Barrier Integrity cornerstone and affected the cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents and events. The inspectors determined the NCV to be of very low safety significance based on NRC management review. Specifically, the finding represented a degradation in that spent fuel pool cooling was lost for four minutes, pool temperature did not significantly increase, and SFP cooling was promptly restored. This finding has a cross-cutting aspect in the area of Human Performance, Work Practice component, because Dominion's work practice techniques (placekeeping) were not effective in assuring procedural steps were implemented which resulted in a temporary loss of SFP cooling with the core off-loaded. Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY SCAFFOLDING RENDERED THE #1 STEAM GENERATOR MAIN STEAM ISOLATION VALVE COULD RENDER THE MAIN STEAM ISOLATION VALVE INOPERABLE

A Green self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not identify that scaffolding had been constructed in a manner that would interfere with the Unit 2 #1 steam generator (SG) main steam isolation valve's (MSIV) ability to perform the intended safety function. Specifically, on August 29, 2006, Dominion constructed scaffolding adjacent to the MSIV to support replacing the operating cylinder. On October 7, 2006, the MSIV was declared inoperable after it failed to shut during the performance of MSIV stroke time testing. Dominion had multiple opportunities to identify the adverse consequences the scaffolding could have on the MSIV during scaffolding installation, engineering reviews prior to and following scaffolding installation, operations walkdowns of the area, and from site and industry operating experience available prior to the refueling outage. Corrective actions included removing a portion of the scaffolding to restore operability, reinforcing current scaffolding control process requirements, and modifying the scaffold evaluation process to ensure operability of safety-related structures, systems, and components (SSCs) potentially impacted by scaffolding installation. The finding was more than minor because it was associated with the equipment performance attribute for the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the scaffolding affected the MSIV steam generator isolation function. In addition, the finding was associated with the SSC and Barrier Performance attribute of the containment isolation function under the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. A phase 2 and 3 SDP was performed by an NRC regional senior reactor analysis (SRA) based on the finding affecting multiple cornerstones and the large early release frequency (LERF) contributor. The SRA determined that this finding represented a change in core damage frequency of approximately 6.0E-8, for the 40-day exposure period. The dominant sequences for this conditional risk assessment involved main steam line break initiating events, coincident with the failure of the operator to isolate the steam line break

and failure of the high pressure recirculation system. Based upon the dominant sequences involving main steam line breaks and a delta core damage frequency of less than E-7, LERF was determined not to be a risk consideration. Accordingly, this finding is of very low risk significance (Green). This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not identify this condition although multiple identification opportunities existed.

Inspection Report# : [2006005](#) (pdf)

Significance:  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTIONS TO PREVENT REPEAT VITAL AC 480V SWITCHGEAR COOLING DAMPER FAILURES

A Green self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not take effective corrective action to prevent the east 480 volt vital alternating current (AC) switchgear cooling damper (2-HV-274D) from failing on July 2, 2006. This damper had previously failed on August 26, 2003, after which Dominion specified corrective actions to replace the damper and revise the damper preventive maintenance (PM) schedule and activities. The damper was not replaced and the PM activities were not conducted as planned. As a result, on July 2, 2006, 2-HV-274D failed again. This finding was entered into Dominion's corrective action program (CR-06-06396). Corrective actions for the 2006 failure were similar to those in 2003. The finding is more than minor because it is associated with the equipment performance attributes under the Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstone objectives. Inspection Manual Chapter 0609, Appendix A, was used to determine the risk associated with this finding. Phase 1 of Appendix A requires that a Phase 2 analysis be performed when multiple cornerstones are affected. The Phase 2 analysis assumes that the 480 volt system is inoperable. Since Dominion implemented compensatory cooling measures prior to actual room temperatures exceeding design limits and the equipment remained operable, there was no entry condition for evaluating this finding in the Phase 2 tables. Therefore, this issue is considered to be of very low safety significance (Green). This finding is related to the cross-cutting aspect of Problem Identification and Resolution in that Dominion did not take effective actions to correct a condition adverse to quality after damper 2-HV-274D failed on August 28, 2003. As a result of the ineffective corrective actions, damper 2-HV-274D failed again on July 2, 2006.

Inspection Report# : [2006004](#) (pdf)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: FIN Finding

DID NOT IDENTIFY OR EVALUATE AIR VOIDS LOCATED IN AUXILIARY FEEDWATER SYSTEM

The inspectors identified a finding when Dominion did not recognize that a portion of the auxiliary feedwater (AFW) discharge header contained air voids after they determined that AFW flow instrumentation was behaving erratically as a result of air in the instrument line. Specifically, Dominion initiated a condition report after identifying that AFW flow instrumentation was air bound but closed out operability concerns based on air only affecting instrumentation and not the potential that air could exist in the discharge portion of the system. As a result, Dominion did not identify existing voids in AFW discharge piping or assess these air voids for impact on AFW operability. Dominion entered this condition into their corrective action program as CR-06-04677. Corrective actions for this issue included conducting ultrasonic testing of the discharge piping, quantifying the air voids in the system, and evaluating operability of the system with these air voids left in place. This finding is more than minor because it is associated with the Mitigating Systems Cornerstone and affects the cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Dominion did not investigate or evaluate the existence of air voids in the AFW system discharge piping when air was identified in the system. This finding was determined to be of very low safety significance (Green) because it did not result in a loss of function once the existing air voids were identified and evaluated. This finding is related to the cross-cutting aspect of problem identification and resolution in that Dominion did not fully investigate the existence of air voids in other parts of the AFW system and as a result did not fully evaluate the impact of existing air voids in the AFW system discharge piping.

Inspection Report# : [2006003](#) (pdf)

Barrier Integrity

Significance:  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY AN ADVERSE CONDITION AFFECTING CONTROL ROOM EMERGENCY VENTILATION PERFORMANCE

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify and correct a condition adverse to quality affecting the "B" control room emergency ventilation (CREV) train's ability to operate as designed. On August 1, 2006, the "B" CREV train was declared inoperable after Operations detected an improper system flow balance. On August 3, 2006, the system was restored to service after troubleshooting activities were complete. However, the condition which resulted in the flow imbalance had not been identified or corrected. On August 6, 2006, the system was declared inoperable a second time after Operations detected a similar system flow imbalance. A second troubleshooting plan was developed which directed an inspection of the "B" exhaust fan belts. During the inspection, two "B" CREV exhaust fan belts were found stretched and scored. On August 10, 2006, the belts were replaced and operability was restored. This finding was entered into Dominion's corrective action program (CR-06-07115). Corrective actions for this issue included replacing the associated belts, an extent of condition review, the creation of a specific PM to periodically inspect the associated belts, and an evaluation to modify the operating procedure to extend the fan belt life. This finding is more than minor because it is associated with the Barrier Integrity Cornerstone attribute of maintaining the radiological barrier functionality of the control room. This issue is of very low safety significance (Green) since this finding only represented a degradation of the control room's radiological barrier function. This finding is related to the cross-cutting aspect of Problem Identification and Resolution because Dominion did not promptly identify or completely evaluate a condition adverse to quality prior to restoring the "B" control room emergency ventilation train system back to service on August 3, 2006, despite indications of 1) burning rubber smells when placing the "B" train in service (July 27, 2006 and August 2, 2006); and 2) system flow imbalances that only occurred with the "B" train in service (August 1, 2006, two occasions).

Inspection Report# : [2006004](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : June 01, 2007

Millstone 2

2Q/2007 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Work Procedure for the Unit 2 'C' Charging Pump Results in Pump Failure

A self-revealing finding was identified when Dominion did not ensure an adequate work procedure was available for maintenance performed on the Unit 2 'C' charging pump on May 5, 2007, resulting in a failure of the pump on June 11, 2007. Specifically, the work procedure did not give specific guidance for assembly and installation of the suction poppet valve in accordance with direction provided in the vendor technical manual. On June 11, 2007, the 'C' charging pump failed and was declared inoperable due to a seized plunger shaft. This finding was determined to be an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings." Dominion's corrective actions for this issue included repair and retest of the 'C' charging pump, revising the work procedure to include vendor recommendations, and training for maintenance personnel on assembly and installation of charging pump poppet valves.

The finding was more than minor because it was associated with the procedural quality 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 inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The performance deficiency had a cross-cutting aspect in the area of human performance, resources component, because Dominion did not ensure that a complete, accurate, and adequate work procedure was available for maintenance performed on a safety-related component.

Inspection Report# : [2007003](#) (*pdf*)

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Conduct Surveillance Testing and to Identify an Unsatisfactory Surveillance

The inspectors identified that Dominion personnel failed to identify a condition adverse to quality in that they failed to identify that test acceptance criteria had not been met on May 10, 2007. Specifically, the inspectors identified that the 'C' charging pump pulsation dampener post-maintenance test had cited incorrect data and had been accepted as satisfactorily complete, though the recorded test data was outside of the stated acceptance criteria. This finding was determined to be a NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." Dominion's planned corrective actions for this issue included revising the surveillance to clarify test requirements and required reading for operations personnel on how to adequately document and review surveillance test data.

The 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. Additionally, the inspectors determined that this finding was similar to IMC 0612, Appendix E example 2a, and was more than minor because: (1) the licensee's process (including all levels of review and approval) did not identify the error, and (2) per the example, the maintenance history

regarding charging pumps - specifically pulsation dampeners - does not allow one to expect that testing would be successful. The inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," and determined the finding was of very low safety significance (Green). The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function or safety function of a single train (the equipment subsequently passed the surveillance that was performed on May 13, 2007), and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The performance deficiency had a cross-cutting aspect in the area of problem identification and resolution, corrective action program component, because Dominion did not promptly identify a condition adverse to quality.
Inspection Report# : [2007003 \(pdf\)](#)

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT A DEGRADED CONDITION OF THE 480V MCCS PER CRITERION XVI OF APPENDIX B TO 10 CFR PART 50

A Green NRC-identified NCV of Criterion XVI of Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," was identified for failure to promptly correct a degraded condition associated with the air conditioning (A/C) for the B61 480VAC motor control center (MCCs). Corrective actions included the B51 and B61 A/C units, implementation of compensatory cooling, restoring both A/C units by adding freon, and changing the vendor technical manual and equipment drawings to reflect the proper amount of freon charge.

The finding was more than minor because the equipment performance attribute of the mitigating systems cornerstone and the objective of ensuring the availability of systems that respond to initiating events to prevent undesirable circumstances was affected. Specifically, the 480VAC MCCs provide vital power to a number of safety-related systems designed to mitigate design basis events. The inspectors determined this finding to be of very low safety significance (Green) through performance of a Phase 1 Significance Determination Process in accordance with Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Specifically, the finding did not result in a loss of function because the 480VAC MCC would have been able to perform their function of providing electrical power to their respective 480 volt emergency loads over a probabilistic risk assessment mission time of 24 hours. This finding is related to the cross-cutting aspect of problem identification and resolution in that Dominion did not take appropriate corrective actions to address the degraded A/C units in a timely manner, commensurate with their safety significance and complexity.

Inspection Report# : [2007002 \(pdf\)](#)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CONTROL OF OUTSIDE MAINTENANCE ACTIVITIES THAT RESULTED IN UNEXPECTED FLOODING OF BOTH EDG ROOMS

The inspectors identified a Green finding because Dominion did not adequately control outside maintenance activities that degraded the Unit 2 storm drainage system and blocked a credited surface area runoff flow path protecting the emergency diesel generator (EDG) rooms from flooding in the event of rain. Consequently, on August 28, 2006, during a brief period of heavy rains, the Unit 2 storm drain system backed up due to the blocked rainwater runoff flow path causing flooding outside of the EDG access doors ultimately leading to one-half to two inches of standing water in both EDG rooms. Additionally, Dominion did not identify degraded and missing sealant in the EDG room removable equipment hatch following this event. This finding was entered into Dominion's corrective action program (CR-06-07890, CR-06-09352, and CR-07-00475). Corrective actions included: removing the EDG fuel oil polishing tank that diverted surface water runoff to the EDG rooms, removing the filters that degraded the Unit 2 storm drainage system, performing a visual inspection of the yard drains, evaluating a change in the EDG flood door design and other similar flood gates to allow the doors to be closed easier, and evaluating Unit 2 EDG room design for single point flooding vulnerabilities. In addition, CR-06-09352 addresses corrective actions to maintain design assumptions for alternate rainwater runoff flow paths when degrading site storm drains.

This finding is more than minor because it is associated with the Mitigating System's protection against external

factor's attribute (specifically, flood hazard) and affects the cornerstone objective of ensuring the availability, reliability and capability of system's that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low safety significance (Green) by performing a Phase 1 evaluation in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, the water level in both EDG rooms did not reach an elevation that would result in a confirmed loss of EDG operability. This finding is related to the cross-cutting area of Human Performance, work control component, in that Dominion did not effectively coordinate outside maintenance activities and predetermined job site assumptions that resulted in unexpected flooding in both EDG rooms.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT SURVEILLANCE PROCEDURES RESULTED IN A TEMPORARY LOSS OF SPENT FUEL POOL COOLING

A Green self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1, "Procedures", was identified because Operations did not adequately implement procedures while performing a surveillance to manually cycle the "C" reactor building component cooling (RBCCW) outlet valve. This resulted in a temporary loss of RBCCW flow to the shutdown cooling heat exchanger which was aligned for cooling the spent fuel pool (SFP). This issue has been entered into Dominion's corrective action program (CR-06-10565). Corrective actions for this issue included temporarily removing individuals from shift until interviewed by the Supervisor of Nuclear Shift Operations, and an action to create and implement required reading for all operators identifying this event with emphasis on diligence, not rushing, and following proper place keeping and peer-checking during performance of any procedural guidance.

This finding is more than minor because it is associated with the Human Performance attribute of the Spent Fuel Pool Cooling system function under the Barrier Integrity cornerstone and affected the cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents and events. The inspectors determined the NCV to be of very low safety significance based on NRC management review. Specifically, the finding only represented a degradation to the spent fuel pool in that spent fuel pool cooling was lost for four minutes and spent fuel pool temperature did not significantly increase, and SFP cooling was promptly restored. This finding is related to the cross-cutting area of Human Performance, Work Practice component, in that Dominion's work practice techniques (placekeeping) were not effective in assuring procedural steps were implemented which resulted in a temporary loss of SFP cooling with the core off-loaded.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY SCAFFOLDING RENDERED THE #1 STEAM GENERATOR MAIN STEAM ISOLATION VALVE COULD RENDER THE MAIN STEAM ISOLATION VALVLE INOPERABLE

A Green self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not identify that scaffolding had been constructed in a manner that would interfere with the Unit 2 #1 steam generator (SG) main steam isolation valve's (MSIV) ability to perform the intended safety function.

Specifically, on August 29, 2006, Dominion constructed scaffolding adjacent to the MSIV to support replacing the operating cylinder. On October 7, 2006, the MSIV was declared inoperable after it failed to shut during the performance of MSIV stroke time testing. Dominion had multiple opportunities to identify the adverse consequences the scaffolding could have on the MSIV during scaffolding installation, engineering reviews prior to and following scaffolding installation, operations walkdowns of the area, and from site and industry operating experience available prior to the refueling outage. Corrective actions included removing a portion of the scaffolding to restore operability, reinforcing current scaffolding control process requirements, and modifying the scaffold evaluation process to ensure operability of safety-related structures, systems, and components (SSCs) potentially impacted by scaffolding installation. The finding was more than minor because it was associated with the equipment performance attribute for the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the scaffolding affected the MSIV steam generator isolation function. In addition, the finding was associated with the SSC and Barrier Performance

attribute of the containment isolation function under the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. A phase 2 and 3 SDP was performed by an NRC regional senior reactor analysis (SRA) based on the finding affecting multiple cornerstones and the large early release frequency (LERF) contributor. The SRA determined that this finding represented a change in core damage frequency of approximately 6.0E-8, for the 40-day exposure period. The dominant sequences for this conditional risk assessment involved main steam line break initiating events, coincident with the failure of the operator to isolate the steam line break and failure of the high pressure recirculation system. Based upon the dominant sequences involving main steam line breaks and a delta core damage frequency of less than E-7, LERF was determined not to be a risk consideration. Accordingly, this finding is of very low risk significance (Green). This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not identify this condition although multiple identification opportunities existed.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT CORRECTIVE ACTIONS TO PREVENT REPEAT VITAL AC 480V SWITCHGEAR COOLING DAMPER FAILURES

A Green self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not take effective corrective action to prevent the east 480 volt vital AC switchgear cooling damper (2-HV-274) from failing on July 2, 2006. This damper had previously failed on August 26, 2003, following which Dominion specified corrective actions to replace the damper and revise the damper preventive maintenance (PM) schedule and activities. The damper was not replaced and the PM activities were not conducted as planned. As a result, on July 2, 2006, 2-HV-274 failed again. This finding was entered into Dominion's corrective action program (CR-06-06396). Corrective actions for the 2006 failure were similar to those in 2003.

The finding is more than minor because it is associated with the equipment performance attributes under the Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstone objectives. Inspection Manual Chapter 0609, Appendix A, was used to determine the risk associated with this finding. Phase 1 of Appendix A requires that a Phase 2 analysis be performed when multiple cornerstones are affected. The Phase 2 analysis assumes that the 480 volt system is inoperable. Since Dominion implemented compensatory cooling measures prior to actual room temperatures exceeding design limits and the equipment remained operable, there was no entry condition for evaluating this finding in the Phase 2 tables. Therefore, the safety significance of this issue is very low (Green). This finding is related to the cross-cutting aspect of Problem Identification and Resolution in that Dominion did not take effective corrective action after damper 2-HV-274 failed on August 28, 2003, in order to prevent the repeat failure of 2-HV-274 on July 2, 2006. Inspection Report# : [2006004](#) (*pdf*)

Barrier Integrity

Significance:  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY AN ADVERSE CONDITION AFFECTING CONTROL ROOM EMERGENCY VENTILATION PERFORMANCE

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify and correct a condition adverse to quality affecting the "B" control room emergency ventilation (CREV) train's ability to operate as designed. On August 1, 2006, the "B" CREV train was declared inoperable after Operations detected an improper system flow balance. On August 3, 2006, the system was restored to service after troubleshooting activities were complete. However, the condition which resulted in the flow imbalance had not been identified or corrected. On August 6, 2006, the system was declared inoperable a second time after Operations detected a similar system flow imbalance. A second troubleshooting plan was developed which directed an inspection of the "B" exhaust fan belts. During the inspection, two "B" CREV exhaust fan belts were found stretched and scored.

On August 10, 2006, the belts were replaced and operability was restored. This finding was entered into Dominion's corrective action program (CR-06-07115). Corrective actions for this issue included replacing the associated belts, an extent of condition review, the creation of a specific PM to periodically inspect the associated belts, and an evaluation to modify the operating procedure to extend the fan belt life.

This finding is more than minor because it is associated with the control room's radiological barrier functionality performance attribute and affected the cornerstone's objective. This issue is of very low safety significance (Green) since this finding only represented a degradation of the control room's radiological barrier function. This finding is related to the cross-cutting aspect of problem identification and resolution because Dominion did not promptly identify and evaluate a condition adverse to quality prior to restoring the "B" control room emergency ventilation train system back to service.

Inspection Report# : [2006004](#) (*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 24, 2007

Millstone 2

3Q/2007 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Work Procedure for the Unit 2 'C' Charging Pump Results in Pump Failure

A self-revealing finding was identified when Dominion did not ensure an adequate work procedure was available for maintenance performed on the Unit 2 'C' charging pump on May 5, 2007, resulting in a failure of the pump on June 11, 2007. Specifically, the work procedure did not give specific guidance for assembly and installation of the suction poppet valve in accordance with direction provided in the vendor technical manual. On June 11, 2007, the 'C' charging pump failed and was declared inoperable due to a seized plunger shaft. This finding was determined to be an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings." Dominion's corrective actions for this issue included repair and retest of the 'C' charging pump, revising the work procedure to include vendor recommendations, and training for maintenance personnel on assembly and installation of charging pump poppet valves.

The finding was more than minor because it was associated with the procedural quality 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 inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The performance deficiency had a cross-cutting aspect in the area of human performance, resources component, because Dominion did not ensure that a complete, accurate, and adequate work procedure was available for maintenance performed on a safety-related component. [H.2(c)]

Inspection Report# : [2007003](#) (*pdf*)

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Evaluate Surveillance Test Data

The inspectors identified that Dominion did not adequately evaluate surveillance test results to ensure test acceptance criteria had been met on May 10, 2007. Specifically, the inspectors identified that the 'C' charging pump pulsation dampener surveillance test had cited incorrect data and had been accepted as satisfactorily complete, though the test data was outside of the surveillance acceptance criteria. This finding was determined to be an NCV of 10 CFR 50, Appendix B, Criterion XI, "Test Control." The surveillance was successfully re-performed on May 13, 2007. Dominion's corrective actions for this issue included revising the surveillance to clarify test requirements and required reading for operations personnel on how to adequately document and review surveillance test data.

The 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. 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 data was not corrected, a more significant concern could exist

in that failure of the dampener has previously resulted in a loss of all charging due to the migration of nitrogen from a failed discharge pulsation dampener to the common suction piping for all three charging pumps (as described in NRC inspection reports 05000336/2006002 and 05000336/2006006). The inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function of safety function of a single train, and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. 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# : [2007003](#) (*pdf*)

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT A DEGRADED CONDITION OF THE 480V MCCS PER CRITERION XVI OF APPENDIX B TO 10 CFR PART 50

A Green NRC-identified NCV of Criterion XVI of Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," was identified for failure to promptly correct a degraded condition associated with the air conditioning (A/C) for the B61 480VAC motor control center (MCCs). Corrective actions included the B51 and B61 A/C units, implementation of compensatory cooling, restoring both A/C units by adding freon, and changing the vendor technical manual and equipment drawings to reflect the proper amount of freon charge.

The finding was more than minor because the equipment performance attribute of the mitigating systems cornerstone and the objective of ensuring the availability of systems that respond to initiating events to prevent undesirable circumstances was affected. Specifically, the 480VAC MCCs provide vital power to a number of safety-related systems designed to mitigate design basis events. The inspectors determined this finding to be of very low safety significance (Green) through performance of a Phase 1 Significance Determination Process in accordance with Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Specifically, the finding did not result in a loss of function because the 480VAC MCC would have been able to perform their function of providing electrical power to their respective 480 volt emergency loads over a probabilistic risk assessment mission time of 24 hours. This finding is related to the cross-cutting aspect of problem identification and resolution in that Dominion did not take appropriate corrective actions to address the degraded A/C units in a timely manner, commensurate with their safety significance and complexity. [P.1(d)]

Inspection Report# : [2007002](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CONTROL OF OUTSIDE MAINTENANCE ACTIVITIES THAT RESULTED IN UNEXPECTED FLOODING OF BOTH EDG ROOMS

The inspectors identified a Green finding because Dominion did not adequately control outside maintenance activities that degraded the Unit 2 storm drainage system and blocked a credited surface area runoff flow path protecting the emergency diesel generator (EDG) rooms from flooding in the event of rain. Consequently, on August 28, 2006, during a brief period of heavy rains, the Unit 2 storm drain system backed up due to the blocked rainwater runoff flow path causing flooding outside of the EDG access doors ultimately leading to one-half to two inches of standing water in both EDG rooms. Additionally, Dominion did not identify degraded and missing sealant in the EDG room removable equipment hatch following this event. This finding was entered into Dominion's corrective action program (CR-06-07890, CR-06-09352, and CR-07-00475). Corrective actions included: removing the EDG fuel oil polishing tank that diverted surface water runoff to the EDG rooms, removing the filters that degraded the Unit 2 storm drainage system, performing a visual inspection of the yard drains, evaluating a change in the EDG flood door design and other similar flood gates to allow the doors to be closed easier, and evaluating Unit 2 EDG room design for single point flooding vulnerabilities. In addition, CR-06-09352 addresses corrective actions to maintain design assumptions for alternate rainwater runoff flow paths when degrading site storm drains.

This finding is more than minor because it is associated with the Mitigating System's protection against external

factor's attribute (specifically, flood hazard) and affects the cornerstone objective of ensuring the availability, reliability and capability of system's that respond to initiating events to prevent undesirable consequences. This finding was determined to be of very low safety significance (Green) by performing a Phase 1 evaluation in accordance with NRC Inspection Manual Chapter (IMC) 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." Specifically, the water level in both EDG rooms did not reach an elevation that would result in a confirmed loss of EDG operability. This finding is related to the cross-cutting area of Human Performance, work control component, in that Dominion did not effectively coordinate outside maintenance activities and predetermined job site assumptions that resulted in unexpected flooding in both EDG rooms. [H.3(b)]

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT SURVEILLANCE PROCEDURES RESULTED IN A TEMPORARY LOSS OF SPENT FUEL POOL COOLING

A Green self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1, "Procedures", was identified because Operations did not adequately implement procedures while performing a surveillance to manually cycle the "C" reactor building component cooling (RBCCW) outlet valve. This resulted in a temporary loss of RBCCW flow to the shutdown cooling heat exchanger which was aligned for cooling the spent fuel pool (SFP). This issue has been entered into Dominion's corrective action program (CR-06-10565). Corrective actions for this issue included temporarily removing individuals from shift until interviewed by the Supervisor of Nuclear Shift Operations, and an action to create and implement required reading for all operators identifying this event with emphasis on diligence, not rushing, and following proper place keeping and peer-checking during performance of any procedural guidance.

This finding is more than minor because it is associated with the Human Performance attribute of the Spent Fuel Pool Cooling system function under the Barrier Integrity cornerstone and affected the cornerstone's objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents and events. The inspectors determined the NCV to be of very low safety significance based on NRC management review. Specifically, the finding only represented a degradation to the spent fuel pool in that spent fuel pool cooling was lost for four minutes and spent fuel pool temperature did not significantly increase, and SFP cooling was promptly restored. This finding is related to the cross-cutting area of Human Performance, Work Practice component, in that Dominion's work practice techniques (placekeeping) were not effective in assuring procedural steps were implemented which resulted in a temporary loss of SFP cooling with the core off-loaded. [H.4(a)]

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IDENTIFY SCAFFOLDING RENDERED THE #1 STEAM GENERATOR MAIN STEAM ISOLATION VALVE COULD RENDER THE MAIN STEAM ISOLATION VALVLE INOPERABLE

A Green self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because Dominion did not identify that scaffolding had been constructed in a manner that would interfere with the Unit 2 #1 steam generator (SG) main steam isolation valve's (MSIV) ability to perform the intended safety function.

Specifically, on August 29, 2006, Dominion constructed scaffolding adjacent to the MSIV to support replacing the operating cylinder. On October 7, 2006, the MSIV was declared inoperable after it failed to shut during the performance of MSIV stroke time testing. Dominion had multiple opportunities to identify the adverse consequences the scaffolding could have on the MSIV during scaffolding installation, engineering reviews prior to and following scaffolding installation, operations walkdowns of the area, and from site and industry operating experience available prior to the refueling outage. Corrective actions included removing a portion of the scaffolding to restore operability, reinforcing current scaffolding control process requirements, and modifying the scaffold evaluation process to ensure operability of safety-related structures, systems, and components (SSCs) potentially impacted by scaffolding installation. The finding was more than minor because it was associated with the equipment performance attribute for the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the scaffolding affected the MSIV steam generator isolation function. In addition, the finding was associated with the SSC and Barrier Performance

attribute of the containment isolation function under the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. A phase 2 and 3 SDP was performed by an NRC regional senior reactor analysis (SRA) based on the finding affecting multiple cornerstones and the large early release frequency (LERF) contributor. The SRA determined that this finding represented a change in core damage frequency of approximately 6.0E-8, for the 40-day exposure period. The dominant sequences for this conditional risk assessment involved main steam line break initiating events, coincident with the failure of the operator to isolate the steam line break and failure of the high pressure recirculation system. Based upon the dominant sequences involving main steam line breaks and a delta core damage frequency of less than E-7, LERF was determined not to be a risk consideration. Accordingly, this finding is of very low risk significance (Green). This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not identify this condition although multiple identification opportunities existed. [P.1(a)]

Inspection Report# : [2006005](#) (*pdf*)

Barrier Integrity

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 : December 07, 2007

Millstone 2

4Q/2007 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Work Procedure for the Unit 2 'C' Charging Pump Results in Pump Failure

A self-revealing finding was identified when Dominion did not ensure an adequate work procedure was available for maintenance performed on the Unit 2 'C' charging pump on May 5, 2007, resulting in a failure of the pump on June 11, 2007. Specifically, the work procedure did not give specific guidance for assembly and installation of the suction poppet valve in accordance with direction provided in the vendor technical manual. On June 11, 2007, the 'C' charging pump failed and was declared inoperable due to a seized plunger shaft. This finding was determined to be an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings." Dominion's corrective actions for this issue included repair and retest of the 'C' charging pump, revising the work procedure to include vendor recommendations, and training for maintenance personnel on assembly and installation of charging pump poppet valves.

The finding was more than minor because it was associated with the procedural quality 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 inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The performance deficiency had a cross-cutting aspect in the area of human performance, resources component, because Dominion did not ensure that a complete, accurate, and adequate work procedure was available for maintenance performed on a safety-related component. [H.2(c)]

Inspection Report# : [2007003](#) (*pdf*)

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Evaluate Surveillance Test Data

The inspectors identified that Dominion did not adequately evaluate surveillance test results to ensure test acceptance criteria had been met on May 10, 2007. Specifically, the inspectors identified that the 'C' charging pump pulsation dampener surveillance test had cited incorrect data and had been accepted as satisfactorily complete, though the test data was outside of the surveillance acceptance criteria. This finding was determined to be an NCV of 10 CFR 50, Appendix B, Criterion XI, "Test Control." The surveillance was successfully re-performed on May 13, 2007. Dominion's corrective actions for this issue included revising the surveillance to clarify test requirements and required reading for operations personnel on how to adequately document and review surveillance test data.

The 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. 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 data was not corrected, a more significant concern could exist

in that failure of the dampener has previously resulted in a loss of all charging due to the migration of nitrogen from a failed discharge pulsation dampener to the common suction piping for all three charging pumps (as described in NRC inspection reports 05000336/2006002 and 05000336/2006006). The inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function of safety function of a single train, and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. 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# : [2007003](#) (*pdf*)

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT A DEGRADED CONDITION OF THE 480V MCCS PER CRITERION XVI OF APPENDIX B TO 10 CFR PART 50

A Green NRC-identified NCV of 10 CFR 50, Appendix B, Criterion XVI, ACorrective Action,@ was identified for failure to promptly correct a degraded condition associated with the air conditioning (A/C) for the B61 480 volt alternating current (VAC) motor control center (MCC). Corrective actions included the B51 and B61 A/C units, implementation of compensatory cooling, restoring both A/C units by adding freon, and changing the vendor technical manual and equipment drawings to reflect the proper amount of freon charge.

The finding is more than minor because the equipment performance attribute of the Mitigating Systems cornerstone and the objective of ensuring the availability and capability of systems that respond to initiating events to prevent undesirable circumstances was affected. Specifically, the 480 VAC MCCs provide vital power to a number of safety-related systems designed to mitigate design basis events. The inspectors determined this finding to be of very low safety significance (Green) through performance of a Phase 1 SDP, in accordance with IMC 0609, Appendix A, ASignificance Determination of Reactor Inspection Findings for At-Power Situations.@ Specifically, the finding did not result in a loss of function because the 480 VAC MCCs would have been able to perform their function of providing electrical power to their respective emergency loads over a probabilistic risk assessment mission time of 24 hours. This finding is related to the cross-cutting aspect of Problem Identification and Resolution in that Dominion did not take appropriate corrective actions to address the degraded A/C units in a timely manner, commensurate with the safety significance and complexity of the issue. (Section 40A5.1) [P.1(d)]

Inspection Report# : [2007002](#) (*pdf*)

Barrier Integrity

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 : February 04, 2008

Millstone 2

1Q/2008 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  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:  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 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)

G

Significance: 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)

G

Significance: 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 \(pdf\)](#)

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Work Procedure for the Unit 2 'C' Charging Pump Results in Pump Failure

A self-revealing finding was identified when Dominion did not ensure an adequate work procedure was available for maintenance performed on the Unit 2 'C' charging pump on May 5, 2007, resulting in a failure of the pump on June 11, 2007. Specifically, the work procedure did not give specific guidance for assembly and installation of the suction poppet valve in accordance with direction provided in the vendor technical manual. On June 11, 2007, the 'C' charging pump failed and was declared inoperable due to a seized plunger shaft. This finding was determined to be an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings." Dominion's corrective actions for this issue included repair and retest of the 'C' charging pump, revising the work procedure to include vendor recommendations, and training for maintenance personnel on assembly and installation of charging pump poppet valves.

The finding was more than minor because it was associated with the procedural quality 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 inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The performance deficiency had a cross-cutting aspect in the area of human performance, resources component, because Dominion did not ensure that a complete, accurate, and adequate work procedure was available for maintenance performed on a safety-related component. [H.2(c)]

Inspection Report# : [2007003 \(pdf\)](#)

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Adequately Evaluate Surveillance Test Data

The inspectors identified that Dominion did not adequately evaluate surveillance test results to ensure test acceptance criteria had been met on May 10, 2007. Specifically, the inspectors identified that the 'C' charging pump pulsation dampener surveillance test had cited incorrect data and had been accepted as satisfactorily complete, though the test data was outside of the surveillance acceptance criteria. This finding was determined to be an NCV of 10 CFR 50, Appendix B, Criterion XI, "Test Control." The surveillance was successfully re-performed on May 13, 2007. Dominion's corrective actions for this issue included revising the surveillance to clarify test requirements and required reading for operations personnel on how to adequately document and review surveillance test data.

The 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. 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 data was not corrected, a more significant concern could exist in that failure of the dampener has previously resulted in a loss of all charging due to the migration of nitrogen from a failed discharge pulsation dampener to the common suction piping for all three charging pumps (as described in NRC inspection reports 05000336/2006002 and 05000336/2006006). The inspectors conducted a Phase 1 SDP screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be of very low safety significance (Green) because the issue is not a design or qualification deficiency, does not represent the loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The performance deficiency had a cross-cutting aspect in the area of problem identification and resolution, corrective

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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Miscellaneous

Last modified : June 05, 2008

Millstone 2

2Q/2008 Plant Inspection Findings

Initiating Events

Significance:  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 flexitall 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 40A3)

Inspection Report# : [2008003 \(pdf\)](#)

Mitigating Systems

Significance:  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)].

G

Significance: 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)

G

Significance: 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:  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:  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:  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

Millstone 2

3Q/2008 Plant Inspection Findings

Initiating Events


Significance:  Sep 30, 2008
Identified By: Self-Revealing
Item Type: FIN Finding

(FIN 05000336/2008004-01, Installation of Incorrect Internal Trim Package in Valve 2-HD-103A Results in Reactor Trip)

A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to ensure the proper internal trim package (cage) was installed in valve 2-HD-103A, the 1A feedwater heater level control valve as required by Millstone Procedure MP-16-MMM, "Organizational Effectiveness (Corrective Action Program, Operating Experience Program, Independent Safety Engineering Function)". This resulted in level oscillations in feedwater heater 2A during Unit 2 turbine control valve testing and a loss of feedwater, requiring the operators to manually trip the plant. Dominion's corrective actions included installing the correct cage in the valve and entering the issue into their corrective action program.

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 power operations. The finding was determined to be of very low 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. This finding has a cross cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Dominion did not identify the issue of the incorrect part for 2-HD-103A completely, accurately, and in a timely manner. [P.1(a)] (Section 40A3)

Inspection Report# : [2008004](#) (*pdf*)


Significance:  Sep 30, 2008
Identified By: Self-Revealing
Item Type: NCV NonCited Violation

(NCV 05000336/2008004-02 Failure to Correct Safety Valve Lifting Following Uncomplicated Reactor Trips).

A self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, was identified for failure to take effective corrective actions to prevent a Millstone Unit 2 (MP2) steam generator safety valve from lifting following uncomplicated reactor trips from 100% power. Following reactor trips on May 22, 2008 and June 28, 2008, a steam generator safety valve lifted due to a delayed quick open signal to the condenser steam dumps and atmospheric dump valves. In July 2008, Dominion had taken corrective actions by changing the power supplies of the quick open signal controller inputs to ensure an immediate quick open signal to both the condenser steam dump valves and the atmospheric dump valves. Dominion has entered this issue into their corrective action program.

The issue was more than minor because it affects the equipment performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. The cycling of the steam generator safety valves results in a greater likelihood that the valves will not reseal properly during an event. The finding was determined to have very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Problem Identification and Resolution, Corrective Action Program [P.1(d)]. (Section 40A3)

Inspection Report# : [2008004](#) (*pdf*)

Significance:  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 overtightened, causing the flexitallc 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 40A3)

Inspection Report# : [2008003](#) (*pdf*)

Mitigating Systems

Significance:  Aug 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

B.5.b Phase 2 and 3 Mitigating Strategy

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(c)]. See inspection report for more details.

Inspection Report# : [2008007](#) (*pdf*)

Significance:  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:  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)

G

Significance: 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)

G

Significance: 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)

G

Significance: 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*)

G

Significance: 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

G

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 : November 26, 2008

Millstone 2

4Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2008004-01, Installation of Incorrect Internal Trim Package in Valve 2-HD-103A Results in Reactor Trip)

A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to ensure the proper internal trim package (cage) was installed in valve 2-HD-103A, the 1A feedwater heater level control valve as required by Millstone Procedure MP-16-MMM, "Organizational Effectiveness (Corrective Action Program, Operating Experience Program, Independent Safety Engineering Function)". This resulted in level oscillations in feedwater heater 2A during Unit 2 turbine control valve testing and a loss of feedwater, requiring the operators to manually trip the plant. Dominion's corrective actions included installing the correct cage in the valve and entering the issue into their corrective action program.

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 power operations. The finding was determined to be of very low 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. This finding has a cross cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Dominion did not identify the issue of the incorrect part for 2-HD-103A completely, accurately, and in a timely manner. [P.1(a)] (Section 40A3)

Inspection Report# : [2008004](#) (*pdf*)

Significance:  Sep 30, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

(NCV 05000336/2008004-02 Failure to Correct Safety Valve Lifting Following Uncomplicated Reactor Trips).

A self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, was identified for failure to take effective corrective actions to prevent a Millstone Unit 2 (MP2) steam generator safety valve from lifting following uncomplicated reactor trips from 100% power. Following reactor trips on May 22, 2008 and June 28, 2008, a steam generator safety valve lifted due to a delayed quick open signal to the condenser steam dumps and atmospheric dump valves. In July 2008, Dominion had taken corrective actions by changing the power supplies of the quick open signal controller inputs to ensure an immediate quick open signal to both the condenser steam dump valves and the atmospheric dump valves. Dominion has entered this issue into their corrective action program.

The issue was more than minor because it affects the equipment performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. The cycling of the steam generator safety valves results in a greater likelihood that the valves will not reseal properly during an event. The finding was determined to have very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Problem Identification and Resolution, Corrective Action Program [P.1(d)]. (Section 40A3)

Inspection Report# : [2008004](#) (*pdf*)

Significance:  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:  Dec 05, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2008008-01, Failure to Ensure Equipment Necessary For Fire Safe Shutdown Available.

The team identified that Dominion failed to administratively control and ensure the availability of all necessary fire safe shutdown equipment to perform manual actions in the 4kV upper switchgear room. This finding was determined to be of very low safety significance (Green) and a NCV of the Millstone Nuclear Power Station, Unit 2 Operating License condition 2.C.(3), Fire Protection.

The team determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems 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, Dominion did not ensure that an electrical flash jacket necessary to perform local breaker operations was available in the upper 4kV switchgear room. Actions to restore the A diesel generator would have been delayed for a fire in the lower 4kV switchgear room. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected post-fire safe shutdown systems. This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because additional electrical flash jackets were onsite and the local breaker operations would likely have been performed within 3 hours. The safe shutdown analysis most restrictive timeline for a fire in the lower switchgear room required a charging pump restored within 3 hours for reactor coolant system makeup. Local breaker operations in the upper 4kV switchgear room would be needed to support ac power to a charging pump. The team determined that this finding had a cross cutting aspect in the area of human performance because personnel did not return an electrical flash jacket to its proper storage location even though it was clearly labeled for the upper 4kV switchgear room. (H.4(b)) (Section 1R05.01)

Inspection Report# : [2008008](#) (*pdf*)

Significance:  Dec 05, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2008008-02, Failure to Ensure Timely Manual Action Consistent with the Post-Fire Safe Shutdown Analysis.

The team identified that Dominion failed to ensure that a post-fire manual action to restore auxiliary feedwater (AFW) flow to a steam generator (SG) would be performed within 30 minutes of a plant trip consistent with the Millstone Unit 2 fire safe shutdown analysis. This finding was determined to be of very low safety significance (Green) and a NCV of the Millstone Nuclear Power Station, Unit 2 Operating License condition 2.C.(3), Fire Protection.

The team determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems 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, a timely manual action to restore AFW to SG 1 within 30 minutes of the plant trip for a fire in Fire Area R-2 was not ensured for all circumstances and was validated by Dominion in 1999 to take at least 40 minutes. This finding was similar to more than minor example 3.i in NRC Inspection Manual Chapter (IMC) 0612, Power Reactor Inspection Reports, Appendix E, Examples of Minor Issues. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected post-fire safe shutdown systems. This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because Dominion performed a sensitivity analysis of S-02824-S2, Millstone Unit 2, R-2 Fire, Appendix R Analysis, Rev. 2, and determined that restoring AFW flow to steam generator 1 could be delayed for 50 minutes and result in acceptable plant performance during a safe shutdown event. (Section 1R05.01)

Inspection Report# : [2008008](#) (*pdf*)

Significance:  Aug 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

B.5.b Phase 2 and 3 Mitigating Strategy

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(c)]. See inspection report for more details.

Inspection Report# : [2008007](#) (*pdf*)

Significance:  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:  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:  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:  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:  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*)

Barrier Integrity

Significance: G 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 : April 07, 2009

Millstone 2

1Q/2009 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2008004-01, Installation of Incorrect Internal Trim Package in Valve 2-HD-103A Results in Reactor Trip)

A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to ensure the proper internal trim package (cage) was installed in valve 2-HD-103A, the 1A feedwater heater level control valve as required by Millstone Procedure MP-16-MMM, "Organizational Effectiveness (Corrective Action Program, Operating Experience Program, Independent Safety Engineering Function)". This resulted in level oscillations in feedwater heater 2A during Unit 2 turbine control valve testing and a loss of feedwater, requiring the operators to manually trip the plant. Dominion's corrective actions included installing the correct cage in the valve and entering the issue into their corrective action program.

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 power operations. The finding was determined to be of very low 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. This finding has a cross cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Dominion did not identify the issue of the incorrect part for 2-HD-103A completely, accurately, and in a timely manner. [P.1(a)] (Section 40A3)

Inspection Report# : [2008004](#) (*pdf*)

Significance:  Sep 30, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

(NCV 05000336/2008004-02 Failure to Correct Safety Valve Lifting Following Uncomplicated Reactor Trips).

A self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, was identified for failure to take effective corrective actions to prevent a Millstone Unit 2 (MP2) steam generator safety valve from lifting following uncomplicated reactor trips from 100% power. Following reactor trips on May 22, 2008 and June 28, 2008, a steam generator safety valve lifted due to a delayed quick open signal to the condenser steam dumps and atmospheric dump valves. In July 2008, Dominion had taken corrective actions by changing the power supplies of the quick open signal controller inputs to ensure an immediate quick open signal to both the condenser steam dump valves and the atmospheric dump valves. Dominion has entered this issue into their corrective action program.

The issue was more than minor because it affects the equipment performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. The cycling of the steam generator safety valves results in a greater likelihood that the valves will not reseal properly during an event. The finding was determined to have very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Problem Identification and Resolution, Corrective Action Program [P.1(d)]. (Section 40A3)

Inspection Report# : [2008004](#) (*pdf*)

Significance:  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 overtightened, 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 40A3)

Inspection Report# : [2008003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 05, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2008008-01, Failure to Ensure Equipment Necessary For Fire Safe Shutdown Available.

The team identified that Dominion failed to administratively control and ensure the availability of all necessary fire safe shutdown equipment to perform manual actions in the 4kV upper switchgear room. This finding was determined to be of very low safety significance (Green) and a NCV of the Millstone Nuclear Power Station, Unit 2 Operating License condition 2.C.(3), Fire Protection.

The team determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems 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, Dominion did not ensure that an electrical flash jacket necessary to perform local breaker operations was available in the upper 4kV switchgear room. Actions to restore the A diesel generator would have been delayed for a fire in the lower 4kV switchgear room. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected post-fire safe shutdown systems. This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because additional electrical flash jackets were onsite and the local breaker operations would likely have been performed within 3 hours. The safe shutdown analysis most restrictive timeline for a fire in the lower switchgear room required a charging pump restored within 3 hours for reactor coolant system makeup. Local breaker operations in the upper 4kV switchgear room would be needed to support ac power to a charging pump. The team determined that this finding had a cross cutting aspect in the area of human performance because personnel did not return an electrical flash jacket to its proper storage location even though it was clearly labeled for the upper 4kV switchgear room. (H.4(b)) (Section 1R05.01)

Inspection Report# : [2008008](#) (*pdf*)

Significance:  Dec 05, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2008008-02, Failure to Ensure Timely Manual Action Consistent with the Post-Fire Safe Shutdown Analysis.

The team identified that Dominion failed to ensure that a post-fire manual action to restore auxiliary feedwater (AFW) flow to a steam generator (SG) would be performed within 30 minutes of a plant trip consistent with the Millstone Unit 2 fire safe shutdown analysis. This finding was determined to be of very low safety significance (Green) and a NCV of the Millstone Nuclear Power Station, Unit 2 Operating License condition 2.C.(3), Fire Protection.

The team determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems 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, a timely manual action to restore AFW to SG 1 within 30 minutes of the plant trip for a fire in Fire Area R-2 was not ensured for all circumstances and was validated by Dominion in 1999 to take at least 40 minutes. This finding was similar to more than minor example 3.i in NRC Inspection Manual Chapter (IMC) 0612, Power Reactor Inspection Reports, Appendix E, Examples of Minor Issues. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected post-fire safe shutdown systems. This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because Dominion performed a sensitivity analysis of S-02824-S2, Millstone Unit 2, R-2 Fire, Appendix R Analysis, Rev. 2, and determined that restoring AFW flow to steam generator 1 could be delayed for 50 minutes and result in acceptable plant performance during a safe shutdown event. (Section 1R05.01)

Inspection Report# : [2008008](#) (*pdf*)

Significance:  Aug 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

B.5.b Phase 2 and 3 Mitigating Strategy

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(c)]. See inspection report for more details.

Inspection Report# : [2008007](#) (*pdf*)

Barrier Integrity

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 : May 28, 2009

Millstone 2

2Q/2009 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2008004-01, Installation of Incorrect Internal Trim Package in Valve 2-HD-103A Results in Reactor Trip)

A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to ensure the proper internal trim package (cage) was installed in valve 2-HD-103A, the 1A feedwater heater level control valve as required by Millstone Procedure MP-16-MMM, "Organizational Effectiveness (Corrective Action Program, Operating Experience Program, Independent Safety Engineering Function)". This resulted in level oscillations in feedwater heater 2A during Unit 2 turbine control valve testing and a loss of feedwater, requiring the operators to manually trip the plant. Dominion's corrective actions included installing the correct cage in the valve and entering the issue into their corrective action program.

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 power operations. The finding was determined to be of very low 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. This finding has a cross cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because Dominion did not identify the issue of the incorrect part for 2-HD-103A completely, accurately, and in a timely manner. [P.1(a)] (Section 40A3)

Inspection Report# : [2008004](#) (*pdf*)

Significance:  Sep 30, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

(NCV 05000336/2008004-02 Failure to Correct Safety Valve Lifting Following Uncomplicated Reactor Trips).

A self-revealing non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, was identified for failure to take effective corrective actions to prevent a Millstone Unit 2 (MP2) steam generator safety valve from lifting following uncomplicated reactor trips from 100% power. Following reactor trips on May 22, 2008 and June 28, 2008, a steam generator safety valve lifted due to a delayed quick open signal to the condenser steam dumps and atmospheric dump valves. In July 2008, Dominion had taken corrective actions by changing the power supplies of the quick open signal controller inputs to ensure an immediate quick open signal to both the condenser steam dump valves and the atmospheric dump valves. Dominion has entered this issue into their corrective action program.

The issue was more than minor because it affects the equipment performance attribute of the Initiating Events Cornerstone and the objective to limit the likelihood of those events that upset plant stability. The cycling of the steam generator safety valves results in a greater likelihood that the valves will not reseal properly during an event. The finding was determined to have very low safety significance since it did not contribute to the likelihood of a primary loss of coolant accident, did not contribute to the likelihood of a reactor trip and the unavailability of mitigating equipment, and did not increase the likelihood of a fire or internal/external flood. This finding is related to the cross-cutting area of Problem Identification and Resolution, Corrective Action Program [P.1(d)]. (Section 40A3)

Inspection Report# : [2008004](#) (*pdf*)

Mitigating Systems

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Performance Testing of Safety Related Batteries

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," in that, Unit 2 and Unit 3 written test procedures for battery performance testing were not adequate and did not ensure that test results were properly documented and evaluated to assure that the test requirements were satisfied. Specifically, the battery performance test procedure did not ensure that the correct discharge rate was used, that the test was terminated correctly, and that the battery capacity and subsequent decrease in capacity were correctly calculated and evaluated. In response, Dominion entered the issue into the corrective action program and determined that there was sufficient battery margin to assure operability of the station batteries.

The finding is more than minor because it is associated with the procedure quality 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 team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Human Performance, Resources Component, because Dominion did not ensure that complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the battery performance test procedure did not ensure that the correct discharge rate was used, that the test was terminated correctly, and that the battery capacity and subsequent decrease in capacity were correctly calculated and evaluated.

Inspection Report# : [2009006 \(pdf\)](#)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Degraded Battery Cell

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," in that, Dominion did not take did not take corrective actions for a degraded cell in a Unit 2 safety related battery. Specifically, although testing of the 'B' battery between 1996 and 2008 indicated a degraded cell, actions were not taken to initiate a condition report or evaluate the impact of the degraded condition. In response, Dominion entered the issue into the corrective action program and determined that there was sufficient battery margin to assure operability of the battery.

The finding is more than minor because it is associated with the equipment 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. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual

loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not thoroughly evaluate the problem such that the resolution addressed the cause. Specifically, although data indicated cell 10 was degraded, no action was taken to evaluate the reduced cell capacity on the overall battery.

Inspection Report# : [2009006 \(pdf\)](#)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Safety Related Inverter Out-of-Calibration Results

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," in that, Dominion did not take corrective actions for repeated out-of-calibration test results associated with Unit 2 safety related inverters. Specifically, although testing of the safety related inverters between 2005 and 2008 indicated that the as-found results were frequently out-of-calibration, actions were not always taken to initiate a condition report; and condition reports that were generated, did not evaluate the repetitive failure to remain in calibration. In response, Dominion entered the issue into the corrective action program and determined that the out-of-calibration results did not render the safety related instrument panels inoperable.

The finding is more than minor because it is associated with the equipment 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. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not thoroughly evaluate the problem such that the resolution addressed the cause. Specifically, although testing of the safety related inverters between 2005 and 2008 indicated regular out-of-calibration as-found results, actions were not always taken to initiate a condition report; and condition reports that were generated, did not evaluate the repetitive failure to remain in calibration.

Inspection Report# : [2009006 \(pdf\)](#)

Significance:  Dec 05, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2008008-01, Failure to Ensure Equipment Necessary For Fire Safe Shutdown Available.

The team identified that Dominion failed to administratively control and ensure the availability of all necessary fire safe shutdown equipment to perform manual actions in the 4kV upper switchgear room. This finding was determined to be of very low safety significance (Green) and a NCV of the Millstone Nuclear Power Station, Unit 2 Operating License condition 2.C.(3), Fire Protection.

The team determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems 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, Dominion did not ensure that an electrical flash jacket necessary to perform local breaker operations was available in the upper 4kV switchgear room. Actions to restore the A diesel generator would have been delayed for a fire in the

lower 4kV switchgear room. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected post-fire safe shutdown systems. This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because additional electrical flash jackets were onsite and the local breaker operations would likely have been performed within 3 hours. The safe shutdown analysis most restrictive timeline for a fire in the lower switchgear room required a charging pump restored within 3 hours for reactor coolant system makeup. Local breaker operations in the upper 4kV switchgear room would be needed to support ac power to a charging pump. The team determined that this finding had a cross cutting aspect in the area of human performance because personnel did not return an electrical flash jacket to its proper storage location even though it was clearly labeled for the upper 4kV switchgear room. (H.4(b)) (Section 1R05.01)

Inspection Report# : [2008008](#) (*pdf*)

Significance:  Dec 05, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2008008-02, Failure to Ensure Timely Manual Action Consistent with the Post-Fire Safe Shutdown Analysis.

The team identified that Dominion failed to ensure that a post-fire manual action to restore auxiliary feedwater (AFW) flow to a steam generator (SG) would be performed within 30 minutes of a plant trip consistent with the Millstone Unit 2 fire safe shutdown analysis. This finding was determined to be of very low safety significance (Green) and a NCV of the Millstone Nuclear Power Station, Unit 2 Operating License condition 2.C.(3), Fire Protection.

The team determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems 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, a timely manual action to restore AFW to SG 1 within 30 minutes of the plant trip for a fire in Fire Area R-2 was not ensured for all circumstances and was validated by Dominion in 1999 to take at least 40 minutes. This finding was similar to more than minor example 3.i in NRC Inspection Manual Chapter (IMC) 0612, Power Reactor Inspection Reports, Appendix E, Examples of Minor Issues. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected post-fire safe shutdown systems. This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because Dominion performed a sensitivity analysis of S-02824-S2, Millstone Unit 2, R-2 Fire, Appendix R Analysis, Rev. 2, and determined that restoring AFW flow to steam generator 1 could be delayed for 50 minutes and result in acceptable plant performance during a safe shutdown event. (Section 1R05.01)

Inspection Report# : [2008008](#) (*pdf*)

Significance:  Aug 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

B.5.b Phase 2 and 3 Mitigating Strategy

This finding, affecting the Barrier Integrity Cornerstone, is related to mitigative measures developed to cope with losses of large areas of the plant; in response to Section B.5.b. of the February 25, 2002, Interim Compensatory Measures (ICM) Order (EA-02-026) and related NRC guidance. This finding has been designated as "Official Use Only - Security-Related Information;" therefore, the details of this finding are being withheld from public disclosure. This finding has a cross-cutting aspect in the area of Human Performance (Resources). [H.2(c)]. See inspection report for more details.

Inspection Report# : [2008007](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Apr 20, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2009003-01, Failure to Survey a Contaminated Component

Green. An NRC-identified finding of very low safety significance (Green) was identified for Dominion's failure to effectively survey, label, and control contaminated tools and equipment. Specifically, Dominion failed to perform adequate surveys to identify a hose fitting having a contact dose rate measurement of 160 mrem per hour as required by 10 CFR 20.1501. Dominion entered this issue into their corrective action program as CR322737.

This finding was more than minor because it was associated with the program and process attribute of the radiation safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. By not surveying and labeling the hose fitting, workers could have received unplanned exposure by not being informed of the radiological hazard present. The finding has a cross cutting aspect in the area of work practices, because the licensee did not assure that personnel follow procedures [H.4(b)]. Specifically, procedure RPM 2.4.2, "Radiological Control of Material and Vehicles," was not properly implemented to assure compliance with 10 CFR 20 requirements. (Section 2OS1).

Inspection Report# : [2009003](#) (*pdf*)

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 31, 2009

Millstone 2

3Q/2009 Plant Inspection Findings

Initiating Events

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:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

(NCV 05000336/2009004-02 Inadequate and 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*)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Performance Testing of Safety Related Batteries

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," in that, Unit 2 and Unit 3 written test procedures for battery performance testing were not adequate and did not ensure that test results were properly documented and evaluated to assure that the test requirements were satisfied. Specifically, the battery performance test procedure did not ensure that the correct discharge rate was used, that the test was terminated correctly, and that the battery capacity and subsequent decrease in capacity were correctly calculated and evaluated. In response, Dominion entered the issue into the corrective action program and determined that there was sufficient battery margin to assure operability of the station batteries.

The finding is more than minor because it is associated with the procedure quality 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 team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Human Performance, Resources Component, because Dominion did not ensure that complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the battery performance test procedure did not ensure that the correct discharge rate was used, that the test was terminated correctly, and that the battery capacity and subsequent decrease in capacity were correctly calculated and evaluated.

Inspection Report# : [2009006](#) (*pdf*)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Degraded Battery Cell

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," in that, Dominion did not take did not take corrective actions for a degraded cell in a Unit 2 safety related battery. Specifically, although testing of the 'B' battery between 1996 and 2008 indicated a degraded cell, actions were not taken to initiate a condition report or evaluate the impact of the degraded condition. In response, Dominion entered the issue into the corrective action program and determined that there was sufficient battery margin to assure operability of the battery.

The finding is more than minor because it is associated with the equipment 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. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not thoroughly evaluate the problem such that the resolution addressed the cause. Specifically, although data indicated cell 10 was degraded, no action was taken to evaluate the reduced cell capacity on the overall battery.

Inspection Report# : [2009006](#) (pdf)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Safety Related Inverter Out-of-Calibration Results

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," in that, Dominion did not take corrective actions for repeated out-of-calibration test results associated with Unit 2 safety related inverters. Specifically, although testing of the safety related inverters between 2005 and 2008 indicated that the as-found results were frequently outof-calibration, actions were not always taken to initiate a condition report; and condition reports that were generated, did not evaluate the repetitive failure to remain in calibration. In response, Dominion entered the issue into the corrective action program and determined that the out-of-calibration results did not render the safety related instrument panels inoperable.

The finding is more than minor because it is associated with the equipment 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. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not thoroughly evaluate the problem such that the resolution addressed the cause. Specifically, although testing of the safety related inverters between 2005 and 2008 indicated regular out-of-calibration as-found results, actions were not always taken to initiate a condition report; and condition reports that were generated, did not evaluate the repetitive failure to remain in calibration.

Inspection Report# : [2009006](#) (pdf)

Significance:  Dec 05, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2008008-01, Failure to Ensure Equipment Necessary For Fire Safe Shutdown Available.

The team identified that Dominion failed to administratively control and ensure the availability of all necessary fire safe shutdown equipment to perform manual actions in the 4kV upper switchgear room. This finding was determined to be of very low safety significance (Green) and a NCV of the Millstone Nuclear Power Station, Unit 2 Operating License condition 2.C.(3), Fire Protection.

The team determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems 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,

Dominion did not ensure that an electrical flash jacket necessary to perform local breaker operations was available in the upper 4kV switchgear room. Actions to restore the A diesel generator would have been delayed for a fire in the lower 4kV switchgear room. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected post-fire safe shutdown systems. This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because additional electrical flash jackets were onsite and the local breaker operations would likely have been performed within 3 hours. The safe shutdown analysis most restrictive timeline for a fire in the lower switchgear room required a charging pump restored within 3 hours for reactor coolant system makeup. Local breaker operations in the upper 4kV switchgear room would be needed to support ac power to a charging pump. The team determined that this finding had a cross cutting aspect in the area of human performance because personnel did not return an electrical flash jacket to its proper storage location even though it was clearly labeled for the upper 4kV switchgear room. (H.4(b)) (Section 1R05.01)

Inspection Report# : [2008008](#) (pdf)

Significance:  Dec 05, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2008008-02, Failure to Ensure Timely Manual Action Consistent with the Post-Fire Safe Shutdown Analysis.

The team identified that Dominion failed to ensure that a post-fire manual action to restore auxiliary feedwater (AFW) flow to a steam generator (SG) would be performed within 30 minutes of a plant trip consistent with the Millstone Unit 2 fire safe shutdown analysis. This finding was determined to be of very low safety significance (Green) and a NCV of the Millstone Nuclear Power Station, Unit 2 Operating License condition 2.C.(3), Fire Protection.

The team determined that this finding was more than minor because it was associated with the external factors attribute (fire) of the mitigating systems 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, a timely manual action to restore AFW to SG 1 within 30 minutes of the plant trip for a fire in Fire Area R-2 was not ensured for all circumstances and was validated by Dominion in 1999 to take at least 40 minutes. This finding was similar to more than minor example 3.i in NRC Inspection Manual Chapter (IMC) 0612, Power Reactor Inspection Reports, Appendix E, Examples of Minor Issues. The team assessed this finding in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process. This finding affected post-fire safe shutdown systems. This finding screened to very low safety significance (Green) in Phase 1 of the SDP because it was assigned a low degradation rating. A low degradation rating was assigned because Dominion performed a sensitivity analysis of S-02824-S2, Millstone Unit 2, R-2 Fire, Appendix R Analysis, Rev. 2, and determined that restoring AFW flow to steam generator 1 could be delayed for 50 minutes and result in acceptable plant performance during a safe shutdown event. (Section 1R05.01)

Inspection Report# : [2008008](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Apr 20, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2009003-01, Failure to Survey a Contaminated Component

Green. An NRC-identified finding of very low safety significance (Green) was identified for Dominion's failure to effectively survey, label, and control contaminated tools and equipment. Specifically, Dominion failed to perform adequate surveys to identify a hose fitting having a contact dose rate measurement of 160 mrem per hour as required by 10 CFR 20.1501. Dominion entered this issue into their corrective action program as CR322737.

This finding was more than minor because it was associated with the program and process attribute of the radiation safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. By not surveying and labeling the hose fitting, workers could have received unplanned exposure by not being informed of the radiological hazard present. The finding has a cross cutting aspect in the area of work practices, because the licensee did not assure that personnel follow procedures [H.4(b)]. Specifically, procedure RPM 2.4.2, "Radiological Control of Material and Vehicles," was not properly implemented to assure compliance with 10 CFR 20 requirements. (Section 2OS1).

Inspection Report# : [2009003](#) (*pdf*)

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 : December 10, 2009

Millstone 2

4Q/2009 Plant Inspection Findings

Initiating Events

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).

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

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).

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

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:  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)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Performance Testing of Safety Related Batteries

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," in that, Unit 2 and Unit 3 written test procedures for battery performance testing were not adequate and did not ensure that test results were properly documented and evaluated to assure that the test requirements were satisfied. Specifically, the battery performance test procedure did not ensure that the correct discharge rate was used, that the test was terminated correctly, and that the battery capacity and subsequent decrease in capacity were correctly calculated and evaluated. In response, Dominion entered the issue into the corrective action program and determined that there was sufficient battery margin to assure operability of the station batteries.

The finding is more than minor because it is associated with the procedure quality 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 team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Human Performance, Resources Component, because Dominion did not ensure that complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the battery performance test procedure did not ensure that the correct discharge rate was used, that the test was terminated correctly, and that the battery capacity and subsequent decrease in capacity were correctly calculated and evaluated.

Inspection Report# : [2009006](#) (*pdf*)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Degraded Battery Cell

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," in that, Dominion did not take did not take corrective actions for a degraded cell in a Unit 2 safety related battery. Specifically, although testing of the 'B' battery between 1996 and 2008 indicated a degraded cell, actions were not taken to initiate a condition report or evaluate the impact of the degraded condition. In response, Dominion entered the issue into the corrective action program and determined that there was sufficient battery margin to assure operability of the battery.

The finding is more than minor because it is associated with the equipment 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. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not thoroughly evaluate the problem such that the resolution addressed the cause. Specifically, although data indicated cell 10 was degraded, no action was taken to evaluate the reduced cell capacity on the overall battery.

Inspection Report# : [2009006](#) (*pdf*)

Significance:  Mar 06, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Safety Related Inverter Out-of-Calibration Results

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," in that, Dominion did not take corrective actions for repeated out-of-calibration test results associated with Unit 2 safety related inverters. Specifically, although testing of the safety related inverters between 2005 and 2008 indicated that the as-found results were frequently outof-calibration, actions were not always taken to initiate a condition report; and condition reports that were generated, did not evaluate the repetitive failure to remain in calibration. In response, Dominion entered the issue into the corrective action program and determined that the out-of-calibration results did not render the safety related

instrument panels inoperable.

The finding is more than minor because it is associated with the equipment 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. The team determined the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a crosscutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because Dominion did not thoroughly evaluate the problem such that the resolution addressed the cause. Specifically, although testing of the safety related inverters between 2005 and 2008 indicated regular out-of-calibration as-found results, actions were not always taken to initiate a condition report; and condition reports that were generated, did not evaluate the repetitive failure to remain in calibration.

Inspection Report# : [2009006](#) (*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).

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

Emergency Preparedness

Occupational Radiation Safety

Significance:  Apr 20, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2009003-01, Failure to Survey a Contaminated Component

Green. An NRC-identified finding of very low safety significance (Green) was identified for Dominion's failure to effectively survey, label, and control contaminated tools and equipment. Specifically, Dominion failed to perform adequate surveys to identify a hose fitting having a contact dose rate measurement of 160 mrem per hour as required by 10 CFR 20.1501. Dominion entered this issue into their corrective action program as CR322737.

This finding was more than minor because it was associated with the program and process attribute of the radiation safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. By not surveying and labeling the hose fitting, workers could have received unplanned exposure by not being informed of the radiological hazard present. The finding has a cross cutting aspect in the area of work practices, because the licensee did not assure that personnel follow procedures [H.4(b)]. Specifically, procedure RPM 2.4.2, "Radiological Control of Material and Vehicles," was not properly implemented to assure compliance with 10 CFR 20 requirements. (Section 2OS1).

Inspection Report# : [2009003](#) (*pdf*)

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 : March 01, 2010

Millstone 2

1Q/2010 Plant Inspection Findings

Initiating Events

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).

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

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).

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

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:  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).

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

Emergency Preparedness

Occupational Radiation Safety

Significance:  Apr 20, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2009003-01, Failure to Survey a Contaminated Component

Green. An NRC-identified finding of very low safety significance (Green) was identified for Dominion's failure to effectively survey, label, and control contaminated tools and equipment. Specifically, Dominion failed to perform adequate surveys to identify a hose fitting having a contact dose rate measurement of 160 mrem per hour as required by 10 CFR 20.1501. Dominion entered this issue into their corrective action program as CR322737.

This finding was more than minor because it was associated with the program and process attribute of the radiation safety cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation. By not surveying and labeling the hose fitting, workers could have received unplanned exposure by not being informed of the radiological hazard present. The finding has a cross cutting aspect in the area of work practices, because the licensee did not assure that personnel follow procedures [H.4(b)]. Specifically, procedure RPM 2.4.2, "Radiological Control of Material and Vehicles," was not properly implemented to assure compliance with 10 CFR 20 requirements. (Section 2OS1).

Inspection Report# : [2009003](#) (*pdf*)

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 : May 26, 2010

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 4OA3).

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

Last modified : September 02, 2010

Millstone 2

3Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: FIN Finding

FIN 05000336/2010004-01, Failure to Implement Timely Corrective Action for a Degraded FRV Results in Manual Reactor Trip

Green. A self-revealing finding (FIN) of very low safety significance was identified for Dominion's failure to implement timely corrective action for a degraded #2 feedwater regulating valve (FRV) in accordance with procedure PI-AA-200, "Corrective Action." Two weeks after the issue was first identified, the #2 FRV further degraded causing Dominion to trip the reactor when the #2 Steam Generator (SG) level could not be controlled. Dominion entered this issue into their corrective action program (CR382055).

This finding is more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4f, in that the failure to correct a condition adverse to quality led to a reactor trip. The finding 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. 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 Problem Identification and Resolution, Corrective Action Program, because Dominion did not take appropriate corrective action to address the degraded #2 FRV in a timely manner, commensurate with its safety significance.[P.1(d)] (Section 4OA3).

Inspection Report# : [2010004](#) (*pdf*)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 055000336/2010004-01, Failure to Promptly Identify and Correct the Source of a Unit 2 RCS Pressure Boundary Leak).

Green. The inspector identified a Green, NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for Dominion's failure to promptly identify and correct the source of a reactor coolant system (RCS) pressure boundary leak from July 3, 2009, through July 13, 2009. Dominion subsequently repaired the leak and returned to 100 percent power.

The inspectors determined that Dominion's failure to promptly identify and correct the cause of pressure boundary leakage is a performance deficiency that was reasonably within Dominion's ability to foresee and correct and should have been prevented. This issue is more than minor because the issue is similar to NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and minor example 2.g. The inspectors determined that the issue affects 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. The inspector concluded that this condition, assuming the worst case degradation, would not have affected other mitigating systems resulting in a total loss of their safety function. Accordingly, the finding was determined to be of very low safety significance (Green) using IMC 609, Attachment 0609.004, Phase 1 Screening Worksheet. The inspector determined that this issue had a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area, Corrective Action Program component, because Dominion did not identify the pressure boundary leakage completely, accurately, and in a timely manner commensurate with its safety significance. [P.1(a)] (Section 4OA2)

Inspection Report# : [2010004](#) (*pdf*)

Significance: SL-IV Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2010004-02, Failure to Perform an ASME Code-compliant Radiographic Examination on a Class 1 Weld on the Unit 2 'A' RCP Seal Cooler Piping.

Severity Level IV. The inspector identified a Severity Level IV, NCV of 10 CFR 50.55a(2)(c)(1) and 10 CFR 50.55a(3), when Dominion did not perform an ASME Code-compliant radiographic examination for a leak in a Class 1 weld on the Unit 2 'A' RCP seal cooler piping before returning the system to service. Dominion was out of compliance with 10 CFR 50.55a(2)(c)(1), 10 CFR 50.55a(3), and Section III of the American Society of Mechanical Engineers (ASME) Code between July 24, 2009, and November 10, 2009. The NRC granted verbal relief from the 10 CFR 50.55a(2)(c)(1), 10 CFR 50.55a(3), and the ASME Code requirements on November 10, 2009. Subsequently, the relief request was approved, in writing, by the NRC on April 26, 2010.

In accordance with IMC 0612, Appendix B, Section 1-2, this finding had the potential to impact the NRC's ability to perform its regulatory function because Dominion verbally informed the NRC on July 17, 2009, that they would repair the affected component in accordance with ASME Code requirements. However, due to Dominion's misinterpretation of the ASME Code, Dominion did not subsequently inform the NRC of its inability to meet Code requirements (i.e. perform a Code compliant radiographic examination of the affected weld) before returning the plant to service. As a result, Dominion's actions had impeded the NRC's ability to evaluate and determine the efficacy of the licensee's actions. The issue was characterized as Severity Level IV because it is similar to the example provided in the NRC Enforcement Policy Section 6.1.d.2, in that, it involved a violation of NRC requirements that resulted in a condition evaluated as having very low safety significance (i.e., Green) by the Significance Determination Process (SDP). The inspector determined that this issue had a cross-cutting aspect in the Human Performance cross-cutting area, Decision Making component, because Dominion did not use conservative assumptions in their decision making when they concluded that Code relief from the NRC would not be necessary to accomplish the repair. [H.1(b)]. (Section 40A2)

Inspection Report# : [2010004](#) (pdf)

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).

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

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).

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

Significance: G 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 40A2).

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

Significance: G 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*)

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).

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

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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Miscellaneous

Last modified : November 29, 2010

Millstone 2

4Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2010

Identified By: NRC

Item Type: FIN Finding

(FIN 05000336/2010005-01, Failure to Provide an Adequate Procedure for Backwashing Condenser Water Boxes Results in Reactor Trip).

Green. A self-revealing finding of very low significance was identified for Dominion's failure to provide an adequate procedure for backwashing the Unit 2 condenser water boxes in accordance with procedure MP-05-MMM, "Manuals, Procedures, Guidelines, Handbooks and Forms". Specifically, in implementing the procedure, the 'A' circulating water (CW) pump automatically ramped down to zero speed shortly after securing the 'B' CW pump. This resulted in a loss of condenser vacuum, which caused an automatic turbine trip. The turbine trip caused an automatic reactor trip. Dominion entered the issue into their corrective action program and revised the backwashing procedure, OP 2325D.

The inspectors determined that Dominion's failure to provide an adequate procedure for backwashing the Unit 2 water boxes in accordance with procedure MP-05-MMM, "Manuals, Procedures, Guidelines, Handbooks, and Forms" was a performance deficiency. The 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 an inadequate procedure led to a reactor trip. The finding was associated with the procedure quality 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. Specifically, Dominion's failure to provide an adequate procedure for backwashing Unit 2 condenser water boxes resulted in the variable frequency drive (VFD) logic securing only the CW pump running in that condenser and subsequently caused a reactor trip. 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 Human Performance area, Resources component, and because Dominion did not provide an accurate and up-to-date procedure for the backwashing of the Unit 2 water boxes. [H.2(c)] (Section 40A3)

Inspection Report# : [2010005](#) (*pdf*)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: FIN Finding

FIN 05000336/2010004-01, Failure to Implement Timely Corrective Action for a Degraded FRV Results in Manual Reactor Trip

Green. A self-revealing finding (FIN) of very low safety significance was identified for Dominion's failure to implement timely corrective action for a degraded #2 feedwater regulating valve (FRV) in accordance with procedure PI-AA-200, "Corrective Action." Two weeks after the issue was first identified, the #2 FRV further degraded causing Dominion to trip the reactor when the #2 Steam Generator (SG) level could not be controlled. Dominion entered this issue into their corrective action program (CR382055).

This finding is more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4f, in that the failure to correct a condition adverse to quality led to a reactor trip. The finding 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. 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 Problem Identification and Resolution, Corrective Action Program, because Dominion did not take appropriate corrective action to address the degraded #2

FRV in a timely manner, commensurate with its safety significance.[P.1(d)] (Section 4OA3).

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 055000336/2010004-01, Failure to Promptly Identify and Correct the Source of a Unit 2 RCS Pressure Boundary Leak).

Green. The inspector identified a Green, NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for Dominion's failure to promptly identify and correct the source of a reactor coolant system (RCS) pressure boundary leak from July 3, 2009, through July 13, 2009. Dominion subsequently repaired the leak and returned to 100 percent power.

The inspectors determined that Dominion's failure to promptly identify and correct the cause of pressure boundary leakage is a performance deficiency that was reasonably within Dominion's ability to foresee and correct and should have been prevented. This issue is more than minor because the issue is similar to NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and minor example 2.g. The inspectors determined that the issue affects 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. The inspector concluded that this condition, assuming the worst case degradation, would not have affected other mitigating systems resulting in a total loss of their safety function. Accordingly, the finding was determined to be of very low safety significance (Green) using IMC 609, Attachment 0609.004, Phase 1 Screening Worksheet. The inspector determined that this issue had a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area, Corrective Action Program component, because Dominion did not identify the pressure boundary leakage completely, accurately, and in a timely manner commensurate with its safety significance. [P.1(a)] (Section 4OA2)

Inspection Report# : [2010004](#) (pdf)

Significance: SL-IV Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2010004-02, Failure to Perform an ASME Code-compliant Radiographic Examination on a Class 1 Weld on the Unit 2 'A' RCP Seal Cooler Piping.

Severity Level IV. The inspector identified a Severity Level IV, NCV of 10 CFR 50.55a(2)(c)(1) and 10 CFR 50.55a(3), when Dominion did not perform an ASME Code-compliant radiographic examination for a leak in a Class 1 weld on the Unit 2 'A' RCP seal cooler piping before returning the system to service. Dominion was out of compliance with 10 CFR 50.55a(2)(c)(1), 10 CFR 50.55a(3), and Section III of the American Society of Mechanical Engineers (ASME) Code between July 24, 2009, and November 10, 2009. The NRC granted verbal relief from the 10 CFR 50.55a(2)(c)(1), 10 CFR 50.55a(3), and the ASME Code requirements on November 10, 2009. Subsequently, the relief request was approved, in writing, by the NRC on April 26, 2010.

In accordance with IMC 0612, Appendix B, Section 1-2, this finding had the potential to impact the NRC's ability to perform its regulatory function because Dominion verbally informed the NRC on July 17, 2009, that they would repair the affected component in accordance with ASME Code requirements. However, due to Dominion's misinterpretation of the ASME Code, Dominion did not subsequently inform the NRC of its inability to meet Code requirements (i.e. perform a Code compliant radiographic examination of the affected weld) before returning the plant to service. As a result, Dominion's actions had impeded the NRC's ability to evaluate and determine the efficacy of the licensee's actions. The issue was characterized as Severity Level IV because it is similar to the example provided in the NRC Enforcement Policy Section 6.1.d.2, in that, it involved a violation of NRC requirements that resulted in a condition evaluated as having very low safety significance (i.e., Green) by the Significance Determination Process (SDP). The inspector determined that this issue had a cross-cutting aspect in the Human Performance cross-cutting area, Decision Making component, because Dominion did not use conservative assumptions in their decision making when they concluded that Code relief from the NRC would not be necessary to accomplish the repair. [H.1(b)]. (Section 4OA2)

Significance: **G** 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).

Mitigating Systems

Significance: **G** Sep 22, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2010008-01; 05000423/2010008-01, Failure to Properly Control Fire Fighting Strategies.

Green. The team identified a non-cited violation of Millstone Unit 2 Operating License Condition 2.C.(3), and Unit 3 Operating License Condition 2.H, for the failure to implement all provisions of the approved Fire Protection Programs. Specifically, Dominion did not implement adequate review, approval and distribution of fire fighting strategies to provide for the adequate development and maintenance of effective strategies. As a result, the team found that Dominion did not provide adequate guidance in the fire fighting strategies for several areas that included the Unit 2 "8" emergency diesel generator (EDG) room, and the Unit 3 west switchgear room. This issue was entered into Dominion's corrective action program as condition report (CR) 388786. The team determined that the failure to administratively control fire fighting strategies as required by the fire protection program was a performance deficiency. This finding was more than minor because it adversely affected the availability and capability objectives of the protection against external events (i.e., fire) attribute under the Mitigating Systems Cornerstone. Specifically, the above examples would likely cause delays in manual fire fighting activities and, therefore, adversely affected the defense-in-depth aspect of the fire protection program to limit fire damage by quick suppression of those fires that occur. The team performed a Phase 1 SDP screening, in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected fire prevention and administrative controls, and was screened to very low safety significance (Green) because this failure to control fire fighting strategies was determined to represent a low degradation rating. This finding had a cross-cutting

aspect in the area of human performance because Dominion failed to ensure complete and accurate fire fighting strategies were available to the fire brigade to support timely extinguishment of fires. [H.2(c)] (Section 1 R05.03)

Inspection Report# : [2010008](#) (pdf)

Significance:  Sep 22, 2010

Identified By: NRC

Item Type: VIO Violation

VIO 05000336/2010008-02, Failure to Protect Safe Shutdown Equipment From the Effects of Fire .

Green. The team identified a cited violation of 10 CFR Part 50, Appendix R, Section III.G.2 for the failure to protect required post-fire safe shutdown components and cabling to ensure one of the redundant trains of equipment remains free from fire damage. In lieu of providing the required separation, Dominion utilized unapproved operator manual actions to mitigate component malfunctions or spurious operations caused by a single fire induced circuit fault (hot short, open circuit or short to ground). Dominion has entered this issue into the corrective program for resolution. The team found the manual actions to be reasonable interim compensatory measures pending final resolution by Dominion.

Dominion's failure to protect components credited for post-fire safe shutdown from fire damage caused by single spurious actuation is considered a performance deficiency. The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to an external event to prevent undesirable consequences in the event of a fire. Specifically, the use of operator manual actions during post-fire shutdown is not as reliable as normal systems operation which could be utilized had the separation requirements of 10 CFR 50, Appendix R, Section III.G.2 been met and therefore prevented fire damage to credited components and/or cables. The team used IMC 0609, Appendix F, "Rre Protection Significance Determination Process (SDP)," Phase 1 and an SRA conducted Phase 3 evaluation, to determine that this finding was of very low safety significance (Green). The team determined the finding had a low degradation rating because the manual actions were reviewed by the team and were found to be acceptable interim compensatory measures (pending licensee actions to resolve the non-compliances or obtain exemptions) because they did not require complicated actions, adequate time was available to accomplish the actions and the actions were properly included in the appropriate abnormal operating procedures. This finding had a cross cutting aspect in the area of problem identification and resolution associated with the corrective action program because Dominion did not completely and accurately identify deficiencies related to single spurious actuations of credited post-fire safe shutdown components. [P.1.(a)] (Section 1 R05.06)

Inspection Report# : [2010008](#) (pdf)

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 40A2).

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

Barrier Integrity

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 : March 03, 2011

Millstone 2

1Q/2011 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2010

Identified By: NRC

Item Type: FIN Finding

(FIN 05000336/2010005-01, Failure to Provide an Adequate Procedure for Backwashing Condenser Water Boxes Results in Reactor Trip).

Green. A self-revealing finding of very low significance was identified for Dominion's failure to provide an adequate procedure for backwashing the Unit 2 condenser water boxes in accordance with procedure MP-05-MMM, "Manuals, Procedures, Guidelines, Handbooks and Forms". Specifically, in implementing the procedure, the 'A' circulating water (CW) pump automatically ramped down to zero speed shortly after securing the 'B' CW pump. This resulted in a loss of condenser vacuum, which caused an automatic turbine trip. The turbine trip caused an automatic reactor trip. Dominion entered the issue into their corrective action program and revised the backwashing procedure, OP 2325D.

The inspectors determined that Dominion's failure to provide an adequate procedure for backwashing the Unit 2 water boxes in accordance with procedure MP-05-MMM, "Manuals, Procedures, Guidelines, Handbooks, and Forms" was a performance deficiency. The 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 an inadequate procedure led to a reactor trip. The finding was associated with the procedure quality 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. Specifically, Dominion's failure to provide an adequate procedure for backwashing Unit 2 condenser water boxes resulted in the variable frequency drive (VFD) logic securing only the CW pump running in that condenser and subsequently caused a reactor trip. 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 Human Performance area, Resources component, and because Dominion did not provide an accurate and up-to-date procedure for the backwashing of the Unit 2 water boxes. [H.2(c)] (Section 40A3)

Inspection Report# : [2010005](#) (*pdf*)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: FIN Finding

FIN 05000336/2010004-01, Failure to Implement Timely Corrective Action for a Degraded FRV Results in Manual Reactor Trip

Green. A self-revealing finding (FIN) of very low safety significance was identified for Dominion's failure to implement timely corrective action for a degraded #2 feedwater regulating valve (FRV) in accordance with procedure PI-AA-200, "Corrective Action." Two weeks after the issue was first identified, the #2 FRV further degraded causing Dominion to trip the reactor when the #2 Steam Generator (SG) level could not be controlled. Dominion entered this issue into their corrective action program (CR382055).

This finding is more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4f, in that the failure to correct a condition adverse to quality led to a reactor trip. The finding 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. 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 Problem Identification and Resolution, Corrective Action Program, because Dominion did not take appropriate corrective action to address the degraded #2

FRV in a timely manner, commensurate with its safety significance.[P.1(d)] (Section 4OA3).

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 055000336/2010004-01, Failure to Promptly Identify and Correct the Source of a Unit 2 RCS Pressure Boundary Leak).

Green. The inspector identified a Green, NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for Dominion's failure to promptly identify and correct the source of a reactor coolant system (RCS) pressure boundary leak from July 3, 2009, through July 13, 2009. Dominion subsequently repaired the leak and returned to 100 percent power.

The inspectors determined that Dominion's failure to promptly identify and correct the cause of pressure boundary leakage is a performance deficiency that was reasonably within Dominion's ability to foresee and correct and should have been prevented. This issue is more than minor because the issue is similar to NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and minor example 2.g. The inspectors determined that the issue affects 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. The inspector concluded that this condition, assuming the worst case degradation, would not have affected other mitigating systems resulting in a total loss of their safety function. Accordingly, the finding was determined to be of very low safety significance (Green) using IMC 609, Attachment 0609.004, Phase 1 Screening Worksheet. The inspector determined that this issue had a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area, Corrective Action Program component, because Dominion did not identify the pressure boundary leakage completely, accurately, and in a timely manner commensurate with its safety significance. [P.1(a)] (Section 4OA2)

Inspection Report# : [2010004](#) (pdf)

Significance: SL-IV Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2010004-02, Failure to Perform an ASME Code-compliant Radiographic Examination on a Class 1 Weld on the Unit 2 'A' RCP Seal Cooler Piping.

Severity Level IV. The inspector identified a Severity Level IV, NCV of 10 CFR 50.55a(2)(c)(1) and 10 CFR 50.55a(3), when Dominion did not perform an ASME Code-compliant radiographic examination for a leak in a Class 1 weld on the Unit 2 'A' RCP seal cooler piping before returning the system to service. Dominion was out of compliance with 10 CFR 50.55a(2)(c)(1), 10 CFR 50.55a(3), and Section III of the American Society of Mechanical Engineers (ASME) Code between July 24, 2009, and November 10, 2009. The NRC granted verbal relief from the 10 CFR 50.55a(2)(c)(1), 10 CFR 50.55a(3), and the ASME Code requirements on November 10, 2009. Subsequently, the relief request was approved, in writing, by the NRC on April 26, 2010.

In accordance with IMC 0612, Appendix B, Section 1-2, this finding had the potential to impact the NRC's ability to perform its regulatory function because Dominion verbally informed the NRC on July 17, 2009, that they would repair the affected component in accordance with ASME Code requirements. However, due to Dominion's misinterpretation of the ASME Code, Dominion did not subsequently inform the NRC of its inability to meet Code requirements (i.e. perform a Code compliant radiographic examination of the affected weld) before returning the plant to service. As a result, Dominion's actions had impeded the NRC's ability to evaluate and determine the efficacy of the licensee's actions. The issue was characterized as Severity Level IV because it is similar to the example provided in the NRC Enforcement Policy Section 6.1.d.2, in that, it involved a violation of NRC requirements that resulted in a condition evaluated as having very low safety significance (i.e., Green) by the Significance Determination Process (SDP). The inspector determined that this issue had a cross-cutting aspect in the Human Performance cross-cutting area, Decision Making component, because Dominion did not use conservative assumptions in their decision making when they concluded that Code relief from the NRC would not be necessary to accomplish the repair. [H.1(b)]. (Section 4OA2)

Significance: **G** 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).

Mitigating Systems

Significance: **G** Sep 22, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2010008-01; 05000423/2010008-01, Failure to Properly Control Fire Fighting Strategies.

Green. The team identified a non-cited violation of Millstone Unit 2 Operating License Condition 2.C.(3), and Unit 3 Operating License Condition 2.H, for the failure to implement all provisions of the approved Fire Protection Programs. Specifically, Dominion did not implement adequate review, approval and distribution of fire fighting strategies to provide for the adequate development and maintenance of effective strategies. As a result, the team found that Dominion did not provide adequate guidance in the fire fighting strategies for several areas that included the Unit 2 "8" emergency diesel generator (EDG) room, and the Unit 3 west switchgear room. This issue was entered into Dominion's corrective action program as condition report (CR) 388786. The team determined that the failure to administratively control fire fighting strategies as required by the fire protection program was a performance deficiency. This finding was more than minor because it adversely affected the availability and capability objectives of the protection against external events (i.e., fire) attribute under the Mitigating Systems Cornerstone. Specifically, the above examples would likely cause delays in manual fire fighting activities and, therefore, adversely affected the defense-in-depth aspect of the fire protection program to limit fire damage by quick suppression of those fires that occur. The team performed a Phase 1 SDP screening, in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected fire prevention and administrative controls, and was screened to very low safety significance (Green) because this failure to control fire fighting strategies was determined to represent a low degradation rating. This finding had a cross-cutting

aspect in the area of human performance because Dominion failed to ensure complete and accurate fire fighting strategies were available to the fire brigade to support timely extinguishment of fires. [H.2(c)] (Section 1 R05.03)

Inspection Report# : [2010008](#) (pdf)

Significance:  Sep 22, 2010

Identified By: NRC

Item Type: VIO Violation

VIO 05000336/2010008-02, Failure to Protect Safe Shutdown Equipment From the Effects of Fire .

Green. The team identified a cited violation of 10 CFR Part 50, Appendix R, Section III.G.2 for the failure to protect required post-fire safe shutdown components and cabling to ensure one of the redundant trains of equipment remains free from fire damage. In lieu of providing the required separation, Dominion utilized unapproved operator manual actions to mitigate component malfunctions or spurious operations caused by a single fire induced circuit fault (hot short, open circuit or short to ground). Dominion has entered this issue into the corrective program for resolution. The team found the manual actions to be reasonable interim compensatory measures pending final resolution by Dominion.

Dominion's failure to protect components credited for post-fire safe shutdown from fire damage caused by single spurious actuation is considered a performance deficiency. The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to an external event to prevent undesirable consequences in the event of a fire. Specifically, the use of operator manual actions during post-fire shutdown is not as reliable as normal systems operation which could be utilized had the separation requirements of 10 CFR 50, Appendix R, Section III.G.2 been met and therefore prevented fire damage to credited components and/or cables. The team used IMC 0609, Appendix F, "Rre Protection Significance Determination Process (SDP)," Phase 1 and an SRA conducted Phase 3 evaluation, to determine that this finding was of very low safety significance (Green). The team determined the finding had a low degradation rating because the manual actions were reviewed by the team and were found to be acceptable interim compensatory measures (pending licensee actions to resolve the non-compliances or obtain exemptions) because they did not require complicated actions, adequate time was available to accomplish the actions and the actions were properly included in the appropriate abnormal operating procedures. This finding had a cross cutting aspect in the area of problem identification and resolution associated with the corrective action program because Dominion did not completely and accurately identify deficiencies related to single spurious actuations of credited post-fire safe shutdown components. [P.1.(a)] (Section 1 R05.06)

Inspection Report# : [2010008](#) (pdf)

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 40A2).

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

Barrier Integrity

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 : June 07, 2011

Millstone 2

2Q/2011 Plant Inspection Findings

Initiating Events

Significance: **G** Jun 30, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2011003-04 Failure to Follow Procedure for Starting a Second SGFP Results in Reactor Trip)

•Green. A self-revealing Green finding (FIN) was identified for Dominion's failure to follow procedure OP 2204, "Load Changes" when starting the second steam generator feedwater pump (SGFP). Specifically, the operating crew did not maintain SGFP suction pressure greater than 325 psig which led to a feed pump trip and subsequent reactor trip on low steam generator level. Dominion entered the issue into their corrective action program (CAP), revised procedure OP 2204, and conducted training exercises emphasizing safe operating envelopes, critical parameters to monitor, and actions to take to restore margin if plant conditions degrade.

The finding is more than minor because it is similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues, Example 4b" in that a failure to follow procedures, led to a reactor trip. It is associated with the Human Performance attribute of the Initiating Events cornerstone and affected the 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. 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 Human Performance, Work Practices component, because Dominion personnel did not follow the load changes procedure. [H.4(b)] (Section 40A3)

Inspection Report# : [2011003](#) (*pdf*)

Significance: **W** Apr 29, 2011

Identified By: Self-Revealing

Item Type: VIO Violation

VIO 05000336/2011008-01, Multiple Examples of Procedural Violations and Inadequate Procedures Relating to Control Room Crew Performance During a Plant Transient.

White: A self-revealing violation (VIO) of low to moderate safety significance (White) was identified involving the failure of Millstone personnel to carry out their assigned roles and responsibilities and inadequate reactivity management during main turbine control valve testing on February 12, 2011, which contributed to the unanticipated reactor power increase. Specifically, the Millstone Unit 2 operations crew failed to implement written procedures that delineated appropriate authorities and responsibilities for safe operation and shutdown and a procedure for controlling reactor reactivity. In addition, the licensee failed to establish written procedures for the Reactor Protection System (RPS) Variable High-Power Trip (VHT), and for power operation and transients involving multiple reactivity additions.

The finding is associated with two violations of NRC requirements specified by Technical Specifications. There were no immediate safety concerns following the transient because the event itself did not result in power exceeding license limits or fuel damage. Additionally, interim corrective actions were taken, which included removing the Millstone Unit 2 control room crew involved in the transient from operational duties pending remediation, and establishment of continuous management presence in the Millstone Unit 2 control room while long term corrective actions were developed. Dominion entered this issue, including the evaluation of extent-of-condition, into the corrective action program (CR413602) and performed a root cause evaluation (RCE).

The finding is more than minor because the performance deficiency (PD) 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.

Additionally, the PD could be viewed as a precursor to a significant event. Because the finding primarily involved human performance errors, probabilistic risk assessment tools were not well suited for evaluating its significance. The team determined that the criteria for using IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," were met, and the finding was evaluated using this guidance, as described in Attachment 4 to this report. Based on the qualitative review of this finding, regional management concluded the finding was of low to moderate safety significance (White).

The team concluded that this finding had a cross-cutting aspect in the Human Performance area, Decision Making component, because Dominion licensed personnel did not make the appropriate safety-significant decisions, especially when faced with uncertain or unexpected plant conditions to ensure safety was maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed [H.1(a)]. (Section 2.1)

Inspection Report# : [2011008](#) (pdf)

Significance:  Apr 29, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

FIN 05000336/2011008-02, Improper Operation of Turbine Control Valves During Testing.

Green: The team identified a self-revealing finding of very low safety significance (Green) for improper operation of the turbine controls during turbine control valve testing. Specifically, the inspectors identified that control room operators failed to correctly implement surveillance procedure SP-2651N, "Main Control Valve Testing." Incorrect operation of the turbine controls caused an unplanned power increase from 88 percent to 96 percent. Dominion entered this issue into the corrective action program (CR415094).

The team determined that this finding was more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4b, in that the incorrect operation of the turbine load selector pushbutton caused a plant transient. 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 team concluded 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. Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement. The team also determined that the finding had a cross-cutting aspect in the Human Performance area, Resources component, because Dominion did not provide adequate training of personnel and sufficient qualified personnel [H.2(b)]. (Section 2.2)

Inspection Report# : [2011008](#) (pdf)

Significance:  Dec 31, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2010005-01, Failure to Provide an Adequate Procedure for Backwashing Condenser Water Boxes Results in Reactor Trip).

Green. A self-revealing finding of very low significance was identified for Dominion's failure to provide an adequate procedure for backwashing the Unit 2 condenser water boxes in accordance with procedure MP-05-MMM, "Manuals, Procedures, Guidelines, Handbooks and Forms". Specifically, in implementing the procedure, the 'A' circulating water (CW) pump automatically ramped down to zero speed shortly after securing the 'B' CW pump. This resulted in a loss of condenser vacuum, which caused an automatic turbine trip. The turbine trip caused an automatic reactor trip. Dominion entered the issue into their corrective action program and revised the backwashing procedure, OP 2325D.

The inspectors determined that Dominion's failure to provide an adequate procedure for backwashing the Unit 2 water boxes in accordance with procedure MP-05-MMM, "Manuals, Procedures, Guidelines, Handbooks, and Forms" was a performance deficiency. The 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 an inadequate procedure led to a reactor trip. The finding was associated with the procedure quality 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. Specifically, Dominion's failure to provide an adequate procedure for backwashing Unit 2 condenser water boxes resulted in the variable frequency drive (VFD) logic securing only the CW pump running in that condenser and subsequently caused a reactor trip. 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 Human Performance area, Resources component, and because Dominion did not provide an accurate and up-to-date procedure for the backwashing of the Unit 2 water boxes. [H.2(c)] (Section 4OA3)

Inspection Report# : [2010005](#) (pdf)

Significance:  Sep 30, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

FIN 05000336/2010004-01, Failure to Implement Timely Corrective Action for a Degraded FRV Results in Manual Reactor Trip

Green. A self-revealing finding (FIN) of very low safety significance was identified for Dominion's failure to implement timely corrective action for a degraded #2 feedwater regulating valve (FRV) in accordance with procedure PI-AA-200, "Corrective Action." Two weeks after the issue was first identified, the #2 FRV further degraded causing Dominion to trip the reactor when the #2 Steam Generator (SG) level could not be controlled. Dominion entered this issue into their corrective action program (CR382055).

This finding is more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4f, in that the failure to correct a condition adverse to quality led to a reactor trip. The finding 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. 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 Problem Identification and Resolution, Corrective Action Program, because Dominion did not take appropriate corrective action to address the degraded #2 FRV in a timely manner, commensurate with its safety significance.[P.1(d)] (Section 4OA3).

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 055000336/2010004-01, Failure to Promptly Identify and Correct the Source of a Unit 2 RCS Pressure Boundary Leak).

Green. The inspector identified a Green, NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for Dominion's failure to promptly identify and correct the source of a reactor coolant system (RCS) pressure boundary leak from July 3, 2009, through July 13, 2009. Dominion subsequently repaired the leak and returned to 100 percent power.

The inspectors determined that Dominion's failure to promptly identify and correct the cause of pressure boundary leakage is a performance deficiency that was reasonably within Dominion's ability to foresee and correct and should have been prevented. This issue is more than minor because the issue is similar to NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and minor example 2.g. The inspectors determined that the issue affects 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. The inspector concluded that this condition, assuming the worst case degradation, would not have affected other mitigating systems resulting in a total loss of their safety function. Accordingly, the finding was determined to be of very low safety significance (Green) using IMC 609, Attachment 0609.004, Phase 1 Screening Worksheet. The inspector determined that this issue had a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area, Corrective Action Program component, because Dominion did not identify the pressure boundary leakage completely, accurately, and in a timely manner commensurate with its safety significance. [P.1(a)] (Section 4OA2)

Inspection Report# : [2010004](#) (pdf)

Significance: SL-IV Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 0500336/2010004-02, Failure to Perform an ASME Code-compliant Radiographic Examination on a Class 1 Weld on the Unit 2 'A' RCP Seal Cooler Piping.

Severity Level IV. The inspector identified a Severity Level IV, NCV of 10 CFR 50.55a(2)(c)(1) and 10 CFR 50.55a(3), when Dominion did not perform an ASME Code-compliant radiographic examination for a leak in a Class 1 weld on the Unit 2 'A' RCP seal cooler piping before returning the system to service. Dominion was out of compliance with 10 CFR 50.55a(2)(c)(1), 10 CFR 50.55a(3), and Section III of the American Society of Mechanical Engineers (ASME) Code between July 24, 2009, and November 10, 2009. The NRC granted verbal relief from the 10 CFR 50.55a(2)(c)(1), 10 CFR 50.55a(3), and the ASME Code requirements on November 10, 2009. Subsequently, the relief request was approved, in writing, by the NRC on April 26, 2010.

In accordance with IMC 0612, Appendix B, Section 1-2, this finding had the potential to impact the NRC's ability to perform its regulatory function because Dominion verbally informed the NRC on July 17, 2009, that they would repair the affected component in accordance with ASME Code requirements. However, due to Dominion's misinterpretation of the ASME Code, Dominion did not subsequently inform the NRC of its inability to meet Code requirements (i.e. perform a Code compliant radiographic examination of the affected weld) before returning the plant to service. As a result, Dominion's actions had impeded the NRC's ability to evaluate and determine the efficacy of the licensee's actions. The issue was characterized as Severity Level IV because it is similar to the example provided in the NRC Enforcement Policy Section 6.1.d.2, in that, it involved a violation of NRC requirements that resulted in a condition evaluated as having very low safety significance (i.e., Green) by the Significance Determination Process (SDP). The inspector determined that this issue had a cross-cutting aspect in the Human Performance cross-cutting area, Decision Making component, because Dominion did not use conservative assumptions in their decision making when they concluded that Code relief from the NRC would not be necessary to accomplish the repair. [H.1(b)]. (Section 4OA2)

Inspection Report# : [2010004](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

(NCV 0500336/2011003-02 Untimely Corrective Action for Safety Related Inverters Leads to Repetitive Out of Calibration Results)

Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action in that Dominion did not take timely corrective action to address repetitive out of calibration conditions associated with safety related inverters. Specifically, Dominion continued to have out of calibrations conditions associated with the four safety-related inverters for the 120VAC vital instrument panels in April 2011, and had not taken corrective actions since March 2009, when Dominion received a NCV for the same issue. Dominion entered the issue into their CAP and adjusted the out of calibration parameters. The finding is similar to example 4.f in NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that the failure to correct the out of calibration conditions affected operability of the inverters. The finding is more than minor because it is associated with the Equipment 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. The finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, CAP component, because Dominion did not take appropriate corrective action in a timely manner to address the repetitive

Significance:  Sep 22, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2010008-01; 05000423/2010008-01, Failure to Properly Control Fire Fighting Strategies.

Green. The team identified a non-cited violation of Millstone Unit 2 Operating License Condition 2.C.(3), and Unit 3 Operating License Condition 2.H, for the failure to implement all provisions of the approved Fire Protection Programs. Specifically, Dominion did not implement adequate review, approval and distribution of fire fighting strategies to provide for the adequate development and maintenance of effective strategies. As a result, the team found that Dominion did not provide adequate guidance in the fire fighting strategies for several areas that included the Unit 2 "8" emergency diesel generator (EDG) room, and the Unit 3 west switchgear room. This issue was entered into Dominion's corrective action program as condition report (CR) 388786. The team determined that the failure to administratively control fire fighting strategies as required by the fire protection program was a performance deficiency. This finding was more than minor because it adversely affected the availability and capability objectives of the protection against external events (i.e., fire) attribute under the Mitigating Systems Cornerstone. Specifically, the above examples would likely cause delays in manual fire fighting activities and, therefore, adversely affected the defense-in-depth aspect of the fire protection program to limit fire damage by quick suppression of those fires that occur. The team performed a Phase 1 SDP screening, in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected fire prevention and administrative controls, and was screened to very low safety significance (Green) because this failure to control fire fighting strategies was determined to represent a low degradation rating. This finding had a cross-cutting aspect in the area of human performance because Dominion failed to ensure complete and accurate fire fighting strategies were available to the fire brigade to support timely extinguishment of fires. [H.2(c)] (Section 1 R05.03)

Inspection Report# : [2010008](#) (pdf)

Significance:  Sep 22, 2010

Identified By: NRC

Item Type: VIO Violation

VIO 05000336/2010008-02, Failure to Protect Safe Shutdown Equipment From the Effects of Fire .

Green. The team identified a cited violation of 10 CFR Part 50, Appendix R, Section III.G.2 for the failure to protect required post-fire safe shutdown components and cabling to ensure one of the redundant trains of equipment remains free from fire damage. In lieu of providing the required separation, Dominion utilized unapproved operator manual actions to mitigate component malfunctions or spurious operations caused by a single fire induced circuit fault (hot short, open circuit or short to ground). Dominion has entered this issue into the corrective program for resolution. The team found the manual actions to be reasonable interim compensatory measures pending final resolution by Dominion.

Dominion's failure to protect components credited for post-fire safe shutdown from fire damage caused by single spurious actuation is considered a performance deficiency. The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to an external event to prevent undesirable consequences in the event of a fire. Specifically, the use of operator manual actions during post-fire shutdown is not as reliable as normal systems operation which could be utilized had the separation requirements of 10 CFR 50, Appendix R, Section III.G.2 been met and therefore prevented fire damage to credited components and/or cables. The team used

IMC 0609, Appendix F, "Rre Protection Significance Determination Process (SDP)," Phase 1 and an SRA conducted Phase 3 evaluation, to determine that this finding was of very low safety significance (Green). The team determined the finding had a low degradation rating because the manual actions were reviewed by the team and were found to be acceptable interim compensatory measures (pending licensee actions to resolve the non-compliances or obtain exemptions) because they did not require complicated actions, adequate time was available to accomplish the actions and the actions were properly included in the appropriate abnormal operating procedures. This finding had a cross cutting aspect in the area of problem identification and resolution associated with the corrective action program because Dominion did not completely and accurately identify deficiencies related to single spurious actuations of credited post-fire safe shutdown components. [P.1.(a)] (Section 1 R05.06)
Inspection Report# : [2010008](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

(NCV 0500336/2011003-03 Inadequate Corrective Action Results in Loss of Enclosure Building's Safety Function.)

Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action" was identified in that Dominion did not take adequate corrective action to address the cause of main steam safety valve (MSSV) exhaust pipe bushings not seating which resulted in a loss of the Enclosure Building's safety function to control the release of radioactive material. Dominion entered the issue into their CAP, cleaned and lubricated the MSSV exhaust pipes, implemented a modification to upgrade the MSSV outlet boots and qualify them as part of the Enclosure Building filtration boundary, and successfully performed the Enclosure Building Filtration System (EBFS) negative pressure test.

The finding is more than minor because it is associated with the Procedure Quality attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. The finding was of very low safety significance (Green) because it only represents a degradation of the radiological barrier function provided for the auxiliary building. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, CAP component, because Dominion did not take appropriate corrective action to address the Enclosure Building surveillance test failure in 2009.[P.1(d)](Section 4OA3)

Inspection Report# : [2011003](#) (*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 : October 14, 2011

Millstone 2

3Q/2011 Plant Inspection Findings

Initiating Events

Significance: **G** Jun 30, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2011003-04 Failure to Follow Procedure for Starting a Second SGFP Results in Reactor Trip)

•Green. A self-revealing Green finding (FIN) was identified for Dominion's failure to follow procedure OP 2204, "Load Changes" when starting the second steam generator feedwater pump (SGFP). Specifically, the operating crew did not maintain SGFP suction pressure greater than 325 psig which led to a feed pump trip and subsequent reactor trip on low steam generator level. Dominion entered the issue into their corrective action program (CAP), revised procedure OP 2204, and conducted training exercises emphasizing safe operating envelopes, critical parameters to monitor, and actions to take to restore margin if plant conditions degrade.

The finding is more than minor because it is similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues, Example 4b" in that a failure to follow procedures, led to a reactor trip. It is associated with the Human Performance attribute of the Initiating Events cornerstone and affected the 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. 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 Human Performance, Work Practices component, because Dominion personnel did not follow the load changes procedure. [H.4(b)] (Section 40A3)

Inspection Report# : [2011003](#) (*pdf*)

Significance: **W** Apr 29, 2011

Identified By: Self-Revealing

Item Type: VIO Violation

VIO 05000336/2011008-01, Multiple Examples of Procedural Violations and Inadequate Procedures Relating to Control Room Crew Performance During a Plant Transient.

White: A self-revealing violation (VIO) of low to moderate safety significance (White) was identified involving the failure of Millstone personnel to carry out their assigned roles and responsibilities and inadequate reactivity management during main turbine control valve testing on February 12, 2011, which contributed to the unanticipated reactor power increase. Specifically, the Millstone Unit 2 operations crew failed to implement written procedures that delineated appropriate authorities and responsibilities for safe operation and shutdown and a procedure for controlling reactor reactivity. In addition, the licensee failed to establish written procedures for the Reactor Protection System (RPS) Variable High-Power Trip (VHT), and for power operation and transients involving multiple reactivity additions.

The finding is associated with two violations of NRC requirements specified by Technical Specifications. There were no immediate safety concerns following the transient because the event itself did not result in power exceeding license limits or fuel damage. Additionally, interim corrective actions were taken, which included removing the Millstone Unit 2 control room crew involved in the transient from operational duties pending remediation, and establishment of continuous management presence in the Millstone Unit 2 control room while long term corrective actions were developed. Dominion entered this issue, including the evaluation of extent-of-condition, into the corrective action program (CR413602) and performed a root cause evaluation (RCE).

The finding is more than minor because the performance deficiency (PD) 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.

Additionally, the PD could be viewed as a precursor to a significant event. Because the finding primarily involved human performance errors, probabilistic risk assessment tools were not well suited for evaluating its significance. The team determined that the criteria for using IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," were met, and the finding was evaluated using this guidance, as described in Attachment 4 to this report. Based on the qualitative review of this finding, regional management concluded the finding was of low to moderate safety significance (White).

The team concluded that this finding had a cross-cutting aspect in the Human Performance area, Decision Making component, because Dominion licensed personnel did not make the appropriate safety-significant decisions, especially when faced with uncertain or unexpected plant conditions to ensure safety was maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed [H.1(a)]. (Section 2.1)

Inspection Report# : [2011008](#) (pdf)

Significance:  Apr 29, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

FIN 05000336/2011008-02, Improper Operation of Turbine Control Valves During Testing.

Green: The team identified a self-revealing finding of very low safety significance (Green) for improper operation of the turbine controls during turbine control valve testing. Specifically, the inspectors identified that control room operators failed to correctly implement surveillance procedure SP-2651N, "Main Control Valve Testing." Incorrect operation of the turbine controls caused an unplanned power increase from 88 percent to 96 percent. Dominion entered this issue into the corrective action program (CR415094).

The team determined that this finding was more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4b, in that the incorrect operation of the turbine load selector pushbutton caused a plant transient. 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 team concluded 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. Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement. The team also determined that the finding had a cross-cutting aspect in the Human Performance area, Resources component, because Dominion did not provide adequate training of personnel and sufficient qualified personnel [H.2(b)]. (Section 2.2)

Inspection Report# : [2011008](#) (pdf)

Significance:  Dec 31, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2010005-01, Failure to Provide an Adequate Procedure for Backwashing Condenser Water Boxes Results in Reactor Trip).

Green. A self-revealing finding of very low significance was identified for Dominion's failure to provide an adequate procedure for backwashing the Unit 2 condenser water boxes in accordance with procedure MP-05-MMM, "Manuals, Procedures, Guidelines, Handbooks and Forms". Specifically, in implementing the procedure, the 'A' circulating water (CW) pump automatically ramped down to zero speed shortly after securing the 'B' CW pump. This resulted in a loss of condenser vacuum, which caused an automatic turbine trip. The turbine trip caused an automatic reactor trip. Dominion entered the issue into their corrective action program and revised the backwashing procedure, OP 2325D.

The inspectors determined that Dominion's failure to provide an adequate procedure for backwashing the Unit 2 water boxes in accordance with procedure MP-05-MMM, "Manuals, Procedures, Guidelines, Handbooks, and Forms" was a performance deficiency. The 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 an inadequate procedure led to a reactor trip. The finding was associated with the procedure quality 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. Specifically, Dominion's failure to provide an adequate procedure for backwashing Unit 2 condenser water boxes resulted in the variable frequency drive (VFD) logic securing only the CW pump running in that condenser and subsequently caused a reactor trip. 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 Human Performance area, Resources component, and because Dominion did not provide an accurate and up-to-date procedure for the backwashing of the Unit 2 water boxes. [H.2(c)] (Section 40A3)

Inspection Report# : [2010005](#) (pdf)

Mitigating Systems

Significance:  Sep 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

NCV 05000336/2011004-01, Failure to Electrically Isolate a Dissimilar Metal Flanged Joint Leads to Forced Shutdown Due to Service Water Leak

Green. A self-revealing NCV of 10 CFR 50, Appendix B Criterion V, "Instructions, Procedures, and Drawings," was identified for Dominion's failure to properly electrically isolate service water (SW) flanged joints of dissimilar metals. This caused a more rapid corrosion rate when a defect occurred in the lining of the carbon steel pipe and eventually led to a SW leak. On September 3, 2011, Dominion was forced to shut down Unit 2 when the spool leaked in excess of the limit allowed in the authorized relief. Dominion repaired the spool and electrically isolated the flanged joint. Dominion entered this issue into their corrective action program (CAP) CR441302.

The finding is more than minor because it is associated with the Human 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. The finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency that did not result in loss of operability, did not represent an actual loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time, did not represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk significant per 10 CFR 50.65, and did not screen as risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross-cutting aspect in Human Performance, Work Practices component, because Dominion personnel proceeded in the face of uncertainty and/or unexpected circumstances when they had difficulty installing the isolating sleeves in the flanged joint. [H.4(a)] (Section 71111.20)

Inspection Report# : [2011004](#) (pdf)

Significance:  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

(NCV 0500336/2011003-02 Untimely Corrective Action for Safety Related Inverters Leads to Repetitive Out of Calibration Results)

Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action in that Dominion did not take timely corrective action to address repetitive out of calibration conditions associated with safety related inverters. Specifically, Dominion continued to have out of calibrations conditions associated with the four safety-related inverters for the 120VAC vital instrument panels in April 2011, and had not taken corrective actions since March 2009, when Dominion received a NCV for the same issue. Dominion entered the issue into their CAP and adjusted the out of calibration parameters. The finding is similar to example 4.f in NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," in that the failure to correct the out of calibration conditions affected operability of the inverters. The finding is more than minor because it is associated with the Equipment 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. The finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, CAP component, because Dominion did not take appropriate corrective action in a timely manner to address the repetitive out of calibration conditions with the safety related inverters.[P.1(d)](Section 71111.22)

Inspection Report# : [2011003](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

(NCV 0500336/2011003-03 Inadequate Corrective Action Results in Loss of Enclosure Building's Safety Function.)

Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action" was identified in that Dominion did not take adequate corrective action to address the cause of main steam safety valve (MSSV) exhaust pipe bushings not seating which resulted in a loss of the Enclosure Building's safety function to control the release of radioactive material. Dominion entered the issue into their CAP, cleaned and lubricated the MSSV exhaust pipes, implemented a modification to upgrade the MSSV outlet boots and qualify them as part of the Enclosure Building filtration boundary, and successfully performed the Enclosure Building Filtration System (EBFS) negative pressure test.

The finding is more than minor because it is associated with the Procedure Quality attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. The finding was of very low safety significance (Green) because it only represents a degradation of the radiological barrier function provided for the auxiliary building. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, CAP component, because Dominion did not take appropriate corrective action to address the Enclosure Building surveillance test failure in 2009.[P.1(d)](Section 40A3)

Inspection Report# : [2011003](#) (*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 : January 04, 2012

Millstone 2

4Q/2011 Plant Inspection Findings

Initiating Events

Significance: **G** Jun 30, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2011003-04 Failure to Follow Procedure for Starting a Second SGFP Results in Reactor Trip)

•Green. A self-revealing Green finding (FIN) was identified for Dominion's failure to follow procedure OP 2204, "Load Changes" when starting the second steam generator feedwater pump (SGFP). Specifically, the operating crew did not maintain SGFP suction pressure greater than 325 psig which led to a feed pump trip and subsequent reactor trip on low steam generator level. Dominion entered the issue into their corrective action program (CAP), revised procedure OP 2204, and conducted training exercises emphasizing safe operating envelopes, critical parameters to monitor, and actions to take to restore margin if plant conditions degrade.

The finding is more than minor because it is similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues, Example 4b" in that a failure to follow procedures, led to a reactor trip. It is associated with the Human Performance attribute of the Initiating Events cornerstone and affected the 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. 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 Human Performance, Work Practices component, because Dominion personnel did not follow the load changes procedure. [H.4(b)] (Section 40A3)

Inspection Report# : [2011003](#) (*pdf*)

Significance: **W** Apr 29, 2011

Identified By: Self-Revealing

Item Type: VIO Violation

VIO 05000336/2011008-01, Multiple Examples of Procedural Violations and Inadequate Procedures Relating to Control Room Crew Performance During a Plant Transient.

White: A self-revealing violation (VIO) of low to moderate safety significance (White) was identified involving the failure of Millstone personnel to carry out their assigned roles and responsibilities and inadequate reactivity management during main turbine control valve testing on February 12, 2011, which contributed to the unanticipated reactor power increase. Specifically, the Millstone Unit 2 operations crew failed to implement written procedures that delineated appropriate authorities and responsibilities for safe operation and shutdown and a procedure for controlling reactor reactivity. In addition, the licensee failed to establish written procedures for the Reactor Protection System (RPS) Variable High-Power Trip (VHT), and for power operation and transients involving multiple reactivity additions.

The finding is associated with two violations of NRC requirements specified by Technical Specifications. There were no immediate safety concerns following the transient because the event itself did not result in power exceeding license limits or fuel damage. Additionally, interim corrective actions were taken, which included removing the Millstone Unit 2 control room crew involved in the transient from operational duties pending remediation, and establishment of continuous management presence in the Millstone Unit 2 control room while long term corrective actions were developed. Dominion entered this issue, including the evaluation of extent-of-condition, into the corrective action program (CR413602) and performed a root cause evaluation (RCE).

The finding is more than minor because the performance deficiency (PD) 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.

Additionally, the PD could be viewed as a precursor to a significant event. Because the finding primarily involved human performance errors, probabilistic risk assessment tools were not well suited for evaluating its significance. The team determined that the criteria for using IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," were met, and the finding was evaluated using this guidance, as described in Attachment 4 to this report. Based on the qualitative review of this finding, regional management concluded the finding was of low to moderate safety significance (White).

The team concluded that this finding had a cross-cutting aspect in the Human Performance area, Decision Making component, because Dominion licensed personnel did not make the appropriate safety-significant decisions, especially when faced with uncertain or unexpected plant conditions to ensure safety was maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed [H.1(a)]. (Section 2.1)

Inspection Report# : [2011008](#) (pdf)

Significance:  Apr 29, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

FIN 05000336/2011008-02, Improper Operation of Turbine Control Valves During Testing.

Green: The team identified a self-revealing finding of very low safety significance (Green) for improper operation of the turbine controls during turbine control valve testing. Specifically, the inspectors identified that control room operators failed to correctly implement surveillance procedure SP-2651N, "Main Control Valve Testing." Incorrect operation of the turbine controls caused an unplanned power increase from 88 percent to 96 percent. Dominion entered this issue into the corrective action program (CR415094).

The team determined that this finding was more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4b, in that the incorrect operation of the turbine load selector pushbutton caused a plant transient. 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 team concluded 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. Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement. The team also determined that the finding had a cross-cutting aspect in the Human Performance area, Resources component, because Dominion did not provide adequate training of personnel and sufficient qualified personnel [H.2(b)]. (Section 2.2)

Inspection Report# : [2011008](#) (pdf)

Mitigating Systems

Significance:  Sep 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

NCV 05000336/2011004-01, Failure to Electrically Isolate a Dissimilar Metal Flanged Joint Leads to Forced Shutdown Due to Service Water Leak

Green. A self-revealing NCV of 10 CFR 50, Appendix B Criterion V, "Instructions, Procedures, and Drawings," was identified for Dominion's failure to properly electrically isolate service water (SW) flanged joints of dissimilar metals. This caused a more rapid corrosion rate when a defect occurred in the lining of the carbon steel pipe and eventually led to a SW leak. On September 3, 2011, Dominion was forced to shut down Unit 2 when the spool leaked in excess of the limit allowed in the authorized relief. Dominion repaired the spool and electrically isolated the flanged joint. Dominion entered this issue into their corrective action program (CAP) CR441302.

The finding is more than minor because it is associated with the Human 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. The finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency that did not result in loss of operability, did not represent an actual loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time, did not represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk significant per 10 CFR 50.65, and did not screen as risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross-cutting aspect in Human Performance, Work Practices component, because Dominion personnel proceeded in the face of uncertainty and/or unexpected circumstances when they had difficulty installing the isolating sleeves in the flanged joint. [H.4(a)] (Section 71111.20)

Inspection Report# : [2011004](#) (pdf)

Significance:  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

(NCV 0500336/2011003-02 Untimely Corrective Action for Safety Related Inverters Leads to Repetitive Out of Calibration Results)

Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action in that Dominion did not take timely corrective action to address repetitive out of calibration conditions associated with safety related inverters. Specifically, Dominion continued to have out of calibrations conditions associated with the four safety-related inverters for the 120VAC vital instrument panels in April 2011, and had not taken corrective actions since March 2009, when Dominion received a NCV for the same issue. Dominion entered the issue into their CAP and adjusted the out of calibration parameters. The finding is similar to example 4.f in NRC Inspection Manual Chapter 0612, Appendix E, “Examples of Minor Issues,” in that the failure to correct the out of calibration conditions affected operability of the inverters. The finding is more than minor because it is associated with the Equipment 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. The finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, CAP component, because Dominion did not take appropriate corrective action in a timely manner to address the repetitive out of calibration conditions with the safety related inverters.[P.1(d)](Section 71111.22)

Inspection Report# : [2011003](#) (pdf)

Barrier Integrity

Significance:  Jun 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

(NCV 0500336/2011003-03 Inadequate Corrective Action Results in Loss of Enclosure Building’s Safety Function.)

Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action” was identified in that Dominion did not take adequate corrective action to address the cause of main steam safety valve (MSSV) exhaust pipe bushings not seating which resulted in a loss of the Enclosure Building’s safety function to control the release of radioactive material. Dominion entered the issue into their CAP, cleaned and lubricated the MSSV exhaust pipes, implemented a modification to upgrade the MSSV outlet boots and qualify them as part of the Enclosure Building filtration boundary, and successfully performed the Enclosure Building Filtration System (EBFS) negative pressure test.

The finding is more than minor because it is associated with the Procedure Quality attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers

(containment) protect the public from radionuclide releases caused by accidents or events. The finding was of very low safety significance (Green) because it only represents a degradation of the radiological barrier function provided for the auxiliary building. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, CAP component, because Dominion did not take appropriate corrective action to address the Enclosure Building surveillance test failure in 2009.[P.1(d)](Section 4OA3)

Inspection Report# : [2011003](#) (*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 : March 02, 2012

Millstone 2

1Q/2012 Plant Inspection Findings

Initiating Events

Significance: **G** Jun 30, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

(FIN 05000336/2011003-04 Failure to Follow Procedure for Starting a Second SGFP Results in Reactor Trip)

•Green. A self-revealing Green finding (FIN) was identified for Dominion's failure to follow procedure OP 2204, "Load Changes" when starting the second steam generator feedwater pump (SGFP). Specifically, the operating crew did not maintain SGFP suction pressure greater than 325 psig which led to a feed pump trip and subsequent reactor trip on low steam generator level. Dominion entered the issue into their corrective action program (CAP), revised procedure OP 2204, and conducted training exercises emphasizing safe operating envelopes, critical parameters to monitor, and actions to take to restore margin if plant conditions degrade.

The finding is more than minor because it is similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues, Example 4b" in that a failure to follow procedures, led to a reactor trip. It is associated with the Human Performance attribute of the Initiating Events cornerstone and affected the 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. 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 Human Performance, Work Practices component, because Dominion personnel did not follow the load changes procedure. [H.4(b)] (Section 40A3)

Inspection Report# : [2011003](#) (*pdf*)

Significance: **W** Apr 29, 2011

Identified By: Self-Revealing

Item Type: VIO Violation

VIO 05000336/2011008-01, Multiple Examples of Procedural Violations and Inadequate Procedures Relating to Control Room Crew Performance During a Plant Transient.

White: A self-revealing violation (VIO) of low to moderate safety significance (White) was identified involving the failure of Millstone personnel to carry out their assigned roles and responsibilities and inadequate reactivity management during main turbine control valve testing on February 12, 2011, which contributed to the unanticipated reactor power increase. Specifically, the Millstone Unit 2 operations crew failed to implement written procedures that delineated appropriate authorities and responsibilities for safe operation and shutdown and a procedure for controlling reactor reactivity. In addition, the licensee failed to establish written procedures for the Reactor Protection System (RPS) Variable High-Power Trip (VHT), and for power operation and transients involving multiple reactivity additions.

The finding is associated with two violations of NRC requirements specified by Technical Specifications. There were no immediate safety concerns following the transient because the event itself did not result in power exceeding license limits or fuel damage. Additionally, interim corrective actions were taken, which included removing the Millstone Unit 2 control room crew involved in the transient from operational duties pending remediation, and establishment of continuous management presence in the Millstone Unit 2 control room while long term corrective actions were developed. Dominion entered this issue, including the evaluation of extent-of-condition, into the corrective action program (CR413602) and performed a root cause evaluation (RCE).

The finding is more than minor because the performance deficiency (PD) 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.

Additionally, the PD could be viewed as a precursor to a significant event. Because the finding primarily involved human performance errors, probabilistic risk assessment tools were not well suited for evaluating its significance. The team determined that the criteria for using IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," were met, and the finding was evaluated using this guidance, as described in Attachment 4 to this report. Based on the qualitative review of this finding, regional management concluded the finding was of low to moderate safety significance (White).

The team concluded that this finding had a cross-cutting aspect in the Human Performance area, Decision Making component, because Dominion licensed personnel did not make the appropriate safety-significant decisions, especially when faced with uncertain or unexpected plant conditions to ensure safety was maintained. This includes formally defining the authority and roles for decisions affecting nuclear safety, communicating these roles to applicable personnel, and implementing these roles and authorities as designed [H.1(a)]. (Section 2.1)

Inspection Report# : [2011008](#) (pdf)

Significance:  Apr 29, 2011

Identified By: Self-Revealing

Item Type: FIN Finding

FIN 05000336/2011008-02, Improper Operation of Turbine Control Valves During Testing.

Green: The team identified a self-revealing finding of very low safety significance (Green) for improper operation of the turbine controls during turbine control valve testing. Specifically, the inspectors identified that control room operators failed to correctly implement surveillance procedure SP-2651N, "Main Control Valve Testing." Incorrect operation of the turbine controls caused an unplanned power increase from 88 percent to 96 percent. Dominion entered this issue into the corrective action program (CR415094).

The team determined that this finding was more than minor because it was similar to NRC Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," Example 4b, in that the incorrect operation of the turbine load selector pushbutton caused a plant transient. 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 team concluded 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. Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement. The team also determined that the finding had a cross-cutting aspect in the Human Performance area, Resources component, because Dominion did not provide adequate training of personnel and sufficient qualified personnel [H.2(b)]. (Section 2.2)

Inspection Report# : [2011008](#) (pdf)

Mitigating Systems

Significance:  Sep 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

NCV 05000336/2011004-01, Failure to Electrically Isolate a Dissimilar Metal Flanged Joint Leads to Forced Shutdown Due to Service Water Leak

Green. A self-revealing NCV of 10 CFR 50, Appendix B Criterion V, "Instructions, Procedures, and Drawings," was identified for Dominion's failure to properly electrically isolate service water (SW) flanged joints of dissimilar metals. This caused a more rapid corrosion rate when a defect occurred in the lining of the carbon steel pipe and eventually led to a SW leak. On September 3, 2011, Dominion was forced to shut down Unit 2 when the spool leaked in excess of the limit allowed in the authorized relief. Dominion repaired the spool and electrically isolated the flanged joint. Dominion entered this issue into their corrective action program (CAP) CR441302.

The finding is more than minor because it is associated with the Human 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. The finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency that did not result in loss of operability, did not represent an actual loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time, did not represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk significant per 10 CFR 50.65, and did not screen as risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross-cutting aspect in Human Performance, Work Practices component, because Dominion personnel proceeded in the face of uncertainty and/or unexpected circumstances when they had difficulty installing the isolating sleeves in the flanged joint. [H.4(a)] (Section 71111.20)

Inspection Report# : [2011004](#) (*pdf*)

Significance:  Jun 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

(NCV 0500336/2011003-02 Untimely Corrective Action for Safety Related Inverters Leads to Repetitive Out of Calibration Results)

Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action in that Dominion did not take timely corrective action to address repetitive out of calibration conditions associated with safety related inverters. Specifically, Dominion continued to have out of calibrations conditions associated with the four safety-related inverters for the 120VAC vital instrument panels in April 2011, and had not taken corrective actions since March 2009, when Dominion received a NCV for the same issue. Dominion entered the issue into their CAP and adjusted the out of calibration parameters. The finding is similar to example 4.f in NRC Inspection Manual Chapter 0612, Appendix E, “Examples of Minor Issues,” in that the failure to correct the out of calibration conditions affected operability of the inverters. The finding is more than minor because it is associated with the Equipment 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. The finding was of very low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train, did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, CAP component, because Dominion did not take appropriate corrective action in a timely manner to address the repetitive out of calibration conditions with the safety related inverters.[P.1(d)](Section 71111.22)

Inspection Report# : [2011003](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

(NCV 0500336/2011003-03 Inadequate Corrective Action Results in Loss of Enclosure Building’s Safety Function.)

Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action” was identified in that Dominion did not take adequate corrective action to address the cause of main steam safety valve (MSSV) exhaust pipe bushings not seating which resulted in a loss of the Enclosure Building’s safety function to control the release of radioactive material. Dominion entered the issue into their CAP, cleaned and lubricated the MSSV exhaust pipes, implemented a modification to upgrade the MSSV outlet boots and qualify them as part of the Enclosure Building filtration boundary, and successfully performed the Enclosure Building Filtration System (EBFS) negative pressure test.

The finding is more than minor because it is associated with the Procedure Quality attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers

(containment) protect the public from radionuclide releases caused by accidents or events. The finding was of very low safety significance (Green) because it only represents a degradation of the radiological barrier function provided for the auxiliary building. The inspectors determined that this finding had a cross-cutting aspect in Problem Identification and Resolution, CAP component, because Dominion did not take appropriate corrective action to address the Enclosure Building surveillance test failure in 2009.[P.1(d)](Section 4OA3)

Inspection Report# : [2011003](#) (*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 : May 29, 2012

Millstone 2

2Q/2012 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  May 11, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012007-01, Inadequate Assumptions used in Emergency Motor Control Center Control Circuit Voltage Drop Calculation

•Green: The team identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, because Dominion had not verified the adequacy of their design with respect to the Unit 2 emergency motor control center (MCC) control circuit voltage drop calculation. Specifically, Dominion did not account for various parameters that affect available voltage at motor starter contactors including fuse resistance, minimum control power transformer (CPT) size, maximum control circuit cable length, actual quantity of control circuit contacts, and containment temperature during a design basis accident (DBA). As a result, the worst case circuit conditions for determining acceptable contactor voltage were not evaluated. Dominion entered the issue into the corrective action program and performed an operability assessment of the most bounding circuit and determined that sufficient voltage would be available to meet its design basis function.

The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with IMC 0609, Significance Determination Process, Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings.” The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in loss of operability or functionality. The team determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Dominion did not thoroughly evaluate the problem when it was identified and entered into the corrective action program in 2009. [IMC 0310, Aspect P.1(c)] (Section 1R21.2.1.1)

Inspection Report# : [2012007](#) (*pdf*)

Significance:  Sep 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

NCV 05000336/2011004-01, Failure to Electrically Isolate a Dissimilar Metal Flanged Joint Leads to Forced Shutdown Due to Service Water Leak

Green. A self-revealing NCV of 10 CFR 50, Appendix B Criterion V, “Instructions, Procedures, and Drawings,” was identified for Dominion’s failure to properly electrically isolate service water (SW) flanged joints of dissimilar metals. This caused a more rapid corrosion rate when a defect occurred in the lining of the carbon steel pipe and eventually led to a SW leak. On September 3, 2011, Dominion was forced to shut down Unit 2 when the spool leaked in excess of the limit allowed in the authorized relief. Dominion repaired the spool and electrically isolated the flanged joint. Dominion entered this issue into their corrective action program (CAP) CR441302.

The finding is more than minor because it is associated with the Human 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. The finding was of very low safety significance (Green) because the finding was not a design or qualification deficiency that did not result in loss of operability, did not represent an actual loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time, did not represent an actual loss of safety function of one or more non-technical specification trains of equipment designated as risk significant per 10 CFR 50.65, and did not screen as risk significant due to a seismic, flooding, or severe weather initiating event. The inspectors determined that this finding had a cross-cutting aspect in Human Performance, Work Practices component, because Dominion personnel proceeded in the face of uncertainty and/or unexpected circumstances when they had difficulty installing the isolating sleeves in the flanged joint. [H.4(a)] (Section 71111.20)

Inspection Report# : [2011004](#) (pdf)

Barrier Integrity

Emergency Preparedness

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 : September 12, 2012

Millstone 2

3Q/2012 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

NCV 05000336/2012004•02, Corrective Action to Prevent Recurrence Ineffective to Preclude Repetition of a Significant Condition Adverse to Quality

Green. A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified when the corrective action to prevent recurrence of a significant condition adverse to quality did not preclude repetition of the event. Specifically, Dominion generated a corrective action to prevent recurrence during a root cause evaluation (RCE) for a reactor power transient that occurred in February 2011 and a similar event occurred in November 2011, which was determined to be a repeat of the February 2011 event. Dominion entered this issue into their corrective action program (CAP) as condition report (CR) 488587.

This finding was more than minor because if left uncorrected, it has the potential to lead to a more significant safety concern. The inspectors determined that this finding was associated with the Mitigating System Cornerstone and was reactivity control systems degradation related to reactivity management due to command and control issues identified in Dominion's RCEs for both the February and November 2011 events. Additional screening through the SDP directed the inspectors to Appendix M "Significance Determination Process Using Qualitative Criteria." Based upon the results of this evaluation and taking into account mitigating factors associated with additional corrective actions taken following the November 2011 event, and Dominion's acceptable performance during the November 2011 through September 2012 time period, regional management concluded that the finding was of very low safety significance (Green). This 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 significant conditions adverse to quality and preclude their repetition. [P.1(d)] (Section 4OA3)

Inspection Report# : [2012004](#) (*pdf*)

Significance:  May 11, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012007-01, Inadequate Assumptions used in Emergency Motor Control Center Control Circuit Voltage Drop Calculation

•Green: The team identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, because Dominion had not verified the adequacy of their design with respect to the Unit 2 emergency motor control center (MCC) control circuit voltage drop calculation. Specifically, Dominion did not account for various parameters that affect available voltage at motor starter contactors including fuse resistance, minimum control power transformer (CPT) size, maximum control circuit cable length,

actual quantity of control circuit contacts, and containment temperature during a design basis accident (DBA). As a result, the worst case circuit conditions for determining acceptable contactor voltage were not evaluated. Dominion entered the issue into the corrective action program and performed an operability assessment of the most bounding circuit and determined that sufficient voltage would be available to meet its design basis function.

The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with IMC 0609, Significance Determination Process, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in loss of operability or functionality. The team determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Dominion did not thoroughly evaluate the problem when it was identified and entered into the corrective action program in 2009. [IMC 0310, Aspect P.1(c)] (Section 1R21.2.1.1)

Inspection Report# : [2012007](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

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

Significance:  Aug 03, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to Perform Effectiveness Reviews for Formal Self-Assessments

Green. The inspectors identified a finding (FIN) of very low safety significance (Green) for Dominion's failure to perform procedurally required effectiveness reviews for numerous formal self-assessments. Consequently, Dominion missed opportunities to identify potential corrective actions for resolution in the corrective action program. Dominion has entered the issue into the corrective action program (CR482135).

The inspectors determined that this finding was more than minor because it is similar to IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," example 3.j; in that, it represents a programmatic deficiency that could lead to worse errors if uncorrected. This finding was of very low safety significance (Green) because the finding does not represent a loss of system and/or function, does not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time or two separate safety systems out-of-service for greater than its technical specification allowed outage time, and does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's Maintenance Rule program for greater than 24 hrs. This finding is not associated with an NRC Reactor Oversight Process cornerstone. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Work Practices component, because Dominion personnel failed to follow procedures. [H.4(b)].

Inspection Report# : [2012010](#) (*pdf*)

Significance: N/A Aug 03, 2012

Identified By: NRC

Item Type: FIN Finding

Millstone 2012 Biennial PI&R Inspection Summary

The inspectors concluded that Dominion was generally effective in identifying, evaluating, and resolving problems. In most cases, Dominion personnel identified problems, entered them into the corrective action program at a low threshold, and prioritized issues commensurate with their safety significance. Dominion appropriately screened issues for operability and reportability, and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that Dominion typically implemented corrective actions to address the problems identified in the corrective action program in a timely manner. However, the inspectors identified two violations of NRC requirements in the areas of Prioritization and Evaluation of Issues, and Effectiveness of Corrective Actions.

The inspectors concluded that Dominion adequately identified, reviewed, and applied relevant industry operating experience to Millstone Power Station operations. In addition, based on those items selected for review, the inspectors determined that in general, Dominion's self-assessments and audits were thorough. However, the inspectors identified one finding in the area of Self-Assessments and Audits that was determined not to be a violation of NRC requirements.

Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual corrective action program and employee concerns program issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues, nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : [2012010](#) (*pdf*)

Last modified : November 30, 2012

Millstone 2

4Q/2012 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

NCV 05000336/2012004•02, Corrective Action to Prevent Recurrence Ineffective to Preclude Repetition of a Significant Condition Adverse to Quality

Green. A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified when the corrective action to prevent recurrence of a significant condition adverse to quality did not preclude repetition of the event. Specifically, Dominion generated a corrective action to prevent recurrence during a root cause evaluation (RCE) for a reactor power transient that occurred in February 2011 and a similar event occurred in November 2011, which was determined to be a repeat of the February 2011 event. Dominion entered this issue into their corrective action program (CAP) as condition report (CR) 488587.

This finding was more than minor because if left uncorrected, it has the potential to lead to a more significant safety concern. The inspectors determined that this finding was associated with the Mitigating System Cornerstone and was reactivity control systems degradation related to reactivity management due to command and control issues identified in Dominion's RCEs for both the February and November 2011 events. Additional screening through the SDP directed the inspectors to Appendix M "Significance Determination Process Using Qualitative Criteria." Based upon the results of this evaluation and taking into account mitigating factors associated with additional corrective actions taken following the November 2011 event, and Dominion's acceptable performance during the November 2011 through September 2012 time period, regional management concluded that the finding was of very low safety significance (Green). This 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 significant conditions adverse to quality and preclude their repetition. [P.1(d)] (Section 40A3)

Inspection Report# : [2012004](#) (*pdf*)

Significance:  May 11, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012007-01, Inadequate Assumptions used in Emergency Motor Control Center Control Circuit Voltage Drop Calculation

•Green: The team identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, because Dominion had not verified the adequacy of their design with respect to the Unit 2 emergency motor control center (MCC) control circuit voltage drop calculation. Specifically, Dominion did not account for various parameters that affect available voltage at motor starter contactors including fuse resistance, minimum control power transformer (CPT) size, maximum control circuit cable length, actual quantity of control circuit contacts, and containment temperature during a design basis accident (DBA). As a result, the worst case circuit conditions for determining acceptable contactor voltage were not evaluated. Dominion entered the issue into the corrective action program and performed an operability assessment of the most bounding circuit and determined that sufficient voltage would be available to meet its design basis function.

The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with IMC 0609, Significance Determination Process, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in loss of operability or functionality. The team determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Dominion did not thoroughly evaluate the problem when it was identified and entered into the corrective action program in 2009. [IMC 0310, Aspect P.1(c)] (Section 1R21.2.1.1)

Inspection Report# : [2012007](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Significance:  Oct 29, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012005-01 and 05000423/2012005-01, Failure to Adequately Implement Flooding EALs

Green. The inspectors identified an NCV associated with emergency preparedness (EP) 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 in effect the Millstone Units 2 and 3 emergency action level (EAL) schemes by failing to provide an effective measuring instrument for determining flooding water levels. These deficiencies adversely affected the ability of the licensee to properly classify events involving a major flood condition. Dominion entered the issue into their corrective action system (CR501482) and provided additional means to determine flood water levels.

The finding is more than minor because it is associated with the Facilities and Equipment attribute of the EP Cornerstone and affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors determined the finding to be of very low safety significance (Green) because an EAL has been rendered ineffective such that a Notification of Unusual Event (NOUE) would not be declared for a flooding event, but because of other EALs, an appropriate declaration could be made in a degraded manner. The finding has a cross-cutting aspect in the area of Human Performance, Resources, in that Dominion personnel did not take provide appropriate procedures to address a Risk-Significant Planning Standard (RSPS) issue completely, accurately, and in a timely manner commensurate with the safety significance because Dominion did not provide a means of reliably and accurately assessing flooding levels that could reach 19 feet above mean sea level. [H.2(d)] (Section 1R01)

Inspection Report# : [2012005](#) (*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

Significance:  Aug 03, 2012

Identified By: NRC

Item Type: FIN Finding

FIN 05000336&423/2012010-03 Failure to Perform Effectiveness Reviews for Formal Self-Assessments

Green. The inspectors identified a finding (FIN) of very low safety significance (Green) for Dominion's failure to perform procedurally required effectiveness reviews for numerous formal self-assessments. Consequently, Dominion missed opportunities to identify potential corrective actions for resolution in the corrective action program. Dominion has entered the issue into the corrective action program (CR482135).

The inspectors determined that this finding was more than minor because it is similar to IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," example 3.j; in that, it represents a programmatic deficiency that could lead to worse errors if uncorrected. This finding was of very low safety significance (Green) because the finding does not represent a loss of system and/or function, does not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time or two separate safety systems out-of-service for greater than its technical specification allowed outage time, and does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's Maintenance Rule program for greater than 24 hrs. This finding is not associated with an NRC Reactor Oversight Process cornerstone. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Work Practices component, because Dominion personnel failed to follow procedures. [H.4(b)].

Inspection Report# : [2012010](#) (*pdf*)

Significance: N/A Aug 03, 2012

Identified By: NRC

Item Type: FIN Finding

FIN 05000336&423/2012010-04 Millstone 2012 Biennial PI&R Inspection Summary

The inspectors concluded that Dominion was generally effective in identifying, evaluating, and resolving problems. In most cases, Dominion personnel identified problems, entered them into the corrective action program at a low threshold, and prioritized issues commensurate with their safety significance. Dominion appropriately screened issues for operability and reportability, and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that Dominion typically implemented corrective actions to address the problems identified in the corrective action program in a timely manner. However, the inspectors identified two violations of NRC requirements in the areas of Prioritization and Evaluation of Issues, and Effectiveness of Corrective Actions.

The inspectors concluded that Dominion adequately identified, reviewed, and applied relevant industry operating experience to Millstone Power Station operations. In addition, based on those items selected for review, the inspectors determined that in general, Dominion's self-assessments and audits were thorough. However, the inspectors identified one finding in the area of Self-Assessments and Audits that was determined not to be a violation of NRC requirements.

Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual corrective action program and employee concerns program issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues, nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : [2012010](#) (*pdf*)

Last modified : February 28, 2013

Millstone 2

1Q/2013 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013002-01: Inadequate Post Maintenance Testing Following PORV Maintenance

Green. The inspectors identified a Green NCV of 10 CFR 50 Appendix B, Criterion XI, "Test Control," for Dominion's failure to perform an adequate post maintenance test (PMT) on 2-RC-404, the Unit 2 'B' power operated relief valve (PORV). Specifically, a stroke test of the valve under hot conditions was not performed prior to entering Mode 3. Since the valve was observed to be leaking, Dominion cooled down the plant to repair the PORV and performed the specified PMTs including the valve stroke under hot conditions. Dominion entered the issue into their corrective action program (CAP), CR506539.

The finding is more than minor because it is associated with the Human 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, Dominion's PMT of the PORV did not adequately demonstrate the valve's capability to stroke under all operating conditions. The finding was of very low safety significance (Green) because the finding did not represent an actual loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time, did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with Dominion's maintenance rule program for greater than 24 hours, and did not involve a loss or degradation of equipment designed to mitigate a seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in Human Performance, Work Control, because Dominion did not adequately incorporate actions to address the impact of work activities on plant operation. Specifically, Dominion incorrectly concluded that the PORV functional test was not required prior to entering Mode 3 [H.3(b)]. (Section 4OA2)

Inspection Report# : [2013002](#) (*pdf*)

Significance:  Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

NCV 05000336/2012004-02, Corrective Action to Prevent Recurrence Ineffective to Preclude Repetition of a Significant Condition Adverse to Quality

Green. A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified when the corrective action to prevent recurrence of a significant condition adverse to quality did not preclude repetition of the event. Specifically, Dominion generated a corrective action to prevent recurrence during a root cause evaluation (RCE) for a reactor power transient that occurred in February 2011 and a similar event occurred

in November 2011, which was determined to be a repeat of the February 2011 event. Dominion entered this issue into their corrective action program (CAP) as condition report (CR) 488587.

This finding was more than minor because if left uncorrected, it has the potential to lead to a more significant safety concern. The inspectors determined that this finding was associated with the Mitigating System Cornerstone and was reactivity control systems degradation related to reactivity management due to command and control issues identified in Dominion's RCEs for both the February and November 2011 events. Additional screening through the SDP directed the inspectors to Appendix M "Significance Determination Process Using Qualitative Criteria." Based upon the results of this evaluation and taking into account mitigating factors associated with additional corrective actions taken following the November 2011 event, and Dominion's acceptable performance during the November 2011 through September 2012 time period, regional management concluded that the finding was of very low safety significance (Green). This 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 significant conditions adverse to quality and preclude their repetition. [P.1(d)] (Section 4OA3)

Inspection Report# : [2012004](#) (pdf)

Significance:  May 11, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012007-01, Inadequate Assumptions used in Emergency Motor Control Center Control Circuit Voltage Drop Calculation

•Green: The team identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, because Dominion had not verified the adequacy of their design with respect to the Unit 2 emergency motor control center (MCC) control circuit voltage drop calculation. Specifically, Dominion did not account for various parameters that affect available voltage at motor starter contactors including fuse resistance, minimum control power transformer (CPT) size, maximum control circuit cable length, actual quantity of control circuit contacts, and containment temperature during a design basis accident (DBA). As a result, the worst case circuit conditions for determining acceptable contactor voltage were not evaluated. Dominion entered the issue into the corrective action program and performed an operability assessment of the most bounding circuit and determined that sufficient voltage would be available to meet its design basis function.

The performance deficiency was determined to be more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with IMC 0609, Significance Determination Process, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." The finding was determined to be of very low safety significance because the design deficiency was confirmed not to result in loss of operability or functionality. The team determined that this finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because Dominion did not thoroughly evaluate the problem when it was identified and entered into the corrective action program in 2009. [IMC 0310, Aspect P.1(c)] (Section 1R21.2.1.1)

Inspection Report# : [2012007](#) (pdf)

Barrier Integrity

Emergency Preparedness

Significance:  Oct 29, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012005-01 and 05000423/2012005-01, Failure to Adequately Implement Flooding EALs

Green. The inspectors identified an NCV associated with emergency preparedness (EP) 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 in effect the Millstone Units 2 and 3 emergency action level (EAL) schemes by failing to provide an effective measuring instrument for determining flooding water levels. These deficiencies adversely affected the ability of the licensee to properly classify events involving a major flood condition. Dominion entered the issue into their corrective action system (CR501482) and provided additional means to determine flood water levels.

The finding is more than minor because it is associated with the Facilities and Equipment attribute of the EP Cornerstone and affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors determined the finding to be of very low safety significance (Green) because an EAL has been rendered ineffective such that a Notification of Unusual Event (NOUE) would not be declared for a flooding event, but because of other EALs, an appropriate declaration could be made in a degraded manner. The finding has a cross-cutting aspect in the area of Human Performance, Resources, in that Dominion personnel did not take provide appropriate procedures to address a Risk-Significant Planning Standard (RSPS) issue completely, accurately, and in a timely manner commensurate with the safety significance because Dominion did not provide a means of reliably and accurately assessing flooding levels that could reach 19 feet above mean sea level. [H.2(d)] (Section 1R01)

Inspection Report# : [2012005](#) (*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

Significance:  Aug 03, 2012

Identified By: NRC

Item Type: FIN Finding

FIN 05000336&423/2012010-03 Failure to Perform Effectiveness Reviews for Formal Self-Assessments

Green. The inspectors identified a finding (FIN) of very low safety significance (Green) for Dominion's failure to perform procedurally required effectiveness reviews for numerous formal self-assessments. Consequently, Dominion missed opportunities to identify potential corrective actions for resolution in the corrective action program. Dominion has entered the issue into the corrective action program (CR482135).

The inspectors determined that this finding was more than minor because it is similar to IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," example 3.j; in that, it represents a programmatic deficiency that could lead to worse errors if uncorrected. This finding was of very low safety significance (Green) because the finding does not represent a loss of system and/or function, does not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time or two separate safety systems out-of-service for greater than its technical specification allowed outage time, and does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's Maintenance Rule program for greater than 24 hrs. This finding is not associated with an NRC Reactor Oversight Process cornerstone. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Work Practices component, because Dominion personnel failed to follow procedures. [H.4(b)].

Inspection Report# : [2012010](#) (*pdf*)

Significance: N/A Aug 03, 2012

Identified By: NRC

Item Type: FIN Finding

FIN 05000336&423/2012010-04 Millstone 2012 Biennial PI&R Inspection Summary

The inspectors concluded that Dominion was generally effective in identifying, evaluating, and resolving problems. In most cases, Dominion personnel identified problems, entered them into the corrective action program at a low threshold, and prioritized issues commensurate with their safety significance. Dominion appropriately screened issues for operability and reportability, and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that Dominion typically implemented corrective actions to address the problems identified in the corrective action program in a timely manner. However, the inspectors identified two violations of NRC requirements in the areas of Prioritization and Evaluation of Issues, and Effectiveness of Corrective Actions.

The inspectors concluded that Dominion adequately identified, reviewed, and applied relevant industry operating experience to Millstone Power Station operations. In addition, based on those items selected for review, the inspectors determined that in general, Dominion's self-assessments and audits were thorough. However, the inspectors identified one finding in the area of Self-Assessments and Audits that was determined not to be a violation of NRC requirements.

Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual corrective action program and employee concerns program issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues, nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : [2012010](#) (*pdf*)

Last modified : June 04, 2013

Millstone 2 2Q/2013 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013002-01: Inadequate Post Maintenance Testing Following PORV Maintenance

Green. The inspectors identified a Green NCV of 10 CFR 50 Appendix B, Criterion XI, "Test Control," for Dominion's failure to perform an adequate post maintenance test (PMT) on 2-RC-404, the Unit 2 'B' power operated relief valve (PORV). Specifically, a stroke test of the valve under hot conditions was not performed prior to entering Mode 3. Since the valve was observed to be leaking, Dominion cooled down the plant to repair the PORV and performed the specified PMTs including the valve stroke under hot conditions. Dominion entered the issue into their corrective action program (CAP), CR506539.

The finding is more than minor because it is associated with the Human 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, Dominion's PMT of the PORV did not adequately demonstrate the valve's capability to stroke under all operating conditions. The finding was of very low safety significance (Green) because the finding did not represent an actual loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time, did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with Dominion's maintenance rule program for greater than 24 hours, and did not involve a loss or degradation of equipment designed to mitigate a seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in Human Performance, Work Control, because Dominion did not adequately incorporate actions to address the impact of work activities on plant operation. Specifically, Dominion incorrectly concluded that the PORV functional test was not required prior to entering Mode 3 [H.3(b)]. (Section 4OA2)

Inspection Report# : [2013002](#) (*pdf*)

Significance: G Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

NCV 05000336/2012004-02, Corrective Action to Prevent Recurrence Ineffective to Preclude Repetition of a Significant Condition Adverse to Quality

Green. A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified when the corrective action to prevent recurrence of a significant condition adverse to quality did not preclude repetition of the event. Specifically, Dominion generated a corrective action to prevent recurrence during a root cause evaluation (RCE) for a reactor power transient that occurred in February 2011 and a similar event occurred

in November 2011, which was determined to be a repeat of the February 2011 event. Dominion entered this issue into their corrective action program (CAP) as condition report (CR) 488587.

This finding was more than minor because if left uncorrected, it has the potential to lead to a more significant safety concern. The inspectors determined that this finding was associated with the Mitigating System Cornerstone and was reactivity control systems degradation related to reactivity management due to command and control issues identified in Dominion's RCEs for both the February and November 2011 events. Additional screening through the SDP directed the inspectors to Appendix M "Significance Determination Process Using Qualitative Criteria." Based upon the results of this evaluation and taking into account mitigating factors associated with additional corrective actions taken following the November 2011 event, and Dominion's acceptable performance during the November 2011 through September 2012 time period, regional management concluded that the finding was of very low safety significance (Green). This 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 significant conditions adverse to quality and preclude their repetition. [P.1(d)] (Section 40A3)

Inspection Report# : [2012004](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Significance:  Oct 29, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012005-01 and 05000423/2012005-01, Failure to Adequately Implement Flooding EALs

Green. The inspectors identified an NCV associated with emergency preparedness (EP) 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 in effect the Millstone Units 2 and 3 emergency action level (EAL) schemes by failing to provide an effective measuring instrument for determining flooding water levels. These deficiencies adversely affected the ability of the licensee to properly classify events involving a major flood condition. Dominion entered the issue into their corrective action system (CR501482) and provided additional means to determine flood water levels.

The finding is more than minor because it is associated with the Facilities and Equipment attribute of the EP Cornerstone and affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors determined the finding to be of very low safety significance (Green) because an EAL has been rendered ineffective such that a Notification of Unusual Event (NOUE) would not be declared for a flooding event, but because of other EALs, an appropriate declaration could be made in a degraded manner. The finding has a cross-cutting aspect in the area of Human Performance, Resources, in that Dominion personnel did not take provide appropriate procedures to address a Risk-Significant Planning Standard (RSPS) issue completely, accurately, and in a timely manner commensurate with the safety significance because Dominion did not provide a means of reliably and accurately assessing flooding levels that could reach 19 feet above mean sea level. [H.2(d)] (Section 1R01)

Inspection Report# : [2012005](#) (*pdf*)

Significance: **G** Aug 21, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012503-001 and 05000423/2012503-001, Failure to Adequately Implement Fuel Clad Barrier EALs

The NRC identified a non-cited violation (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 in effect the Millstone Units 2 and 3 emergency action level (EAL) schemes by not providing operations procedures for obtaining reactor coolant samples once a safety injection signal has occurred. These deficiencies adversely affected the ability of the licensee to properly classify events involving the loss of the fuel clad fission product barrier.

The inspection team determined that the failure by Dominion to provide the proper operating procedures for operators to adequately implement their respective unit's EALs 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 emergency response organization (ERO) attribute of the Emergency Preparedness Cornerstone and affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors evaluated this finding using the Emergency Preparedness Significance Determination Process. The inspector determined that this finding involved an example where an EAL has been rendered ineffective such that any Site Area Emergency would not be declared for a particular off-normal event, but because of other EALs, an appropriate declaration could be made in a degraded manner. The finding is related to the cross-cutting area of Problem Identification and Resolution, Corrective Action Program, in that Dominion personnel did not take appropriate corrective actions to address a Risk Significant Planning Standard (RSPS) issue completely, accurately, and in a timely manner commensurate with the safety significance [P.1(d)]. Specifically, Dominion did not place this issue into the corrective action program and take appropriate action until prompted by the NRC team's findings.

Inspection Report# : [2012503](#) (*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

Significance:  Aug 03, 2012

Identified By: NRC

Item Type: FIN Finding

FIN 05000336&423/2012010-03 Failure to Perform Effectiveness Reviews for Formal Self-Assessments

Green. The inspectors identified a finding (FIN) of very low safety significance (Green) for Dominion's failure to perform procedurally required effectiveness reviews for numerous formal self-assessments. Consequently, Dominion missed opportunities to identify potential corrective actions for resolution in the corrective action program. Dominion has entered the issue into the corrective action program (CR482135).

The inspectors determined that this finding was more than minor because it is similar to IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," example 3.j; in that, it represents a programmatic deficiency that could lead to worse errors if uncorrected. This finding was of very low safety significance (Green) because the finding does not represent a loss of system and/or function, does not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time or two separate safety systems out-of-service for greater than its technical specification allowed outage time, and does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's Maintenance Rule program for greater than 24 hrs. This finding is not associated with an NRC Reactor Oversight Process cornerstone. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Work Practices component, because Dominion personnel failed to follow procedures. [H.4(b)].

Inspection Report# : [2012010](#) (*pdf*)

Significance: N/A Aug 03, 2012

Identified By: NRC

Item Type: FIN Finding

FIN 05000336&423/2012010-04 Millstone 2012 Biennial PI&R Inspection Summary

The inspectors concluded that Dominion was generally effective in identifying, evaluating, and resolving problems. In most cases, Dominion personnel identified problems, entered them into the corrective action program at a low threshold, and prioritized issues commensurate with their safety significance. Dominion appropriately screened issues for operability and reportability, and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that Dominion typically implemented corrective actions to address the problems identified in the corrective action program in a timely manner. However, the inspectors identified two violations of NRC requirements in the areas of Prioritization and Evaluation of Issues, and Effectiveness of Corrective Actions.

The inspectors concluded that Dominion adequately identified, reviewed, and applied relevant industry operating experience to Millstone Power Station operations. In addition, based on those items selected for review, the inspectors determined that in general, Dominion's self-assessments and audits were thorough. However, the inspectors identified one finding in the area of Self-Assessments and Audits that was determined not to be a violation of NRC requirements.

Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual corrective action program and employee concerns program issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues, nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : [2012010](#) (*pdf*)

Last modified : September 03, 2013

Millstone 2

3Q/2013 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: TBD Aug 08, 2013

Identified By: NRC

Item Type: AV Apparent Violation

AV 05000336/2013010-01, Inadequate Alternative Shutdown Procedure

TBD. The team identified an apparent violation of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not adequately implemented an alternative shutdown procedure, as required by 10 CFR 50 Appendix R Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire which could lead to control room abandonment did not ensure the electrical distribution system was correctly configured prior to re-energizing AC buses. As a result, an over-current condition could occur and trip the 4kV supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion promptly revised their fire safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Phase 1 Significance Determination Process (SDP) screening in accordance with NRC Inspection Manual Chapter 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding affected the post-fire safe shutdown category, and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. Therefore, the team concluded that a more appropriate and accurate characterization of the risk significance of this issue would be obtained by performing a Phase 3 SDP analysis because the Phase 2 SDP analysis does not explicitly address alternative safe shutdown fire scenarios. The Phase 3 SDP analysis cannot be accurately calculated until additional cable routing and ignition source information is presented by Dominion and is necessary to develop the fire scenarios that would require the alternative shutdown procedure to be implemented. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.1)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013010-02, Spurious Operation of Pressurizer Spray Valves Not Analyzed

•Green. The team identified a finding of very low safety significance involving a non cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program. Specifically, Dominion's safe shutdown methodology postulated spurious operation of the pressurizer spray valves, but had not analyzed the effect of the spurious operations and mitigation actions were not

implemented to ensure operators could achieve safe shutdown if the spray valves spuriously opened. In response to this issue, Dominion revised their fire safe shutdown operating procedure prior to the end of the inspection to mitigate spurious opening of the spray valves.

The finding was more than minor because it was similar to Example 3.k of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and was associated with the Protection Against External Factors (e.g., Fire) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Significance Determination Process (SDP) screening, in accordance with IMC 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding affected the post-fire safe shutdown category, and was determined to have a low degradation rating because a subsequent evaluation determined that the performance requirements of Appendix R Section III.L.1 were satisfied. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.2)

Inspection Report# : [2013010](#) (pdf)

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336, 423/2013010-03, Failure to Maintain Cold Shutdown Material On-Site

•Green. The team identified a finding of very low safety significance, involving a non-cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) and Unit 3 Operating License Condition 2.H for the failure to implement and maintain all aspects of the approved Fire Protection Program. Specifically, Dominion used large motors, pre-staged in the on-site warehouse for Appendix R cold shutdown (CSD) repairs, as spare parts to accomplish preventative maintenance tasks. As a result, Dominion could not have performed the designated CSD repairs and achieved CSD conditions within 72 hours as required for both Units 2 and 3 during the time period that the old motors were off-site for refurbishment. In addition, Dominion had not taken any compensatory measures to reduce the likelihood of a fire or its consequence, in lieu of not having required repair material on-site. Dominion entered these issues into its corrective action program as condition reports 522722, 522740, 522848, and 522850 and has planned corrective actions to ensure CSD repair material is never intentionally made unavailable or removed from the site.

This finding was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Significance Determination Process (SDP) screening, in accordance with NRC Inspection Manual Chapter 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding screened to very low safety significance in Phase 1 of the SDP because it only affected the ability to reach and maintain cold shutdown conditions. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.9)

Inspection Report# : [2013010](#) (pdf)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013002-01: Inadequate Post Maintenance Testing Following PORV Maintenance

Green. The inspectors identified a Green NCV of 10 CFR 50 Appendix B, Criterion XI, "Test Control," for Dominion's failure to perform an adequate post maintenance test (PMT) on 2-RC-404, the Unit 2 'B' power operated relief valve (PORV). Specifically, a stroke test of the valve under hot conditions was not performed prior to entering

Mode 3. Since the valve was observed to be leaking, Dominion cooled down the plant to repair the PORV and performed the specified PMTs including the valve stroke under hot conditions. Dominion entered the issue into their corrective action program (CAP), CR506539.

The finding is more than minor because it is associated with the Human 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, Dominion's PMT of the PORV did not adequately demonstrate the valve's capability to stroke under all operating conditions. The finding was of very low safety significance (Green) because the finding did not represent an actual loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time, did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with Dominion's maintenance rule program for greater than 24 hours, and did not involve a loss or degradation of equipment designed to mitigate a seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in Human Performance, Work Control, because Dominion did not adequately incorporate actions to address the impact of work activities on plant operation. Specifically, Dominion incorrectly concluded that the PORV functional test was not required prior to entering Mode 3 [H.3(b)]. (Section 40A2)

Inspection Report# : [2013002](#) (pdf)

Barrier Integrity

Emergency Preparedness

Significance: G Oct 29, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2012005-01 and 05000423/2012005-01, Failure to Adequately Implement Flooding EALs

Green. The inspectors identified an NCV associated with emergency preparedness (EP) 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 in effect the Millstone Units 2 and 3 emergency action level (EAL) schemes by failing to provide an effective measuring instrument for determining flooding water levels. These deficiencies adversely affected the ability of the licensee to properly classify events involving a major flood condition. Dominion entered the issue into their corrective action system (CR501482) and provided additional means to determine flood water levels.

The finding is more than minor because it is associated with the Facilities and Equipment attribute of the EP Cornerstone and affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors determined the finding to be of very low safety significance (Green) because an EAL has been rendered ineffective such that a Notification of Unusual Event (NOUE) would not be declared for a flooding event, but because of other EALs, an appropriate declaration could be made in a degraded manner. The finding has a cross-cutting aspect in the area of Human Performance, Resources, in that Dominion personnel did not take provide appropriate procedures to address a Risk-Significant Planning Standard (RSPS) issue completely, accurately, and in a timely manner commensurate with the safety significance because Dominion did not provide a means of reliably and accurately assessing flooding levels that could reach 19 feet above mean sea level. [H.2(d)] (Section 1R01)

Inspection Report# : [2012005](#) (*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 : December 03, 2013

Millstone 2

4Q/2013 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013005-02, Inadequate Alternative Shutdown Procedure

• Green. The inspectors identified an NCV of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not adequately implemented an alternative shutdown procedure, as required by 10 CFR 50, Appendix R, Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire, which could lead to control room abandonment, did not ensure the electrical distribution system was correctly configured prior to re-energizing alternating current (AC) buses. As a result, an over-current condition could occur and trip the 4 kilovolt (kV) supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion promptly revised their fire safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the protection against external factors (e.g., fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding in accordance with IMC 0609, Appendix F, "Fire Protection SDP." This finding affected the post-fire safe shutdown category and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. A Phase 3 SDP analysis determined that this finding was of very low safety significance (Green) because the best estimate of core damage frequency (? CDF) was in the mid E-7 per year range. This finding did not have a cross-cutting aspect because it was considered to not be indicative of current licensee performance. (Section 4OA5.1)

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

Significance: G Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013005-01, Inadequate Alternative Shutdown Procedure

Green. The team identified a finding of very low safety significance involving a non-cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not adequately implemented an alternative shutdown procedure, as required by 10 CFR 50 Appendix R Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire which could lead to control room abandonment did not ensure the electrical distribution system was correctly configured prior to re-energizing AC buses. As a result, an over-current condition could occur and trip the 4kV supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion

promptly revised their fire safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process (SDP)." This finding affected the post-fire safe shutdown category, and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. A Phase 3 SDP analysis determined that this finding was of very low safety significance (Green) because the best estimate of core damage frequency was in the mid E-7 per year range.

This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 40A5.1

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013010-02, Spurious Operation of Pressurizer Spray Valves Not Analyzed

•Green. The team identified a finding of very low safety significance involving a non cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program. Specifically, Dominion's safe shutdown methodology postulated spurious operation of the pressurizer spray valves, but had not analyzed the effect of the spurious operations and mitigation actions were not implemented to ensure operators could achieve safe shutdown if the spray valves spuriously opened. In response to this issue, Dominion revised their fire safe shutdown operating procedure prior to the end of the inspection to mitigate spurious opening of the spray valves.

The finding was more than minor because it was similar to Example 3.k of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and was associated with the Protection Against External Factors (e.g., Fire) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Significance Determination Process (SDP) screening, in accordance with IMC 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding affected the post-fire safe shutdown category, and was determined to have a low degradation rating because a subsequent evaluation determined that that the performance requirements of Appendix R Section III.L.1 were satisfied. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.2)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336, 423/2013010-03, Failure to Maintain Cold Shutdown Material On-Site

•Green. The team identified a finding of very low safety significance, involving a non-cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) and Unit 3 Operating License Condition 2.H for the failure to implement and maintain all aspects of the approved Fire Protection Program. Specifically, Dominion used large motors, pre-staged in the on-site warehouse for Appendix R cold shutdown (CSD) repairs, as spare parts to accomplish

preventative maintenance tasks. As a result, Dominion could not have performed the designated CSD repairs and achieved CSD conditions within 72 hours as required for both Units 2 and 3 during the time period that the old motors were off-site for refurbishment. In addition, Dominion had not taken any compensatory measures to reduce the likelihood of a fire or its consequence, in lieu of not having required repair material on-site. Dominion entered these issues into its corrective action program as condition reports 522722, 522740, 522848, and 522850 and has planned corrective actions to ensure CSD repair material is never intentionally made unavailable or removed from the site.

This finding was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Significance Determination Process (SDP) screening, in accordance with NRC Inspection Manual Chapter 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding screened to very low safety significance in Phase 1 of the SDP because it only affected the ability to reach and maintain cold shutdown conditions. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.9)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013002-01: Inadequate Post Maintenance Testing Following PORV Maintenance

Green. The inspectors identified a Green NCV of 10 CFR 50 Appendix B, Criterion XI, "Test Control," for Dominion's failure to perform an adequate post maintenance test (PMT) on 2-RC-404, the Unit 2 'B' power operated relief valve (PORV). Specifically, a stroke test of the valve under hot conditions was not performed prior to entering Mode 3. Since the valve was observed to be leaking, Dominion cooled down the plant to repair the PORV and performed the specified PMTs including the valve stroke under hot conditions. Dominion entered the issue into their corrective action program (CAP), CR506539.

The finding is more than minor because it is associated with the Human 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, Dominion's PMT of the PORV did not adequately demonstrate the valve's capability to stroke under all operating conditions. The finding was of very low safety significance (Green) because the finding did not represent an actual loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time, did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with Dominion's maintenance rule program for greater than 24 hours, and did not involve a loss or degradation of equipment designed to mitigate a seismic, flooding, or severe weather initiating event. The finding had a cross-cutting aspect in Human Performance, Work Control, because Dominion did not adequately incorporate actions to address the impact of work activities on plant operation. Specifically, Dominion incorrectly concluded that the PORV functional test was not required prior to entering Mode 3 [H.3(b)]. (Section 4OA2)

Inspection Report# : [2013002](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

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 : February 24, 2014

Millstone 2

1Q/2014 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013005-02, Inadequate Alternative Shutdown Procedure

• Green. The inspectors identified an NCV of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not adequately implemented an alternative shutdown procedure, as required by 10 CFR 50, Appendix R, Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire, which could lead to control room abandonment, did not ensure the electrical distribution system was correctly configured prior to re-energizing alternating current (AC) buses. As a result, an over-current condition could occur and trip the 4 kilovolt (kV) supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion promptly revised their fire safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the protection against external factors (e.g., fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding in accordance with IMC 0609, Appendix F, "Fire Protection SDP." This finding affected the post-fire safe shutdown category and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. A Phase 3 SDP analysis determined that this finding was of very low safety significance (Green) because the best estimate of core damage frequency (? CDF) was in the mid E-7 per year range. This finding did not have a cross-cutting aspect because it was considered to not be indicative of current licensee performance. (Section 4OA5.1)

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

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013005-01, Inadequate Alternative Shutdown Procedure

Green. The team identified a finding of very low safety significance involving a non-cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not adequately implemented an alternative shutdown procedure, as required by 10 CFR 50 Appendix R Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire which could lead to control room abandonment did not ensure the electrical distribution system was correctly configured prior to re-energizing AC buses. As a result, an over-current condition could occur and trip the 4kV supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion

promptly revised their fire safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process (SDP)." This finding affected the post-fire safe shutdown category, and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. A Phase 3 SDP analysis determined that this finding was of very low safety significance (Green) because the best estimate of core damage frequency was in the mid E-7 per year range.

This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 40A5.1

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013010-02, Spurious Operation of Pressurizer Spray Valves Not Analyzed

•Green. The team identified a finding of very low safety significance involving a non cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program. Specifically, Dominion's safe shutdown methodology postulated spurious operation of the pressurizer spray valves, but had not analyzed the effect of the spurious operations and mitigation actions were not implemented to ensure operators could achieve safe shutdown if the spray valves spuriously opened. In response to this issue, Dominion revised their fire safe shutdown operating procedure prior to the end of the inspection to mitigate spurious opening of the spray valves.

The finding was more than minor because it was similar to Example 3.k of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and was associated with the Protection Against External Factors (e.g., Fire) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Significance Determination Process (SDP) screening, in accordance with IMC 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding affected the post-fire safe shutdown category, and was determined to have a low degradation rating because a subsequent evaluation determined that that the performance requirements of Appendix R Section III.L.1 were satisfied. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.2)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336, 423/2013010-03, Failure to Maintain Cold Shutdown Material On-Site

•Green. The team identified a finding of very low safety significance, involving a non-cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) and Unit 3 Operating License Condition 2.H for the failure to implement and maintain all aspects of the approved Fire Protection Program. Specifically, Dominion used large motors, pre-staged in the on-site warehouse for Appendix R cold shutdown (CSD) repairs, as spare parts to accomplish

preventative maintenance tasks. As a result, Dominion could not have performed the designated CSD repairs and achieved CSD conditions within 72 hours as required for both Units 2 and 3 during the time period that the old motors were off-site for refurbishment. In addition, Dominion had not taken any compensatory measures to reduce the likelihood of a fire or its consequence, in lieu of not having required repair material on-site. Dominion entered these issues into its corrective action program as condition reports 522722, 522740, 522848, and 522850 and has planned corrective actions to ensure CSD repair material is never intentionally made unavailable or removed from the site.

This finding was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Significance Determination Process (SDP) screening, in accordance with NRC Inspection Manual Chapter 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding screened to very low safety significance in Phase 1 of the SDP because it only affected the ability to reach and maintain cold shutdown conditions. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.9)

Inspection Report# : [2013010](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

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Miscellaneous

Last modified : May 30, 2014

Millstone 2

2Q/2014 Plant Inspection Findings

Initiating Events

Significance:  May 10, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2014003-01, Failure to Maintain Adequate Procedure for RCS Drain/Fill

Green. The inspectors identified a Green NCV of TS 6.8.1, Procedures, for Dominion's failure to maintain an adequate procedure for reactor filling and draining that incorporates guidance contained in NRC Generic Letter 88-17. Specifically, OP2301E, draining the RCS, permitted operation in a reduced RCS inventory condition without ensuring redundant means of level indication contrary to the inventory control requirements of OU-M2-201, Shutdown Safety Assessment Checklist.

The failure to maintain an adequate procedure for operating in reduced inventory conditions is a performance deficiency. The inspectors determined this performance deficiency is more than minor because it would affect the Initiating Event cornerstone attribute of equipment performance and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, inadequate procedural guidance increased the likelihood that operators could experience a loss of level indication during the reduced inventory condition. The inspectors evaluated the significance of the finding using IMC 0609 Appendix G, "Shutdown Operations Significance Determination Process", Attachment 1 "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings" and the issue screened to a Phase 2 analysis. Using the guidance contained in IMC 0609 Appendix G Attachment 2, "Phase 2 Significance Determination Process Template for PWR During Shutdown," the inspectors worked with regional and headquarters senior reactor analysts to determine the issue screened to Green.

The inspectors determined this issue had a cross cutting aspect in the area of Human Performance, Avoid Complacency, where individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, the latent error of considering L-112 and LI-112 as independent level instruments even though a single failure impacted both instruments contributed to the issue. (H.12) (Section 1R20)

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

Mitigating Systems

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013005-02, Inadequate Alternative Shutdown Procedure

• Green. The inspectors identified an NCV of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not

adequately implemented an alternative shutdown procedure, as required by 10 CFR 50, Appendix R, Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire, which could lead to control room abandonment, did not ensure the electrical distribution system was correctly configured prior to re-energizing alternating current (AC) buses. As a result, an over-current condition could occur and trip the 4 kilovolt (kV) supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion promptly revised their fire safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the protection against external factors (e.g., fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding in accordance with IMC 0609, Appendix F, "Fire Protection SDP." This finding affected the post-fire safe shutdown category and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. A Phase 3 SDP analysis determined that this finding was of very low safety significance (Green) because the best estimate of core damage frequency (? CDF) was in the mid E-7 per year range. This finding did not have a cross-cutting aspect because it was considered to not be indicative of current licensee performance. (Section 4OA5.1)

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

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013005-01, Inadequate Alternative Shutdown Procedure

Green. The team identified a finding of very low safety significance involving a non-cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not adequately implemented an alternative shutdown procedure, as required by 10 CFR 50 Appendix R Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire which could lead to control room abandonment did not ensure the electrical distribution system was correctly configured prior to re-energizing AC buses. As a result, an over-current condition could occur and trip the 4kV supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion promptly revised their fire safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process (SDP)." This finding affected the post-fire safe shutdown category, and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. A Phase 3 SDP analysis determined that this finding was of very low safety significance (Green) because the best estimate of core damage frequency was in the mid E-7 per year range.

This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 4OA5.1)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013010-02, Spurious Operation of Pressurizer Spray Valves Not Analyzed

•Green. The team identified a finding of very low safety significance involving a non cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program. Specifically, Dominion's safe shutdown methodology postulated spurious operation of the pressurizer spray valves, but had not analyzed the effect of the spurious operations and mitigation actions were not implemented to ensure operators could achieve safe shutdown if the spray valves spuriously opened. In response to this issue, Dominion revised their fire safe shutdown operating procedure prior to the end of the inspection to mitigate spurious opening of the spray valves.

The finding was more than minor because it was similar to Example 3.k of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, and was associated with the Protection Against External Factors (e.g., Fire) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Significance Determination Process (SDP) screening, in accordance with IMC 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding affected the post-fire safe shutdown category, and was determined to have a low degradation rating because a subsequent evaluation determined that that the performance requirements of Appendix R Section III.L.1 were satisfied. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.2)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Aug 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336, 423/2013010-03, Failure to Maintain Cold Shutdown Material On-Site

•Green. The team identified a finding of very low safety significance, involving a non-cited violation of Millstone Unit 2 Operating License Condition 2.C. (3) and Unit 3 Operating License Condition 2.H for the failure to implement and maintain all aspects of the approved Fire Protection Program. Specifically, Dominion used large motors, pre-staged in the on-site warehouse for Appendix R cold shutdown (CSD) repairs, as spare parts to accomplish preventative maintenance tasks. As a result, Dominion could not have performed the designated CSD repairs and achieved CSD conditions within 72 hours as required for both Units 2 and 3 during the time period that the old motors were off-site for refurbishment. In addition, Dominion had not taken any compensatory measures to reduce the likelihood of a fire or its consequence, in lieu of not having required repair material on-site. Dominion entered these issues into its corrective action program as condition reports 522722, 522740, 522848, and 522850 and has planned corrective actions to ensure CSD repair material is never intentionally made unavailable or removed from the site.

This finding was more than minor because it was associated with the Protection Against External Factors (e.g., fire) attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Significance Determination Process (SDP) screening, in accordance with NRC Inspection Manual Chapter 0609, Appendix F, and "Fire Protection Significance Determination Process." This finding screened to very low safety significance in Phase 1 of the SDP because it only affected the ability to reach and maintain cold shutdown conditions. This finding did not have a cross-cutting aspect because it was a legacy issue and was considered to not be indicative of current licensee performance. (Section 1R05.05.9)

Inspection Report# : [2013010](#) (*pdf*)

Barrier Integrity

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

Significance:  Apr 20, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2014003-02, Failure to Utilize Respiratory Protection as Specified in Work Control Documents

Green. The inspectors identified a self-revealing Green NCV of Technical Specification (TS) 6.81, Regulatory Guide 1.33, Appendix 'A', Radiation Work Permits (RWP) and as low as reasonably achievable (ALARA) procedures, for Dominion's failure to utilize respiratory protection, as required by the applicable RWP and associated ALARA evaluation for work on replacement of valve 2-SI-227 on April 20, 2014. This failure resulted in an unplanned intake of radioactive material for one worker. Dominion subsequently enforced the respiratory protection requirements to

complete the work, and entered this issue into their corrective action program (CAP) (CR546439).

Failure to use respiratory protection during machining work as required by Dominion procedure was a performance deficiency that was reasonably within Dominion's ability to foresee and correct. The inspectors determined that the performance deficiency was more than minor because it affected the Radiation Safety – Occupational Radiation Safety Cornerstone attribute of Program and Process associated with exposure/contamination controls, because it resulted in the unintended internal exposure of a worker. A cross-cutting aspect of “Conservative Bias” (H.14) in the “Human Performance” cross-cutting area was associated with the Finding. Specifically, radiation protection staff did not adhere to the RWP requirements. (Section 2RS3)

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

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 : August 29, 2014

Millstone 2

3Q/2014 Plant Inspection Findings

Initiating Events

Significance:  May 10, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2014003-01, Failure to Maintain Adequate Procedure for RCS Drain/Fill

Green. The inspectors identified a Green NCV of TS 6.8.1, Procedures, for Dominion's failure to maintain an adequate procedure for reactor filling and draining that incorporates guidance contained in NRC Generic Letter 88-17. Specifically, OP2301E, draining the RCS, permitted operation in a reduced RCS inventory condition without ensuring redundant means of level indication contrary to the inventory control requirements of OU-M2-201, Shutdown Safety Assessment Checklist.

The failure to maintain an adequate procedure for operating in reduced inventory conditions is a performance deficiency. The inspectors determined this performance deficiency is more than minor because it would affect the Initiating Event cornerstone attribute of equipment performance and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, inadequate procedural guidance increased the likelihood that operators could experience a loss of level indication during the reduced inventory condition. The inspectors evaluated the significance of the finding using IMC 0609 Appendix G, "Shutdown Operations Significance Determination Process", Attachment 1 "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings" and the issue screened to a Phase 2 analysis. Using the guidance contained in IMC 0609 Appendix G Attachment 2, "Phase 2 Significance Determination Process Template for PWR During Shutdown," the inspectors worked with regional and headquarters senior reactor analysts to determine the issue screened to Green.

The inspectors determined this issue had a cross cutting aspect in the area of Human Performance, Avoid Complacency, where individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, the latent error of considering L-112 and LI-112 as independent level instruments even though a single failure impacted both instruments contributed to the issue. (H.12) (Section 1R20)

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

Mitigating Systems

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2013005-02, Inadequate Alternative Shutdown Procedure

• Green. The inspectors identified an NCV of Millstone Unit 2 Operating License Condition 2.C. (3) for failure to implement and maintain all aspects of the approved Fire Protection Program (FPP). Specifically, Dominion had not

adequately implemented an alternative shutdown procedure, as required by 10 CFR 50, Appendix R, Section III.L.3 and the approved FPP. The procedure for a Unit 2 fire, which could lead to control room abandonment, did not ensure the electrical distribution system was correctly configured prior to re-energizing alternating current (AC) buses. As a result, an over-current condition could occur and trip the 4 kilovolt (kV) supply breaker complicating safe shutdown operations and delaying AC bus recovery. In response to this issue, Dominion promptly revised their fire safe shutdown operating procedure prior to the end of the inspection to correct this deficiency.

This finding was more than minor because it was associated with the protection against external factors (e.g., fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding in accordance with IMC 0609, Appendix F, "Fire Protection SDP." This finding affected the post-fire safe shutdown category and was determined to have a high degradation rating because the alternative shutdown procedure lacked adequate instructions to ensure correct equipment alignment. A Phase 3 SDP analysis determined that this finding was of very low safety significance (Green) because the best estimate of core damage frequency (? CDF) was in the mid E-7 per year range. This finding did not have a cross-cutting aspect because it was considered to not be indicative of current licensee performance. (Section 4OA5.1)

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

Barrier Integrity

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

Significance:  Apr 20, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2014003-02, Failure to Utilize Respiratory Protection as Specified in Work Control Documents

Green. The inspectors identified a self-revealing Green NCV of Technical Specification (TS) 6.81, Regulatory Guide 1.33, Appendix 'A', Radiation Work Permits (RWP) and as low as reasonably achievable (ALARA) procedures, for Dominion's failure to utilize respiratory protection, as required by the applicable RWP and associated ALARA evaluation for work on replacement of valve 2-SI-227 on April 20, 2014. This failure resulted in an unplanned intake of radioactive material for one worker. Dominion subsequently enforced the respiratory protection requirements to complete the work, and entered this issue into their corrective action program (CAP) (CR546439).

Failure to use respiratory protection during machining work as required by Dominion procedure was a performance deficiency that was reasonably within Dominion's ability to foresee and correct. The inspectors determined that the performance deficiency was more than minor because it affected the Radiation Safety – Occupational Radiation Safety Cornerstone attribute of Program and Process associated with exposure/contamination controls, because it resulted in the unintended internal exposure of a worker. A cross-cutting aspect of "Conservative Bias" (H.14) in the "Human Performance" cross-cutting area was associated with the Finding. Specifically, radiation protection staff did not adhere to the RWP requirements. (Section 2RS3)

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

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

Millstone 2

4Q/2014 Plant Inspection Findings

Initiating Events

Significance: N/A Aug 01, 2014

Identified By: NRC

Item Type: AV Apparent Violation

Failure to Complete a 10 CFR 50.59 Evaluation for Removal of SLOD

The NRC identified a Severity Level III AV of Title 10 of the Code of Federal Regulations (10 CFR) 50.59, “Changes, Tests, and Experiments,” for Dominion’s failure to complete a 10 CFR 50.59 evaluation and obtain a license amendment for a change made to the facility as described in the Updated Final Safety Analysis Report (UFSAR). Specifically, Dominion removed a special protection system (SPS), known as severe line outage detection (SLOD), which was described in the UFSAR. Dominion concluded in the 10 CFR 50.59 screening that a full 10 CFR 50.59 evaluation was not required and, therefore, prior NRC approval was not needed to implement this change. The team concluded that prior NRC approval likely was required because the removal of SLOD may have resulted in more than a minimal increase in the likelihood of occurrence of a malfunction of the offsite power system as described in the UFSAR. Dominion has documented condition reports CR 553967 and CR 551068, and participated in a root cause evaluation with Northeast Utilities to determine whether the relay operations that initiated the events of May 25, 2014, were appropriate for the circumstances. Dominion also implemented a compensatory measure by issuing an Operations Standing Order for interim guidance on offsite line outages and plant generation output.

The team determined that the failure of Dominion to complete a 10 CFR 50.59 evaluation of the modification for the removal of the SLOD system involved traditional enforcement because it impacted the NRC’s ability to perform its regulatory function. This AV was determined to be more than minor because the team determined that the change to the facility required a full 10 CFR 50.59 evaluation and it likely would have required Commission review and approval prior to implementation. The severity level of this AV was determined, in part, using SDP risk significance in accordance with the NRC Enforcement Policy. A Region I Senior Risk Analyst conducted a conditional core damage probability estimate and determined that it was most properly characterized at a Severity Level III. Cross-cutting aspects are not assigned to traditional enforcement violations

Inspection Report# : [2014011](#) (*pdf*)

Significance:  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*)

Significance:  May 10, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2014003-01, Failure to Maintain Adequate Procedure for RCS Drain/Fill

Green. The inspectors identified a Green NCV of TS 6.8.1, Procedures, for Dominion’s failure to maintain an adequate procedure for reactor filling and draining that incorporates guidance contained in NRC Generic Letter 88-17. Specifically, OP2301E, draining the RCS, permitted operation in a reduced RCS inventory condition without ensuring redundant means of level indication contrary to the inventory control requirements of OU-M2-201, Shutdown Safety Assessment Checklist.

The failure to maintain an adequate procedure for operating in reduced inventory conditions is a performance deficiency. The inspectors determined this performance deficiency is more than minor because it would affect the Initiating Event cornerstone attribute of equipment performance and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, inadequate procedural guidance increased the likelihood that operators could experience a loss of level indication during the reduced inventory condition. The inspectors evaluated the significance of the finding using IMC 0609 Appendix G, “Shutdown Operations Significance Determination Process”, Attachment 1 “Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings” and the issue screened to a Phase 2 analysis. Using the guidance contained in IMC 0609 Appendix G Attachment 2, “Phase 2 Significance Determination Process Template for PWR During Shutdown,” the inspectors worked with regional and headquarters senior reactor analysts to determine the issue screened to Green.

The inspectors determined this issue had a cross cutting aspect in the area of Human Performance, Avoid Complacency, where individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, the latent error of considering L-112 and LI-112 as independent level instruments even though a single failure impacted both instruments contributed to the issue. (H.12) (Section 1R20)

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

Mitigating Systems

Barrier Integrity

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 4OA5)

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

Occupational Radiation Safety

Significance:  Dec 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Maintain Radiation Exposure ALARA During Refueling Outage 2R22 Activities

A self-revealing finding (FIN) of very low safety significance (Green) was identified due to the accrual of excessive unintended occupational collective radiation exposure during Millstone refueling outage 2R22. This resulted from performance deficiencies in planning and work control while performing scaffolding work, valve maintenance, and a valve replacement during the Unit 2 refueling outage. No violation of NRC requirements was identified.

The unintended collective radiation exposures were due to work planning and work control deficiencies that were reasonably within Dominion's ability to control and prevent. The finding was more than minor because it was associated with the Program and Process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker from radiation exposure. The performance deficiency is similar to examples in Appendix E of IMC 0612; in that the actual collective dose exceeded

5 person-rem and exceeded the planned, intended dose by more than 50 percent. The finding has a cross-cutting aspect in the area of Human Performance, Work Management, in that the Millstone organization did not implement a process of planning, controlling, and executing work activities such that station-established radiation exposure goals could be met. [H.5]

Inspection Report# : [2014005](#) (*pdf*)

Significance:  Apr 20, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

NCV 05000336/2014003-02, Failure to Utilize Respiratory Protection as Specified in Work Control Documents

Green. The inspectors identified a self-revealing Green NCV of Technical Specification (TS) 6.81, Regulatory Guide 1.33, Appendix 'A', Radiation Work Permits (RWP) and as low as reasonably achievable (ALARA) procedures, for Dominion's failure to utilize respiratory protection, as required by the applicable RWP and associated ALARA evaluation for work on replacement of valve 2-SI-227 on April 20, 2014. This failure resulted in an unplanned intake of radioactive material for one worker. Dominion subsequently enforced the respiratory protection requirements to complete the work, and entered this issue into their corrective action program (CAP) (CR546439).

Failure to use respiratory protection during machining work as required by Dominion procedure was a performance deficiency that was reasonably within Dominion's ability to foresee and correct. The inspectors determined that the performance deficiency was more than minor because it affected the Radiation Safety – Occupational Radiation Safety Cornerstone attribute of Program and Process associated with exposure/contamination controls, because it resulted in the unintended internal exposure of a worker. A cross-cutting aspect of "Conservative Bias" (H.14) in the "Human Performance" cross-cutting area was associated with the Finding. Specifically, radiation protection staff did not adhere to the RWP requirements. (Section 2RS3)

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

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 : February 26, 2015

Millstone 2

1Q/2015 Plant Inspection Findings

Initiating Events

Significance: N/A Aug 01, 2014

Identified By: NRC

Item Type: AV Apparent Violation

Failure to Complete a 10 CFR 50.59 Evaluation for Removal of SLOD

The NRC identified a Severity Level III AV of Title 10 of the Code of Federal Regulations (10 CFR) 50.59, “Changes, Tests, and Experiments,” for Dominion’s failure to complete a 10 CFR 50.59 evaluation and obtain a license amendment for a change made to the facility as described in the Updated Final Safety Analysis Report (UFSAR). Specifically, Dominion removed a special protection system (SPS), known as severe line outage detection (SLOD), which was described in the UFSAR. Dominion concluded in the 10 CFR 50.59 screening that a full 10 CFR 50.59 evaluation was not required and, therefore, prior NRC approval was not needed to implement this change. The team concluded that prior NRC approval likely was required because the removal of SLOD may have resulted in more than a minimal increase in the likelihood of occurrence of a malfunction of the offsite power system as described in the UFSAR. Dominion has documented condition reports CR 553967 and CR 551068, and participated in a root cause evaluation with Northeast Utilities to determine whether the relay operations that initiated the events of May 25, 2014, were appropriate for the circumstances. Dominion also implemented a compensatory measure by issuing an Operations Standing Order for interim guidance on offsite line outages and plant generation output.

The team determined that the failure of Dominion to complete a 10 CFR 50.59 evaluation of the modification for the removal of the SLOD system involved traditional enforcement because it impacted the NRC’s ability to perform its regulatory function. This AV was determined to be more than minor because the team determined that the change to the facility required a full 10 CFR 50.59 evaluation and it likely would have required Commission review and approval prior to implementation. The severity level of this AV was determined, in part, using SDP risk significance in accordance with the NRC Enforcement Policy. A Region I Senior Risk Analyst conducted a conditional core damage probability estimate and determined that it was most properly characterized at a Severity Level III. Cross-cutting aspects are not assigned to traditional enforcement violations

Inspection Report# : [2014011](#) (*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*)

Significance:  May 10, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

NCV 05000336/2014003-01, Failure to Maintain Adequate Procedure for RCS Drain/Fill

Green. The inspectors identified a Green NCV of TS 6.8.1, Procedures, for Dominion’s failure to maintain an adequate procedure for reactor filling and draining that incorporates guidance contained in NRC Generic Letter 88-17. Specifically, OP2301E, draining the RCS, permitted operation in a reduced RCS inventory condition without ensuring redundant means of level indication contrary to the inventory control requirements of OU-M2-201, Shutdown Safety Assessment Checklist.

The failure to maintain an adequate procedure for operating in reduced inventory conditions is a performance deficiency. The inspectors determined this performance deficiency is more than minor because it would affect the Initiating Event cornerstone attribute of equipment performance and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, inadequate procedural guidance increased the likelihood that operators could experience a loss of level indication during the reduced inventory condition. The inspectors evaluated the significance of the finding using IMC 0609 Appendix G, “Shutdown Operations Significance Determination Process”, Attachment 1 “Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings” and the issue screened to a Phase 2 analysis. Using the guidance contained in IMC 0609 Appendix G Attachment 2, “Phase 2 Significance Determination Process Template for PWR During Shutdown,” the inspectors worked with regional and headquarters senior reactor analysts to determine the issue screened to Green.

The inspectors determined this issue had a cross cutting aspect in the area of Human Performance, Avoid Complacency, where individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, the latent error of considering L-112 and LI-112 as independent level instruments even though a single failure impacted both instruments contributed to the issue. (H.12) (Section 1R20)

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

Mitigating Systems

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Replace Defective Fuses in the “A” EDG Resulting in Generator Failure

The inspectors identified a Green, Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI associated with Dominion’s failure to prevent recurrence of a significant condition adverse to quality, installation of defective fuses in

the Unit 2 EDGs from September 26, 2015 until October 23, 2015. Dominion took corrective actions to replace the defective fuses in both EDGs and assess the extent of condition in other safety systems.

This finding was determined to be more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated September 7, 2012, as it represented a challenge to the equipment performance attribute of the Reactor Safety – Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding screened to be of very low safety significance because the finding did not represent an actual loss of function of a single train for greater than its allowable outage time. The inspectors assigned a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area associated with Operating Experience, in that Dominion failed to effectively implement relevant internal and external operating experience. [P.5]

Inspection Report# : [2015001](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Significance:  Jun 30, 2014

Identified By: NRC

Item Type: NCV Non-Cited 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 4OA5)

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

Occupational Radiation Safety

Significance:  Dec 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Maintain Radiation Exposure ALARA During Refueling Outage 2R22 Activities

A self-revealing finding (FIN) of very low safety significance (Green) was identified due to the accrual of excessive unintended occupational collective radiation exposure during Millstone refueling outage 2R22. This resulted from performance deficiencies in planning and work control while performing scaffolding work, valve maintenance, and a valve replacement during the Unit 2 refueling outage. No violation of NRC requirements was identified.

The unintended collective radiation exposures were due to work planning and work control deficiencies that were reasonably within Dominion's ability to control and prevent. The finding was more than minor because it was associated with the Program and Process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker from radiation exposure. The performance deficiency is similar to examples in Appendix E of IMC 0612; in that the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. The finding has a cross-cutting aspect in the area of Human Performance, Work Management, in that the Millstone organization did not implement a process of planning, controlling, and executing work activities such that station-established radiation exposure goals could be met. [H.5]

Inspection Report# : [2014005](#) (*pdf*)

Significance:  Apr 20, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

NCV 05000336/2014003-02, Failure to Utilize Respiratory Protection as Specified in Work Control Documents

Green. The inspectors identified a self-revealing Green NCV of Technical Specification (TS) 6.81, Regulatory Guide 1.33, Appendix 'A', Radiation Work Permits (RWP) and as low as reasonably achievable (ALARA) procedures, for Dominion's failure to utilize respiratory protection, as required by the applicable RWP and associated ALARA evaluation for work on replacement of valve 2-SI-227 on April 20, 2014. This failure resulted in an unplanned intake of radioactive material for one worker. Dominion subsequently enforced the respiratory protection requirements to complete the work, and entered this issue into their corrective action program (CAP) (CR546439).

Failure to use respiratory protection during machining work as required by Dominion procedure was a performance deficiency that was reasonably within Dominion's ability to foresee and correct. The inspectors determined that the performance deficiency was more than minor because it affected the Radiation Safety – Occupational Radiation Safety Cornerstone attribute of Program and Process associated with exposure/contamination controls, because it resulted in the unintended internal exposure of a worker. A cross-cutting aspect of “Conservative Bias” (H.14) in the “Human Performance” cross-cutting area was associated with the Finding. Specifically, radiation protection staff did not adhere to the RWP requirements. (Section 2RS3)

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

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 : June 16, 2015

Millstone 2

2Q/2015 Plant Inspection Findings

Initiating Events

Significance:  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:  May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Reactor Building Closed Cooling Water System Pump Oil Leakage Results in Technical Specification Inoperability

The team identified a non-cited violation (NCV) of Millstone Power Station Unit 2, Technical Specification (TS) 3.7.3.1 the reactor building component cooling water (RBCCW) system Limiting Condition of Operation (LCO) in that Dominion failed to maintain two loops of RBCCW operable. The team found that following the identification of a degraded condition for the "C" RBCCW pump, Dominion incorrectly concluded the loop remained operable. Specifically, the team determined that from February 4 to February 23, 2015, the RBCCW "B" loop was inoperable because oil leakage from the "C" RBCCW outboard pump bearing would have caused the complete loss of oil to the pump bearing, without operator compensatory

action, before the “C” RBCCW train would have completed its design basis 30-day mission time. Using IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” Section A, “Mitigating Systems, Structures or Components and Functionality,” the team determined that the finding required a detailed risk evaluation due to actual loss of function of at least a single train for greater than its TS allowed outage time. The Region I Senior Reactor Analyst (SRA) identified that because the finding involved the “C” RBCCW pump function to run for its mission time, the only accident events adversely impacted are the large break loss of coolant accident (LLOCA) sequences. The condition was conservatively modeled assuming an exposure period of one year with the “C” RBCCW pump failure to run basic event set to True. The resultant change in risk was estimated at mid E-8, or very low safety significance (Green). The dominated risk sequences involve a LLOCA with the failure of the remaining RBCCW pumps due to common cause. Since the estimated risk increase was less than 1E-8, no additional evaluation of external events contribution or change in large early release frequency (LERF) was required. The team concluded that this issue has a cross-cutting aspect in the Human Performance cross-cutting area of Conservative Bias: Individuals use decision-making practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, Dominion determined that the qualitative bubbler leak rate was acceptable without evaluation against quantified operability criteria. (H.14)
 Inspection Report# : [2015007](#) (pdf)

Significance: G May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Evaluation of Circuit Breaker Interrupting Capability

The team identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, “Design Control,” in that Dominion did not correctly evaluate the capability of 4.16 kV breakers to function properly during 3-phase bolted fault design condition. The team reviewed Millstone Unit 2 electrical distribution system analysis calculation (MP2-ENG-ETAP-04014E2), which evaluated adequacy of the circuit breakers for their interrupting rating in accordance with the Institute of Electrical and Electronics Engineers/American National Standards Institute (IEEE/ANSI) C37 series standards, and determined that Dominion’s shortcircuit fault current calculation did not assume the maximum plant operating voltage as a pre-fault voltage at the 4.16 kV bus and did not evaluate the plant configuration when emergency diesel generators (EDG) are operating in parallel with offsite power on the associated 4.16 kV emergency bus. The team determined this short-circuit fault current calculation was not in accordance with IEEE/ANSI C37 series standards and was non-conservative in some cases. Dominion entered the issue into their corrective action program and performed additional analysis to determine if the inability of the breaker to interrupt the fault current would result in the fault current affecting the other safety related bus. Dominion concluded that the other bus would not be affected. The team reviewed the analysis and determined it to be acceptable. The finding was determined to be more than minor because it was associated with the Mitigating Systems cornerstone Design Control attribute and adversely affected the cornerstone’s objective and was similar to Example 3.j in Appendix E of the NRC IMC 0612. Using the NRC IMC 0609, “Significance Determination Process,” Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” the finding was determined to be of very low safety significance (Green). There was no crosscutting aspect assigned to the finding because it was not an indicative of current performance.

Inspection Report# : [2015007](#) (pdf)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Replace Defective Fuses in the “A” EDG Resulting in Generator Failure

The inspectors identified a Green, Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI associated with Dominion’s failure to prevent recurrence of a significant condition adverse to quality, installation of defective fuses in the Unit 2 EDGs from September 26, 2015 until October 23, 2015. Dominion took corrective actions to replace the defective fuses in both EDGs and assess the extent of condition in other safety systems.

This finding was determined to be more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated September 7, 2012, as it represented a challenge to the equipment performance attribute of the Reactor Safety – Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding screened to be of very low safety significance because the finding did not represent an actual loss of function of a single train for greater than its allowable outage time. The inspectors assigned a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area associated with Operating Experience, in that Dominion failed to effectively implement relevant internal and external operating experience. [P.5]

Inspection Report# : [2015001](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Maintain Radiation Exposure ALARA During Refueling Outage 2R22 Activities

A self-revealing finding (FIN) of very low safety significance (Green) was identified due to the accrual of excessive unintended occupational collective radiation exposure during Millstone refueling outage 2R22. This resulted from performance deficiencies in planning and work control while performing scaffolding work, valve maintenance, and a valve replacement during the Unit 2 refueling outage. No violation of NRC requirements was identified.

The unintended collective radiation exposures were due to work planning and work control deficiencies that were reasonably within Dominion’s ability to control and prevent. The finding was more than minor because it was associated with the Program and Process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker from radiation exposure. The

performance deficiency is similar to examples in Appendix E of IMC 0612; in that the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. The finding has a cross-cutting aspect in the area of Human Performance, Work Management, in that the Millstone organization did not implement a process of planning, controlling, and executing work activities such that station-established radiation exposure goals could be met. [H.5]

Inspection Report# : [2014005](#) (*pdf*)

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 : August 07, 2015

Millstone 2

3Q/2015 Plant Inspection Findings

Initiating Events

Significance:  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:  May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Reactor Building Closed Cooling Water System Pump Oil Leakage Results in Technical Specification Inoperability

The team identified a non-cited violation (NCV) of Millstone Power Station Unit 2, Technical Specification (TS) 3.7.3.1 the reactor building component cooling water (RBCCW) system Limiting Condition of Operation (LCO) in that Dominion failed to maintain two loops of RBCCW operable. The team found that following the identification of a degraded condition for the "C" RBCCW pump, Dominion incorrectly concluded the loop remained operable. Specifically, the team determined that from February 4 to February 23, 2015, the RBCCW "B" loop was inoperable because oil leakage from the "C" RBCCW outboard pump bearing would have caused the complete loss of oil to the pump bearing, without operator compensatory

action, before the “C” RBCCW train would have completed its design basis 30-day mission time. Using IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” Section A, “Mitigating Systems, Structures or Components and Functionality,” the team determined that the finding required a detailed risk evaluation due to actual loss of function of at least a single train for greater than its TS allowed outage time. The Region I Senior Reactor Analyst (SRA) identified that because the finding involved the “C” RBCCW pump function to run for its mission time, the only accident events adversely impacted are the large break loss of coolant accident (LLOCA) sequences. The condition was conservatively modeled assuming an exposure period of one year with the “C” RBCCW pump failure to run basic event set to True. The resultant change in risk was estimated at mid E-8, or very low safety significance (Green). The dominated risk sequences involve a LLOCA with the failure of the remaining RBCCW pumps due to common cause. Since the estimated risk increase was less than 1E-8, no additional evaluation of external events contribution or change in large early release frequency (LERF) was required. The team concluded that this issue has a cross-cutting aspect in the Human Performance cross-cutting area of Conservative Bias: Individuals use decision-making practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, Dominion determined that the qualitative bubbler leak rate was acceptable without evaluation against quantified operability criteria. (H.14)
 Inspection Report# : [2015007](#) (*pdf*)

Significance: G May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Evaluation of Circuit Breaker Interrupting Capability

The team identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, “Design Control,” in that Dominion did not correctly evaluate the capability of 4.16 kV breakers to function properly during 3-phase bolted fault design condition. The team reviewed Millstone Unit 2 electrical distribution system analysis calculation (MP2-ENG-ETAP-04014E2), which evaluated adequacy of the circuit breakers for their interrupting rating in accordance with the Institute of Electrical and Electronics Engineers/American National Standards Institute (IEEE/ANSI) C37 series standards, and determined that Dominion’s shortcircuit fault current calculation did not assume the maximum plant operating voltage as a pre-fault voltage at the 4.16 kV bus and did not evaluate the plant configuration when emergency diesel generators (EDG) are operating in parallel with offsite power on the associated 4.16 kV emergency bus. The team determined this short-circuit fault current calculation was not in accordance with IEEE/ANSI C37 series standards and was non-conservative in some cases. Dominion entered the issue into their corrective action program and performed additional analysis to determine if the inability of the breaker to interrupt the fault current would result in the fault current affecting the other safety related bus. Dominion concluded that the other bus would not be affected. The team reviewed the analysis and determined it to be acceptable. The finding was determined to be more than minor because it was associated with the Mitigating Systems cornerstone Design Control attribute and adversely affected the cornerstone’s objective and was similar to Example 3.j in Appendix E of the NRC IMC 0612. Using the NRC IMC 0609, “Significance Determination Process,” Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating Systems Screening Questions,” the finding was determined to be of very low safety significance (Green). There was no crosscutting aspect assigned to the finding because it was not an indicative of current performance.

Inspection Report# : [2015007](#) (pdf)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Replace Defective Fuses in the “A” EDG Resulting in Generator Failure

The inspectors identified a Green, Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI associated with Dominion’s failure to prevent recurrence of a significant condition adverse to quality, installation of defective fuses in the Unit 2 EDGs from September 26, 2015 until October 23, 2015. Dominion took corrective actions to replace the defective fuses in both EDGs and assess the extent of condition in other safety systems.

This finding was determined to be more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated September 7, 2012, as it represented a challenge to the equipment performance attribute of the Reactor Safety – Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding screened to be of very low safety significance because the finding did not represent an actual loss of function of a single train for greater than its allowable outage time. The inspectors assigned a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area associated with Operating Experience, in that Dominion failed to effectively implement relevant internal and external operating experience. [P.5]

Inspection Report# : [2015001](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2014

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Maintain Radiation Exposure ALARA During Refueling Outage 2R22 Activities

A self-revealing finding (FIN) of very low safety significance (Green) was identified due to the accrual of excessive unintended occupational collective radiation exposure during Millstone refueling outage 2R22. This resulted from performance deficiencies in planning and work control while performing scaffolding work, valve maintenance, and a valve replacement during the Unit 2 refueling outage. No violation of NRC requirements was identified.

The unintended collective radiation exposures were due to work planning and work control deficiencies that were reasonably within Dominion’s ability to control and prevent. The finding was more than minor because it was associated with the Program and Process attribute of the Occupational Radiation Safety cornerstone and adversely affected the cornerstone objective to ensure the adequate protection of the worker from radiation exposure. The

performance deficiency is similar to examples in Appendix E of IMC 0612; in that the actual collective dose exceeded 5 person-rem and exceeded the planned, intended dose by more than 50 percent. The finding has a cross-cutting aspect in the area of Human Performance, Work Management, in that the Millstone organization did not implement a process of planning, controlling, and executing work activities such that station-established radiation exposure goals could be met. [H.5]

Inspection Report# : [2014005](#) (*pdf*)

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 : December 15, 2015

Millstone 2

4Q/2015 Plant Inspection Findings

Initiating Events

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Procedure Failed to Direct Adequate Venting of SDC System

A self-revealing Green NCV of Millstone Power Station Unit No. 2 TS 6.8.1, "Procedures," was identified because the procedure used by Dominion to place the SDC system in service did not verify that the SDC suction line to the LPSI pumps was filled and vented prior to placing the system in service which appears to be the likely cause for opening SDC suction Relief Valve (RV) 2-SI-468. To address this issue, Dominion revised the procedure to include venting at SI-075 as part of step 4.12.2 of OP 2207. Dominion entered this issue into their corrective action program as CR1011898.

The finding was more than minor because it was associated with procedure quality 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 operations. Specifically, the finding identifies an increase in the likelihood of a loss of SDC resulting from the unexpected opening of RV 2-SI-468. Using a bounding and conservative quantitative detailed risk analysis, coupled with deterministic risk-informed defense-in-depth considerations, the finding was determined to be of very low risk significance.

This finding had a cross-cutting aspect in the area of Human Performance, Resources, because Dominion did not ensure procedures were adequate to support nuclear safety. Specifically, the plant cooldown procedure did not ensure that the SDC suction line to the LPSI pumps was full of water prior to placing the system in service.

Inspection Report# : [2015012](#) (*pdf*)

Significance:  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:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Charging Packing Lubrication Pump Inadequate Operating Procedure Acceptance Criteria

The inspectors identified a Green, Non-Cited Violation (NCV) of 10 CFR 50 Appendix B Criterion V, Instructions, Procedures, and Drawings associated with Dominion's failure to include in the Unit 2 charging pump operating procedure appropriate acceptance criteria for determining operability of the Unit 2 charging pumps upon the loss of the associated charging flushing/lubrication pump. Specifically, Dominion implemented a procedure change which stated that the condition of the charging flushing/lubrication pumps does not affect charging pump operability or mission time without supporting technical information and contrary to guidance provided in the charging pump vendor technical manual, impacting an operability determination on December 13, 2015. Dominion has entered the concern associated with the charging pump operability acceptance criteria into their corrective action program under CR1021512.

This finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Reactor Safety – 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. Further, this finding was found to be consistent with more than minor examples 3.j and 3.k of IMC 0612, Appendix E, "Examples of Minor Issues," dated August 11, 2009. This finding was evaluated 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," and screened to Green since it was not a qualification or design deficiency, did not represent a loss of system or function, and did not exceed its TS allowed outage time. Inspectors identified a cross-cutting aspect in the Human Performance cross-cutting area associated with Documentation in that Dominion lacked technical documentation to support the operability assertion in the charging pump operating procedure to address contrary guidance provided in the charging pump vendor manual. (H.7)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Turbine Driven Auxiliary Feedwater Pump Corrective Actions to Prevent Recurrence

The inspectors identified a green NCV of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, for Dominion's failure to take corrective action to prevent recurrence for a significant condition adverse to quality according to the definition in PI-AA-200, "Corrective Action." Specifically, PI-AA-200 lists "unplanned entry into a technical specification (TS) action that results in taking a unit off-line" as an example of a significant condition adverse to quality. On July 26, 2014, Dominion performed a shutdown of Unit 2 upon expiration of the allowed outage time of TS action statement 3.7.1.2 for the turbine driven auxiliary feedwater pump. Dominion cancelled the root cause evaluation assigned to investigate the cause of the plant shutdown, stating that the direct cause of the shutdown was

foreign material in the flow orifice. No corrective actions to prevent recurrence (CAPRs) were assigned after the direct cause was determined. Dominion entered this issue into their corrective action program as CR 1019514.

This performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Reactor Safety – 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, taking corrective actions to prevent recurrence will help to ensure the availability and reliability of the turbine driven auxiliary feedwater pump. This finding was evaluated in accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, and screened to Green since it was not a qualification or design deficiency, did not represent a loss of system or function, and did not exceed its TS allowed outage time. The inspectors determined this issue had a cross cutting aspect in Human Performance, Consistent Process, where individuals use a consistent, systematic approach to make decisions. Specifically, Dominion inappropriately used the corrective action procedure to change the causal evaluation category without properly balancing the risk of the decision, and therefore did not develop corrective actions to prevent recurrence for a significant condition adverse to quality. (H.13)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Implement Procedural Guidance During a Loss of RCS Inventory

The NRC identified a Green NCV of Millstone Power Station Unit No. 2 Technical Specifications (TS) 6.8.1, "Procedures" involving Dominion's failure to implement procedural steps when prompted by plant conditions to mitigate the event. Specifically, when pressurizer (PZR) level began to decrease while placing the shutdown cooling (SDC) system in service, the crew did not implement procedural guidance in OP-2207, "Plant Cooldown," nor enter AOP 2568A, "RCS Leak, Mode 4, 5, 6, and Defueled," as these procedures would have directed operators to locate the source of the leak. Later in the event, once the procedural guidance was implemented, action was taken to identify the location of the leak and it was isolated. After the event, selected crew members were removed from watch standing duties pending remediation. Dominion entered this issue into their corrective action program as CR1012358. The finding was more than minor because it is associated with the human 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 (i.e., core damage). Specifically, when entry conditions were met, operators did not implement procedural guidance that would have directed them to locate the source of the leak. The finding screened to very low safety significance (Green) using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Screening and Characterization of Findings," Exhibit 3 - Mitigating Systems Screening Questions. Specifically, the finding did not represent a loss of system safety function. This finding had a cross-cutting aspect in the area of Human Performance, Procedure Adherence, in that licensed operators are expected to implement processes, procedures, and work instructions. Specifically, Dominion operators did not implement procedural guidance when prompted by plant conditions immediately after starting the "A" Low Pressure Safety Injection Pump (LPSI).

Inspection Report# : [2015012](#) (*pdf*)

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure of the STA to Support the Crew During a Plant Cooldown

The NRC identified a Green NCV of Millstone Power Station Unit No. 2 TS 6.8.1, "Procedures" involving the shift technical advisor's (STA's) failure to follow position-specific procedural guidance, to support all phases of plant

operation. Specifically, the STA was not involved in providing independent, objective, and technical assessment of plant conditions when PZR level began to decrease when SDC was being placed in service and during the subsequent cooldown. Later in the event, the STA did provide support to the crew to confirm the existence of a leak. After the event, the STA was removed from watch standing duties pending remediation. Dominion entered this issue into their corrective action program as CR1012358.

The finding was more than minor because it is associated with the human 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 (i.e., core damage). Specifically, during the initiation and operation of the SDC system, the STA did not provide sufficient technical input to aid the crew in the determination of the existence of a reactor coolant system leak. The finding screened to very low safety significance (Green) using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Screening and Characterization of Findings," Exhibit 3 - Mitigating Systems Screening Questions. Specifically, the finding did not represent a loss of system safety function. This finding had a cross-cutting aspect in the area of Human Performance, Teamwork, in that individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, the STA did not fulfill his responsibilities to support the crew by assessing plant conditions during the initiation and operation of the SDC system during the plant cooldown.

Inspection Report# : [2015012](#) (pdf)

Significance: G May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Reactor Building Closed Cooling Water System Pump Oil Leakage Results in Technical Specification Inoperability

The team identified a non-cited violation (NCV) of Millstone Power Station Unit 2, Technical Specification (TS) 3.7.3.1 the reactor building component cooling water (RBCCW) system Limiting Condition of Operation (LCO) in that Dominion failed to maintain two loops of RBCCW operable. The team found that following the identification of a degraded condition for the "C" RBCCW pump, Dominion incorrectly concluded the loop remained operable.

Specifically, the team determined that from February 4 to February 23, 2015, the RBCCW "B" loop was inoperable because oil leakage from the "C" RBCCW outboard pump bearing would have caused the complete loss of oil to the pump bearing, without operator compensatory action, before the "C" RBCCW train would have completed its design basis 30-day mission time.

Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," Section A, "Mitigating Systems, Structures or Components and Functionality," the team determined that the finding required a detailed risk evaluation due to actual loss of function of at least a single train for greater than its TS allowed outage time. The Region I Senior Reactor Analyst (SRA)

identified that because the finding involved the "C" RBCCW pump function to run for its mission time, the only accident events adversely impacted are the large break loss of coolant accident (LLOCA) sequences. The condition was conservatively modeled assuming an exposure period of one year with the "C" RBCCW pump failure to run basic event set to True. The resultant change in risk was estimated at mid E-8, or very low safety significance (Green). The

dominated risk sequences involve a LLOCA with the failure of the remaining RBCCW pumps due to common cause. Since the estimated risk increase was less than 1E-8, no additional evaluation of external events contribution or change in large early release frequency (LERF) was required. The team concluded that this issue has a cross-cutting aspect in the Human

Performance cross-cutting area of Conservative Bias: Individuals use decision-making practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop.

Specifically, Dominion determined that the qualitative bubbler leak rate was acceptable without

evaluation against quantified operability criteria. (H.14)

Inspection Report# : [2015007](#) (pdf)

Significance: G May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Provide 10 CFR 50.59 Evaluation for Interim Action Associated with Implementation of Operability Determination Procedure

The team identified a Severity Level IV, non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) 50.59, “Changes, Tests, and Experiments,” in that Dominion failed to perform a written evaluation to provide the bases for determining whether a change to the facility required a license amendment. Specifically, the team identified that contrary to 10 CFR 50.59, Dominion failed to properly evaluate operator compensatory actions to refill an oil bubbler on the “C” reactor building component cooling water (RBCCW) pump that was leaking oil at a rate that would have prevented the pump from meeting its design basis 30-day mission time. The team identified that contributing to this performance deficiency was that station procedure OP-AA-102, Attachment 1, Immediate Operability Determination Guidelines, Step 7.c., associated with the evaluation of oil and coolant leakage in order to establish operability for this type of degraded condition, incorrectly instructs the Dominion staff that the use of compensatory actions is acceptable without performing a formal operability determination.

In accordance with the NRC Enforcement Policy Section 6.1, the team used IMC 0609 to inform the severity of this 10 CFR 50.59 violation. Per IMC 0609, the team determined that the finding required a detailed risk evaluation due to actual loss of function of at least a single train for greater than its TS allowed outage time. The Region I SRA identified that because the finding involved the “C” RBCCW pump function to run for its mission time, the only accident events adversely impacted are the LLOCA sequences. The condition was conservatively modeled assuming an exposure period of one year with the “C” RBCCW pump failure to run basic event set to True. The resultant change in risk was estimated at mid E-8, or very low safety significance (Green). The dominated risk sequences involve a LLOCA with the failure of the remaining RBCCW pumps due to common cause. Since the estimated risk increase was less than 1E-8, no additional evaluation of external events contribution or change in LERF was required. Accordingly, per Section 6.1.d of the NRC Enforcement Policy, the severity of the violation of 10 CFR 50.59 was determined to be Severity Level IV, as it resulted in conditions evaluated as having very low safety significance (Green) by the Significant Determination Process (SDP).

There is no cross-cutting aspect associated with this violation as cross-cutting aspects are not assigned to traditional enforcement evaluations.

Inspection Report# : [2015007](#) (pdf)

Significance: G May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Evaluation of Circuit Breaker Interrupting Capability

The team identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, “Design Control,” in that Dominion did not correctly evaluate the capability of 4.16 kV breakers to function properly during 3-phase bolted fault design condition. The team reviewed Millstone Unit 2 electrical distribution system analysis calculation (MP2-

ENG-ETAP-04014E2), which evaluated adequacy of the circuit breakers for their interrupting rating in accordance with the Institute of Electrical and Electronics Engineers/American National Standards Institute (IEEE/ANSI) C37 series standards, and determined that Dominion's shortcircuit fault current calculation did not assume the maximum plant operating voltage as a pre-fault voltage at the 4.16 kV bus and did not evaluate the plant configuration when emergency diesel generators (EDG) are operating in parallel with offsite power on the associated 4.16 kV emergency bus. The team determined this short-circuit fault current calculation was not in accordance with IEEE/ANSI C37 series standards and was non-conservative in some cases. Dominion entered the issue into their corrective action program and performed additional analysis to determine if the inability of the breaker to interrupt the fault current would result in the fault current affecting the other safety related bus. Dominion concluded that the other bus would not be affected. The team reviewed the analysis and determined it to be acceptable. The finding was determined to be more than minor because it was associated with the Mitigating Systems cornerstone Design Control attribute and adversely affected the cornerstone's objective and was similar to Example 3.j in Appendix E of the NRC IMC 0612. Using the NRC IMC 0609, "Significance Determination Process," Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety significance (Green). There was no crosscutting aspect assigned to the finding because it was not an indicative of current performance.

Inspection Report# : [2015007](#) (*pdf*)

Significance: G Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Replace Defective Fuses in the "A" EDG Resulting in Generator Failure

The inspectors identified a Green, Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI associated with Dominion's failure to prevent recurrence of a significant condition adverse to quality, installation of defective fuses in the Unit 2 EDGs from September 26, 2015 until October 23, 2015. Dominion took corrective actions to replace the defective fuses in both EDGs and assess the extent of condition in other safety systems.

This finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, as it represented a challenge to the equipment performance attribute of the Reactor Safety – Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding screened to be of very low safety significance because the finding did not represent an actual loss of function of a single train for greater than its allowable outage time. The inspectors assigned a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area associated with Operating Experience, in that Dominion failed to effectively implement relevant internal and external operating experience. [P.5]

Inspection Report# : [2015001](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

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 : March 01, 2016

Millstone 2

1Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Procedure Failed to Direct Adequate Venting of SDC System

A self-revealing Green NCV of Millstone Power Station Unit No. 2 TS 6.8.1, "Procedures," was identified because the procedure used by Dominion to place the SDC system in service did not verify that the SDC suction line to the LPSI pumps was filled and vented prior to placing the system in service which appears to be the likely cause for opening SDC suction Relief Valve (RV) 2-SI-468. To address this issue, Dominion revised the procedure to include venting at SI-075 as part of step 4.12.2 of OP 2207. Dominion entered this issue into their corrective action program as CR1011898.

The finding was more than minor because it was associated with procedure quality 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 operations. Specifically, the finding identifies an increase in the likelihood of a loss of SDC resulting from the unexpected opening of RV 2-SI-468. Using a bounding and conservative quantitative detailed risk analysis, coupled with deterministic risk-informed defense-in-depth considerations, the finding was determined to be of very low risk significance.

This finding had a cross-cutting aspect in the area of Human Performance, Resources, because Dominion did not ensure procedures were adequate to support nuclear safety. Specifically, the plant cooldown procedure did not ensure that the SDC suction line to the LPSI pumps was full of water prior to placing the system in service.

Inspection Report# : [2015012](#) (*pdf*)

Significance:  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:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Charging Packing Lubrication Pump Inadequate Operating Procedure Acceptance Criteria

The inspectors identified a Green, Non-Cited Violation (NCV) of 10 CFR 50 Appendix B Criterion V, Instructions, Procedures, and Drawings associated with Dominion's failure to include in the Unit 2 charging pump operating procedure appropriate acceptance criteria for determining operability of the Unit 2 charging pumps upon the loss of the associated charging flushing/lubrication pump. Specifically, Dominion implemented a procedure change which stated that the condition of the charging flushing/lubrication pumps does not affect charging pump operability or mission time without supporting technical information and contrary to guidance provided in the charging pump vendor technical manual, impacting an operability determination on December 13, 2015. Dominion has entered the concern associated with the charging pump operability acceptance criteria into their corrective action program under CR1021512.

This finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Reactor Safety – 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. Further, this finding was found to be consistent with more than minor examples 3.j and 3.k of IMC 0612, Appendix E, "Examples of Minor Issues," dated August 11, 2009. This finding was evaluated 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," and screened to Green since it was not a qualification or design deficiency, did not represent a loss of system or function, and did not exceed its TS allowed outage time. Inspectors identified a cross-cutting aspect in the Human Performance cross-cutting area associated with Documentation in that Dominion lacked technical documentation to support the operability assertion in the charging pump operating procedure to address contrary guidance provided in the charging pump vendor manual. (H.7)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Turbine Driven Auxiliary Feedwater Pump Corrective Actions to Prevent Recurrence

The inspectors identified a green NCV of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, for Dominion's failure to take corrective action to prevent recurrence for a significant condition adverse to quality according to the definition in PI-AA-200, "Corrective Action." Specifically, PI-AA-200 lists "unplanned entry into a technical specification (TS) action that results in taking a unit off-line" as an example of a significant condition adverse to quality. On July 26, 2014, Dominion performed a shutdown of Unit 2 upon expiration of the allowed outage time of TS action statement 3.7.1.2 for the turbine driven auxiliary feedwater pump. Dominion cancelled the root cause evaluation assigned to investigate the cause of the plant shutdown, stating that the direct cause of the shutdown was

foreign material in the flow orifice. No corrective actions to prevent recurrence (CAPRs) were assigned after the direct cause was determined. Dominion entered this issue into their corrective action program as CR 1019514.

This performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Reactor Safety – 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, taking corrective actions to prevent recurrence will help to ensure the availability and reliability of the turbine driven auxiliary feedwater pump. This finding was evaluated in accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, and screened to Green since it was not a qualification or design deficiency, did not represent a loss of system or function, and did not exceed its TS allowed outage time. The inspectors determined this issue had a cross cutting aspect in Human Performance, Consistent Process, where individuals use a consistent, systematic approach to make decisions. Specifically, Dominion inappropriately used the corrective action procedure to change the causal evaluation category without properly balancing the risk of the decision, and therefore did not develop corrective actions to prevent recurrence for a significant condition adverse to quality. (H.13)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Implement Procedural Guidance During a Loss of RCS Inventory

The NRC identified a Green NCV of Millstone Power Station Unit No. 2 Technical Specifications (TS) 6.8.1, "Procedures" involving Dominion's failure to implement procedural steps when prompted by plant conditions to mitigate the event. Specifically, when pressurizer (PZR) level began to decrease while placing the shutdown cooling (SDC) system in service, the crew did not implement procedural guidance in OP-2207, "Plant Cooldown," nor enter AOP 2568A, "RCS Leak, Mode 4, 5, 6, and Defueled," as these procedures would have directed operators to locate the source of the leak. Later in the event, once the procedural guidance was implemented, action was taken to identify the location of the leak and it was isolated. After the event, selected crew members were removed from watch standing duties pending remediation. Dominion entered this issue into their corrective action program as CR1012358. The finding was more than minor because it is associated with the human 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 (i.e., core damage). Specifically, when entry conditions were met, operators did not implement procedural guidance that would have directed them to locate the source of the leak. The finding screened to very low safety significance (Green) using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Screening and Characterization of Findings," Exhibit 3 - Mitigating Systems Screening Questions. Specifically, the finding did not represent a loss of system safety function. This finding had a cross-cutting aspect in the area of Human Performance, Procedure Adherence, in that licensed operators are expected to implement processes, procedures, and work instructions. Specifically, Dominion operators did not implement procedural guidance when prompted by plant conditions immediately after starting the "A" Low Pressure Safety Injection Pump (LPSI).

Inspection Report# : [2015012](#) (*pdf*)

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure of the STA to Support the Crew During a Plant Cooldown

The NRC identified a Green NCV of Millstone Power Station Unit No. 2 TS 6.8.1, "Procedures" involving the shift technical advisor's (STA's) failure to follow position-specific procedural guidance, to support all phases of plant

operation. Specifically, the STA was not involved in providing independent, objective, and technical assessment of plant conditions when PZR level began to decrease when SDC was being placed in service and during the subsequent cooldown. Later in the event, the STA did provide support to the crew to confirm the existence of a leak. After the event, the STA was removed from watch standing duties pending remediation. Dominion entered this issue into their corrective action program as CR1012358.

The finding was more than minor because it is associated with the human 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 (i.e., core damage). Specifically, during the initiation and operation of the SDC system, the STA did not provide sufficient technical input to aid the crew in the determination of the existence of a reactor coolant system leak. The finding screened to very low safety significance (Green) using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Screening and Characterization of Findings," Exhibit 3 - Mitigating Systems Screening Questions. Specifically, the finding did not represent a loss of system safety function. This finding had a cross-cutting aspect in the area of Human Performance, Teamwork, in that individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, the STA did not fulfill his responsibilities to support the crew by assessing plant conditions during the initiation and operation of the SDC system during the plant cooldown.

Inspection Report# : [2015012](#) (pdf)

Significance:  May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Reactor Building Closed Cooling Water System Pump Oil Leakage Results in Technical Specification Inoperability

The team identified a non-cited violation (NCV) of Millstone Power Station Unit 2, Technical Specification (TS) 3.7.3.1 the reactor building component cooling water (RBCCW) system Limiting Condition of Operation (LCO) in that Dominion failed to maintain two loops of RBCCW operable. The team found that following the identification of a degraded condition for the "C" RBCCW pump, Dominion incorrectly concluded the loop remained operable.

Specifically, the team determined that from February 4 to February 23, 2015, the RBCCW "B" loop was inoperable because oil leakage from the "C" RBCCW outboard pump bearing would have caused the complete loss of oil to the pump bearing, without operator compensatory action, before the "C" RBCCW train would have completed its design basis 30-day mission time.

Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," Section A, "Mitigating Systems, Structures or Components and Functionality," the team determined that the finding required a detailed risk evaluation due to actual loss of function of at least a single train for greater than its TS allowed outage time. The Region I Senior Reactor Analyst (SRA)

identified that because the finding involved the "C" RBCCW pump function to run for its mission time, the only accident events adversely impacted are the large break loss of coolant accident (LLOCA) sequences. The condition was conservatively modeled assuming an exposure period of one year with the "C" RBCCW pump failure to run basic event set to True. The resultant change in risk was estimated at mid E-8, or very low safety significance (Green). The

dominated risk sequences involve a LLOCA with the failure of the remaining RBCCW pumps due to common cause. Since the estimated risk increase was less than 1E-8, no additional evaluation of external events contribution or change in large early release frequency (LERF) was required. The team concluded that this issue has a cross-cutting aspect in the Human

Performance cross-cutting area of Conservative Bias: Individuals use decision-making practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop.

Specifically, Dominion determined that the qualitative bubbler leak rate was acceptable without

evaluation against quantified operability criteria. (H.14)

Inspection Report# : [2015007](#) (pdf)

Significance: G May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Provide 10 CFR 50.59 Evaluation for Interim Action Associated with Implementation of Operability Determination Procedure

The team identified a Severity Level IV, non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) 50.59, “Changes, Tests, and Experiments,” in that Dominion failed to perform a written evaluation to provide the bases for determining whether a change to the facility required a license amendment. Specifically, the team identified that contrary to 10 CFR 50.59, Dominion failed to properly evaluate operator compensatory actions to refill an oil bubbler on the “C” reactor building component cooling water (RBCCW) pump that was leaking oil at a rate that would have prevented the pump from meeting its design basis 30-day mission time. The team identified that contributing to this performance deficiency was that station procedure OP-AA-102, Attachment 1, Immediate Operability Determination Guidelines, Step 7.c., associated with the evaluation of oil and coolant leakage in order to establish operability for this type of degraded condition, incorrectly instructs the Dominion staff that the use of compensatory actions is acceptable without performing a formal operability determination.

In accordance with the NRC Enforcement Policy Section 6.1, the team used IMC 0609 to inform the severity of this 10 CFR 50.59 violation. Per IMC 0609, the team determined that the finding required a detailed risk evaluation due to actual loss of function of at least a single train for greater than its TS allowed outage time. The Region I SRA identified that because the finding involved the “C” RBCCW pump function to run for its mission time, the only accident events adversely impacted are the LLOCA sequences. The condition was conservatively modeled assuming an exposure period of one year with the “C” RBCCW pump failure to run basic event set to True. The resultant change in risk was estimated at mid E-8, or very low safety significance (Green). The dominated risk sequences involve a LLOCA with the failure of the remaining RBCCW pumps due to common cause. Since the estimated risk increase was less than 1E-8, no additional evaluation of external events contribution or change in LERF was required. Accordingly, per Section 6.1.d of the NRC Enforcement Policy, the severity of the violation of 10 CFR 50.59 was determined to be Severity Level IV, as it resulted in conditions evaluated as having very low safety significance (Green) by the Significant Determination Process (SDP).

There is no cross-cutting aspect associated with this violation as cross-cutting aspects are not assigned to traditional enforcement evaluations.

Inspection Report# : [2015007](#) (pdf)

Significance: G May 01, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Evaluation of Circuit Breaker Interrupting Capability

The team identified a finding of very low safety significance (Green) involving a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion III, “Design Control,” in that Dominion did not correctly evaluate the capability of 4.16 kV breakers to function properly during 3-phase bolted fault design condition. The team reviewed Millstone Unit 2 electrical distribution system analysis calculation (MP2-

ENG-ETAP-04014E2), which evaluated adequacy of the circuit breakers for their interrupting rating in accordance with the Institute of Electrical and Electronics Engineers/American National Standards Institute (IEEE/ANSI) C37 series standards, and determined that Dominion's short-circuit fault current calculation did not assume the maximum plant operating voltage as a pre-fault voltage at the 4.16 kV bus and did not evaluate the plant configuration when emergency diesel generators (EDG) are operating in parallel with offsite power on the associated 4.16 kV emergency bus. The team determined this short-circuit fault current calculation was not in accordance with IEEE/ANSI C37 series standards and was non-conservative in some cases. Dominion entered the issue into their corrective action program and performed additional analysis to determine if the inability of the breaker to interrupt the fault current would result in the fault current affecting the other safety related bus. Dominion concluded that the other bus would not be affected. The team reviewed the analysis and determined it to be acceptable. The finding was determined to be more than minor because it was associated with the Mitigating Systems cornerstone Design Control attribute and adversely affected the cornerstone's objective and was similar to Example 3.j in Appendix E of the NRC IMC 0612. Using the NRC IMC 0609, "Significance Determination Process," Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety significance (Green). There was no crosscutting aspect assigned to the finding because it was not an indicative of current performance.

Inspection Report# : [2015007](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

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 : July 11, 2016

Millstone 2

2Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Procedure Failed to Direct Adequate Venting of SDC System

A self-revealing Green NCV of Millstone Power Station Unit No. 2 TS 6.8.1, "Procedures," was identified because the procedure used by Dominion to place the SDC system in service did not verify that the SDC suction line to the LPSI pumps was filled and vented prior to placing the system in service which appears to be the likely cause for opening SDC suction Relief Valve (RV) 2-SI-468. To address this issue, Dominion revised the procedure to include venting at SI-075 as part of step 4.12.2 of OP 2207. Dominion entered this issue into their corrective action program as CR1011898.

The finding was more than minor because it was associated with procedure quality 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 operations. Specifically, the finding identifies an increase in the likelihood of a loss of SDC resulting from the unexpected opening of RV 2-SI-468. Using a bounding and conservative quantitative detailed risk analysis, coupled with deterministic risk-informed defense-in-depth considerations, the finding was determined to be of very low risk significance.

This finding had a cross-cutting aspect in the area of Human Performance, Resources, because Dominion did not ensure procedures were adequate to support nuclear safety. Specifically, the plant cooldown procedure did not ensure that the SDC suction line to the LPSI pumps was full of water prior to placing the system in service.

Inspection Report# : [2015012](#) (*pdf*)

Significance:  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:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Charging Packing Lubrication Pump Inadequate Operating Procedure Acceptance Criteria

The inspectors identified a Green, Non-Cited Violation (NCV) of 10 CFR 50 Appendix B Criterion V, Instructions, Procedures, and Drawings associated with Dominion's failure to include in the Unit 2 charging pump operating procedure appropriate acceptance criteria for determining operability of the Unit 2 charging pumps upon the loss of the associated charging flushing/lubrication pump. Specifically, Dominion implemented a procedure change which stated that the condition of the charging flushing/lubrication pumps does not affect charging pump operability or mission time without supporting technical information and contrary to guidance provided in the charging pump vendor technical manual, impacting an operability determination on December 13, 2015. Dominion has entered the concern associated with the charging pump operability acceptance criteria into their corrective action program under CR1021512.

This finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Reactor Safety – 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. Further, this finding was found to be consistent with more than minor examples 3.j and 3.k of IMC 0612, Appendix E, "Examples of Minor Issues," dated August 11, 2009. This finding was evaluated 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," and screened to Green since it was not a qualification or design deficiency, did not represent a loss of system or function, and did not exceed its TS allowed outage time. Inspectors identified a cross-cutting aspect in the Human Performance cross-cutting area associated with Documentation in that Dominion lacked technical documentation to support the operability assertion in the charging pump operating procedure to address contrary guidance provided in the charging pump vendor manual. (H.7)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Turbine Driven Auxiliary Feedwater Pump Corrective Actions to Prevent Recurrence

The inspectors identified a green NCV of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, for Dominion's failure to take corrective action to prevent recurrence for a significant condition adverse to quality according to the definition in PI-AA-200, "Corrective Action." Specifically, PI-AA-200 lists "unplanned entry into a technical specification (TS) action that results in taking a unit off-line" as an example of a significant condition adverse to quality. On July 26, 2014, Dominion performed a shutdown of Unit 2 upon expiration of the allowed outage time of TS action statement 3.7.1.2 for the turbine driven auxiliary feedwater pump. Dominion cancelled the root cause evaluation assigned to investigate the cause of the plant shutdown, stating that the direct cause of the shutdown was

foreign material in the flow orifice. No corrective actions to prevent recurrence (CAPRs) were assigned after the direct cause was determined. Dominion entered this issue into their corrective action program as CR 1019514.

This performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Reactor Safety – 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, taking corrective actions to prevent recurrence will help to ensure the availability and reliability of the turbine driven auxiliary feedwater pump. This finding was evaluated in accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, and screened to Green since it was not a qualification or design deficiency, did not represent a loss of system or function, and did not exceed its TS allowed outage time. The inspectors determined this issue had a cross cutting aspect in Human Performance, Consistent Process, where individuals use a consistent, systematic approach to make decisions. Specifically, Dominion inappropriately used the corrective action procedure to change the causal evaluation category without properly balancing the risk of the decision, and therefore did not develop corrective actions to prevent recurrence for a significant condition adverse to quality. (H.13)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Implement Procedural Guidance During a Loss of RCS Inventory

The NRC identified a Green NCV of Millstone Power Station Unit No. 2 Technical Specifications (TS) 6.8.1, "Procedures" involving Dominion's failure to implement procedural steps when prompted by plant conditions to mitigate the event. Specifically, when pressurizer (PZR) level began to decrease while placing the shutdown cooling (SDC) system in service, the crew did not implement procedural guidance in OP-2207, "Plant Cooldown," nor enter AOP 2568A, "RCS Leak, Mode 4, 5, 6, and Defueled," as these procedures would have directed operators to locate the source of the leak. Later in the event, once the procedural guidance was implemented, action was taken to identify the location of the leak and it was isolated. After the event, selected crew members were removed from watch standing duties pending remediation. Dominion entered this issue into their corrective action program as CR1012358. The finding was more than minor because it is associated with the human 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 (i.e., core damage). Specifically, when entry conditions were met, operators did not implement procedural guidance that would have directed them to locate the source of the leak. The finding screened to very low safety significance (Green) using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Screening and Characterization of Findings," Exhibit 3 - Mitigating Systems Screening Questions. Specifically, the finding did not represent a loss of system safety function. This finding had a cross-cutting aspect in the area of Human Performance, Procedure Adherence, in that licensed operators are expected to implement processes, procedures, and work instructions. Specifically, Dominion operators did not implement procedural guidance when prompted by plant conditions immediately after starting the "A" Low Pressure Safety Injection Pump (LPSI).

Inspection Report# : [2015012](#) (*pdf*)

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure of the STA to Support the Crew During a Plant Cooldown

The NRC identified a Green NCV of Millstone Power Station Unit No. 2 TS 6.8.1, "Procedures" involving the shift technical advisor's (STA's) failure to follow position-specific procedural guidance, to support all phases of plant

operation. Specifically, the STA was not involved in providing independent, objective, and technical assessment of plant conditions when PZR level began to decrease when SDC was being placed in service and during the subsequent cooldown. Later in the event, the STA did provide support to the crew to confirm the existence of a leak. After the event, the STA was removed from watch standing duties pending remediation. Dominion entered this issue into their corrective action program as CR1012358.

The finding was more than minor because it is associated with the human 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 (i.e., core damage). Specifically, during the initiation and operation of the SDC system, the STA did not provide sufficient technical input to aid the crew in the determination of the existence of a reactor coolant system leak. The finding screened to very low safety significance (Green) using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Screening and Characterization of Findings," Exhibit 3 - Mitigating Systems Screening Questions. Specifically, the finding did not represent a loss of system safety function. This finding had a cross-cutting aspect in the area of Human Performance, Teamwork, in that individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, the STA did not fulfill his responsibilities to support the crew by assessing plant conditions during the initiation and operation of the SDC system during the plant cooldown.

Inspection Report# : [2015012](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

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 : August 29, 2016

Millstone 2

3Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Procedure Failed to Direct Adequate Venting of SDC System

A self-revealing Green NCV of Millstone Power Station Unit No. 2 TS 6.8.1, "Procedures," was identified because the procedure used by Dominion to place the SDC system in service did not verify that the SDC suction line to the LPSI pumps was filled and vented prior to placing the system in service which appears to be the likely cause for opening SDC suction Relief Valve (RV) 2-SI-468. To address this issue, Dominion revised the procedure to include venting at SI-075 as part of step 4.12.2 of OP 2207. Dominion entered this issue into their corrective action program as CR1011898.

The finding was more than minor because it was associated with procedure quality 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 operations. Specifically, the finding identifies an increase in the likelihood of a loss of SDC resulting from the unexpected opening of RV 2-SI-468. Using a bounding and conservative quantitative detailed risk analysis, coupled with deterministic risk-informed defense-in-depth considerations, the finding was determined to be of very low risk significance.

This finding had a cross-cutting aspect in the area of Human Performance, Resources, because Dominion did not ensure procedures were adequate to support nuclear safety. Specifically, the plant cooldown procedure did not ensure that the SDC suction line to the LPSI pumps was full of water prior to placing the system in service.

Inspection Report# : [2015012](#) (*pdf*)

Significance:  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:  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 Take Corrective Action to Preclude Repetition of the Condition that Caused Premature Failure of a Battery Cell

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 take corrective actions to preclude repetition of a significant condition adverse to quality. On February 26, 2014, Millstone Unit 2 station battery '201B,' cell 27, failed, which was screened as a significant condition adverse to quality in accordance with Dominion's procedures. Dominion evaluated the issue and identified three potential causes but did not institute corrective actions to preclude repetition. 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 it was associated with 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. Specifically, absent corrective actions to preclude repetition of the cause of the failure of battery '201B,' cell 27, the objective to ensure the reliability of safety related direct current (dc) battery systems was adversely affected. The inspectors also observed conditions which were consistent with precursors to the potential failure modes identified by Dominion that were not previously entered into a tracking database or the corrective action program. 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, Challenging the Unknown, because Dominion identified three potential causes and when faced with an uncertain condition decided to not take corrective action to preclude repetition.

Inspection Report# : [2016009](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Charging Picking Lubrication Pump Inadequate Operating Procedure Acceptance Criteria

The inspectors identified a Green, Non-Cited Violation (NCV) of 10 CFR 50 Appendix B Criterion V, Instructions, Procedures, and Drawings associated with Dominion's failure to include in the Unit 2 charging pump operating procedure appropriate acceptance criteria for determining operability of the Unit 2 charging pumps upon the loss of the associated charging flushing/lubrication pump. Specifically, Dominion implemented a procedure change which stated that the condition of the charging flushing/lubrication pumps does not affect charging pump operability or mission time without supporting technical information and contrary to guidance provided in the charging pump vendor technical manual, impacting an operability determination on December 13, 2015. Dominion has entered the concern associated with the charging pump operability acceptance criteria into their corrective action program under CR1021512.

This finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Reactor Safety – 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. Further, this finding was found to be consistent with more than minor examples 3.j and 3.k of IMC 0612, Appendix E, "Examples of Minor Issues," dated August 11, 2009. This finding was evaluated 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," and screened to Green since it was not a qualification or design deficiency, did not represent a loss of system or function, and did not exceed its TS allowed outage time. Inspectors identified a cross-cutting aspect in the Human Performance cross-cutting area associated with Documentation in that Dominion lacked technical documentation to support the operability assertion in the charging pump operating procedure to address contrary guidance provided in the charging pump vendor manual. (H.7)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Turbine Driven Auxiliary Feedwater Pump Corrective Actions to Prevent Recurrence

The inspectors identified a green NCV of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, for Dominion's

failure to take corrective action to prevent recurrence for a significant condition adverse to quality according to the definition in PI-AA-200, "Corrective Action." Specifically, PI-AA-200 lists "unplanned entry into a technical specification (TS) action that results in taking a unit off-line" as an example of a significant condition adverse to quality. On July 26, 2014, Dominion performed a shutdown of Unit 2 upon expiration of the allowed outage time of TS action statement 3.7.1.2 for the turbine driven auxiliary feedwater pump. Dominion cancelled the root cause evaluation assigned to investigate the cause of the plant shutdown, stating that the direct cause of the shutdown was foreign material in the flow orifice. No corrective actions to prevent recurrence (CAPRs) were assigned after the direct cause was determined. Dominion entered this issue into their corrective action program as CR 1019514.

This performance deficiency was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the equipment performance attribute of the Reactor Safety – 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, taking corrective actions to prevent recurrence will help to ensure the availability and reliability of the turbine driven auxiliary feedwater pump. This finding was evaluated in accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, Exhibit 2, and screened to Green since it was not a qualification or design deficiency, did not represent a loss of system or function, and did not exceed its TS allowed outage time. The inspectors determined this issue had a cross cutting aspect in Human Performance, Consistent Process, where individuals use a consistent, systematic approach to make decisions. Specifically, Dominion inappropriately used the corrective action procedure to change the causal evaluation category without properly balancing the risk of the decision, and therefore did not develop corrective actions to prevent recurrence for a significant condition adverse to quality. (H.13)

Inspection Report# : [2015004](#) (*pdf*)

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Implement Procedural Guidance During a Loss of RCS Inventory

The NRC identified a Green NCV of Millstone Power Station Unit No. 2 Technical Specifications (TS) 6.8.1, "Procedures" involving Dominion's failure to implement procedural steps when prompted by plant conditions to mitigate the event. Specifically, when pressurizer (PZR) level began to decrease while placing the shutdown cooling (SDC) system in service, the crew did not implement procedural guidance in OP-2207, "Plant Cooldown," nor enter AOP 2568A, "RCS Leak, Mode 4, 5, 6, and Defueled," as these procedures would have directed operators to locate the source of the leak. Later in the event, once the procedural guidance was implemented, action was taken to identify the location of the leak and it was isolated. After the event, selected crew members were removed from watch standing duties pending remediation. Dominion entered this issue into their corrective action program as CR1012358. The finding was more than minor because it is associated with the human 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 (i.e., core damage). Specifically, when entry conditions were met, operators did not implement procedural guidance that would have directed them to locate the source of the leak. The finding screened to very low safety significance (Green) using Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Screening and Characterization of Findings," Exhibit 3 - Mitigating Systems Screening Questions. Specifically, the finding did not represent a loss of system safety function. This finding had a cross-cutting aspect in the area of Human Performance, Procedure Adherence, in that licensed operators are expected to implement processes, procedures, and work instructions. Specifically, Dominion operators did not implement procedural guidance when prompted by plant conditions immediately after starting the "A" Low Pressure Safety Injection Pump (LPSI).

Inspection Report# : [2015012](#) (*pdf*)

Significance:  Nov 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure of the STA to Support the Crew During a Plant Cooldown

The NRC identified a Green NCV of Millstone Power Station Unit No. 2 TS 6.8.1, “Procedures” involving the shift technical advisor’s (STA’s) failure to follow position-specific procedural guidance, to support all phases of plant operation. Specifically, the STA was not involved in providing independent, objective, and technical assessment of plant conditions when PZR level began to decrease when SDC was being place in service and during the subsequent cooldown. Later in the event, the STA did provide support to the crew to confirm the existence of a leak. After the event, the STA was removed from watch standing duties pending remediation. Dominion entered this issue into their corrective action program as CR1012358.

The finding was more than minor because it is associated with the human 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 (i.e., core damage). Specifically, during the initiation and operation of the SDC system, the STA did not provide sufficient technical input to aid the crew in the determination of the existence of a reactor coolant system leak. The finding screened to very low safety significance (Green) using Manual Chapter 0609, Appendix G, Attachment 1, “Shutdown Operations Significance Determination Process Phase 1 Screening and Characterization of Findings,” Exhibit 3 - Mitigating Systems Screening Questions. Specifically, the finding did not represent a loss of system safety function. This finding had a cross-cutting aspect in the area of Human Performance, Teamwork, in that individuals and work groups communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety is maintained. Specifically, the STA did not fulfill his responsibilities to support the crew by assessing plant conditions during the initiation and operation of the SDC system during the plant cooldown.

Inspection Report# : [2015012](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

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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.

Security

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Miscellaneous

Last modified : December 08, 2016

Millstone 2

4Q/2016 Plant Inspection Findings

Initiating Events

Significance:  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:  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:  Aug 11, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unapproved OMA in Lieu of Meeting III.G.2 Fire Protection Requirements for Fire Area R-14, Lower 4kV Switchgear Room and Cable Vault

The team identified a finding of very low safety significance (Green) involving a non-cited violation of Millstone Power Station, Unit 2, Renewed Facility Operating License Condition 2.C.(3) to implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report (FSAR). Specifically, Dominion failed to maintain the #2 steam generator (SG) atmospheric dump valve (ADV) free from fire damage, which may have affected the availability to maintain hot shutdown conditions from the main control room for a fire in Fire Area R-14, Lower 4.16kV Switchgear Room and Cable Vault. Dominion promptly entered this safe shutdown issue into their corrective action program as condition report (CR) 1043458. Immediate corrective actions included implementing compensatory measures in the form of fire watches for fire area R-14 that are being tracked by Reasonable Assurance of Safety (RAS) determination 3037040. Longer term corrective actions included submitting an exemption request to the NRC for use of a local operator manual action (OMA) to operate the #2 SG ADV in lieu of meeting fire protection requirements for fire area R-14. The team considered Dominion's immediate and longer term corrective actions appropriate.

The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to an external event to prevent undesirable consequences in the event of a fire. Specifically, the use of an OMA during post-fire safe shutdown is not as reliable as normal systems operation which could be utilized had the requirements of 10 CFR Part 50, Appendix R, Section III.G.2 been met and, therefore, prevented fire damage to credited components and/or cables, specifically the #2 SG ADV. The inspectors used IMC 0609, Appendix F, Fire Protection Significance Determination Process, Phase 1 and determined the reactor is able to reach and maintain a hot safe shutdown condition because the SG ADVs are used for transition to cold shutdown, therefore this finding was of very low safety significance (Green). This finding does not have a cross cutting aspect because the performance deficiency occurred greater than three years ago when the June 30, 2011 exemption request letter to the NRC was supplemented by letter on February 29, 2012, and is not indicative of current licensee performance.

Inspection Report# : [2016008](#) (pdf)

Significance:  Jul 22, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Take Corrective Action to Preclude Repetition of the Condition that Caused Premature Failure of a Battery Cell

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 take corrective actions to preclude repetition of a significant condition adverse to quality. On February 26, 2014, Millstone Unit 2 station battery ‘201B,’ cell 27, failed, which was screened as a significant condition adverse to quality in accordance with Dominion’s procedures. Dominion evaluated the issue and identified three potential causes but did not institute corrective actions to preclude repetition. 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 it was associated with 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. Specifically, absent corrective actions to preclude repetition of the cause of the failure of battery ‘201B,’ cell 27, the objective to ensure the reliability of safety related direct current (dc) battery systems was adversely affected. The inspectors also observed conditions which were consistent with precursors to the potential failure modes identified by Dominion that were not previously entered into a tracking database or the corrective action program. 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, Challenging the Unknown, because Dominion identified three potential causes and when faced with an uncertain condition decided to not take corrective action to preclude repetition.

Inspection Report# : [2016009](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

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Miscellaneous

Last modified : February 01, 2017



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Millstone 2 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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- Barrier Integrity
- Emergency Preparedness
- Occupational Radiation Safety
- Public Radiation Safety
- Security

Initiating Events

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:  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

Failure to Maintain Licensed Operator Examination Integrity

The inspectors identified an NCV of 10 CFR 55.49, "Integrity of Examinations and Tests," for the failure of the licensee to ensure that the integrity of an operating test administered to licensed operators was maintained. During the annual operating exam, 19 of the Unit 2 licensed operators received more than two of five job performance measures (JPMs) (>50 percent) for their operating tests that had been administered to other licensed operators in previous weeks of the same exam cycle. This failure resulted in a compromise of examination integrity because it exceeded the Dominion Nuclear Fleet Procedure TR-AA-730, "Licensed Operator Biennial and Annual Operating Requalification Exam Process," Revision 9, requirement to repeat less than or equal to 50 percent of the JPMs during the exam cycle. However, this compromise did not lead to an actual effect on the equitable and consistent administration of the examination. This issue was entered into Dominion's CAP as CR1056308.

The failure of Dominion's training staff to maintain the integrity of examinations administered to licensed operations personnel was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the performance deficiency could have become more significant in that allowing licensed operators to return to the control room without valid demonstration of appropriate knowledge on the biennial examinations could be a precursor to a more significant event. Using IMC 0609, "Significance Determination Process," and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process," the finding was determined to have very low safety significance (Green) because although the finding resulted in a compromise of the integrity of operating test JPMs and compensatory actions were not immediately taken when the compromise should have been discovered in 2016, the equitable and consistent administration of the test was not actually impacted by this compromise. This finding has a cross-cutting aspect in the area of Human Performance associated with Field Presence, because the licensee failed to ensure that deviations from standards and expectations are

corrected promptly such that the 50 percent maximum limit on repeated JPMs was not exceeded. Specifically, Dominion supervisory review and approval of the original examination plan and subsequent changes to that plan could have discovered the deviation from standards and expectations.

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:  Aug 11, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unapproved OMA in Lieu of Meeting III.G.2 Fire Protection Requirements for Fire Area R-14, Lower 4kV Switchgear Room and Cable Vault

The team identified a finding of very low safety significance (Green) involving a non-cited violation of Millstone Power Station, Unit 2, Renewed Facility Operating License Condition 2.C.(3) to implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report (FSAR). Specifically, Dominion failed to maintain the #2 steam generator (SG) atmospheric dump valve (ADV) free from fire damage, which may have affected the availability to maintain hot shutdown conditions from the main control room for a fire in Fire Area R-14, Lower 4.16kV Switchgear Room and Cable Vault. Dominion promptly entered this safe shutdown issue into their corrective action program as condition report (CR) 1043458. Immediate corrective actions included implementing compensatory measures in the form of fire watches for fire area R-14 that are being tracked by Reasonable Assurance of Safety (RAS) determination 3037040. Longer term corrective actions included submitting an exemption request to the NRC for use of a local operator manual action (OMA) to operate the #2 SG ADV in lieu of meeting fire protection requirements for fire area R-14. The team considered Dominion's immediate and longer term corrective actions appropriate.

The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to an external event to prevent undesirable consequences in the event of a fire. Specifically, the use of an OMA during post-fire safe shutdown is not as reliable as normal systems operation which could be utilized had the requirements of 10 CFR Part 50, Appendix R, Section III.G.2 been met and, therefore, prevented fire damage to credited components and/or cables, specifically the #2 SG ADV. The inspectors used IMC 0609, Appendix F, Fire Protection Significance Determination Process, Phase 1 and determined the reactor is able to reach and maintain a hot safe shutdown condition because the SG ADVs are used for transition to cold shutdown, therefore this finding was of very low safety significance (Green). This finding does not have a cross cutting aspect because the performance deficiency occurred greater than three years ago when the June 30, 2011 exemption request letter to the NRC was supplemented by letter on February 29, 2012, and is not indicative of current licensee performance.

Inspection Report# : 2016008 (*pdf*)

Significance:  Jul 22, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Take Corrective Action to Preclude Repetition of the Condition that Caused Premature Failure of a Battery Cell

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 take corrective actions to preclude repetition of a significant condition adverse to quality. On February 26, 2014, Millstone Unit 2 station battery '201B,' cell 27, failed, which was screened as a significant condition adverse to quality in accordance with Dominion's procedures. Dominion evaluated the issue and identified three potential causes but did not institute corrective actions to preclude repetition. 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 it was associated with 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. Specifically, absent corrective actions to preclude repetition of the cause of the failure of battery '201B,' cell 27, the objective to ensure the reliability of safety related direct current (dc) battery systems was adversely affected. The inspectors also observed conditions which were consistent with precursors to the potential failure modes identified by Dominion that were not previously entered into a tracking database or the corrective action program. 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, Challenging the Unknown, because Dominion identified three potential causes and when faced with an uncertain condition decided to not take corrective action to preclude repetition.

Inspection Report# : 2016009 (*pdf*)

Barrier Integrity

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

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Millstone 2 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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- Public Radiation Safety
- Security

Initiating Events

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

Failure to Maintain CST Temperature in Accordance with Procedure Requirements

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 Operating Procedure (OP) 2319B, "Condensate Storage and Surge System." Specifically, Dominion failed to maintain the Millstone Unit 2 condensate storage tank (CST) temperature above procedural requirements. Dominion has documented this condition within their corrective action program (CAP) as condition report (CR) 1066291.

The inspectors determined this finding was more than minor as it adversely affected the protection from external factors 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. The reliability of the mitigating systems heat removal function was challenged based upon the reasonable doubt of lost operability of the CST to provide a sufficient supply of water to the auxiliary feedwater (AFW) system. There was reasonable doubt of lost operability due to indications of CST water temperature below OP 2319B prescribed limitations, winter temperatures falling, and an inability to restore CST recirculation system in a timely manner. The finding was determined to be of very low safety significance (Green), when all screening questions were answered "No" as the conditions discussed in the Dominion engineering evaluation, approved on January 7, 2017, were capable of showing that no safety systems or functions were lost. This finding has a cross-cutting aspect in the Problem Identification and Resolution, Resolution, in that Dominion did not take effective corrective actions or corrective maintenance to address CST recirculation pump degradation in a timely manner, prior to the onset of winter, commensurate with their safety significance such that operations could maintain CST water temperature above procedurally defined limitations.

Inspection Report# : 2017001 (*pdf*)

Significance: G 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: G Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain Licensed Operator Examination Integrity

The inspectors identified an NCV of 10 CFR 55.49, "Integrity of Examinations and Tests," for the failure of the licensee to ensure that the integrity of an operating test administered to licensed operators was maintained. During the annual operating exam, 19 of the Unit 2 licensed operators received more than two of five job performance measures (JPMs) (>50 percent) for their operating tests that had been administered to other licensed operators in previous weeks of the same exam cycle. This failure resulted in a compromise of examination integrity because it exceeded the Dominion Nuclear Fleet Procedure TR-AA-730, "Licensed Operator Biennial and Annual Operating Requalification Exam Process," Revision 9, requirement to repeat less than or equal to 50 percent of the JPMs during the exam cycle. However, this compromise did not lead to an actual effect on the equitable and consistent administration of the examination. This issue was entered into Dominion's CAP as CR1056308.

The failure of Dominion's training staff to maintain the integrity of examinations administered to licensed operations personnel was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the performance deficiency could have become more significant in that allowing licensed operators to return to the control room without valid demonstration of appropriate knowledge on the biennial examinations could be a precursor to a more significant event. Using IMC 0609, "Significance Determination Process," and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process," the finding was determined to have very low safety significance (Green) because although the finding resulted in a compromise of the integrity of operating test JPMs and compensatory actions were not immediately taken when the compromise should have been discovered in 2016, the equitable and consistent administration of the test was not actually impacted by this compromise. This finding has a cross-cutting aspect in the area of Human Performance associated with Field Presence, because the licensee failed to ensure that deviations from standards and expectations are corrected promptly such that the 50 percent maximum limit on repeated JPMs was not exceeded. Specifically, Dominion supervisory review and approval of the original examination plan and subsequent changes to that plan could have discovered the deviation from standards and expectations.

Inspection Report# : 2016004 (*pdf*)

Significance: G 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:  Aug 11, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unapproved OMA in Lieu of Meeting III.G.2 Fire Protection Requirements for Fire Area R-14, Lower 4kV Switchgear Room and Cable Vault

The team identified a finding of very low safety significance (Green) involving a non-cited violation of Millstone Power Station, Unit 2, Renewed Facility Operating License Condition 2.C.(3) to implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report (FSAR). Specifically, Dominion failed to maintain the #2 steam generator (SG) atmospheric dump valve (ADV) free from fire damage, which may have affected the availability to maintain hot shutdown conditions from the main control room for a fire in Fire Area R-14, Lower 4.16kV Switchgear Room and Cable Vault. Dominion promptly entered this safe shutdown issue into their corrective action program as condition report (CR) 1043458. Immediate corrective actions included implementing compensatory measures in the form of fire watches for fire area R-14 that are being tracked by Reasonable Assurance of Safety (RAS) determination 3037040. Longer term corrective actions included submitting an exemption request to the NRC for use of a local operator manual action (OMA) to operate the #2 SG ADV in lieu of meeting fire protection requirements for fire area R-14. The team considered Dominion's immediate and longer term corrective actions appropriate.

The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to an external event to prevent undesirable consequences in the event of a fire. Specifically, the use of an OMA during post-fire safe shutdown is not as reliable as normal systems operation which could be utilized had the requirements of 10 CFR Part 50, Appendix R, Section III.G.2 been met and, therefore, prevented fire damage to credited components and/or cables, specifically the #2 SG ADV. The inspectors used IMC 0609, Appendix F, Fire Protection Significance Determination Process, Phase 1 and determined the reactor is able to reach and maintain a hot safe shutdown condition because the SG ADVs are used for transition to cold shutdown, therefore this finding was of very low safety significance (Green). This finding does not have a cross cutting aspect because the performance deficiency occurred greater than three years ago when the June 30, 2011 exemption request letter to the NRC was supplemented by letter on February 29, 2012, and is not indicative of current licensee performance.

Inspection Report# : 2016008 (*pdf*)

Significance:  Jul 22, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Take Corrective Action to Preclude Repetition of the Condition that Caused Premature Failure of a Battery Cell

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 take corrective actions to preclude repetition of a

significant condition adverse to quality. On February 26, 2014, Millstone Unit 2 station battery '201B,' cell 27, failed, which was screened as a significant condition adverse to quality in accordance with Dominion's procedures. Dominion evaluated the issue and identified three potential causes but did not institute corrective actions to preclude repetition. 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 it was associated with 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. Specifically, absent corrective actions to preclude repetition of the cause of the failure of battery '201B,' cell 27, the objective to ensure the reliability of safety related direct current (dc) battery systems was adversely affected. The inspectors also observed conditions which were consistent with precursors to the potential failure modes identified by Dominion that were not previously entered into a tracking database or the corrective action program. 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, Challenging the Unknown, because Dominion identified three potential causes and when faced with an uncertain condition decided to not take corrective action to preclude repetition.

Inspection Report# : 2016009 (*pdf*)

Barrier Integrity

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

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Millstone 2 – Quarterly Plant Inspection Findings

3Q/2017 – Plant Inspection Findings

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Initiating Events

Mitigating Systems

Significance: G Aug 18, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Replace Auxiliary Feedwater Solenoid Valves within the Required Frequency

The inspection team identified a Green non-cited violation of Technical Specification 6.8.1.a, "Procedures," because Dominion did not implement procedures as required by Regulatory Guide 1.33, Revision 2, Appendix A.9, "Procedures for Performing Maintenance," to properly maintain the environmental qualification of safety-related auxiliary feedwater solenoid valves 2-FW-43AS and 2-FW-43BS. Specifically, Dominion failed to implement the recurring work event task and associated work order to ensure that these auxiliary feedwater solenoid valves were replaced prior to exceeding the qualified life of the solenoid coil and elastomer components. Dominion entered this issue into their corrective action program as condition report 1076005, planned replacement of the solenoid valves, and calculated an alternate ambient temperature for use in determining the qualified life of the solenoid valves. Dominion re-performed the qualified life calculation using this revised ambient temperature and extended the qualified life to support operability.

The inspection team determined that this issue was more than minor because it adversely impacted 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. This issue is also similar to more-than-minor examples 3.j and 3.k presented in IMC 0612, Appendix E, "Examples of Minor Issues." Specifically, this performance deficiency resulted in a condition where there was reasonable doubt as to the operability and reliability of the solenoid valves for both auxiliary feedwater regulating valves, and thus, both trains of auxiliary feedwater. As such, Dominion needed to conduct additional engineering evaluation to extend the service life of the solenoid valves, thus justifying that the valves would continue to perform their safety function. The inspection team determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the

reliability of a mitigating structure, system, or component, and the structure, system, or component maintained its operability or functionality. The inspection team determined that no cross-cutting aspect was applicable because the finding was not indicative of current performance.

Inspection Report# : 2017007 (*pdf*)

Significance:  May 11, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain CST Temperature in Accordance with Procedure 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

Failure to Maintain Licensed Operator Examination Integrity

The inspectors identified an NCV of 10 CFR 55.49, "Integrity of Examinations and Tests," for the failure of the licensee to ensure that the integrity of an operating test administered to licensed operators was maintained. During the annual operating exam, 19 of the Unit 2 licensed operators received more than two of five job performance measures (JPMs) (>50 percent) for their operating tests that had been administered to other licensed operators in previous weeks of the same exam cycle. This failure resulted in a compromise of examination integrity because it exceeded the Dominion Nuclear Fleet Procedure TR-AA-730, "Licensed Operator Biennial and Annual Operating Requalification Exam Process," Revision 9, requirement to repeat less than or equal to 50 percent of the JPMs during the exam cycle. However, this compromise did not lead to an actual effect on the equitable and consistent administration of the examination. This issue was entered into Dominion's CAP as CR1056308.

The failure of Dominion's training staff to maintain the integrity of examinations administered to licensed operations personnel was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the performance deficiency could have become more significant in that allowing licensed operators to return to the control room without valid demonstration of appropriate knowledge on the biennial examinations could be a precursor to a more significant event. Using IMC 0609, "Significance Determination Process," and the corresponding Appendix I, "Licensed Operator Requalification Significance Determination Process," the finding was determined to have very low safety significance (Green) because although the finding resulted in a compromise of the integrity of operating test JPMs and compensatory actions were not immediately taken when the compromise should have been discovered in 2016, the equitable and consistent administration of the test was not actually impacted by this compromise. This finding has a cross-cutting aspect in the area of Human Performance associated with Field Presence, because the licensee failed to ensure that deviations from standards and expectations are corrected promptly such that the 50 percent maximum limit on repeated JPMs was not exceeded. Specifically, Dominion supervisory review and approval of the original examination plan and subsequent changes to that plan could have discovered the deviation from standards and expectations.

Inspection Report# : 2016004 (*pdf*)

Barrier Integrity
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 : November 29, 2017

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Millstone 2 – Quarterly Plant Inspection Findings

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Initiating Events

Mitigating Systems

Significance: G Aug 18, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Replace Auxiliary Feedwater Solenoid Valves within the Required Frequency

The inspection team identified a Green non-cited violation of Technical Specification 6.8.1.a, "Procedures," because Dominion did not implement procedures as required by Regulatory Guide 1.33, Revision 2, Appendix A.9, "Procedures for Performing Maintenance," to properly maintain the environmental qualification of safety-related auxiliary feedwater solenoid valves 2-FW-43AS and 2-FW-43BS. Specifically, Dominion failed to implement the recurring work event task and associated work order to ensure that these auxiliary feedwater solenoid valves were replaced prior to exceeding the qualified life of the solenoid coil and elastomer components. Dominion entered this issue into their corrective action program as condition report 1076005, planned replacement of the solenoid valves, and calculated an alternate ambient temperature for use in determining the qualified life of the solenoid valves. Dominion re-performed the qualified life calculation using this revised ambient temperature and extended the qualified life to support operability.

The inspection team determined that this issue was more than minor because it adversely impacted 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. This issue is also similar to more-than-minor examples 3.j and 3.k presented in IMC 0612, Appendix E, "Examples of Minor Issues." Specifically, this performance deficiency resulted in a condition where there was reasonable doubt as to the operability and reliability of the solenoid valves for both auxiliary feedwater regulating valves, and thus, both trains of auxiliary feedwater. As such, Dominion needed to conduct additional engineering evaluation to extend the service life of the solenoid valves, thus justifying that the valves would continue to perform their safety function. The inspection team determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the

reliability of a mitigating structure, system, or component, and the structure, system, or component maintained its operability or functionality. The inspection team determined that no cross-cutting aspect was applicable because the finding was not indicative of current performance.

Inspection Report# : 2017007 (*pdf*)

Significance:  May 11, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain CST Temperature in Accordance with Procedure Requirements

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 Operating Procedure (OP) 2319B, "Condensate Storage and Surge System." Specifically, Dominion failed to maintain the Millstone Unit 2 condensate storage tank (CST) temperature above procedural requirements. Dominion has documented this condition within their corrective action program (CAP) as condition report (CR) 1066291.

The inspectors determined this finding was more than minor as it adversely affected the protection from external factors 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. The reliability of the mitigating systems heat removal function was challenged based upon the reasonable doubt of lost operability of the CST to provide a sufficient supply of water to the auxiliary feedwater (AFW) system. There was reasonable doubt of lost operability due to indications of CST water temperature below OP 2319B prescribed limitations, winter temperatures falling, and an inability to restore CST recirculation system in a timely manner. The finding was determined to be of very low safety significance (Green), when all screening questions were answered "No" as the conditions discussed in the Dominion engineering evaluation, approved on January 7, 2017, were capable of showing that no safety systems or functions were lost. This finding has a cross-cutting aspect in the Problem Identification and Resolution, Resolution, in that Dominion did not take effective corrective actions or corrective maintenance to address CST recirculation pump degradation in a timely manner, prior to the onset of winter, commensurate with their safety significance such that operations could maintain CST water temperature above procedurally defined limitations.

Inspection Report# : 2017001 (*pdf*)

Barrier Integrity

Significance:  Oct 27, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Inadequate Procedure Results in Inadvertent Lowering of Spent Fuel Pool Level

A self-revealing NCV of very low safety significance (Green) of Technical Specification (TS) 6.8, "Procedures," was identified because Dominion did not adequately establish Operating Procedure (OP) 2305, "Spent Fuel Pool Cooling and Purification System." Specifically, from initial issuance until June 20, 2017, the procedure did not direct operators to verify the primary demineralizer bypass valve was closed while lining up to fill the spent fuel pool from the coolant waste receiver tanks, resulting in an unexpected loss of spent fuel pool inventory. Dominion has documented this condition within their corrective action program (CAP) as condition report (CR) 1064323, revised procedure OP 2305, and performed an apparent cause evaluation.

The inspectors determined that the finding was more than minor because it was associated with the procedure quality attribute of the Barrier Integrity cornerstone and adversely affected its objective to provide reasonable assurance that physical design barriers, such as fuel cladding, protect the public from radionuclide releases caused by accidents or events. Specifically, spent fuel pool level was inadvertently lowered when operators aligned the system in accordance with OP 2305, which resulted in a reduced net positive suction head for the spent fuel pool cooling pumps as indicated by control room alarm. The finding screened to be of very low safety significance (Green) because it did not result in a loss of spent fuel pool water inventory below the minimum analyzed level limit and did not cause the spent fuel pool temperature to exceed the maximum analyzed temperature limit.

This finding has a cross-cutting aspect in the Human Performance cross-cutting area, Avoid Complacency because Dominion did not recognize and plan for the possibility of a latent deficiency in procedure OP 2305 when used while the primary demineralizers were bypassed.

Inspection Report# : 2017003 (*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 : February 01, 2018

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