UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

August 5, 2010

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 05000336/2010003 AND 05000423/2010003

Dear Mr. Heacock:

On June 30, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Millstone Power Station Unit 2 and Unit 3. The enclosed inspection report documents the inspection results, which were discussed on July 21, 2010, with Mr. A. J. Jordan 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 Severity Level IV non-cited violation (NCV). This report also documents four self-revealing findings of very low safety significance (Green). Two of these findings were determined to involve a violation of NRC requirements. However, because of the very low safety significance and because they have been entered into your corrective action program, the NRC is treating these violations as NCVs, consistent with Section VI.A.1 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.

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Sincerely,

Donald E. Jackson, Chief
Projects Branch 5
Division of Reactor Projects

Docket Nos. 50-336, 50-423
License Nos. DPR-65, NPF-49
Enclosure: Inspection Report No. 05000336/2010003 and 05000423/2010003
w/Attachment: Supplemental Information

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Sincerely,

/RA/

Donald E. Jackson, Chief
Projects Branch 5
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-336, 50-423
License No.:	DPR-65, NPF-49
Report No.:	05000336/2010003 and 05000423/2010003
Licensee:	Dominion Nuclear Connecticut, Inc.
Facility:	Millstone Power Station, Units 2 and 3
Location:	P. O. Box 128 Waterford, CT 06385
Dates:	April 1, 2010 through June 30, 2010
Inspectors:	S. Shaffer, Senior Resident Inspector, Division of Reactor Projects (DRP) J. Krafty, Resident Inspector, DRP B. Haagensen, Resident Inspector, DRP D. Dodson, Project Engineer, DRP C. Bickett, Senior Project Engineer, DRP T. Moslak, Health Physicist, Division of Reactor Safety (DRS) P. Kaufman, Senior Reactor Inspector, DRS J. Richmond, Senior Reactor Inspector, DRS J. Rady, Reactor Inspector, DRS
Approved by:	Donald E. Jackson, Chief Projects Branch 5 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000336/2010003, 05000423/2010003; 4/1/2010 - 6/30/2010; Millstone Power Station Unit 2 and Unit 3; Equipment Alignment; Refueling and Other Outage Activities; Identification and Resolution of Problems; Event Follow-up.

The report covered a three-month period of inspection by resident inspector staff and region-based inspectors. One Severity Level IV non-cited violation (NCV) was identified. Additionally, four Green self-revealing findings, two of which were NCVs, were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within The Cross-Cutting Areas." Findings for which the significance determination process 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, dated December 2006.

Cornerstone: Initiating Events

- Green. A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to correct a long-standing stability problem with control of the Unit 3 feedwater regulating bypass valves (FRBVs). Operation at low power conditions has resulted in excessive steam generator (SG) level oscillations while in automatic control and unintended equipment response when attempting to control SG level in manual control. The inadequate design of the SG level control system for low power operations was identified by numerous condition reports dating back to 2002, but had not been corrected. Dominion entered this issue into their corrective action program (CR381435, CR384014).

  The finding is more than minor because it was similar to NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," Example 4b, in that the failure to correct a condition adverse to quality resulted in a reactor trip. The inspectors determined that 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. Specifically, the long standing condition of the FRBVs' inability to control SG level at low power operations led to an automatic reactor trip. The inspectors performed an initial screening of the finding in accordance with IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined the finding was of very low safety significance (Green) because it did not affect both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area, Corrective Action Program component, because Dominion did not take appropriate corrective action to address the longstanding adverse conditions associated with control of the FRBVs [P.1(d)]. (Section 1R20)

- Green. A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to properly plan work activities associated with the Unit 2 'D' circulating water (CW) bay outage in accordance with Dominion procedure WM-AA-3000, "Managing Complex Work." The work plan failed to properly sequence work activities to prevent fouling of the 'C' CW screens. The subsequent fouling of the 'C' CW travelling screen resulted in an automatic trip of the 'C' CW pump. Loss of the 'C' CW pump, coupled with the unavailability of the 'D' CW pump, required the operators to manually trip the reactor. Dominion entered this issue into their corrective action program (CR370363).

  This finding is more than minor because it was similar to NRC IMC 0612, Appendix E, "Examples of Minor Issues," Example 4b, in that the implementation of the inadequate work plan caused the loss of the 'C' CW pump, and required the operators to manually trip the reactor. The inspectors determined this 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. Specifically, the work plan for the 'D' CW bay outage did not properly sequence the work, which led to the loss of the 'C' CW pump and required the operators to manually trip the reactor. The inspectors determined the significance of the finding using IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and 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 Human Performance cross-cutting area, Work Control component, because Dominion did not appropriately plan the bay cleaning and demucking (removal of scraped material) work activity to address the risk of the activity to impact the other CW bays [H.3(a)]. (Section 4OA3)

Cornerstone: Mitigating Systems

- Green. A self-revealing, NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for Dominion's failure to have an adequate procedure for operating the Unit 3 charging pumps. Specifically, Dominion operating procedure (OP) 3304A, "Charging and Letdown," did not require verification of Reactor Plant Closed Cooling Water (RPCCW) flow to the seal water heat exchanger, which resulted in overheating of the 'B' charging pump during a reactor coolant system (RCS) vacuum fill on May 1, 2010. Dominion has created corrective actions to make procedural enhancements to OP-3304A, "Charging and Letdown," and OP-3353.MB1C, "Main Board Annunciator Response."

  The inspectors determined this finding was more than minor because it was associated with the Configuration Control 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 inspectors performed an initial screening of the finding in accordance with IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors then evaluated the significance of the finding using Inspection Manual Chapter 0609,

Appendix G, "Shutdown Operations - Significance Determination Process," Checklist 3, "PWR Cold Shutdown and Refueling Operation; RCS Open and Refueling Cavity Level < 23' Or RCS Closed and No Inventory in Pressurizer; Time to Boiling < 2 hours," and determined that the finding was of very low safety significance (Green) because all of the shutdown safety function guidelines were met. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Work Control component, because Dominion relied on the work control process to assure that the RPCCW cooling water was in service to the seal water heat exchanger at the time that the RCS vacuum fill was scheduled. Specifically, the work control process was insufficiently robust to ensure that cooling water was supplied to the seal water heat exchanger during charging pump operations [H.3(b)]. (Section 1R20)

- Green. A self-revealing, 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 did not properly evaluate a degraded condition of the 'A' EDG, which led to its inoperability from May 12, 2010, to May 17, 2010. Dominion took immediate corrective action to replace the EDG governor.

  The inspectors determined 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, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Dominion's inadequate evaluation of the degraded condition of the 'A' EDG governor after the March 17, 2010, surveillance test did not result in effective corrective action to address the cause of the rapid load increase. As a result, the 'A' EDG was declared inoperable when it again experienced a rapid load increase during its surveillance on May 12, 2010. The inspectors determined the significance of the finding using IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because it did not represent an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time. The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Decision Making component, 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)

Other Findings

- Severity Level IV. The inspectors identified a Severity Level IV NCV of 10 CFR 50.72(b)(3)(v); in that, Dominion failed to make a timely 10 CFR 50.72 eight-hour report to the NRC for a condition that, at the time of discovery, could have prevented secondary containment from fulfilling its safety function. On May 27, 2010, operations personnel found both sets of the auxiliary and service building tunnel exhaust dampers open which could have prevented secondary containment from fulfilling its safety function. Operations declared secondary containment inoperable, closed the auxiliary building tunnel exhaust dampers to restore operability, and initiated a 10 CFR 50.72 report.

The inspectors determined that Dominion's failure to make a 10 CFR 50.72 eight-hour report to the NRC regarding the inoperable secondary containment as a condition that could have prevented it from fulfilling its safety function was a performance deficiency. The inspectors determined that traditional enforcement applied, since the failure to make a required report could adversely impact the NRC's ability to perform its regulatory function. In accordance with the NRC Enforcement Policy, "Supplement I - Reactor Operations," Example D.4, a failure to make a required Licensee Event Report (LER) is categorized as a Severity Level IV violation. The inspectors determined that this finding 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 could not demonstrate that secondary containment would have fulfilled its safety function [H.1(b)]. (Section 1R04)

REPORT DETAILS

Summary of Plant Status

Millstone Unit 2 began the inspection period operating at 100 percent rated thermal power (RTP). On May 22, 2010, Unit 2 operations personnel manually tripped the reactor due to high steam generator level. Unit 2 returned to 100 percent power on May 26, 2010, and remained at or near 100 percent RTP for the remainder of the inspection period.

Millstone Unit 3 began the inspection period operating at 100 percent RTP. On April 10, 2010, Unit 3 was shutdown to begin refueling outage 3R13. During startup, Unit 3 automatically tripped when level in the 'C' steam generator dropped below narrow range level. Unit 3 returned to 100 percent power on May 21, 2010, and remained at or near 100 percent RTP for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 2 samples)

.1 Seasonal Site Inspection

a. Inspection Scope (1 sample)

The inspectors reviewed Unit 2 and Unit 3 readiness for seasonal hot weather. The inspectors reviewed selected equipment, instrumentation, and supporting structures to determine if they were configured in accordance with Dominion procedures, and that adequate controls were in place to ensure functionality of the systems. The inspectors reviewed the Unit 2 and Unit 3 Updated Final Safety Analysis Report (UFSAR) and Technical Specifications (TS) and compared the analysis with procedure requirements to ascertain that procedures were consistent with the UFSAR. The inspectors performed partial walkdowns of the Unit 2 condensate storage tank, refueling water storage tank, and primary makeup water tank to determine if actions required by the procedure were complete. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

.2 Grid Stability - Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope (1 sample)

The inspectors reviewed Dominion's Independent System Operator (ISO) New England and Connecticut Valley Electric Exchange (CONVEX) procedures for notifications of abnormal grid conditions to determine if they were adequate to ensure the reliability of alternating current (AC) power systems. The inspectors reviewed Dominion's procedures to determine if they addressed inadequate post-trip voltages of the offsite power supply, unknown post trip voltages, reassessment of risk when maintenance activities could affect grid reliability, and required communication between Dominion and ISO New England/CONVEX when changes at the site could impact the transmission system. The inspectors interviewed selected operations personnel to determine if they were familiar with the procedures for abnormal grid conditions. The inspectors also performed a walkdown of the switchyard, main transformers, normal station service transformers, and reserve station service transformers in order to determine the material condition of the offsite power sources.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04 - 6 samples)

.1 Partial System Walkdowns (71111.04Q)

a. Inspection Scope (5 samples)

The inspectors performed five partial system walkdowns during this inspection period. The inspectors reviewed the documents listed in the Attachment to determine the correct system alignment. The inspectors performed a walkdown of each system to determine if the critical portions of the selected systems were correctly aligned in accordance with the procedures, and to identify any discrepancies that may have had an effect on operability. The walkdowns included selected switch and valve position checks, and verification of electrical power to critical components. Finally, the inspectors evaluated other elements, such as material condition, housekeeping, and component labeling. The following systems were reviewed based on their risk significance for the given plant configuration:

Unit 2

- 'B' Low Pressure Safety Injection (LPSI) on June 16, 2010, while 'A' LPSI was out of service (OOS) for surveillances; and
- 'B' Containment Spray on June 17, 2010, while 'A' Containment Spray was OOS for surveillances.

Unit 3

- Auxiliary Building Ventilation following mispositioned ventilation dampers on May 28, 2010;
- Recirculation Spray System (RSS) partial system alignment; and
- High-head Safety Injection partial systems alignment.

b. Findings

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.72(b)(3)(v); in that, Dominion failed to make a timely eight-hour report for a condition that, at the time of discovery, could have prevented the Unit 3 secondary containment from fulfilling its safety function.

Description: On May 27, 2010, at 3:25 p.m., Unit 3 operations personnel found both sets of the auxiliary and service building tunnel exhaust dampers open, resulting in a breach of the supplementary leak collection and release system, which exhausts air from the buildings adjacent to containment. Operations immediately declared secondary containment inoperable and closed the auxiliary building tunnel exhaust dampers to restore operability. On May 28, 2010, the inspectors questioned the Shift Manager if a 10 CFR 50.72 eight-hour report to the NRC was required. The Shift Manager indicated that the issue was still under review. On the morning of June 1, 2010, the inspectors questioned the operations crew if a determination had been made about an eight-hour report for the open auxiliary building tunnel exhaust dampers. The operating crew was not aware of the mispositioned dampers from five days earlier and had to research the issue. The Shift Manager concluded that the event was reportable, and issued an eight-hour report at 4:57 p.m., on June 1, 2010.

Analysis: The inspectors determined that Dominion's failure to make a 10 CFR 50.72 eight-hour report to the NRC regarding the inoperable secondary containment as a condition that could have prevented it from fulfilling its safety function was a performance deficiency. The cause was reasonably within Dominion's ability to foresee and correct, and should have been prevented. The inspectors determined that traditional enforcement applied, since the failure to make a required report could adversely impact the NRC's ability to perform its regulatory function. In accordance with the NRC Enforcement Policy, "Supplement I - Reactor Operations," Example D.4, a failure to make a required Licensee Event Report (LER) is categorized as a Severity Level IV violation. The inspectors determined that this example applied, as Dominion failed to make the required 10 CFR 50.72 report for approximately five days.

The inspectors determined that this finding 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 could not demonstrate that secondary containment would have fulfilled its safety function [H.1(b)].

Enforcement: 10 CFR 50.72(b)(3)(v) requires, in part, that the licensee shall notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any event or condition that at the time of discovery could have prevented the fulfillment of

the safety function of structures or systems that are needed to control the release of radioactive material. Contrary to the above, from May 27, 2010 until June 1, 2010, Dominion failed to report within eight hours a condition that could have prevented secondary containment from fulfilling its safety function of controlling the release of radioactive material. Operations declared secondary containment inoperable, closed the auxiliary building tunnel exhaust dampers to restore operability, and initiated a 10 CFR 50.72 report. Because this violation was of very low safety significance, was not repetitive or willful, and was entered into Dominion's corrective action program (CR 383211), this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. **(NCV 05000423/2010003-01, Failure to Make a 10 CFR 50.72 (b)(3)(v) Report for an Inoperable Unit 3 Secondary Containment)**

.2 Complete System Walkdown (71111.04S)

a. Inspection Scope (1 sample)

The inspectors completed a detailed review of the alignment and condition of the Unit 3 'B' EDG system. The inspectors performed a walkdown of the system to determine whether critical portions, such as circuit breakers and switches, were aligned in accordance with procedures, and to identify any discrepancies that may have had an adverse effect on operability. The inspectors also reviewed the system health reports, condition reports (CR), and maintenance rule evaluations to determine whether equipment problems were being identified and appropriately resolved. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05 – 8 samples)

.1 Fire Protection - Tours (71111.05Q)

a. Inspection Scope (7 samples)

The inspectors performed walkdowns of seven fire protection areas. The inspectors reviewed Dominion's fire protection program to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for the selected areas. The inspectors walked down these areas to assess Dominion's control of transient combustible material and ignition sources. In addition, the inspectors evaluated the material condition and operational status of fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The inspectors compared the existing conditions of the areas to the fire protection program requirements to determine if all program requirements were being met. Documents reviewed during the inspection are listed in the Attachment. The fire protection areas reviewed included:

Unit 2

- Turbine Building 6.9 and 4.16 kV Switchgear Room, Fire Zone T-10, El. 56'6";
- Turbine Building 6.9 and 4.16 kV Switchgear Room, Fire Zone T-7, El. 31'6";
- Steam Driven Auxiliary Feed Pump Pit, Fire Zone T-4; and
- Motor Driven Auxiliary Feed Pump Pit, Fire Zone T-3.

Unit 3

- Auxiliary Building Fire Area AB-1, El. 24'-6";
- Generator Step Up (GSU) Transformer Deluge Building and 'A', 'B', and 'C' Main GSU Transformers; and
- Containment, Fire Area RC-1.

b. Findings

No findings were identified.

.2 Annual Fire Drill Observation (71111.05A)

a. Inspection Scope (1 sample)

The inspectors observed Dominion personnel performance during a fire brigade drill on June 25, 2010, to evaluate the readiness of station personnel to fight fires. The drill simulated a fire of the Unit 3 'C' circulating water (CW) pump. The inspectors observed the fire brigade members using protective clothing, turnout gear, self-contained breathing apparatus and entering the fire area. The inspectors also observed the fire fighting equipment brought to the fire scene to evaluate whether sufficient equipment was available to effectively control and extinguish the simulated fire. The inspectors evaluated whether the permanent plant fire hose lines were capable of reaching the fire area and whether hose usage was adequately simulated. The inspectors observed the fire fighting directions and communications between fire brigade members. The inspectors also evaluated whether the pre-planned drill scenario was followed and observed the post drill critique to evaluate if the drill objectives were satisfied and that any drill weaknesses were discussed.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample)

The inspectors reviewed the flood protection measures for equipment in the Unit 2 Reactor Building Closed Cooling Water rooms. The inspectors evaluated Dominion's protection of safety-related systems from internal flooding conditions. The inspectors

performed a walkdown of the area, interviewed the system engineer, reviewed the internal flooding evaluation, and verified that preventive maintenance was being performed on critical flood protection detection equipment to ensure that equipment and conditions remained consistent with those indicated in the design basis and flooding evaluation documents. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07T)

a. Inspection Scope (4 samples)

Based on a plant specific risk assessment, past inspection results, recent operational experience, and resident inspector input, the inspectors selected the following heat sink samples:

Unit 2

- Walkdown and review of the Service Water (SW) system, per 71111.07, Section 02.02(d)(6); and
- Walkdown and review of the SW intake structure, per 71111.07, Section 02.02(d)(7).

Unit 3

- Review SW system operations, per 71111.07, Section 02.02(d)(4); and
- Walkdown and review of the SW system, per 71111.07, Section 02.02(d)(6).

The inspectors reviewed Unit 2 and Unit 3 SW system designs to evaluate the adequacy of system monitoring, testing, and maintenance. The SW system was designed to supply cooling water from the ultimate heat sink to various plant heat loads to ensure a continuous flow of cooling water to systems and components necessary for plant safety during both normal operation and abnormal or accident conditions.

The inspectors reviewed Dominion's test and inspection, maintenance, chemical control, and performance monitoring methods and frequency for the SW systems, to determine whether potential deficiencies could mask degraded performance, and to assess the capability of the systems to perform their design functions. In addition, the inspectors evaluated whether any potential common cause heat sink performance problems could affect multiple heat exchangers (HX) or heat removal paths in mitigating systems or could result in an initiating event.

The inspectors reviewed system health reports, SW pipe inspection records, performance and surveillance test results, and design specifications and calculations. The inspectors compared as-found test and inspection results, and performance and

surveillance test results to established acceptance criteria to determine whether the as-found conditions were acceptable and conformed to design basis assumptions for heat transfer capability. The inspectors evaluated performance trends to assess whether the inspection and test frequencies were adequate to identify degradation prior to loss of heat removal capabilities below their design requirements. In addition, the inspectors assessed Dominion's methods to monitor and control biofouling, corrosion, erosion, and silting to verify whether Dominion's methodology and acceptance criteria, as implemented, were adequate.

The inspectors performed field walkdowns of selected portions of the SW system piping and the intake structure to independently assess the material condition of these systems and components. In addition, the inspectors observed in-progress eddy current testing (ECT) of the Unit 2 'A' turbine building closed cooling water (TBCCW) HX, and tube cleaning and inspection activities for the Unit 2 'B' EDG HXs. The inspectors reviewed the completed eddy current test report for the TBCCW HX, and the as-found HX inspection reports for the TBCCW and EDG HXs. The inspectors compared the as-found data against established acceptance criteria to evaluate the HX's material condition and assess Dominion's maintenance activity effectiveness. The inspectors also reviewed work order history, and discussed system health with the respective system and design engineers. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

1R08 In-Service Inspection (71111.08)

a. Inspection Scope (1 sample)

From April 19, 2010 through April 28, 2010, the inspectors performed a review of Dominion's implementation of in-service inspection (ISI) program activities for monitoring degradation of the reactor coolant system (RCS) boundary and risk significant piping system boundaries for Millstone Unit 3 using the criteria specified in the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI. The sample selection was based on the inspection procedure objectives and risk priority of those components and systems where degradation would result in a significant increase in risk of core damage.

The inspectors also performed a review of Temporary Inspection (TI) 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds for Millstone Unit 3. The inspectors reviewed documentation, observed in-process non-destructive examinations (NDE), and interviewed inspection personnel to verify that the activities were performed in accordance with the ASME Boiler and Pressure Vessel Code Section XI requirements.

Non-Destructive Examination (NDE) Activities

The inspectors performed observations of NDE activities in process and reviewed documentation of nondestructive examinations listed below:

- Automated Ultrasonic Test (UT), volumetric examination of four 29" RCS hot leg reactor vessel outlet nozzle dissimilar metal butt welds, 302-121-A, 302-121-B, 302-121-C, and 302-121-D;
- UT, volumetric examination, safety injection low, elbow to pipe weld, component ID SIL-501-2-SW-5, UT Examination Report No. UT-10-059, dated April 24, 2010;
- Liquid Penetrant Test (PT), surface examination, safety injection low, elbow to pipe weld, component ID SIL-501-2-SW-5, PT Examination Report No. PT-10-031, dated April 22, 2010;
- Magnetic Particle Test (MT), surface examination, pipe to elbow, FWS-13-FW-91, MT Examination Report No. MT-10-030, dated April 21, 2010;
- Visual test (VT) (VT-1 and VT 3), visual examination of reactor metallic containment liner (ASME Code, Section XI, Subsections IWE); and
- Visual test of Reactor Pressure Vessel (RPV) Lower Head Bear Metal Inspection (BMI) and Reactor Vessel Upper Head control rod drive mechanism (CRDM) penetration.

The inspectors reviewed an unacceptable flaw (relevant linear indication) documented in magnetic particle examination data report MT-10-001, and ISI Unresolved Indication Report MP3-10-001 according to ASME Section XI, Section IWB-3514-4 for component FWS-11-FW-7-BM (CR-376412). The indication was evaluated by Engineering to be caused by a surface lap formed in the original fabrication process of the pipe and not indicative of a service induced flaw. The flaw was subsequently removed under work order 53102265425 with an acceptable final MT examination documented on ISI examination report MT-10-0023. The final cavity dimensions were evaluated to the volumetric examination acceptance criteria of ASME Section XI, IWB-3514 and found to be acceptable.

The inspectors reviewed the certifications of several of the NDE technicians performing the examinations. The inspectors verified that the examinations were performed in accordance with approved procedures and that the results were reviewed and evaluated by certified Level III NDE personnel.

Reactor Pressure Vessel Upper Closure Head Penetration Inspection Activities

The inspectors reviewed visual examination report VT-10-077 that was completed on April 21, 2010, for Millstone Unit 3 RPV upper closure head (79) penetrations nozzle to head penetrations with Alloy 600/82/182 material to verify that the visual inspection was performed in accordance with visual examination procedure, ER-AA-NDE-VT-607 and ASME Boiler and Pressure Vessel Code Case N-729-1, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds, Section XI, Division 1."

The inspectors verified that no boric acid leakage had been observed on the RPV upper closure head surface. Dominion did however observe and document evidence of RCS leakage and boric acid residue from a canopy seal weld of CRDM F12. This is not considered pressure boundary leakage as the seal weld is not considered a pressure boundary. Installing a CRDM canopy seal assembly clamp repaired the leak during the 3R13 refueling outage.

Repair/Replacement Consisting of Welding Activities

The inspectors reviewed Millstone Unit 3 repair and replacement activities associated with replacement of 2-inch loop charging header isolation globe valve 3CHS*V369 per work order M3-07-12450 due to boric acid leaks. The inspectors reviewed this replacement activity to verify the welding and applicable NDE activities were performed in accordance with ASME Section XI Code requirements.

Reactor Pressure Vessel Lower Head Penetration Nozzle Inspection Activities

The inspectors verified the bare metal visual inspection results were acceptable of the Alloy 600 BMI exams of the Millstone Unit 3 RPV lower head (58) instrument nozzle penetration welds performed by Dominion personnel during 3R13 by reviewing the visual examination record VT-10-078 of the BMI inspection.

Boric Acid Corrosion Control Program (BACCP) Inspection Activities

The inspectors discussed the BACCP with the boric acid corrosion control program owner and sampled photographic inspections of boric acid found on safety significant piping and components inside the Millstone Unit 3 Containment during Mode 3 walkdowns performed by Dominion personnel. These walkdowns were directly observed by the resident inspectors to verify that the visual inspections were performed in accordance with the Millstone BACCP inspection procedure and checklists, which emphasized the areas and locations where boric acid leaks could cause degradation of safety significant components and that deficient conditions were identified and documented.

A sample of engineering evaluations and corrective actions associated with these boric acid deficiencies were reviewed by the inspectors and verified that CRs were assigned corrective actions consistent with the requirements of the ASME Code and 10 CFR 50, Appendix B, Criterion XVI.

Steam Generator (SG) Tube Inspection Activities

The inspectors reviewed the Millstone Unit 3 SG ECT tube examinations, and applicable procedures for monitoring degradation of SG tubes to verify that the SG examination activities were performed in accordance with the rules and regulations of the SG examination program, Dominion SG Program, Unit 3 ECT Data Analysis Reference Manual U3-24-SIP-REF01, NRC Generic Letters, Code of Federal Regulations 10 CFR 50, TS for Millstone Unit 3, Nuclear Energy Institute 97-06 SG program Guidelines, EPRI PWR SG Examination Guidelines, and the ASME Boiler and Pressure Vessel

Code Sections V and XI. The review also included the Millstone Unit 3 SG Integrity Degradation Assessment (3R13) and Millstone Unit 3 SG Condition Monitoring and Operational Assessment Refueling Outage 12.

Millstone Unit 3 implemented a 7 percent power uprate during 3R12, therefore, the primary and secondary side SG inspections focused on documenting any changes that may have been observed as a result of the power uprate. The inspectors reviewed the SG selection plan for the Millstone Unit 3 SG documented in the degradation assessment. The SG plan for 3R13 outage included ECT of all the tubes in SG 'B' and 'D.' The tubes were examined full length with bobbin probes and all row 1 and row 2 U-bends were examined with the rotating +Point probe with no degradation detected.

The inspectors participated in an outage conference call between NRR and Dominion in April 2010 to discuss the Millstone Unit 3 SG examination results obtained and the status of eddy current inspections up to that time. During the call, a discussion was also held concerning the Millstone Unit 3 TS amendment application dated November 23, 2009. This TS amendment changes the inspection scope and repair requirements of TS Section 6.8.4.g, "Steam Generator Program," and the reporting requirements of TS Section 6.9.1.7, "Steam Generator Tube Inspection Report." The changes establish interim alternate repair criteria for portions of the SG tubes within the tubesheet. The amendment is applicable for Millstone Unit 3, 3R13 Refueling Outage, which began in April 2010, and the subsequent operating cycle.

The inspectors observed a sample of ECT of the two SGs ('B' and 'D') inspected during 3R13 outage. The inspectors reviewed eddy current data for various tubes from these SGs and observed that an inspection depth of 15.1 inches was implemented from the top of tube sheet during the eddy current inspections. Several of the samples selected for review represented tubes that exhibited various anomalies such as localized wear and loose part wear which were identified as needing repair by plugging.

Dominion reported wear at a quatrefoil tube support and attributed the wear to the interaction between the tube and the support (vibration wear). This was the first time that Dominion had reported wear at a quatrefoil support (minor wear sized at 22 percent through wall) for the Millstone Unit 3 SG. A total of seven tubes were removed from service. Four tubes were plugged in SG 'B' (one tube due to anti-vibration bar wear and three tubes due to loose part wear). Three tubes were plugged in SG 'D' (two tubes due to loose part wear and one tube due to inner diameter (ID) chatter). No tubes were identified requiring in-situ pressure testing during the 3R13 SG inspections, and no tube leakage was reported during the previous operating cycle (reported as < 1 gallon per day).

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q)

Resident Inspector Quarterly Review

a. Inspection Scope (2 samples)

The inspectors observed simulator-based licensed operator requalification training for Unit 2 and Unit 3 on June 8, 2010. The inspectors evaluated crew performance in the areas of clarity and formality of communications; ability to take timely actions; prioritization, interpretation, and verification of alarms; procedure use; control board manipulations; oversight and direction from supervisors; and command and control. Crew performance in these areas was compared to Dominion management expectations and guidelines as presented in OP-MP-100-1000, "Millstone Operations Guidance and Reference Document." The inspectors compared simulator configurations with actual control board configurations. The inspectors also observed Dominion evaluators discuss identified weaknesses with the crew and/or individual crew members, as appropriate. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope (1 sample)

The inspectors reviewed Dominion's evaluation of degraded conditions associated with the Unit 2 vital switchgear emergency cooling system for maintenance effectiveness during this inspection period. The inspectors reviewed Dominion's implementation of the Maintenance Rule, as described in 10 CFR 50.65. The inspectors reviewed Dominion's ability to identify and address common cause failures; the applicable maintenance rule scoping document for each system; the current classification of these systems in accordance with 10 CFR 50.65 paragraphs (a)(1) or (a)(2); and the adequacy of the performance criteria and goals established for each system, as appropriate. The inspectors also reviewed recent system health reports, condition reports (CRs), apparent cause determinations, functional failure determinations, and discussed system performance with the responsible system engineer. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

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

a. Inspection Scope (7 samples)

The inspectors evaluated online risk management for emergent and planned activities. The inspectors reviewed maintenance risk evaluations, work schedules, and control room logs to determine if concurrent planned and emergent maintenance or surveillance activities adversely affected the plant risk already incurred with OOS components. The inspectors evaluated whether Dominion took the necessary steps to control work activities, minimize the probability of initiating events, and maintain the functional capability of mitigating systems. The inspectors assessed Dominion's risk management actions during plant walkdowns. Documents reviewed during the inspection are listed in the Attachment. The inspectors reviewed the conduct and adequacy of risk assessments for the following maintenance and testing activities:

Unit 2

- Dominion planning and control of emergent work during the troubleshooting of the partial loss of VR-11 loads on March 5, 2010;
- Yellow risk during 'C' High Pressure Safety Injection (HPSI) pump surveillance testing on April 30, 2010; and
- Yellow risk during RPS matrix testing with inoperable 'A' EDG on May 14, 2010.

Unit 3

- Yellow risk during RCS drain down to decreased inventory for defueling;
- Yellow risk during a period of low RCS inventory and the new normal station service transformer transformers were energized for the first time;
- Control of emergent work for the 'B' residual heat removal (RHR) pump motor replacement; and
- Dominion planning and control of emergent work during troubleshooting of 3CDS*CTV40A after the valve failed a local leak rate test (LLRT).

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (8 samples)

The inspectors reviewed eight operability determinations (OD). The inspectors evaluated the ODs against the guidance contained in NRC Regulatory Issue Summary 2005-20, Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability." The inspectors also discussed the conditions with operators and system and design

engineers, as necessary. Documents reviewed during the inspection are listed in the Attachment. The inspectors reviewed the adequacy of the following evaluations of degraded or non-conforming conditions:

Unit 2

- OD 000369, Particulate in the Woodward Governor for the Unit 2 'A' EDG;
- CR374859, High Water Level in the Tendon Access Gallery;
- CR383233, Stem Nut Coefficient of Friction Exceeds MOV Program Assumptions for MOV 2-MS-202, #2 SG to Terry Turbine Steam Supply Valve;
- CR384909, Individual Cell Voltage for Cell 36 of Turbine Battery at TS Limit; and
- CR384186, Damaged Bolt Hole on 'A' SSW Strainer Motor.

Unit 3

- CR379491, 'B' Charging pump engineering evaluation following the pump being run without cooling while in recirculation flow line-up;
- CR376856 & CR377199, 'B' Rod Drive MG set engineering evaluation for non-conforming conditions (coupling surface galling and sleeve damage to motor leads) identified during motor overhaul; and
- CR377245, 3RSS*MV8837B calculation change for exceeding maximum close total thrust limit during periodic verification testing.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope (2 samples)

To assess the adequacy of the modifications, the inspectors performed walkdowns of selected plant systems and components, interviewed plant staff, and reviewed applicable documents, including procedures, calculations, modification packages, engineering evaluations, drawings, corrective action program documents, the updated UFSAR, and TS.

For the modifications reviewed, the inspectors determined whether selected attributes (component safety classification, energy requirements supplied by supporting systems, seismic qualification, instrument setpoints, uncertainty calculations, electrical coordination, electrical loads analysis, and equipment environmental qualification) were consistent with the design and licensing bases. Design assumptions were reviewed to verify that they were technically appropriate and consistent with the UFSAR. For each modification, the 10 CFR 50.59 screenings or safety evaluations were reviewed. The inspectors also verified that procedures, calculations, and the UFSAR were properly updated with revised design information. In addition, the inspectors verified that the as-built configuration was accurately reflected in the design documentation and that post-

modification testing was adequate to ensure the structures, systems, and components would function properly. Documents reviewed during the inspection are listed in the Attachment.

Unit 3

- Replacement of Valves 3SIL*V894 and 3CHS*V376 (permanent modification); and
- Replacement of Flux Mapping Drive System (permanent modification).

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (12 samples)

The inspectors reviewed post-maintenance test (PMT) activities to determine whether the PMT adequately demonstrated that the safety-related function of the equipment was satisfied, given the scope of the work specified, and that operability of the system was restored. In addition, the inspectors evaluated the applicable test acceptance criteria to evaluate consistency with the associated design and licensing bases, as well as TS requirements. The inspectors also evaluated whether conditions adverse to quality were entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment. The following maintenance activities and PMTs were evaluated:

Unit 2

- SP 2411, "Control Element Assembly Motion Inhibit Verification Functional Test," Revision 002-08 following a failure of CEAPDS due to a VR-11 transient;
- SP 2610BO-001, "2-MS-201, 2-MS-202 and 2-MS-464 (SV-4188) Stroke and Timing IST," Revision 001-03 following repair of TDAFW pump steam trap, ST-156;
- SP 2613K, "Periodic Diesel Generator (DG) Slow Start Operability Test, Facility 1 (Loaded Run)," Revision 003-06 following governor oil replacement;
- SP 2613I-001, "'A' EDG Loss of Load Test." Revision 002-05 following governor replacement;
- SP 2601D-001, "Power Range Safety Channel and Delta T Power Channel Calibration ," Revision 016-00 following power supply replacement;
- SP 2402F1, "Facility 1 SG Pressure Remote Shutdown Indication and ADV Pressure Controller Calibration," Revision 000-04 following replacement of the pressure controller for 2-MS-190A; and
- AWO 53102361953 which performed the battery cell 36 replacement and post maintenance test.

Unit 3

- SP 3601B.2, "Train A Reactor Head Vent Path Operability," Revision 006-04 following reactor head vent valve (3RCS*SV8096A) replacement on April 2, 2010;
- SP 3646A.2, "EDG 'B' Operability Tests," Revision 020 following replacement of the 3EGS*E1B heat exchanger tube bundle;
- AWO 53102362098 which governed the replacement of the 'B' Electro-hydraulic Control pump and post maintenance test;
- AWO 53102346094, "M33RHS*P1B Pump and Motor Require Replacement;" and
- SP3604A.2, "Charging Pump 'B' Operational Readiness Test," Revision 011-02.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope (1 sample)

Dominion began the Unit 3 refueling outage 3R13 on April 10, 2010 and completed the outage on May 17, 2010. The inspectors evaluated the outage plan and outage activities to determine if Dominion had considered risk, developed risk reduction and plant configuration control methods, considered mitigation strategies in the event of loss of safety functions, and adhered to licensee and TS requirements. The inspectors observed portions of the shutdown, cooldown, heat up and start up processes. Additionally, the inspectors performed an initial containment Mode 3 walk down to evaluate the as-found condition of containment. The inspectors performed a final Mode 3 walk down to ensure that no loose material or debris, which could be transported to the containment sump, were present. The inspectors also reviewed waiver requests, self declarations, and fatigue assessments to verify that Dominion was managing fatigue during the outage. The inspectors reviewed CRs to determine if conditions adverse to quality were entered for resolution. Documents reviewed for the inspection are listed in the Attachment. Some of the specific activities the inspectors observed and performed included:

- Reactor shutdown and cool down;
- Reactor water level drain down to the reactor flange;
- Midloop and reduced inventory operations;
- Reactor head lift;
- Fuel handling, core loading, and fuel element assembly tracking;
- Containment as-found walk down;
- Review of outage risk plan;
- Orange Risk – Replacement of main transformer insulators;
- RCS vacuum fill;
- Fatigue management review;
- Containment as-left walk down;
- Reactor heat up;

- Reactor start up;
- Low power physics testing;
- Reactor power ascension;
- Reactor trip and return to power; and
- Unit 3 generator synchronization to the grid.

b. Findings

.1 Introduction: A Green, self-revealing, NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for Dominion's failure to have an adequate procedure for operating the Unit 3 charging pumps. Specifically, Dominion operating procedure (OP) 3304A, "Charging and Letdown," did not require verification of Reactor Plant Closed Cooling Water (RPCCW) flow to the seal water heat exchanger, which resulted in overheating of the 'B' charging pump during a reactor coolant system (RCS) vacuum fill on May 1, 2010.

Discussion: On May 1, 2010, while Unit 3 was shutdown in Mode 5, operators implemented OP 3250.01, "RCS Vacuum Fill," and started the 'B' charging pump. Due to an unrelated maintenance activity, RPCCW to the seal water heat exchanger had been isolated and was not available to provide cooling during charging pump operation. RPCCW provides cooling flow for the charging pump minimum recirculation line via the seal water heat exchanger, and was not restored to service following the maintenance. After several hours of running the 'B' charging pump without RPCCW cooling to the minimum recirculation line, overheating and cavitation in the pump began to occur. Operators immediately stopped the pump, declared it inoperable, and exited the RCS vacuum fill procedure. Millstone Unit 3 Technical Specifications require one charging pump in the boron injection flow path to be operable while the plant is in Mode 5. While the 'B' charging pump was inoperable, an alternate charging pump was able to satisfy the technical specification requirement.

Prerequisite 2.1.8 of OP 3304A, "Charging and Letdown," requires that, "RPCCW system is in operation and available to supply the following: 3CHS*E2 letdown heat exchanger, 3CHS*E3 excess letdown heat exchanger." However, the procedure did not require the verification of RPCCW flow to the seal water heat exchanger. Although the operators properly implemented the procedures, OP 3304A, "Charging and Letdown," was not written at the level of detail that was appropriate to the circumstances to ensure cooling water was supplied to all required charging pump support systems.

Analysis: The inspectors determined that Dominion's failure to ensure OP 3304A, "Charging and Letdown," was written at the level of detail necessary to support 'B' charging pump operation during RCS vacuum fill operations was a performance deficiency. The cause was reasonably within Dominion's ability to foresee and correct, and should have been prevented. Traditional Enforcement did not apply, as the issue did not have actual or potential safety consequences, had no willful aspects, nor did it impact the NRC's ability to perform its regulatory function.

A review of NRC IMC 0612, Appendix E, "Minor Examples," revealed that no examples

applied to this finding. The inspectors determined this finding was more than minor because it was associated with the Configuration Control 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, the 'B' charging pump was declared inoperable when the RPCCW system configuration was not restored following maintenance. The inspectors performed an initial screening of the finding in accordance with IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors then evaluated the significance of the finding using Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations - Significance Determination Process," Checklist 3, "PWR Cold Shutdown and Refueling Operation; RCS Open and Refueling Cavity Level < 23' Or RCS Closed and No Inventory in Pressurizer; Time to Boiling < 2 hours," and determined that the finding was of very low safety significance (Green) because all of the shutdown safety function guidelines were met.

The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Work Control component, because Dominion relied on the work control process to assure that the RPCCW cooling water was in service to the seal water heat exchanger at the time that the RCS vacuum fill was scheduled. Specifically, the work control process was insufficiently robust to ensure that cooling water was supplied to the seal water heat exchanger during charging pump operations [H.3(b)].

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, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, on May 1, 2010, Dominion procedure OP 3304A, "Charging and Letdown," was not written at the level of detail appropriate to the circumstances to support 'B' charging pump operation during RCS vacuum fill operations. As a result, the 'B' charging pump overheated and was declared inoperable. Dominion has created corrective actions to make procedural enhancements to OP-3304A, "Charging and Letdown," and OP-3353.MB1C, "Main Board Annunciator Response." Because this violation was of very low safety significance, and has been entered into the corrective action program (CR-379359), this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000423/2010003-02 Unit 3 Charging Pump Overheating and Cavitation during RCS Loop Vacuum Fill).**

.2 Introduction: A self-revealing finding (FIN) of very low safety significance (Green) was identified for Dominion's failure to correct a long-standing stability problem with control of the Unit 3 feedwater regulating bypass valves (FRBVs). Operation at low power conditions has resulted in excessive steam generator (SG) level oscillations while in automatic control and unintended equipment response when attempting to control SG level in manual control. The inadequate design of the SG level control system for low power operations was identified by numerous condition reports dating back to 2002, but had not been corrected.

Discussion: On May 17, 2010, during a power ascension following a refueling outage at Millstone Unit 3, an automatic reactor trip occurred when the 'C' SG dropped below 18 percent narrow range level. Prior to this trip, the operators were attempting to manually stabilize level in the 'B' and 'C' SGs after the automatic control system had failed to maintain SG level oscillations within the procedurally allowable control band of 45 percent to 55 percent.

The FRBVs have had control characteristics where they rapidly stroked closed but slowly stroked open. The design of the FRBV actuator system was such that it employed a quick-closure feature to meet the safety function of the valve. In comparison, the modulating-open stroke was relatively slow. The design control characteristics resulted in an automatic level control system that would often experience divergent oscillations at low power levels. In addition, the automatic level control system had been tuned for stable, optimum control without including the FRBV in the instrument alignment procedure. The level control instrument loop was tuned separately from the valve diagnostic stroke testing procedure and then the instrument and valve positioner were coupled for operation without any further testing to verify the valve stroked as required.

Dominion operating procedure 3203, "Plant Startup," requires that the operators maintain the SG level band between 45 percent and 55 percent. A Senior Reactor Operator had previously relaxed the 50 percent ± 5 percent level band because the automatic control system could not readily maintain this band, and instead expanded the level control band to 50 percent ± 10 percent (40 percent to 60 percent narrow range level). As a result, the 'B' and 'C' SGs were experiencing larger than expected level oscillations when the operator was directed to take manual control and stabilize level, further adding to the operational challenge. The 'C' FRBV spuriously failed shut as the operator was attempting to gain control over the level oscillations. The operator quickly recognized this failure and immediately reopened the 'C' FRBV, but the resulting feedwater transient exacerbated the already difficult task of stabilizing the oscillating level.

Spurious failures of the FRBV controllers had been identified in the past, but corrective actions had been ineffective in preventing recurrence. Previous similar adverse conditions had all been identified by Dominion staff and documented repeatedly in the corrective action program and maintenance records since 1989, including (more recently) CR-02-06194, CR-03-07467, CR-03-08635, CR-03-12183, CR-03-12208, CR-05-12096, CR-05-01568, and CR-06-04176. Interviews that were held during the root cause evaluation indicated that the operators were well aware that control of SG water level at low power on the FRBVs was extremely challenging. No single adverse condition, in isolation, was sufficient to cause a plant trip. Rather, it was a combination of multiple adverse conditions that was necessary to overcome the ability of the operator to maintain control of the SG level.

Analysis: The inspectors determined that Dominion's failure to correct longstanding conditions adverse to quality with the FRBV control of SG level at low power was a performance deficiency. The cause was reasonably within Dominion's ability to foresee and correct, and should have been prevented. Traditional Enforcement did not apply,

as the issue did not have actual or potential safety consequences, had no willful aspects, nor did it impact the NRC's ability to perform its regulatory function.

The finding is more than minor because it was similar to NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," Example 4b, in that the failure to correct a condition adverse to quality resulted in a reactor trip. The inspectors determined that 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. Specifically, the long standing condition of the FRBVs' inability to control SG level at low power operations led to an automatic reactor trip. The inspectors performed an initial screening of the finding in accordance with IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined the finding was of very low safety significance (Green) because it did not affect both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available.

The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution cross-cutting area, Corrective Action Program component, because Dominion did not take appropriate corrective action to address the longstanding adverse conditions associated with control of the FRBVs [P.1(d)].

Enforcement: This finding does not involve enforcement action because no regulatory requirement violation was identified. Dominion entered this issue into their corrective action program (CR381435, CR384014). Because this finding does not involve a violation and has very low safety significance, it is identified as a finding. **(FIN 05000423/2010003-03, Unit 3 Reactor Trip Caused by Loss of Positive Control of Steam Generator Level)**

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (8 samples)

The inspectors reviewed surveillance activities to determine whether the testing adequately demonstrated equipment operational readiness and the ability to perform the intended safety-related function. The inspectors attended pre-job briefings, reviewed selected prerequisites and precautions to determine if they were met, and observed the tests to determine whether they were performed in accordance with the procedural steps. Additionally, the inspectors reviewed the applicable test acceptance criteria to evaluate consistency with associated design bases, licensing bases, and TS requirements, and that the applicable acceptance criteria were satisfied. The inspectors also evaluated whether conditions adverse to quality were entered into the corrective action program for resolution. Documents reviewed during the inspection are listed in the Attachment. The following surveillance activities were evaluated:

Unit 2

- SP2601G-001, "'A' Charging Pump and Discharge Check IST, Operating," Revision 009-05; and
- SP 2401D, "RPS Matrix Logic and Trip Path Relay Test," Revision 013-04.

Unit 3

- SP 3712G-001, "Main Steam Code Safety Valve Surveillance Testing Data Sheet," Revision 009-02;
- 'C' SP 760-08," Battery 301B-2 Discharge Inspection," Revision 002;
- SP 3604A.5-005, "CVCS Check Valve Full Stroke Surveillance In Mode 6 or 0," Revision 008-03;
- SP-3604A.3-007, "3CHS*P3C Biennial IST Comprehensive Pump Test," Revision 000;
- SP 3612B.4-133, "Type C LLRT – Penetration No. 116(i) [3CDS*CTV40A]," Revision 004-01 (CIV); and
- SP 2646A.18-001, "Train B ESF With LOP Test," Revision 018-03.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluation (71114.06)

.1 Combined Functional Drill

a. Inspection Scope (1 sample)

The inspectors observed the conduct of a Unit 3 licensed operator training emergency planning drill on June 2, 2010. The inspectors observed the operating crew performance at the simulator and the emergency response organization performance at the emergency operations facility. The inspectors evaluated the classification, notification, and protective action recommendations for accuracy and timeliness. Additionally, the inspectors assessed the ability of Dominion's evaluators to adequately address operator performance deficiencies identified during the exercise.

b. Findings

No findings were identified.

.2 Licensed Operator Requalification Training (LORT) Evolution

a. Inspection Scope (1 sample)

During Unit 2 LORT on June 8, 2010, the inspectors observed the operator's emergency classification and notification resulting from the training evolution in the simulator. The inspectors verified that the classification and notification were accurate and timely.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public and Occupational Radiation Safety

2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

During the period between April 12, 2010, through April 15, 2010, the inspectors performed the following activities to verify that Dominion was evaluating, monitoring, and controlling radiological hazards for work performed in locked high radiation areas (LHRA), very high radiation areas (VHRA), and other radiological controlled areas (RCA); and that workers were adhering to these controls when working in these areas during the 3R13 refueling outage. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, TS, and Dominion procedures.

Radiological Hazards Control and Work Coverage

- The inspectors identified exposure significant work areas in the Unit 3 reactor building and auxiliary building. Specific work activities observed included containment mobilization, preparations for moving in-core detectors, preparations for SG primary and secondary side maintenance, modifications to the 'B' RHR of insulation, and installation of scaffolding. The inspectors reviewed radiation survey maps and radiation work permits (RWP) associated with these areas to determine if the associated controls were acceptable. The inspectors interviewed selected workers to determine if the workers were informed of the radiological conditions at the job site, electronic dosimeter alarm set points, and actions to be taken if a dosimeter alarms.

- The inspectors toured the accessible radiological controlled areas in Unit 3, including the reactor building and auxiliary building; and with the assistance of a radiation protection supervisor performed independent surveys of selected areas to confirm the accuracy of survey data and the adequacy of postings. During this tour, the inspectors verified that selected LHRA were properly secured and posted.

- In evaluating the RWPs, the inspectors reviewed electronic dosimeter dose/dose rate alarm set points to determine if the set points were consistent with the survey indications and plant policy. The inspectors verified that workers were knowledgeable of the actions to be taken when the dosimeter alarms, or malfunctions, for tasks being performed under selected RWPs. Jobs reviewed included 'D' SG primary manway/diaphragm removal (RWP 306) in preparation for eddy current testing, SG secondary side upper bundle flush (RWP 308), and installation of a high point vent valve on the 'B' RHR system (RWP 260).

- The inspectors determined that Dominion was appropriately monitoring changing radiological conditions that resulted from draining SGs and the reactor coolant system, and movement of the in-core detectors. In response to these changing conditions, affected areas were properly re-posted and additional procedural controls were implemented.

Problem Identification and Resolution

- The inspectors interviewed the Nuclear Oversight Assessor and reviewed relevant Nuclear Oversight reports to determine if identified problems and negative performance trends were entered into the corrective action program and evaluated for resolution.

- Relevant CRs, associated with radiological controls, initiated during February 2010 and April 2010, were reviewed and discussed with the Dominion staff to determine if the follow up activities were being performed in an effective and timely manner, commensurate with their safety significance.

High Radiation Area (HRA) and Very High Radiation Area (VHRA) Controls

- Procedures for controlling access to HRA and VHRA, were reviewed to determine if the administrative and physical controls were adequate. The inspectors also reviewed the physical and procedural controls for securing and removing highly contaminated/activated materials stored in the spent fuel pools. The inspectors discussed with radiation protection management, the adequacy of current LHRA/VHRA controls, including prerequisite communications and authorizations, and verified that any changes made to relevant procedures did not substantially reduce the effectiveness and level of worker protection.

- The inspectors confirmed that keys to VHRAs were properly controlled by the Radiation Protection Manager.

- The inspectors determined that controls to VHRA areas, resulting from moving in-core detectors, were appropriately planned for by installation of remote monitors, re-posting of affected areas, properly locking access points, and implementing additional administrative controls.

Radiation Worker Performance and Radiation Protection Technician Performance

- The inspectors observed and questioned radiation workers and radiation protection technicians regarding radiological controls applied to on-going tasks, including RHR system modifications, SG maintenance tasks and SG drain down. The inspectors determined that the workers were aware of current RWP requirements, radiological conditions, and access controls.

- The inspectors reviewed CRs related to radiation worker and radiation protection technician errors, and personnel contamination event reports to determine if an observable pattern traceable to a similar cause was evident.

Contamination and Radioactive Material Control

- The inspectors observed workers surveying and releasing potentially contaminated materials for unrestricted use. The inspectors verified that the counting instrumentation was located in a low background area and that the instruments sensitivity was appropriate for the type of contamination being measured.

This inspection effort represented partial completion of one sample. Further inspection is planned to fully complete this sample, and the results will be documented in a future report.

b. Findings

No findings were identified.

2RS02 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

During the period April 12, 2010, through April 15, 2010, the inspectors performed the following activities to verify that Dominion was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as low as reasonably achievable (ALARA) for tasks performed during the Unit 3 refueling outage (3R13). Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and with Dominion procedures.

Radiological Work Planning

- The inspectors reviewed pertinent information regarding exposure trends and ongoing activities to assess current performance; and reviewed exposure challenges for the 3R13 outage. A review of the Fall 2009 Unit 2 refueling outage (2R19) performance was performed to determine if lessons learned regarding radiological controls during the Unit 2 outage were applied to the Unit 3 outage activities.

- The inspectors reviewed the preparations made for the Unit 3 outage, including the 3R13 ALARA job plans, source term reduction efforts, and outage challenge board action items. Scheduled outage work included SG inspection and maintenance, reactor vessel nozzle inspections, core barrel lift, and inspection of bottom mounted instrumentation.

- The inspectors evaluated the departmental interfaces between radiation protection, operations, maintenance crafts, and engineering to identify missing ALARA program elements and interface problems. The evaluation was accomplished by attending a SG pre-job ALARA briefing (provided jointly by Dominion and AREVA staff), attending daily shift turnover meetings, and interviewing the site Radiation Protection Manager and the site ALARA coordinator.

Verification of Dose Estimates

- The inspectors reviewed the assumptions and basis for the exposure projections for the 3R13 outage. The inspectors reviewed the assumed dose rates used in preparing ALARA Plans and compared them to actual dose rates at job sites.

- The inspectors reviewed Dominion procedures associated with monitoring and re-evaluating dose estimates when the forecasted cumulative exposure for tasks differed from the actual exposure received. The inspectors reviewed the dose/dose rate alarm reports, and exposure data for selected individuals receiving the highest Total Effective Dose Equivalent to confirm that no individual exposure exceeded the regulatory limit, or met the performance indicator reporting guideline.

Jobs-In-Progress

- The inspectors observed various jobs-in-progress to evaluate the effectiveness of dose and contamination control measures. Jobs observed were containment mobilization, preparations for SG inspection and maintenance activities, and preparations for installing a vent valve in the 'B' residual heat removal system. As part of this evaluation, the inspectors reviewed the RWP, survey maps, ALARA Plan, and contamination control measures, and interviewed workers to determine if workers were properly wearing dosimetry and were knowledgeable of RWP requirements. Additionally, inspectors observed radiation protection technicians monitoring and controlling various outage activities using the remote centralized monitoring system.

Source Term Reduction and Control

- The inspectors reviewed the current status and historical trends of the Unit 3 source term. Through interviews, with the Radiation Protection/Chemistry Manager and the ALARA Supervisor, the inspectors evaluated the effectiveness of source term reduction efforts following peroxide addition to the reactor coolant system. The inspectors reviewed reactor coolant chemistry data and radiation surveys to evaluate

the effectiveness of the post shutdown source term reduction efforts. Specific strategies being employed included use of macro-porous cleanup resins, system flushes, installation of temporary shielding, use of a temporary filtration system, and chemistry controls.

Problem Identification and Resolution

- The inspectors reviewed elements of Dominions corrective action program related to implementing ALARA program controls, including CRs, Nuclear Oversight reports, and dose/dose rate alarm reports, to determine if problems were being entered at a conservative threshold and resolved in a timely manner.

This inspection effort represented partial completion of one sample. Further inspection is planned to fully complete this sample, and the results will be documented in a future report.

b. Findings

No findings were identified.

2RS03 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

During the period April 12, 2010, through April 15, 2010, the inspectors performed the following activities to verify that Dominion was properly monitoring in-plant airborne radioactivity concentrations, implementing engineering controls to limit airborne contamination, and appropriately using respiratory protection devices to maintain personnel exposure as low as reasonably achievable (ALARA) for tasks performed during the Unit 3 refueling outage (3R13). Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Dominion procedures.

Engineering Controls/Respiratory Protection Equipment

- The inspectors reviewed the ALARA Plans for various tasks to determine if appropriate ventilation controls were specified to limit airborne contamination at the job site. Included in this review were preparations for making an initial entry into the Unit 3 reactor building, insulation removal, preparations for SG diaphragm removal and 'B' RHR system modification. For these activities, the inspectors determined that portable HEPA ventilation systems would be installed for selected jobs and the use of respiratory protection was appropriately evaluated.

- The inspectors reviewed the air sample analysis sheets for various projects to evaluate the effectiveness of engineering controls in minimizing airborne contamination levels at the job site. The inspectors determined that the appropriate sampling technique was used in making airborne radioactivity measurements.

Sampling methods used included breathing zone lapel samplers, and high/low volume samplers. Projects reviewed, that required air sampling, included initial reactor building entries, and SG primary diaphragm removal, and installation of ECT equipment in the 'D' SG.

- During plant tours, the inspectors verified that continuous air monitors were operating and were representatively sampling work areas located in the auxiliary building and reactor building.

This inspection effort represented partial completion of one sample. Further inspection is planned to fully complete this sample, and the results will be documented in a future report.

b. Findings

No findings were identified.

2RS04 Occupational Dose Assessment (71124.04)

a. Inspection Scope

During the period April 12, 2010, through April 15, 2010, the inspectors performed the following activities to verify that Dominion was properly monitoring occupational dose, that personal exposure monitoring devices were operable and accurately monitoring work dose, and that worker total effective dose equivalent was accurately determined for tasks performed during the Unit 3 refueling outage (3R13). Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Dominion procedures.

External Dosimetry

- The inspectors reviewed Dominion procedures for measuring personnel exposure using the effective dose equivalent method. The inspectors confirmed that the method was approved by the NRC and that the implementing procedure appropriately specified the placement of whole body and extremity dosimeters on the worker. Tasks in which the effective dose equivalent method was used included SG bottom channel head entries.

Declared Pregnant Workers

- The inspectors verified that no declared pregnant workers were employed to work in radiological controlled areas during the 3R13 outage.

This inspection effort represented partial completion of one sample. Further inspection is planned to fully complete this sample, and the results will be documented in a future report.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES [OA]**

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope (6 samples)

The inspectors reviewed Dominion submittals for the PIs listed below to verify the accuracy of the data reported during that period. The PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 5, were used to verify the basis for reporting each data element. The inspectors reviewed portions of the operations logs, monthly operating reports, and Licensee Event Reports (LER); and discussed the methods for compiling and reporting the PIs with cognizant licensing and engineering personnel.

Unit 2

- Unplanned Scrams per 7000 Critical Hours (IE01);
- Unplanned Scrams With Complications (IE04); and
- Unplanned Transients per 7000 Critical Hours (IE03).

Unit 3

- Unplanned Scrams per 7000 Critical Hours (IE01);
- Unplanned Scrams With Complications (IE04); and
- Unplanned Transients per 7000 Critical Hours (IE03).

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into Dominion's corrective action program. This was accomplished by reviewing the description of each new CR and attending daily management review committee meetings. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

.2 Annual Sample – Unit 2 'A' EDG Load Fluctuations

a. Inspection Scope (1 sample)

The inspectors reviewed Dominion's evaluations and corrective actions associated with the Unit 2 'A' EDG load fluctuations that occurred during surveillance testing in March 2010. The inspectors interviewed operations personnel and the system engineer to ensure that the issue was completely understood. The inspectors reviewed related CRs, operability determinations, surveillance test results, and work orders to ensure that the full extent of the issues were identified, evaluations were performed, and appropriate corrective actions were identified and completed. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

Introduction: A Green, self-revealing, 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' EDG. Dominion did not properly evaluate a degraded condition of the 'A' EDG, which led to its inoperability from May 12, 2010, to May 17, 2010.

Description: On March 17, 2010, the Unit 2 'A' EDG experienced a brief (less than 10 seconds) high kilowatt loading that exceeded its 300 hour rating. Following the load transient, the EDG operated without further incident for two hours. Dominion concluded that the transient was due to grid fluctuations and that no damage was done to the EDG due to the short duration. Dominion also concluded that the 'A' EDG remained operable due to the satisfactory completion of the monthly surveillance and a satisfactory hot restart following the monthly surveillance. The inspectors questioned the operability of the 'A' EDG because it was not clear that the transient could not have been caused by a malfunction of the EDG governor.

The system engineer reviewed the data a few days after the transient and determined that the initiating event was movement from the 'A' EDG governor output shaft, which caused the fuel rack control rod to go to maximum fuel. Discussions with the vendor suggested that the cause may have been a particle stuck in the electric governor hydraulic valve, and that the particle may or may not have the potential to affect the system again. On March 25, 2010, Dominion started and ran the 'A' EDG satisfactorily for four hours. Dominion's immediate operability determination concluded that the EDG was operable. The inspectors again questioned the operability of 'A' EDG since Dominion had not found a definitive cause or assigned corrective action to resolve the issue. Dominion sampled the governor hydraulic oil and analysis showed that the particulate level was at the "Monitor" level. On April 1, 2010, Dominion's prompt operability determination again concluded the 'A' EDG was operable. As a result of the oil sample analysis, Dominion performed a governor oil flush on April 14, 2010.

On May 12, 2010, during the monthly surveillance, the 'A' EDG again experienced an increase in kilowatt loading that exceeded its 300 hour rating. The 'A' EDG was declared inoperable. The governor was replaced and the 'A' EDG was returned to operable status on May 17, 2010.

Analysis: The inspectors determined that Dominion's failure to properly evaluate the degraded condition associated with the 'A' EDG governor control system was a performance deficiency. The cause was reasonably within Dominion's ability to foresee and correct, and should have been prevented. Traditional Enforcement did not apply, as the issue did not have actual or potential safety consequences, had no willful aspects, nor did it impact the NRC's ability to perform its regulatory function.

A review of NRC IMC 0612, Appendix E, "Minor Examples," revealed that no examples applied to this finding. The inspectors determined 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, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, Dominion's inadequate evaluation of the degraded condition of the 'A' EDG governor after the March 17, 2010 surveillance test did not result in effective corrective action to address the cause of the rapid load increase. As a result, the 'A' EDG was declared inoperable when it again experienced a rapid load increase during its surveillance on May 12, 2010. The inspectors determined the significance of the finding using IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because it did not represent an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time.

The inspectors determined that this finding had a cross-cutting aspect in the Human Performance cross-cutting area, Decision Making component, 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)].

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that conditions adverse to quality, such as failures and deficiencies are promptly identified and corrected. Contrary to the above, on March 17, 2010, Dominion did not properly identify and correct a degraded condition in the 'A' EDG governor control system, which led to its inoperability from May 12, 2010, to May 17, 2010. Dominion took immediate corrective action to replace the EDG governor. Because this violation was of very low safety significance (Green) and has been entered into Dominion's corrective action program (CR380975), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000336/2010003-01, Failure to Properly Identify and Correct a Degraded Governor Condition in the Unit 2 'A' EDG).**

.3 Semi-Annual Problem Identification & Resolution Trend Review

a. Inspection Scope (1 sample)

As required by Inspection Procedure 71152, the inspectors performed a review of the Dominion corrective action program and associated documents to identify trends that may indicate existence of safety significant issues. The inspectors' review considered repetitive equipment and corrective maintenance issues, and daily inspector corrective action program item screening, but focused on Dominion's effectiveness of completing corrective action assignments.

b. Findings

No findings were identified. Dominion's trend report captured the current trends as well as long standing issues. A sampling of one-year old significance level 1, 2, and 3 CRs did not reveal any significant concerns, but did identify that a high percentage of the open significance level 1 and 2 CRs had long-term corrective actions (LTCA) pending. A review of LTCA shows that, over the past two years, Dominion has been able to decrease the number of open LTCA from 167 to 104. 16 percent of the LTCA have been open for over a year. It appears that Dominion has been timely at completing corrective action assignments for the less significant level 3 CRs, and has been effective at reducing the backlog of open LTCA from the more significant level 1 and 2 CRs.

4OA3 Event Follow-up (71153 – 3 samples)

.1 (Closed) LER 05000336/2010001-00, Millstone Power Station Unit 2 Reactor Trip

a. Inspection Scope (1 sample)

On February 26, 2010, while at 100 percent power, Unit 2 operators manually tripped the reactor as required by procedure due to a loss of CW flow to one of the two condenser bays. All control rods fully inserted into the reactor and all emergency systems operated as designed. At the time of the trip, the 'D' CW pump was OOS for planned maintenance and the thermal barriers between the 'D' and 'C' CW bays were being removed. As the thermal barriers were being removed, the debris from the cleaning performed on the 'D' CW bay entered the 'C' CW bay and quickly fouled the 'C' traveling screen. The resulting high differential level across the traveling screen caused an automatic trip of the 'C' CW pump. Following the trip, the operators closed the main steam isolation valves to protect the condenser from overpressure. The auxiliary feedwater system started in response to low SG water levels and restored levels to their normal operating band.

b. Findings

Introduction: A self-revealing finding of very low safety significance (Green) was identified for Dominion's failure to properly plan work activities associated with the Unit 2 'D' CW bay outage in accordance with Dominion procedure WM-AA-3000, "Managing Complex Work." The work plan failed to properly sequence work activities to prevent

fouling of the 'C' CW screens. The subsequent fouling of the 'C' CW travelling screen resulted in an automatic trip of the 'C' CW pump. Loss of the 'C' CW pump, coupled with the unavailability of the 'D' CW pump, required the operators to manually trip the reactor.

Description: The Unit 2 'D' CW bay was removed from service for planned maintenance on February 22, 2010. Over the next four days, divers cleaned the inside of the bay. Material removed from the walls as a result of the cleaning was allowed to reside on the floor of the bay. On February 26, 2010, the intake coordinator recommended removal of the thermal barrier between 'C' and 'D' CW bay. This required stopping the 'A' screen wash pump, as a section of the screen wash trough has to be removed to access the thermal barriers. Dominion stationed a dedicated operator at the intake to restore screen wash should the screen differential level reach five inches. During the raising of the thermal barrier, traveling screen differential level raised to five inches as water and debris from the 'D' bay flowed into the 'C' bay. After lowering the thermal barrier and restarting the 'A' screen wash pump and 'C' traveling screen, differential level rose rapidly to 30 inches, resulting in an automatic trip of the 'C' CW pump. Faced with the loss of two CW pumps in a condenser bay, operators were required to manually trip the reactor per abnormal operating procedure (AOP) 2517, "Circulating Water Malfunctions."

The February 22, 2010 cleaning of the Unit 2 'D' CW bay was the first time Dominion performed CW bay cleaning with the unit on-line. All prior cleanings of Unit 2 had occurred during an outage. The project team assigned to the CW bay outage held weekly meetings with interdepartmental personnel to develop a work plan and schedule. The schedule developed for the 'D' CW bay outage had overlap in the work activities to scrape and demuck (removal of scraped material) material from the bay, and to remove the thermal barriers. This plan allowed removal of the thermal barriers before demucking. The project team identified the CW bay outage as complex work, which required implementation of Dominion procedure WM-AA-3000, "Managing Complex Work." The inspectors reviewed the project team's use of the procedure and determined that Attachment 3, "Critical/Complex Evolution Plan," was not completed. This attachment required Dominion to identify risks and corresponding actions to be taken to mitigate each risk.

The 'D' CW bay outage was also identified as a challenge to generation. Dominion completed a, "Challenge to Generation – Mitigation Plan," as required by Dominion procedure NF-AA-PRA-370, "Probabilistic Risk Assessment Procedures and Methods: PRA Guidance for Maintenance Rule (a)(4)." The plan identified the risks and mitigation for the equipment removed from service, but did not consider the risks of the work activity associated with cleaning and demucking of the 'D' CW bay. As a result, no measures were taken to prevent debris from the 'D' CW bay from entering the 'C' CW bay. Additionally, inspector interviews conducted with operations personnel revealed that the existence of debris in the 'D' CW bay had not been communicated to the control room when maintenance requested to remove the thermal barriers.

Analysis: The inspectors determined that Dominion's failure to properly plan work activities associated with the 'D' CW bay outage as required by Dominion procedure

WM-AA-3000, "Managing Complex Work," was a performance deficiency. The cause was reasonably within Dominion's ability to foresee and correct, and should have been prevented. Traditional Enforcement did not apply, as the issue did not have actual or potential safety consequences, had no willful aspects, nor did it impact the NRC's ability to perform its regulatory function.

This finding is more than minor because it was similar to NRC IMC 0612, Appendix E, "Examples of Minor Issues," Example 4b, in that the implementation of the inadequate work plan caused the loss of the 'C' CW pump, and required the operators to manually trip the reactor. The inspectors determined this 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. Specifically, the work plan for the 'D' CW bay outage did not properly sequence the work, which led to the loss of the 'C' CW pump and required the operators to manually trip the reactor. The inspectors determined the significance of the finding using IMC 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and 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 Human Performance cross-cutting area, Work Control component, because Dominion did not appropriately plan the bay cleaning and demucking work activity to address the risk of the activity to impact the other CW bays [H.3(a)].

Enforcement: This finding does not involve enforcement action because no regulatory requirement violation was identified. Dominion entered this issue into their corrective action program (CR370363). Because this finding does not involve a violation and has very low safety significance, it is identified as a finding. **(FIN 05000336/2010003-02, Failure to Properly Plan Work Activities for the Unit 2 'D' Circulating Water Bay Outage Results in Manual Reactor Trip).**

.2 (Closed) LER 05000336/2009004-00; Overdue ASME Code Required In-service Test Did Not Meet Acceptance Criteria

a. Inspection Scope (1 sample)

On November 11, 2009, when Unit 2 was in Mode 5, the operators discovered that the thermal relief valve on the inlet to the 'B' containment spray pump seal cooler was not tested or replaced within the ten year test interval required by the ASME Code. When subsequently tested, the valve failed to lift. Dominion replaced the valve with a tested valve. This is a violation of TS 4.0.5 which requires that in-service testing of ASME Class 1, 2, and 3 components be performed at the intervals required by the ASME OM Code. The inspectors determined that this is a minor violation because during the time interval the relief valve was considered to be failed, the system was configured such that the relief valve would not have been required to perform its relief function. This failure to comply with TS 4.0.5 constitutes a violation of minor significance that is not subject to

enforcement action in accordance with the NRC's Enforcement Policy. This LER is closed.

b. Findings

No findings were identified.

.3 Unit 2 Manual Reactor Trip Due to High Level in #2 Steam Generator

a. Inspection Scope (1 sample)

On May 22, 2010, Unit 2 operations personnel manually tripped the reactor due to high SG level. The #2 feedwater regulating valve (FRV) was not responding properly in automatic and was causing SG level oscillations. Operators took manual control of the #2 FRV, but the valve still did not respond properly. SG level oscillations grew larger and the operators manually tripped the reactor prior to reaching the High-High level setpoint. The #2 FRV did not go closed as expected following the trip. After the initial shrink (decrease in water level), the #2 SG level increased. Operators closed the main feedwater block valve 2FW-42B and tripped the 'B' and 'A' main feed pumps. The #2 SG level reached 100 percent.

The #1 SG feedwater regulating bypass valve, 2FW-41A, did not open as expected following the reactor trip and the #1 SG decreased below the automatic auxiliary feedwater (AFW) actuation setpoint. Operators manually started both motor driven AFW pumps (there is a three minute, twenty-five second delay for automatic AFW pump initiation) and level was restored to the #1 SG.

The excess feedwater flow to the #2 SG caused RCS temperature, pressure, and pressurizer level to decrease below normal values, but remained above the safety injection setpoint. The inspectors responded to the control room and evaluated the adequacy of operator actions in accordance with approved procedures and TS implications. The inspectors performed walkdowns and interviewed personnel to verify that the plant was stable. The inspectors observed the reactor startup and portions of the power ascension.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Temporary Inspection (TI) 2515/172, RCS Dissimilar Metal Butt Welds (DMBW)

a. Inspection Scope

The Temporary Instruction, TI 2515/172, provides for confirmation that owners of pressurized-water reactors have implemented the industry guidelines of the MRP-139 regarding nondestructive examination and evaluation of certain dissimilar DMBW in

reactor coolant systems containing nickel based Alloys 600/82/182. The TI requires documentation of specific questions in an inspection report. The questions and responses were previously provided in Millstone Inspection Report 05000423/2008004.

Millstone Unit 3 has a total of 14 applicable Alloy 600/82/182 RCS DMBW welds. During 3R13 the inspectors directly observed a sample of the examinations performed on the four 29" reactor vessel hot leg outlet nozzle-to-safe-end DMBW welds by a remotely operated automated computer based UT and ECT device called the SQUID. These welds were examined from the inside diameter, under water, from the inside of the RPV volumetrically by automated UT and on the inside diameter (ID) surface by automated ECT. UT and ECT examination records for these DMBW welds were also reviewed to determine if indications existed.

b. Findings

No findings were identified.

.2 TI 2515/180 – Inspection of Procedures and Processes for Managing Fatigue

a. Inspection Scope

The objective of this TI was to determine if Dominion's implementation procedures and processes required by 10 CFR 26, Subpart I, "Managing Fatigue," are in place to reasonably ensure that the requirements specified in Subpart I are being addressed. This TI applies to all operating nuclear power reactor licensees, but is intended to be performed for one site per utility. On May 17, 2010, through May 18, 2010, the inspectors interfaced with the appropriate station staff to obtain and review station policies, procedures, and processes necessary to complete all portions of this TI.

b. Findings

No findings were identified.

The inspectors confirmed that the Dominion procedures listed in Section 4OA5 of the Attachment contained the necessary processes to ensure compliance with requirements in 10 CFR 26, Subpart I, "Managing Fatigue."

4OA6 Meetings, including Exit

Exit Meeting Summary

On April 22, 2010, Donald Jackson, NRC Branch Chief for Millstone, presented and discussed the end-of-cycle performance assessment of the Millstone Power Station Unit 2 and Unit 3 with Mr. A. J. Jordan, Site Vice President. The licensee acknowledged the assessment and planned regulatory oversight. This discussion was completed prior to a public performance assessment open-house meeting on April 22, 2010. (ADAMS Accession ML100621420).

On April 28, 2010, the inspector presented the in-service inspection and TI 2515/172 inspection results to Mr. A. J. Jordan, Site Vice President, and other members of the Dominion staff. No proprietary information is presented in this report.

On July 21, 2010, the resident inspectors presented the overall inspection results to Mr. A. J. Jordan and members of his staff. The inspectors confirmed that no proprietary information was provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Dominion personnel

G. Auria	Nuclear Chemistry Supervisor
B. Barron	Manager, Nuclear Oversight
B. Bartron	Supervisor, Licensing
P. Baumann	Manager, Security
R. Borchert	Manager, Reactor Engineering
C. Chapin	Supervisor, Nuclear Shift Operations Unit 2
A. Chyra	Nuclear Engineer, PRA
T. Cleary	Licensing Engineer
G. Closius	Licensing Engineer
L. Crone	Supervisor, Nuclear Chemistry
J. Dorosky	Health Physicist III
M. Finnegan	Supervisor, Health Physics, ISFSI
A. Gharakhanian	Nuclear Engineer III
W. Gorman	Supervisor, Instrumentation & Control
J. Grogan	Assistant Operations Manager
K. Grover	Manager, Operations
C. Houska	I&C Technician
A. Jordan	Site Vice President
J. Kunze	Supervisor, Nuclear Operations Support
B. Krauth	Licensing, Nuclear Technology Specialist
J. Laine	Manager, Radiation Protection/Chemistry
P. Luckey	Manager, Emergency Preparedness
R. MacManus	Director, Nuclear Station Safety & Licensing
G. Marshall	Outage and Planning Manager
C. Maxson	Director, Engineering
H. McKinney	Shift Technical Advisor
R. Riley	Supervisor, Nuclear Shift Operations Unit 3
M. Roche	Senior Nuclear Chemistry Technician
J. Rogers	FME Refueling Monitor
J. Semancik	Plant Manager
M. Sibilius	Test Coordinator
A. Smith	Asset Management
S. Smith	Manager, Engineering
J. Spence	Manager, Training
S. Turowski	Supervisor, Health Physics Technical Services
C. Vournazos	IT Specialist, Meteorological Data
B. Wilkens	Fire Engineer
J. Young	Shift Technical Advisor
W. Zumbo	Design Engineer

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000336/2010003-01	NCV Failure to Properly Identify and Correct a Degraded Governor Condition in the Unit 2 'A' EDG.
05000336/2010003-02	FIN Failure to Properly Plan Work Activities for the Unit 2 'D' Circulating Water Bay Outage Results in Manual Reactor Trip.
05000423/2010003-01	NCV Failure to Make a 10 CFR 50.72 (b)(3)(v) Report for an Inoperable Unit 3 Secondary Containment.
05000423/2010003-02	NCV Unit 3 Charging Pump Overheating and Cavitation during RCS Loop Vacuum Fill.
05000423/2010003-03	FIN Unit 3 Reactor Trip Caused by Loss of Positive Control of Steam Generator Level.

Closed

05000336/2010001-00	LER Millstone Power Station Unit 2 Reactor Trip
05000336/2009004-00	LER Overdue ASME Code Required In-service Test Did Not Meet Acceptance Criteria

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

C OP 200.8, "Response to ISO New England/CONVEX Notifications and Alerts," Revision 004-04
C OP 200.13, "Cold Weather Preparations," Revision 003-00
ISO New England Master/Local Control Centers Procedures, 2010
OP 2268, "Cold Weather Operations," Revision 004-06
OP 3352, "Heat Tracing," Revision 013-05

Section 1R04: Equipment Alignment

OP 3314A, "Auxiliary Building Heating, Ventilation and Air Conditioning," Revision 023-08
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OPS Form 3314A-8, "Auxiliary Building heating Ventilation and Air Conditioning Electrical Checklist," Revision 6CHG1
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Drawing 25212-26948 Sheet 5, Piping & Instrumentation Diagram Reactor Plant Ventilation, Revision 23

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OP 3346A, "EDG," Revision 024-04
OP 3346A-002, "EDG 'B' – Cooling Water Valve Lineup," Revision 7
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AOP 2565, Unit 2 Loss of SW, Revision 4
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EN 31084, Unit 3 Operating Strategy for SW, Revision 7
MP-09-PCL-PRG, Protective Coatings and Linings Program, Revision 1
OP 3328, Unit 3 Hypochlorite System Operations, Revision 15
SP 21155, Unit 2 SW System Leakage Test, Revision 4

Drawings
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CR-08-05619	CR385501*
CR-08-06902	CR385619*
CR-08-07798	CR385676*
CR-08-09063	CR385687*
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* = IRs written as a result of NRC inspection

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2701J-096, Unit 2 EDG Heat Exchanger As-found Inspection Checklist, Performed June 23, 2010
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SP 2668A-001, Unit 2 Turbine Building Rounds, Sequence 19 - SW Pipe Trench, Revision 59

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POD-000381, Unit 3 Prompt Operability Determination, ASME Classification of SW Pipe as Inaccessible for Examination, Revision 0
Unit 2 SW System Health Reports, 1st Quarter to 4th Quarter 2009, and 1st Quarter 2010
Unit 2 & 3 SW Pump Motor Vibration Trend Graphs for 2008, 2009, and 2010
Unit 3 SW System Health Reports, 2nd Quarter to 4th Quarter 2009, and 1st Quarter 2010
Unit 3 SW Piping through Wall Leakage Trend Graphs for 2008, 2009, and 2010

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Examination Procedures
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ER-AA-NDE-VT-607, Revision 0, VE Visual Examination of Pressure Retaining Welds in Class 1 Components Fabricated with Alloy 600/82/182 Materials
ER-AA-NDE-UT-801, Revision 1, Ultrasonic Examination of Ferritic Piping Welds in Accordance with ASME Section XI, Appendix VIII
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25212-29001, Canopy Seal Clamp Assembly (for CRDM)

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M3-07-12450, Replacement of Charging Header Isolation Valve 3CHS*V369

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MP2 ES10301B, "Evaluated Simulator Exam (E10301B)," Revision 0-1
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Section 1R12: Maintenance Effectiveness
Maintenance Rule Scoping Tables for Vital Switchgear Emergency Cooling
SP 2618G-001, "Fire Damper Operability Verification Data Sheet," Revision 007-03
Vital Switchgear Emergency Cooling System Health Report 1st Quarter 2009 and 2010
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OP-3216, Reactor Coolant System Drain (ICCE), Revision 009-07
SP 2654R, "Intake Structure Condition Determination," Revision 001-05
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OU-AA-200, "Shutdown Risk Management," Revision 0
OU-M3-201, "Shutdown Risk Assessment Checklist," Revision 2
Risk Mitigation Plan, "Millstone Unit 3, '15G-3X' Main Transformer, 15G-3X1-1H High Side Potential Transformer Energized and Start-up Testing per SPROC ENG09-3-006 during High Risk Decreased Inventory," Revision 0

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DM2-00-0158-99, "Service Water Strainer Motor L1AM Replacement," Revision 0
ODM, "SE Tendon Access Pit Water Level High," Revision 0,
89-094-00899ES, "Millstone Unit 3 Target Thrust/Torgue Calculation for 3RSS*MV8837A, 3RSS*MV8837B, 3RSS*MV8838A, 3RSS*MV8838B," Revision 7
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Section 1R18: Plant Modifications
Condition Report Engineering Disposition Form for CR377302, 3SIL*V894
DCM-01, "Program Policy and Overview," Revision 011-05
DCM 03, "Design Changes," Revision 017-01
DM3-00-0063-08, "Replacement Valve for 3CHS*V376," Revision 08
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DNAP-0306, "Software Quality Assurance Program," Revision 4.5
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NRC Regulatory Guide 1.171, "Software Unit Testing for Digital Computer Software used in Safety Systems of Nuclear Power Plant"
SPROC ENG10-3-004, "Phase 2 Outage Installation testing for Digital Flux Mapping System (DFMS)," Field Change #2
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Section 1R19: Post Maintenance Testing
CEN 110-001, "Post Repair / Replacement Component Leakage Test, Residual Heat Removal Pump 3RHS*P1B," dated May 11, 2010
MP 3740GA, "Residual Heat Removal Pump Maintenance," Revision 006
OP 2316A, "Main Steam System," Revision 033-03

OP 2346A-004, "'A' DG Data Sheet," Revision 023-06
SP 3604A.2, Charging Pump B Operational Readiness Test, Revision 011-02
SP 3604A.2-005, 3CHS*P3B Biennial IST Comprehensive Pump Test, Revision 005 dated May 2, 2010
SP 2613A, "Periodic DG Operability Test, Facility 1 (Fast Start Loaded Run)," Revision 020-08
SP 3601B.2-001, "Train A Reactor Head Vent Path Operability," Revision 006-04
SP 3601F.5-005, "RCS Valve Stroke Testing – Train A," Revision 007-07
SP 3646A.2-001, "EDG 'B' Operability Tests," Revision 020
SP 3610A.2-007, 3RHS*P1B Biennial IST Comprehensive Pump Test and Check Valves 3RHS*V5 and 3SIL*V9 Full Flow Test, Revision 000-01 dated May 2, 2010
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Section 1R20: Refueling and Other Outage Activities

LI-AA-700, "Fatigue Management and Work Hour Limits for Covered Workers," Revision 1
OP 3203, "Plant Startup," Revision 019-11
OP 3204, "At Power Operation," Revision 017-11
OP 3206, "Plant Shutdown," Revision 011-07
OP-3604A, "Charging and Letdown," Revision 030-09
OP-3353.MB1C, "Main Board 1C Annunciator Response," Revision 005-15
Drawing 25212-26912 Sheet 1, Piping & Instrumentation Diagram Low Pressure Safety Injection," Revision 47
SP 3442A03, "RTD and Incore Thermocouple Cross Calibration," Revision 007-04
SP-3604A.2, "Charging Pump 'B' Operational Readiness Test", Revision 011-02
ACE: 18173, 'B' Charging pump stopped after exhibiting indications of cavitation", SL2.

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CR375358, "CR375967 returned for OP-AA-102 operability determination comments," dated April 12, 2010
CR376139, "As found time response testing could not be performed when authorized," dated April 12, 2010
CR376163, "Potentially exceeding TS 3.4.9.1 allowable cooldown rate," dated April 12, 2010
CR376590, "Failed acceptance criteria for 3622.-002," dated April 14, 2010

CR377251, "ISI examination of pipe support 3-SIL-1-PSST493 identified unacceptable condition," dated April 18, 2010.

CR377268, "Four Steam Generator Snubbers are slightly outside the required 'C' Dimension," dated April 18, 2010
CR377307, "New Information on the Feed Water Check valve Surveillances," dated April 19,2010
CR377315, "Cable Spreading Area Insipient Fire Detection Panel 3FPA-PNLIFBD in alarm," dated April 19, 2010
CR377316, "During 3RHS*P1B Rigging it is possible that crane contacted building," dated April 19, 2010
CR377335, "Circulating Water Discharge Valve Coating and Structural Damage," dated April 19, 2010
CR377482, "Unit 2 control room not notified of activities needed to support 310 line outage," dated May 19, 2010
CR377484, "Tagging Boundaries to ground Bus 34D were not as expected," dated April 18, 2010
CR378583, "Water found in conduit on new GSU 15G-3XB," dated April 26, 2010
CR378594, "Adverse Trend in protecting Containment Liner inner Coating," dated April 26, 2010
CR378642, "M33RHS*P1B Site Glass pipe supports not installed despite work complete signed," dated April 26, 2010
CR378835, "Broken T3 motor lug on 3RHS*P1B," dated April 28, 2010
CR378838, "Tritium found in 'B' RSS heat Exchanger SW Side Sample," dated April 28, 2010
CR379359, "B CHS pp stopped after exhibiting indications of cavitation during loop fill," dated May 1, 2010
CR379553, "A-RCP coupling gap out of spec low," dated May 2, 2010
CR380462, "When DRPI was powered Up a General Warning on Rod D8 was Generated," dated May 9, 2010
CR380502, "Failed LLRT in MODE 4 did not receive an operability or reportability review," dated May 9, 2010
CR380507, "SP-3610A1-6 performed today makes 'A' RHR pump operability questionable," dated May 9, 2010
CR380508, "Missed PM (RE88522) "Disassemble Inspect and clean MUX relays on 3RPS-RAKAUXA"," dated May 9, 2010
CR380522, "3RHS*V43 leaks by seat," dated May 9, 2010
CR380525, "Acceptance of historical compensator deflections on RCS*MV8002D requires evaluation," dated May 9, 2010
CR380529, "HPSI header 2A flow indicator, FI-331, is spiking with no flow," dated May 10, 2010
CR380670, "Control Building Isolation did not actuate when expected," dated May 10, 2010
CR380689, "3SSR*CTV21 doesn't stop flow when closed on MB1," dated May 10, 2010

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ER-AA-IST-VLV-102, "IST Reference Value Evaluation Form," for M33CDS*CTV40A
LI-AA-700, "Fatigue Management and Work hour Limits for Covered Workers," Revision 1
SP2601G-005, "'A' Charging Pump Discharge Check Valve Closure IST, Operating," Revision 000-00
SP-3604A.3, Charging Pump C Operational Readiness Test, Revision 011-02

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LI-AA-700 Attachment 9, Fatigue Assessment
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CR376394
CR376675
CR376795
CR376830
CR377873
CR379540

Section 2RS01/2RS02/2RS03/2RS04: Access to Radiologically Significant Areas/ALARA Planning and Controls/Occupational Dose Assessment

Procedures
RPM 1.3.8, Revision 8, Criteria for Dosimetry Issue
RPM 1.3.12, Revision 8, Internal Monitoring Program
RPM 1.3.13, Revision 8, Bioassay Sampling and Analysis
RPM 1.3.14, Revision 7, Personnel Dose Calculations and Assessments
RPM 1.4.1, Revision 7, ALARA Reviews and Reports
RPM 1.4.2, Revision 2, ALARA Engineering Controls
RPM 1.4.4, Revision 2, Temporary Shielding
RPM 1.5.2, Revision 4, High Radiation Area Key Control
RPM 1.5.5, Revision 4, Guidelines for Performance of Radiological Surveys
RPM 1.5.6, Revision 3, Survey Documentation and Disposition
RPM 1.6.4, Revision 3, Siemens Electronic Dosimetry System
RPM 2.1.1, Revision 5, Issuance and Control of RWPs
RPM 2.1.2, Revision 2, ALARA Interface with the RWP Process
RPM 2.4.1, Revision 6, Posting of Radiological Control Areas
RPM 2.5.8, Revision 3, Stay Time Tracking and Multi-Badging for Special Work
RPM 2.8.2, Revision 3, Requirements for Entry into the MIDS Very High Radiation Area
RPM 2.10.2, Revision 11, Air Sample Counting and Analysis
RPM 2.12.1, Revision 6, Leak Test for Sealed Source Contamination
RPM 5.2.2, Revision 10, Basic Radiation Worker Responsibilities
RPM 5.2.3, Revision 3, ALARA Program and Policy
RPM 5.3.4, Revision 13, Sealed Source Inventory and Control Program
RPM-GDL-008, Revision 0, Electronic Dosimeter Alarm Set Points
RP-AA-201, Revision 4, Access Controls for High and Very High Radiation Areas
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3R13 ALARA Reviews
AR 3-10-13, Scaffolding Installation/Removal
AR 3-10-26, Radiation Protection
AR 3-10-05, In-service Inspection

AR 3-10-07, Boric Acid Response Team
AR 3-10-12, I & C Preventative and Corrective Maintenance
AR 3-10-14, Insulation Removal/Installation
AR 3-10-02, Steam Generator Eddy Current Testing
AR 3-10-03, Steam Generator Sludge Lancing/Upper Bundle Flush
AR 3-10-11, Valve & MOV maintenance
AR 3-10-04, 'B' Residual Heat Removal System

3R13 ALARA Challenge Board Meeting Materials
Source Term Reduction
Instrumentation & Control Outage Activity (Replace Flux Mapping System)
Boric Acid Response Team Actions
Snubber Inspections
Scaffolding/Insulation Activities
Valve Maintenance
In-Service Inspections and Alloy 600 Inspections
Steam Generator Cleaning and Inspection

Nuclear Oversight Reports
Nuclear Oversight Site Vice President's Briefing Reports dated –January 5, 2010, January 19, 2010, February 2,2010, February 16,2010, March 2, 2010, March 16, 2010, March 30, 2010, April 13, 2010

Miscellaneous Reports
Dose and Dose Rate Alarm Report for period February 7, 2010 though April 14, 2010
Unit 3 airborne sampling results to support outage activities

Section 4OA2: Identification and Resolution of Problems
Corrective Action Trend Report Millstone Station 4th Quarter 2009
Dominion Nuclear Trend Report Millstone Station 2nd Quarter 2009 and 4th Quarter 2008
OD000365, Immediate Operability Determination, CR373278
OD000369, Prompt Operability Determination, CR372504
SP 2346A-004, "'A' DG Data Sheet," Revision 023-06
SP 2613K-001, "Periodic DG Slow Start Operability Test, Facility 1 (Loaded Run)," Revision 003-06
SP 2624A-001, "'A' EDG Starting Air Vent Valves IST," Revision 000-03
SP 2624A-002, "'A' EDG Train 'A' Starting Air Valves IST," Revision 002-01
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CR373576	CR381369
CR374466	CR381560
CR374700	

Section 4OA3: Event Follow-up
OP 2202, "Reactor Startup ICCE," Revision 22
OP 2203, "Plant Startup," Revision 018-09
Post Trip Review Report - Millstone Unit 2 Manual Trip, May 22, 2010
Sequence of Events – Millstone Unit 2, May 22, 2010

Section 4OA5: Other

Procedures

LI-AA-700, Fatigue Management and Work Hour Limits for Covered Workers, Revision 1
SY-AA-FFD-101, Fitness for Duty Program, Revision 3

Condition Reports

359582	362659
360136	362688
360275	362695
360545	362720
361287	376586
362591	380621

Other Documents

Fitness-for-Duty Program Annual Performance Data Report dated February 26, 2010

LIST OF ACRONYMS

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
AFW	Auxiliary Feedwater
ALARA	As Low As Reasonably Achievable
AOP	Abnormal Operating Procedure
ASME	American Society of Mechanical Engineers
BACCP	Boric Acid Corrosion Control Program
BMI	Bear Metal Inspection
CFR	Code of Federal Regulations
CONVEX	Connecticut Valley Electric Exchange
CR	Condition Report
CRDM	Control Rod Driven Mechanism
CW	Circulating Water
DG	Diesel Generator
DMBW	Dissimilar Metal Butt Weld
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
ECT	Eddy Current Testing
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
ESF	Engineered Safety Feature
FIN	Finding
FRBV	Feedwater Regulating Bypass Valves
FRV	Feedwater Regulating Valve
GL	Generic Letter
GSU	Generator Step Up
HPSI	High Pressure Safety Injection
HRA	High Radiation Areas
HX	Heat Exchanger
ID	Inside Diameter
I&C	Instrumentation and Control
IMC	Inspection Manual Chapter
ISI	In-Service Inspection
ISO	Independent System Operator
IST	In-Service Testing
LER	Licensee Event Reports
LHRA	Locked High Radiation Area
LORT	Licensed Operator Requalification Training
LPSI	Low Pressure Safety Injection
LTCA	Long Term Corrective Actions
MT	Magnetic Particle Test
NCV	Non-Cited Violation
NDE	Non-Destructive Examination
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OD	Operability Determinations
OOS	Out Of Service

OP	Operating Procedure
PARS	Publicly Available Records System
PT	Penetrant Test
PWR	Pressurized Water Reactors
RPCCW	Reactor Plant Closed Cooling Water
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RPV	Reactor Pressure Vessel
RSS	Recirculation Spray System
RTP	Rated Thermal Power
RWP	Radiological Work Permit
SG	Steam Generator
SW	Service Water
TBCCW	Turbine Building Closed Cooling Water
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Test
VHRA	Very High Radiation Areas
VT	Visual Test
WO	Work Order