



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I**  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

November 2, 2012

Mr. David Heacock  
President and Chief Nuclear Officer  
Dominion Resources  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

**SUBJECT: MILLSTONE POWER STATION – NRC INTEGRATED INSPECTION REPORT  
05000336/2012004 AND 05000423/2012004**

Dear Mr. Heacock:

On September 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Millstone Power Station, Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on October 24, 2012 with Stephen E. Scace, Site Vice President, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding and one self-revealing finding of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because of the very low safety significance, and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Senior Resident Inspector at Millstone. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Senior Resident Inspector at Millstone.

In accordance with 10 CFR 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the

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Sincerely,

*/RA/*

Ronald R. Bellamy, Chief  
Reactor Projects Branch 5  
Division of Reactor Projects

Docket Nos.: 50-336, 50-423  
License Nos.: DRP-65, NPF-49

Enclosure: Inspection Report 05000336/2012004 and 05000423/2012004  
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-336, 50-423

License Nos.: DPR-65, NPF-49

Report No.: 05000336/2012004 and 05000423/2012004

Licensee: Dominion Nuclear Connecticut, Inc.

Facility: Millstone Power Station, Units 2 and 3

Location: P.O. Box 128  
Waterford, CT 06385

Dates: July 1, 2012 through September 30, 2012

Inspectors: J. Ambrosini, Sr. Resident Inspector, Division of Reactor Projects (DRP)  
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Approved By: Ronald R. Bellamy, Chief  
Reactor Projects Branch 5  
Division of Reactor Projects

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## SUMMARY OF FINDINGS

IR 05000336/2012004, 05000423/2012004; 7/1/2012 - 9/30/2012; Millstone Power Station Units 2 and 3; Post Maintenance Testing; Follow-Up of Events and Notices of Enforcement Discretion.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Two Green findings, both of which were non-cited violations (NCV), were identified. The significance of inspection findings are indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

### Cornerstone: Mitigating Systems

- 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, the NRC has concluded that the finding was of very low safety significance (Green). This finding has a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area, Corrective Action Program component, because Dominion did not take appropriate corrective actions to address significant conditions adverse to quality and preclude their repetition. [P.1(d)] (Section 4OA3)

### Cornerstone: Barrier Integrity

- Green. The inspectors identified an NCV of 10 CFR 50, Appendix 'B,' Criteria V, "Instructions, Procedures, and Drawings," of very low safety significance (Green) for Dominion's failure to adequately specify post maintenance test (PMT) requirements for the control room ventilation exhaust fan 1B (3HVC\*FN1B) following replacement of the breaker starter on June 19, 2012. Specifically, Dominion did not provide sufficient direction to the operations staff in the control room regarding the correct retest procedure or acceptance criteria to complete an adequate PMT. As a result, 3HVC\*FN1B was retested and returned

to an operable status despite the inability of this fan to respond to a control building isolation (CBI) actuation signal. Subsequently, on June 21, 2012, train 'B' heating and ventilation control room (HVC) was declared inoperable after the HVC system failed routine surveillance test SP 3614F.1-002, "Control Room Emergency Filtration System Operability Test." Dominion identified that the auxiliary contacts for the 42x relay had not been correctly installed in the breaker for 3HVC\*FN1B, which would have prevented the automatic starting of the fan during a CBI signal. The PMT acceptance criteria, specified in design change MP3-11-01065 and translated into work order 53102451547 had been met but were not adequate to retest the breaker. Dominion entered this issue into their CAP as CR 492783.

The finding is more than minor because it affected the Design Control attribute of the control room ventilation boundary barrier for the Barrier Integrity cornerstone. Additionally, the performance deficiency was similar to example 5.b in Appendix E of Manual Chapter 0612, "Examples of Minor Issues." In accordance with IMC 0609, "Significant Determination Process," the inspectors performed a Phase 1 analysis and determined that the finding was of very low significance because the finding represented a degradation of the control room radiological barrier function but not degradation against smoke or toxic gas. This finding had a cross-cutting aspect in the Human Performance cross-cutting area, Resources component, because Dominion failed to maintain accurate and up to date procedures and work packages for PMTs following installation of the design change to replace the breaker for 3HVC\*FN1B. [H.2(c)] (Section 1R19)

## REPORT DETAILS

### Summary of Plant Status

Millstone Unit 2 and 3 began the inspection period operating at 100 percent power. On August 19, Unit 2 was shut down due to high ocean water temperature and returned to 100 percent power on August 25. On September 19, Unit 3 reduced power from 100 percent to 75 percent because of storm-related condenser fouling. Unit 3 returned to 100 percent power on September 20.

### 1. REACTOR SAFETY

#### Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01 – 1 sample)

##### Readiness for Impending Adverse Weather

##### a. Inspection Scope

The inspectors reviewed Dominion's response to elevated ultimate heat sink temperatures due to extreme heat on August 10. The inspectors verified that operators properly monitored important plant equipment that could have been affected by the hot weather conditions. The inspectors ensured that temperatures for equipment and areas in the plant were maintained within procedural limits, and when necessary, compensatory actions were properly implemented in accordance with procedures. Documents reviewed during the inspection are listed in the Attachment.

##### b. Findings

No findings were identified.

#### 1R04 Equipment Alignment

##### .1 Partial System Walkdowns (71111.04Q – 5 samples)

##### a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

##### Unit 2

- Facility 2 Common Emergency Core Cooling System (ECCS) Suction Header while the Facility 1 suction header was out of service (OOS) for testing on July 30
- Facility 1 Service Water (SW) header while the Facility 2 header was OOS for scheduled maintenance and testing on September 20

##### Unit 3

- 'B' Quench Spray System (QSS) while the 'A' train was OOS for surveillance testing on August 1



- 'B' Emergency Diesel Generator (EDG) while the 'A' EDG was OOS for scheduled maintenance on August 8
- 'A' SW train while the 'C' SW strainer was OOS for scheduled maintenance on August 27

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), work orders, Condition Reports (CR), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Dominion staff had properly identified equipment issues and entered them into their CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S – 1 sample)

a. Inspection Scope

On September 17, 18 and 19, the inspectors performed a complete system walkdown of accessible portions of the Unit 2 High Pressure Safety Injection (HPSI) system to verify the existing equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests, drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hangar and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related CR and work orders to ensure Dominion appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 6 samples)a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Dominion controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for OOS, degraded or inoperable fire protection equipment, as applicable, in accordance with procedures.

Unit 2

- Auxiliary Building HPSI Pump Room, Fire Area A-4 on July 6
- Auxiliary Building Containment Spray and “HPSI/LPSI” Pump Room, Fire Area A-8 on July 6
- Charging Pump Room, Fire Area A-6 on July 20
- East Penetration/East Main Steam Safety Valve Rooms, Fire Area A-10 on July 27

Unit 3

- Terry Turbine Room, Fire Area ESF-5 on August 18
- East MCC and Rod Control, Fire Area AB-5 on September 7

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)Internal Flooding Reviewa. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if Dominion identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors also focused on the Unit 2 Cable Vault to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (711111.07A – 1 sample)a. Inspection Scope

The inspectors reviewed the Unit 2 'C' Reactor Building Component Cooling Water (RBCCW) heat exchanger to determine its readiness and availability to perform its safety functions. The inspectors reviewed the design basis for the component and verified Dominion's commitments to NRC Generic Letter 89-13. The inspectors reviewed the results of previous inspections of the RBCCW heat exchanger. The inspectors discussed the results of the most recent inspection with engineering staff and reviewed pictures of the as-found and as-left conditions. The inspectors verified that Dominion initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11 – 4 samples).1 Quarterly Review of Licensed Operator Requalification Testing and Traininga. Inspection Scope

The inspectors observed Unit 2 licensed operator simulator training on July 24, which included a dropped rod, a steam line rupture outside of containment with a loss of offsite power, and a loss of auxiliary feedwater. The inspectors observed a Unit 3 licensed operator simulator training drill on July 17, which included a fire and a turbine trip without a corresponding reactor trip. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Rooma. Inspection Scope

On August 18, the inspectors observed Unit 3 main turbine control valve testing on portions of the power reduction to establish initial conditions for the test, and portions of the power ascension following testing. The inspectors also observed Unit 2 reactor and plant startup on August 23 following a TS required shutdown for ultimate heat sink

temperature. The inspectors observed test and reactivity control briefings to verify that the briefings met the criteria specified in Dominion's Operations Standards and Expectations Handbook. Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 1 sample)

a. Inspection Scope

The inspectors reviewed one sample to assess the effectiveness of maintenance activities on the Emergency Safeguards Actuation System (ESAS) on Unit 3. The inspectors reviewed system health reports, CAP documents, maintenance work orders, and maintenance rule basis documents to ensure that Dominion was identifying and properly evaluating performance problems within the scope of the maintenance rule. The inspectors verified that the ESAS was properly scoped into the Maintenance Rule in accordance with 10 CFR 50.65 and verified that the paragraph (a)(2) performance criteria established by Dominion staff was reasonable. As applicable, for ESASs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these ESAS to (a)(2). Additionally, the inspectors ensured that Dominion staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Dominion performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Dominion personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Dominion performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Unit 2

- Shutdown Risk associated with forced plant shutdown in Mode 5 conditions on August 15
- Unplanned unavailability of 'A' EDG on September 9
- Increased risk due to degraded intake structure conditions and potential impact to offsite power because of severe weather on September 18
- Pre-2R21 shutdown risk assessment on September 25

Unit 3

- Revision to equipment out of service (EOOS) on-line Risk Monitor Application (effective September 11, 2012)

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 6 samples)a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

Unit 2

- CR483716, Safety Related Portions of spent fuel pool cooling and reactor water storage tank (RWST) may be cross-tied to Non-SR SSCs on August 9
- OD 000498, Unit 2 SW Pipe Supports, Revision 0 on August 29
- CR485444, ESAS Actuation Cabinet 5 Control Power Light will not light on September 5
- OD 000502, SW flange thinning

Unit 3

- OD000237, Revision 2 CTV41 Hydraulic Actuator Degraded on August 15
- OD000237, Revision 3 CTV41 Non-conforming Hydraulic Actuators on September 19

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to Dominion's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Dominion. The

inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 8 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedures to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

Unit 2

- 'C' SW Pump overhaul on July 2
- 'B' EDG overspeed switch replacement on July 2
- Pressurizer proportional heater repair on July 24
- 'A' HPSI pump coupling lubrication preventive maintenance on July 31
- 'B' EDG governor replacement on August 21

Unit 3

- 3HVC\*FN1B breaker replacement on June 19
- 'B' EDG jacket water heat exchanger repairs for leakage on July 25
- 'A' EDG maintenance outage on August 9

b. Findings

Introduction. The inspectors identified a NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," of very low safety significance (Green) for Dominion's failure to adequately prescribe the correct retest instructions and acceptance criteria to ensure safety-related design changes received the appropriate PMT for breaker replacement on the Unit 3 control room ventilation exhaust fan, 3HVC\*FN1B.

Description. On June 19, 2012, the operators conducted a PMT after replacing the starter assembly in the breaker for 3HVC\*FN1B (Control Building Filter Unit Exhaust Fan 1B) and determined that the breaker had met the retest acceptance criteria. Train 'B' of the HVC system was declared operable and restored to service in a standby capacity. Subsequently, on June 21, 2012, train 'B' HVC was declared inoperable after the HVC system failed a routine surveillance test SP-3614F.1-002, "Control Room Emergency Filtration System Operability Test." The operators entered TS 3.7.7, and invoked a

seven day shutdown requirement effective June 19. Dominion identified that the auxiliary contacts for the 42x relay had not been correctly installed in the breaker for 3HVC\*FN1B, which would have prevented the automatic starting of the fan in response to a CBI signal. The inspectors identified that the PMT acceptance criteria, specified in design change MP3-11-01065, and translated into work order 53102451547 had been met but were not sufficient to properly test all safety functions supported by the breaker.

The inspectors interviewed operations and engineering personnel and reviewed related PMT program documentation and determined that the work order did not provide enough direction to perform an effective PMT. VPAP-2003, "Post Maintenance Testing Program" and MP-20-WP-GDL40, "Pre and Post Maintenance Testing," required the test procedure and acceptance criteria to be sufficiently specified in the work orders. However, the work order referred back to section 7 step 6 of the design change package which stated: "Perform a functional test by operating the load (starting pumps/fans) and check for proper indication." The operator started and stopped 3HVC\*FN1B successfully and accepted the PMT test results as satisfactory. This PMT did not require retesting the CBI auto-start function even though the "as-left work performed" section stated that there was a discrepancy between the circuit drawing and the installed configuration regarding a set of contacts. 3HVC\*FN1B was returned to service without identifying the auxiliary contacts were not tested during the PMT and without resolving the failure of CBI to actuate.

The inspectors concluded that the work order 53102451547 failed to adequately prescribe instructions to ensure safety-related design changes had been correctly installed and tested. Dominion entered this issue into their CAP as CR479475, CR479760 and CR479842 and completed apparent cause analysis (ACE) 191185 which had concluded that the operator who retested the breaker should have recognized the problem with the auxiliary contacts. The inspectors concluded that the operator had followed the work package retest directions but that the work package did not have adequate instructions specifying the retest procedure or the test acceptance criteria.

Analysis. The inspectors determined that the failure to adequately prescribe the post maintenance test procedure and acceptance criteria to ensure the operability of a safety-related design change prior to restoring the system to service was a performance deficiency (PD). The cause was reasonably within Dominion's ability to foresee and correct and should have been prevented. Traditional enforcement does not apply since there were no actual safety consequences, no impacts on the NRC's ability to perform its regulatory function and no willful aspects to the finding. The inspectors reviewed IMC 0612, "Power Reactor Inspection Reports," and determined the finding was more than minor because it affected the Design Control attribute of the control room ventilation boundary barrier in the Barrier Integrity cornerstone. Additionally, the PD was similar to example 5.b in IMC 0612 Appendix E. The failure to properly specify a test procedure and adequate acceptance criteria in the work order caused the restoration of the control room ventilation system without identifying that it would not have performed its safety function during a control building isolation.

In accordance with IMC 0609, "Significant Determination Process," the inspectors performed a Phase 1 analysis and determined that the finding was of very low safety significance (Green) because the finding represented a degradation of the control room radiological barrier function but not degradation against CBI actuation due to smoke or toxic gas.

This finding had a cross-cutting aspect in the Human Performance cross-cutting area, Resources component, because Dominion failed to maintain accurate and up to date procedures and work packages for PMTs following installation of the design change to replace the breaker for 3HVC\*FN1B. [H.2(c)]

**Enforcement.** 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states in part that activities affecting quality shall be prescribed by documented instructions and procedures. Contrary to the above, on June 19, 2012 the licensee's work order 53102451547 failed to adequately specify the correct retest procedure and acceptance criteria to ensure design change MP3-11-01065 received the appropriate PMT as required by MP-20-WP-GDL40 to verify operability of 3HVC\*FN1B. On June 21, 2012, Dominion identified and corrected the degraded breaker starter assembly. Because the finding is of very low safety significance and it was entered into Dominion's CAP as CR492783, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: **(NCV 05000423/2012002-01, Inadequate Post Maintenance Test Directions following Design Change to 3HVC\*FN1B).**

1R20 Refueling and Other Outage Activities (71111.20 – 1 sample)

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Unit 2 forced outage for ultimate heat sink temperatures greater than the TS limits August 12 through August 24. The inspectors reviewed Dominion's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable TS when taking equipment OOS
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Status and configuration of electrical systems and switchyard activities to ensure that TS were met
- Monitoring of decay heat removal operations
- Activities that could affect reactivity
- Maintenance of secondary containment as required by TS
- Identification and resolution of problems related to outage activities

b. Findings

No findings were identified.



1R22 Surveillance Testing (71111.22 – 5 samples)a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TS, the UFSAR, and Dominion procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

Unit 2

- SP 2401I, Local Power Density Test, Revision 011-01 on July 23
- SP 2610AO-001, 'A' AFW Pump and Recirc Check Valve IST, Facility 1, Revision 000-01 on August 28 (IST)

Unit 3

- SP 3609.1, Quench Spray Pump 3QSS\*P3A Operational Readiness Test, Revision 011-01 on August 1 (IST)
- SP 3446B12, Train 'B' Solid state Protection System Operational Test, Revision 012-04 on August 30
- SP 3646A.8, Containment Isolation Phase A S920 – Relay K630, Slave Relay Actuation, Revision 023-09 on September 6

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**1EP6 Drill Evaluation (71114.06 – 1 sample)Emergency Preparedness Drill Observationa. Inspection Scope

The inspectors evaluated the conduct of a routine Dominion emergency drill on July 17 to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by Dominion staff in order to evaluate Dominion's critique and to verify whether the Dominion staff was properly identifying weaknesses and entering them into their CAP.

b. Findings

No findings were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08 -1 sample)

a. Inspection Scope

This area was inspected to verify the effectiveness of Dominion's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 10 CFR Parts 20, 61, and 71, and 10 CFR Part 50 Appendix A Criterion 63, "Monitoring Fuel and Waste Storage," and Dominion procedures required by the TS/Process Control Program (PCP) as criteria for determining compliance.

The inspectors reviewed the solid radioactive waste system description in the final safety analysis report (FSAR), the PCP, and the recent radiological effluent release report for information on the types, amounts, and processing of radioactive waste disposed.

The inspectors reviewed the scope of any quality assurance (QA) audits in this area since the last inspection.

The inspectors selected areas where containers of radioactive waste were stored, and verified that the containers were labeled in accordance with 10 CFR 20.1904, "Labeling Containers," or controlled in accordance with 10 CFR 20.1905, "Exemptions to Labeling Requirements," as appropriate.

The inspectors verified that the radioactive materials storage areas were controlled and posted in accordance with the requirements of 10 CFR Part 20, "Standards for Protection Against Radiation." For materials stored or used in the controlled or unrestricted areas, the inspectors verified that they were secured against unauthorized removal and controlled in accordance with 10 CFR 20.1801, "Security of Stored Material," and 10 CFR 20.1802, "Control of Material not in Storage," as appropriate.

The inspectors verified that Dominion had established a process for monitoring the impact of long-term storage (e.g., buildup of any gases produced by waste decomposition, chemical reactions, container deformation, loss of container integrity, or re-release of free-flowing water) sufficient to identify potential unmonitored, unplanned releases, or nonconformance with waste disposal requirements. The inspectors verified that there were no signs of swelling, leakage, and deformation.

The inspectors walked down accessible portions of liquid and solid radioactive waste processing systems to verify and assess that the current system configuration and operation agree with the descriptions in the FSAR, offsite dose calculation manual and PCP.

The inspectors identified radioactive waste processing equipment that was not operational and/or was abandoned in place, and verified that Dominion had established administrative and/or physical controls to ensure that the equipment would not contribute to an unmonitored release path and/or affect operating systems or be a source of unnecessary personnel exposure. The inspectors verified that Dominion had reviewed the safety significance of systems and equipment abandoned in place in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments."

The inspectors reviewed the adequacy of any changes made to the radioactive waste processing systems since the last inspection. The inspectors verified that changes were reviewed and documented in accordance with 10 CFR 50.59 as appropriate.

The inspectors identified processes for transferring radioactive waste resin and/or sludge discharges into shipping/disposal containers. The inspectors verified that the waste stream mixing, sampling procedures, and methodology for waste concentration averaging were consistent with the PCP, and provided representative samples of the waste product for the purposes of waste classification as described in 10 CFR 61.55, "Waste Classification."

For those systems that provide tank recirculation, the inspectors verified that the tank recirculation procedure provided sufficient mixing.

The inspectors verified that Dominion's PCP correctly described the current methods and procedures for dewatering waste.

The inspectors identified radioactive waste streams, and verified that Dominion's radiochemical sample analysis results were sufficient to support radioactive waste characterization as required by 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste." The inspectors verified that Dominion's use of scaling factors and calculations to account for difficult-to-measure radionuclides was technically sound and based on current 10 CFR Part 61 analysis.

For the waste streams identified above, the inspectors verified that changes to plant operational parameters were taken into account to (1) maintain the validity of the waste stream composition data between the annual or biennial sample analysis update, and (2) verify that waste shipments continued to meet the requirements of 10 CFR Part 61.

The inspectors verified that Dominion had established and maintained an adequate QA program to ensure compliance with the waste classification and characterization requirements of 10 CFR 61.55, "Waste Classification," and 10 CFR 61.56, "Waste Characteristics."

The inspectors observed shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and Dominion verification of shipment readiness. The inspectors verified that the requirements of any applicable transport cask certificate of compliance had been met. The inspectors verified that the receiving licensee was authorized to receive the shipment packages.

The inspectors determined that the shippers were knowledgeable of the shipping regulations and that shipping personnel demonstrated adequate skills to accomplish the

package preparation requirements for public transport with respect to Dominion's response to NRC Bulletin 79-19, "Packaging of Low-Level Radioactive Waste for Transport and Burial," dated August 10, 1979, and 49 CFR Part 172, "Hazardous Materials Table, Special Provisions, Hazardous Materials Communication, Emergency Response Information, Training Requirements, and Security Plans," Subpart H, "Training." The inspectors verified that Dominion's training program provided training to personnel responsible for the conduct of radioactive waste processing and radioactive material shipment preparation activities.

The inspectors selected non-excepted package shipment records and verified that the shipping documents indicated the proper shipper name; emergency response information and a 24-hour contact telephone number; accurate curie content and volume of material; and appropriate waste classification, transport index, and UN number. The inspectors verified that the shipment placarding was consistent with the information in the shipping documentation.

The inspectors verified that problems associated with radioactive waste processing, handling, storage, and transportation, were being identified by Dominion at an appropriate threshold, were properly characterized, and were properly addressed for resolution in Dominion's CAP. The inspectors verified the appropriateness of the corrective actions for a selected sample of problems documented by Dominion that involved radioactive waste processing, handling, storage, and transportation.

The inspectors reviewed the results of selected audits performed since the last inspection and evaluated the adequacy of Dominion's corrective actions for issues identified during those audits.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151 – 10 samples)

.1 Mitigating Systems Performance Index

a. Inspection Scope

The inspectors reviewed Dominion's submittal of the Mitigating Systems Performance Index (MSPI) for the following systems for the period of July 1, 2011 through June 30, 2012. To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." The inspectors reviewed Dominion operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, CR, event reports and NRC integrated inspection reports to validate the accuracy of the submittals.

Unit 2

- MSPI HPSI System
- MSPI AFW System
- MSPI Emergency AC Power System
- MSPI Residual Heat Removal (RHR) System
- MSPI Support Cooling Water System

Unit 3

- MSPI HPSI System
- MSPI AFW System
- MSPI Emergency AC Power System
- MSPI RHR System
- MSPI Support Cooling Water System

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 2 samples).1 Routine Review of Problem Identification and Resolution Activitiesa. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Dominion entered issues into their CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP and periodically attended CR screening meetings.

b. Findings

No findings were identified.

.2 Annual Sample: Review of Commitment Tracking Systema. Inspection Scope

During July 30 through August 1, the inspectors conducted a review of the corrective actions taken by Dominion in response to an NRC audit of the commitment management program at Dominion's Millstone Station performed by the NRC on November 15 and 16, 2011. The NRC's audit reviewed eleven commitments, submitted in correspondence to the NRC since the prior NRC commitment audit conducted on May 20, 2008. The inspectors noted that Dominion later combined two of the commitments as duplicative, making the current total ten.

While generating the list of eleven commitments, at the request of the NRC, Dominion discovered a disparity between the commitments entered into, and acted upon, in the station wide CAP and the number of commitments being tracked by the Millstone Regulatory Affairs department. As identified in the NRC audit, reported December 28, 2011, seven of the eleven commitments in the CAP were not in the Millstone Commitment Tracking System Database. The database is used at Millstone, by the Regulatory Affairs staff, to verify that NRC commitments are properly characterized and tracked.

The inspectors verified that every one of the commitments, originally missing from the commitment tracking database, was in the CAP and that appropriate actions had been taken to address the commitment. At the time of this inspection all the commitments had been implemented and the corrective actions closed. The inspectors determined that at no time did the absence or presence of a commitment in the regulatory affairs tracking system affect the actual implementation and follow through on the commitment in the CAP. The problem was solely administrative in nature. The inspectors reviewed the original list of commitments to determine the relative importance of the commitment to the safe operation of the plant and evaluated the actions taken to implement the commitment in this context. The inspectors reviewed Dominion's response to the reported omissions to determine if the extent-of-condition was captured and independently evaluated the corrective action database for commitments.

The inspectors specifically reviewed the commitments that were not entered into the Millstone Commitment Tracking Database. The commitments reviewed by the inspectors, as originally reported to the NRC and currently captured by Millstone are:

- DNC Letter 11-476, (ADAMS ML11234A077), Replace SW Leaking Flange
- DNC Letter 07-0834C (ADAMS ML080100600) Response to EEEB-07-0052
- DNC Letter 07-0834K (ADAMS ML 080850894) Motor Operator Insulation
- DNC Letter 07-0450F (ADAMS ML 081150679) FSAR Changes
- DNC Letter 09-084 (ADAMS ML090650513) Respond to Questions 21 & 24
- DNC Letter 07-045H (ADAMS ML081420443) Attachment Commitments

The inspectors reviewed the revised Dominion Administrative Procedure, "Commitment Management," LI-AA-110, and Licensing "Proofreader Checklist – Outgoing Correspondence," to identify if the revisions captured the necessary changes and verified the implementation of the revised procedure. The procedure was revised effective May 3, 2012, adding an additional checklist that included the requirement to record a commitment identified in the cover letter in correspondence with the NRC. The inspectors noted the proofreader checklist was revised to require review for commitment entry into the new Regulatory Commitment Database which is a redundant check of the checklist introduced in the procedure.

The inspectors reviewed the eleven commitments (NRC Audit Report Table 2) associated with the exemption granted (ML050420058) by the NRC to the requirements of 10 CFR 50.68(b)(1). The exemption places very specific limitations and/or conditions on Dominion in Section 3.4 that supersede the commitments. These limitations and conditions are obligations under the accepted definition in NEI 99-04. The commitments made by Dominion during the exemption review process do not take on a special status after the exemption is granted because the exemption does not refer to the commitments or restrain them in any way. The inspectors reviewed corrective action

CR432849, "Report exemption not needed, revising commitment," dated June 3, 2011, withdrawing the request for exemption.

b. Findings and Observations

No findings were identified.

The inspectors determined that the issues reviewed did not adversely affect the capability of the licensee to implement regulatory commitments.

.3 Annual Sample: Moisture Separator Reheater Low Load Valves Reactivity Incident

a. Inspection Scope

The inspectors performed an in-depth review of Dominion's ACE 18826 and corrective actions associated with CR439884, Moisture Separator Reheater (MSR) Low Load Valves Reactivity Incident on Unit 2. Specifically, the low load valves were incorrectly calibrated, which resulted in high differential temperature between the two steam lines entering each low pressure turbine. Operators secured the second stage reheat steam to the MSRs to eliminate the high differential temperature. The decrease in steam demand required insertion of Group 7 Control Element Assemblies four steps.

The inspectors assessed Dominion's problem identification threshold, cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of Dominion's corrective actions to determine whether Dominion was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Dominion's CAP and 10 CFR 50, Appendix B. In addition, the inspectors reviewed revised procedures and interviewed maintenance and operations personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

The inspectors determined that the ACE adequately identified the issue, cause, and contributing causes. The inspectors determined that the extent of condition to review I&C loop calibration folders for loops that could impact reactivity was appropriate. The inspectors also determined that the corrective action assignments were appropriate.

In the review of the corrective actions, the inspectors determined that CA218136, which was to develop a strategy to incorporate loop calibration folders into calibration procedures for instruments affecting reactivity with a follow-on assignment to implement, was closed out.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 1 sample)Plant Eventsa. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Dominion made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Dominion's follow-up actions related to the events to assure that Dominion implemented appropriate corrective actions commensurate with their safety significance.

b. Findings

Introduction. 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 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.

Description. In February 2011, Millstone Unit 2 experienced an unintended 8 percent reactor power transient (88 percent to 96 percent) during quarterly main turbine valve control valve testing. The NRC dispatched a special inspection team to inspect the event and the inspection results are documented in "Millstone Power Station Unit 2 – NRC Special Inspection Report 05000336/2011008; Preliminary White Finding" (ML111470484), dated May 27, 2011. In summary, the special inspection team concluded that the primary cause of the event was ineffective reinforcement of Dominion operator standards and expectations.

Dominion performed a RCE of the event, determined a root cause, and generated a corrective action to prevent recurrence. Dominion documented their RCE in "Root Cause Evaluation RCE 00144, Unplanned 8 percent Power Excursion, Millstone Power Station Unit 2." In summary, the root cause of the event was identified as the failure to implement the crew performance management program effectively to correct observed Unit 2 crew performance deficiencies. The corrective action to prevent recurrence was to develop and fully implement an Operations Performance Management program which includes crew and individual performance monitoring and trending. Dominion implemented the corrective action to prevent recurrence on June 22, 2011.

At Dominion's request, a regulatory conference was held on July 19, 2011, at the NRC's Region I office in King of Prussia, Pennsylvania. The results of the regulatory conference are documented in an August 8, 2011 letter from the NRC to Mr. D. Heacock, President and Chief Nuclear Officer of Dominion Nuclear Connecticut, Inc, "FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING, WITH



ASSESSMENT FOLLOW-UP; NOTICE OF VIOLATION; AND RESULTS OF REGULATORY CONFERENCE [NRC SPECIAL INSPECTION REPORT NO. 05000336/2011010] – MILLSTONE UNIT” (ML112200394). The final significance of the preliminary White finding from the special inspection was confirmed to be of low to moderate safety significance (White).

Dominion documented the receipt of the final white finding in the corrective action program as CR437224. In accordance with Dominion procedure PI-AA-200, “Corrective Action Program,” Attachment 4, “CR Significance Determination,” Dominion rescreened the February 2011 event as a significance level 1 issue due to the receipt of a greater than green NRC finding. Dominion procedure PI-AA-200 paragraph 5.3.35 states that significance level 1 issues are significant conditions adverse to quality. Paragraph 5.3.35 further states that the cause of the condition must be determined and corrective action taken to preclude repetition.

In November 2011, Millstone Unit 3 experienced an unintended 6 percent reactor power transient (25 percent to 31 percent) during main turbine valve control valve testing following a refueling outage. Dominion performed a RCE of the event and documented their results in “Root Cause Evaluation RCE 001073: MP3 Allowable Temperature Low out of Band on Reactor Startup, Millstone Power Station Unit 3.” In summary, the root cause of the event was identified as that operations supervision had been ineffective in demonstrating and communicating the importance of using required standards to perform all activities at Millstone. In section 1.3 of the RCE, Dominion identified that a contributing cause of the November 2011 event was a failure of operations department to effectively implement the corrective action to prevent recurrence identified for the February 2011 event. In section 2.6 of the RCE, Dominion identified that the November 2011 event was a repeat of the February 2011 event. As a result, additional corrective actions were put in place to supplement the corrective actions already in place to address the February 2011 event.

This self-revealing performance deficiency, a repeat event of a significant condition adverse to quality, was identified by the NRC in September 2012, while conducting NRC inspection procedure 95001, “Supplemental Inspection for One or Two White Inputs in a Strategic Performance Area,” in response to the February 2011 event. The results of supplemental inspection are documented in NRC inspection report 05000336/2012011.

Analysis. The inspectors determined that not precluding repetition of a significant condition adverse to quality was a performance deficiency that was within Dominion’s ability to foresee and correct. Specifically, the corrective action to prevent recurrence of the February 2011 event was ineffective to preclude repetition, as a repeat event occurred in November 2011. 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.

Using IMC 0609 Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” Exhibit 2, “Mitigating System Screening Questions,” the inspectors determined the finding could be categorized as “mismanagement of reactivity by operators (e.g. inability to anticipate and control changes in reactivity during crew

operations).” As such, the inspectors were directed to use IMC 0609, Appendix M “Significance Determination Process Using Qualitative Criteria.” In consultation with a Region I Senior Reactor Analyst, the minor increase in reactor power associated with the November 2011 reactivity event had no appreciable impact on unit core damage frequency. 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, NRC has concluded that the finding was of very low safety significance (Green).

This finding has a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area, Corrective Action Program component, because Dominion did not take appropriate corrective actions to address significant conditions adverse to quality and preclude their repetition. [P.1(d)]

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action” states, in part, “In the case of significant conditions adverse to quality, the measure shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.” Contrary to the above, Dominion’s corrective action to prevent recurrence for the February 2011 event did not preclude repetition of the event as evidenced by a repeat event occurring in November 2011. Because this issue is of very low safety significance (Green) and Dominion entered this issue into their CAP as CR437224, this finding is being treated as an NCV consistent with the NRC Enforcement Policy. **(NCV 05000336/2012004-02, Corrective Action to Prevent Recurrence Ineffective to Preclude Repetition of a Significant Condition Adverse to Quality)**

#### 4OA5 Other Activities

##### .1 Temporary Instruction (TI) 2515/182, Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks, Phase 1 (2515/182 – Phase 1)

###### a. Inspection Scope (1 sample)

Dominion’s buried piping and underground piping and tanks program was inspected in accordance with paragraphs 03.01.a through 03.01.c of TI 2515/182 and was found to meet all applicable aspects of the NEI document 09-14, Revision 1, as set forth Table 1 of the TI 2515/182.

###### b. Findings

No findings were identified.

##### .2 Temporary Instruction 2515/187 – Inspection of Near-Term Task Force Recommendation 2.3 – Flooding Walkdowns

On August 20, inspectors commenced activities to independently verify that Millstone conducted external flood protection walkdown activities using an NRC-endorsed walkdown methodology. These flooding walkdowns are being performed at all sites in response to Enclosure 4 of a letter from the NRC to licensees entitled, “Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights

from the Fukushima Dai-ichi Accident,” dated March 12, 2012 (ADAMS Accession No. ML12053A340). The results of this temporary instruction will be documented in a future inspection report.

.3 Temporary Instruction 2515/188 – Inspection of Near-Term Task Force Recommendation 2.3 – Seismic Walkdowns

On August 6, inspectors commenced activities to independently verify that Millstone conducted seismic walkdown activities using an NRC-endorsed seismic walkdown methodology. These seismic walkdowns are being performed at all sites in response to Enclosure 3 of a letter from the NRC to licensees entitled, “Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident,” dated March 12, 2012 (ADAMS Accession No. ML12053A340). When complete, the results of this temporary instruction will be documented in a future inspection report.

4OA6 Meetings, Including Exit

On October 24, 2012 the inspectors presented the inspection results to Stephen E. Scace, Site Vice President, and other members of the Millstone staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

**ATTACHMENT: SUPPLEMENTARY INFORMATION**

**SUPPLEMENTARY INFORMATION****KEY POINTS OF CONTACT**Licensee Personnel

M. Adams	Plant Manager
V. Armentrout	Dominion Corporate Consulting Engineer
L. Armstrong	Manager, Training
R. Acquaro	Unit 3 Shift Manager
G. Auria	Nuclear Chemistry Supervisor
B. Bartron	Supervisor, Licensing
E. Brodeur	Unit 3 Shift manager
C. Chapin	Assistant Manager of Operations
W. Chestnut	Supervisor, Nuclear Shift Operations Unit 2
F. Cietek	Nuclear Engineer, PRA
T. Cleary	Licensing Engineer
G. Closius	Licensing Engineer
L. Crone	Supervisor, Nuclear Chemistry
J. Curling	Manager, Protection Services
T. Davis	Supervisor Nuclear Engineering, Component Engineering
J. Dorosky	Health Physicist III
M. Fiala	SW System Engineer
M. Finnegan	Supervisor, Health Physics, ISFSI
A. Gharakhanian	Nuclear Engineer III
W. Gorman	Supervisor, Instrumentation & Control
J. Grogan	Assistant Operations Manager
K. Grover	Manager, Nuclear Operations
T. Hendy	Buried Piping Program Owner
C. Houska	I&C Technician
J. Kunze	Supervisor, Nuclear Operations Support
J. Laine	Manager, Radiation Protection/Chemistry
R. MacManus	Director, Nuclear Station Safety & Licensing
P. Maroch	Design Engineer
G. Marshall	Manager, Outage and Planning
M. Maxson	Manager, Nuclear Oversight
R. Riley	Supervisor, Nuclear Shift Operations Unit 3
M. Roche	Senior Nuclear Chemistry Technician
L. Salyards	Licensing, Nuclear Technology Specialist
W. Saputo	HPSI System Engineer
S. Scace	Site Vice President
J. Semancik	Director, Engineering
A. Smith	Asset Management
D. Smith	Manager, Emergency Preparedness
S. Smith	Manager, Engineering
P. Tulba	Radwaste Shipper
S. Turowski	Supervisor, Health Physics Technical Services
C. Vournazos	IT Specialist, Meteorological Data

**LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED**

Opened/Closed

05000423/2012002-01	NCV	Inadequate Post Maintenance Test Directions following Design Change to 3HVC*FN1B (Section 1R19)
05000336/2012004-02	NCV	Corrective Action to Prevent Recurrence Ineffective to Preclude Repetition of a Significant Condition Adverse to Quality (4OA3)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R01: Adverse Weather Protection**

Procedures

C OP 200.6, Storms and Other Hazardous Phenomena, Revision 002-07  
 SP 2619A, Control Room Daily Surveillance, Modes 1 and 2, Revision 047-07  
 MP-28-MET-PRG, Meteorological Monitoring Program, Revision 004-01

Condition Reports

CR484668

**Section 1R04: Equipment Alignment**

Procedures

OP 2307-004, Common ECCS Suction Header Valve Alignment, Facility 2, Revision 000-02  
 OP 2326A-001, SW Alignment Verification, Facility 1, Revision 000-07  
 OP 3309-001, Quench Spray System (RWST) – Valve Lineup, Revision 005-02  
 OP 3309-003, Quench Spray System (Train B) – Valve Lineup, Revision 005-04  
 OP 3326-001, Train ‘A’ SW System, Revision 009-04  
 OP 3326-008, EDG ‘B’ SW System Supply, Revision 004-01  
 OP 3346A-002, EDG ‘B’ – Cooling Water Valve Lineup, Revision 007  
 OP 3346A-004, EDG ‘B’ – Lube Oil Valve Lineup, Revision 006-02  
 OP 3346A-006, EDG ‘B’ - Starting Air Valve Lineup, Revision 009-05  
 OP 3346A-010, EDG ‘B’ – Instrument Valve Lineup, Revision 007-01  
 OP 3346A-012, EDG ‘B’ Electrical Lineup, Revision 011-03  
 OPS Form 3346B-2, Valve Lineup for ‘B’ Diesel Fuel System, Revision 4  
 HPSI System OP 2308, Revision 012-02  
 HPSI System Valve Alignment, Facility 1, Revision 000-03  
 HPSI System Valve Alignment, Facility 2, Revision 000-04

Miscellaneous

System Health Report – HPSI

**Section 1R05: Fire Protection**

Miscellaneous

Millstone Unit 2 Firefighting Strategies, April 2002  
Millstone Unit 3 Fire Fighting Strategies, October 2001  
MPS3 Fire Protection Evaluation Report, Revision 17.3  
U2-24-FPP-FHA, Millstone Unit 2 Fire Hazards Analysis, Revision 12

**Section 1R06: Flood Protection Measures**

Procedures

AOP 2559, Fire, Revision 008  
ARP 2590I, Alarm Response for Fire Panel, C-26, Revision 003-05  
SP 2618D, Fire Protection System Sprinkler and Deluge Design Function Test, Revision 012-07

Condition Reports

CR408322  
CR428232  
CR447663  
CR454282  
CR467125

Miscellaneous

MPS2 Internal Flooding Analysis Flood Induced Initiating Events, Revision 1  
25203-24028, Area Drains – Auxiliary Building Plan El. 14'-6" and El. 25'-6", Revision 11

**Section 1R07: Heat Sink Performance**

Condition Reports

CR 375390  
CR 404098  
CR 428913  
CR 432399  
CR 452009  
CR 488371

Miscellaneous

Heat Exchanger Visual Inspection Tubeside, dated September 17, 2012, ER-AA-HTX-1002, Revision 1  
Heat Exchanger Visual Inspection Tubeside, dated May 30, 2012, ER-AA-HTX-1002, Revision 1  
Heat Exchanger Visual Inspection Tubeside, dated February 6, 2012, ER-AA-HTX-1002, Revision 1  
Root Cause Evaluation RCE001063 Unplanned Shutdown due to SW Leak  
SW System Health Report  
'C' RBCCW HX D/P Limit Curve  
Calculation 03-ENG-04035M2, Revision 0, MP2 SW System Design Basis Summary  
Calculation

Work Orders

53102374326  
53102374325

**Section 1R11: Licensed Operator Regualification Program**

Procedures

OP 2202, Reactor Startup ICCE, Revision 022-02  
OP 2203, Plant Startup, Revision 019-08

Miscellaneous

MJUL12TD, Millstone Power Station Unit 3 Rehearsal Training Drill  
SP 3623.2, Turbine Overspeed Protection System Test, Revision 009-11

Condition Reports

CR482694  
CR482270  
CR483664

**Section 1R12: Maintenance Effectiveness**

Procedures

OP 3346C, EGLS Individual Load Testing, Revision 005-02

Miscellaneous

ACE 019064, Received 'A' Train Bypass Annunciator for the Sequencer  
ESAS (Sequencer) System Health Report 2<sup>nd</sup> Quarter 2011 and 2012  
ESF Load Sequencer Unavailability July 2010 through June 2012  
MRE012191  
MRE012281  
MRE013775  
MRE014861  
MRE014941

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

NF-AA-PRA-370, Probabilistic Risk Assessment Procedures and Methods: PRA Guidance for  
MRule (a)(4)  
OP 2271B, Response to Intake Structure Degraded Conditions, Revision 000-05  
SP 2654R, Intake Structure Condition Determination, Revision 002-01  
WM-AA-100, Work Management, Revision 17  
WM-AA-20, Risk Assessment of Maintenance Activities, Revision 1

Condition Reports

CR487415

Miscellaneous

Millstone Unit 2 Shutdown Safety Assessment Checklist, August 15, 2012  
NRC Generic Letter 90-05, Guidance for Performing Temporary Non-Code Repair of ASME  
Code Class 1, 2, and 3 Piping  
Temporary Modification 2-12-005, Install Uncoated Piping in 'A' EDG 8" SW Supply, Revision 0  
Work Order 53102555638  
EOOS Model - change briefing sheet for training  
Pre-2R21 shutdown risk schedule review dated September 6, 2012

**Section 1R15: Operability Evaluations**Procedures

OP-AA-102-1001, Development of Technical Basis to Support Operability Determinations, Revision 6

SP3621.3, "Main Feed Pump Trip Logic," Revision 001-06

SP3621.1-001, "Cold Shutdown Test of Feedwater Isolation Valves," Revision 005-04

SP3621.3-001, "Main Feed Pump Trip Logic Testing," Revision 001-01

SP31024, "Calculation of Reactor Trip and ESF Response Times," Revision 006-02

Condition Reports

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CR110811	CR481401	CR485149
CR363297	CR482938	CR488814
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CR479294	CR483637	CR489277
CR479373	CR483826	

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25203-26023 Sheet 2, Spent Fuel Pool Cooling & Cleanup Sys, Revision 31

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**Section 1R19: Post-Maintenance Testing**Procedures

OP 2346C-002, 'B' DG Data Sheet, Revision 001-09

OP 3346A-013, EDG – Data Sheet, Revision 007-01

OP 3346A-014, EDG 'A' – Operating Log, Revision 012

SP 2602E-001, Pressurizer Heater Capacity Test, Revision 000-00

SP 2604AO-001, 'A' HPSI Pump and Check Valve IST, Revision 001

SP 2612B-003, 'C' SW Pump and Facility 2 Discharge Check Valve IST, Revision 002-08

SP 2613B-001, Periodic DG Operability Test, Facility 2 (Fast Start, Loaded Run), Revision 021-06

SP 2613J-001, 'B' EDG Loss of Load Test, Revision 003

SP 3626.3-001, 3SWP\*AOV39A, EDG 'A' SW HX Outlet, Stroke Test, Revision 006-03



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 SP 3646A.1-003, EDG 'A' Air Start Valves Independence Test, Revision 010  
 OP-3314F, 'Control Room Ventilation,' Revision 023-00  
 OP 3353, 'Annunciator System,' Revision 008-03  
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 001 and Revision 002  
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 VPAP-1101, 'Test Control,' Revision 6  
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#### Condition Reports

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CR479842	CR483980	CR484275
CR480363	CR484024	CR485044
CR480372	CR484047	CR485348
CR480477	CR484127	CR485433
CR482615	CR484135	CR482722
CR483962	CR484136	CR483890
CR483966	CR484149	CR484002

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53M20506891	53102385494	53102486553
53M20703221	53102390592	53102509899
53M20704802	53102392468	53102527277
53M20802890	53102413194	53102543253
53M30714381	53102416569	53102451547

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 001  
 ACE019185, "Indications not properly verified during retest of Tech Spec equipment"

### **Section 1R20: Refueling and Other Outage Activities**

#### Procedures

OP 2202, Reactor Startup ICCE, Revision 022-02  
 OP 2203, Plant Startup, Revision 019-08  
 SP 2619A-002, Control Room Daily Surveillance, Modes 3 & 4, Revision 034-02

#### Miscellaneous

25203-26008 Sheet 3, SW to Vital AC Switchgear Cooling Coil and AC Chillers, Revision 32  
 50.59 Screen, Temporary Modification 2-12-04, Install two high accuracy M&TE digital  
 temperature indication in SW system  
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CR484692  
CR485325  
CR485787  
CR485800  
CR485929  
CR485932  
CR486019  
CR486032  
CR486115

**Section 1R22: Surveillance Testing**

Procedures

SP 3609.1-001, Quench Spray Pump 3QSS\*P3A Quarterly IST Pump Test, Revision 013-01

Miscellaneous

CR479527  
CR487307  
CR487310

**Section 1EP6: Drill Evaluation**

Miscellaneous

MJUL12TD, Millstone Power Station Unit 3 Rehearsal Training Drill

Condition Reports

CR482694  
CR482270  
CR483664

**Section 2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation**

Condition Reports

410670; 478437; 443903; 451270; 464913; 465908; 459513; 415395; 447047; 429791; 481884; 394630; 410723; 445903; 465298

Procedures

RW-46041, Revision 006, Compliance with 10 CFR 61 – Waste Classification  
MP-27-RW-PRG, Revision 000-01, Radioactive Waste Process Control Program  
Radioactive Material Shipments: 11-059; 11-073; 11-098; 12-006; 12-044  
WMG, Inc. Courses: RC-102, Use of the WMG Programs and Regulatory Interfaces  
RC-300, Air Transportation of Radioactive Materials  
Energy Solutions Course: Radioactive Waste Packaging, Transportation, and Disposal Training  
NOD Field Observations (NODFOB): 12-023; 12-014; 11-023; 11-016

Miscellaneous

10CFR61 Scaling factor Calculations for: U-2 dry active waste; U-2 L13/L16 filter; U-2 L18 filter; U-2 tri-nuc filter; U-2 resin; U-2 L15 filter; U-3 dry active waste; U-3 resins; U-3 CHS filter; U-3 LWS; U-3 tri-nuc filter; site dry active waste

**Section 4OA1: Performance Indicator Verification**

System Health Report: Unit 2 EDG and Fuel Oil, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 2 Condensate Storage Tank and Aux Feedwater, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 2 SW, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 2 RBCCW, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 2 High Pressure Safety Injection, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 2 Containment Spray and RWST, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 3 EDG and Fuel Oil, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 3 Containment Recirculation Spray, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 3 High Head Safety Injection, 2<sup>nd</sup> quarter 2012  
 System Health Report: Unit 3 SW, 2<sup>nd</sup> quarter 2012  
 Performance Indicator Data – 3<sup>rd</sup> quarter 2011 to 2<sup>nd</sup> quarter 2012

**Condition Reports**

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CR485568	CR473464	MRE014980
CR351300	MRE013760	MRE015257
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**Section 4OA2: Problem Identification and Resolution**

Letter: NRC to David Heacock, December 28, 2011, "Millstone Power Station Unit Nos. 2 and 3 – Audit of the Licensee's Management of Regulatory Commitments," (TAC Nos. ME7222 and ME7223)  
 Dominion Administrative Procedure, "Commitment Management," LI-AA-110, Revision 0  
 "Millstone Licensing Proofreader Checklist – Outgoing Correspondence"  
 CA219519, "Licensing – EVAL, address Regulatory Commitments Note Entered into RCD," November 16, 2011  
 CA223694, "Revise Procedure LL-AA-200, "NRC Licensing Correspondence," January 12, 2012  
 CA223713, "Convert Regulatory Commitment Database from "ACCESS" to "Teamtrack LC Module," January 12, 2012  
 CA205832, "Change Commitment," July 6, 2011  
 CR452855, "Annual Commitment Change Summary Report Not Submitted," November 15, 2011  
 CR432849, "Report exemption not needed, revising commitment," June 30, 2011  
 RCR-43007, "Replace downstream flange on Spool Piece 2952," August 19, 2011  
 RCR-43008, "Leakage and UT monitoring will be performed on 'A' Service Header leakage," August 19, 2011  
 RCR-43009, "Summary of evaluations submittal per power uprate RAI EEEB-07-0052," January 10, 2008  
 RCR-43010 "Design Change to insulate motor operators," August 19, 2011  
 RCR-43011, "Revise FSAR Chapters 7 and 15," April 24, 2008  
 RCR-43012, "Provide responses to RAI questions," March 5, 2009  
 RCR-43013, "Update to MPS3 stretch power uprate license amendment request," May 20, 2008

**Section 4OA3: Followup of Events and Notices of Enforcement Discretion****Condition Reports**

CR437224

Procedures

PI-AA-200, Corrective Action, Revision 20

Miscellaneous

RCE 001044, Root Cause Evaluation: Unplanned 8 percent Reactor Power Excursion, Millstone Unit 2 (CR413602)

RCE 001057, Root Cause Evaluation: Unit 2 Trip Due to Low Suction Pressure Trip of B-SGFP, Millstone Unit 2 (CR431754)

RCE 001073, Root Cause Evaluation: Millstone Unit 3 Allowable Temperature Low Out of Band on Reactor Startup, Millstone Unit 3 (CR453799)

NRC Inspection Report: Millstone Unit 2 – NRC Special Inspection Report 05000336/2011008; Preliminary White Finding (ML11470484)

NRC Letter EA-11-047, "FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING, WITH ASSESSMENT FOLLOW-UP; NOTICE OF VIOLATION; AND RESULTS OF REGULATORY CONFERENCE [NRC SPECIAL INSPECTION REPORT NO. 055000336/2011010] – MILLSTONE POWER STATION UNIT 2" (ML112200394), dated August 8, 2011

**Section 4OA5: Other Activities**

Condition Reports

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CR409418

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Engineering Technical Evaluation, ETE-CME-2011-1004, Revision 3, dated August 3, 2011

Repair/Replacement Plans

American Society of Mechanical Engineers (ASME) Section XI Repair/Replacement Plan - Fabricate Replacement Spool SK-3650 for Line 8"-JGD-7 iaw MP2-10-01196-000, dated December 19, 2010

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Prompt Operability Determination 000432, August 9, 2011; MP2 EDG SW Discharge Common Header

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Millstone Power Station Engineering Procedure, EN21154A, Revision 002-06, Tank Inspection Plan, July 26, 2011

Millstone Power Station Engineering Procedure, EN31154, Revision 003-00, Tank Inspection Plan, February 23, 2012

Drawings

Dominion drawing SKS-ASK-UNDGNDSOIL: MILLSTONE-SITE UNDERGROUND PIPING MAP SOIL ACQUISITION LOCATIONS

Program Documents

Millstone Power Station Life Cycle Management Plan Underground Pipe and Tank Inspection Program, June 11, 2012

Dominion Nuclear Fleet Program Description, ER-AA-BPM-10, Revision 2: Underground Piping and Tank Integrity Description

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EPRI, Buried Pipe Guided Wave Examination Reference Document, 1019115, October 2009

EPRI, BP Works Software User's Manual, Risk Ranking of Buried Piping Systems, Software Product ID: 1091178, April 2009

EPRI, Recommendations for an Effective Program to Control the Degradation of Buried and Underground Piping and Tanks (1016456, Revision 1), 2010 Technical Report

Dominion Nuclear Fleet Nondestructive Examination Procedure, ER-AA-NDE-UT-175, Revision 0; Procedure for the Application of Ultrasonic Guided Wave Examination Techniques for Piping Systems, September 12, 2011

SAR 001156, Buried Piping and Risk Ranking Self Assessment, July 15, 2011

Miscellaneous Documents

NRC TI 2515/182, November 17, 2011; Review of the Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks

NEI 09-14 [Revision 1], December 2010; Guideline for the Management of Underground Piping and Tank Integrity

**LIST OF ACRONYMS**

ACE	apparent cause analysis
ADAMS	Agencywide Documents Access and Management System
CAP	Corrective Action Program
CBI	control building isolation
CFR	Code of Federal Regulations
CR	condition reports
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EDG	emergency diesel generator
ECCS	emergency core cooling system
EP	emergency preparedness
ESAS	emergency safeguard actuation system
FSAR	final safety analysis report
HPSI	high pressure safety injection
IMC	Inspection Manual Chapter
IST	in-service test
LER	licensee event report
MSPI	mitigating system performance index
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OOS	out of service
PARS	Publicly Available Records
PCP	process control program
PD	performance deficiency
PMT	post maintenance testing
QA	quality assurance
QSS	quench spray system
RBCCW	reactor building component cooling water
RCE	root cause evaluation
RHR	residual heat removal
SDP	Significance Determination Process
SSC	structure, system, or component
SW	service water
TI	temporary instruction
TS	technical specifications
UFSAR	Updated Final Safety Analysis Report