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

January 16, 2013

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 05000336/2012005 AND 05000423/2012005

Dear Mr. Heacock:

On December 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Millstone Power Station, Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on January 15, 2013 with Stephen E. Scace, Site Vice President, and other members of your staff.

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

Two NRC-identified findings of very low safety significance (Green) were identified during this inspection.

These findings were determined to involve violations of NRC requirements. The NRC is treating these findings as non-cited violations (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the violations or significance of these NCVs, 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, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Millstone.

If you disagree with the cross-cutting aspect assignment 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 Resident Inspector at Millstone.

In accordance with 10 CFR 2.390 of the NRCs “Rules of Practice,” a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC’s document system Agencywide Documents Access Management System (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000336/2012005 and 05000423/2012005
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.:	50-336, 50-423
License Nos.:	DPR-65, NPF-49
Report No.:	05000336/2012005 and 05000423/2012005
Licensee:	Dominion Nuclear Connecticut, Inc.
Facility:	Millstone Power Station, Units 2 and 3
Location:	P.O. Box 128 Waterford, CT 06385
Dates:	October 1, 2012 through December 31, 2012
Inspectors:	J. Ambrosini, Sr. Resident Inspector, Division of Reactor Projects (DRP) J. Krafty, Resident Inspector, DRP B. Haagensen, Resident Inspector, DRP J. DeBoer, Project Engineer, DRP, RI E. Keighley, Project Engineer, DRP, RI R. Rolph, Health Physicist, Division of Reactor Safety (DRS) M. Modes, Senior Reactor Inspector, DRS D. Orr, Senior Reactor Inspector, DRS J. Caruso, Senior Operations Engineer, DRS
Approved By:	Ronald R. Bellamy, PhD, Chief Reactor Projects Branch 5 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000336/2012005**,** 05000423/2012005; 10/01/2012-12/31/2012**;** Millstone Power Station Units 2 and 3; Adverse Weather Protection; Follow-up of Events and Notices of Enforcement Discretion

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Two Green findings, both of which were non-cited violations (NCV) were identified. The significance of inspection findings are indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated June 2, 2011. The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy dated June 7, 2012. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

Cornerstone: Barrier Integrity

- Green. The inspectors identified an NCV of 10 CFR 50, Appendix B, Criteria XI, Test Control, associated with the Barrier Integrity cornerstone. Specifically, Dominion did not ensure that the wide range logarithmic post accident neutron monitor system was properly calibrated as required by Technical Specification (TS) 3.3/4.3.6, "Accident Monitoring Instrumentation," to ensure all surveillance test acceptance criteria had been fully met on August 10, 2011. Dominion entered the issue into their corrective action system (CR442297) and repaired and realigned the Gamma Metrics LOG WR Monitor instrument drawer, and retrained the instrument and controls (I&C) department regarding surveillance and test control procedures.

  This finding was determined to be more than minor because it is associated with the human performance attribute of the barrier integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers (fuel cladding) protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low significance (Green) because the issue only affected the fuel barrier. This finding has a cross-cutting aspect in the area of human performance, work practices component because the licensee did not ensure that surveillance work activities were appropriately reviewed by supervision. [H.4(c)] (Section 4OA3)

Cornerstone: Emergency Preparedness

Green. The inspectors identified an NCV associated with emergency preparedness (EP) planning standard 10 CFR 50.47(b)(4), and the requirements of Sections IV.B and IV.C of Appendix E to 10 CFR Part 50. Specifically, Dominion did not maintain in effect the Millstone Units 2 and 3 emergency action level (EAL) schemes by failing to provide an effective measuring instrument for determining flooding water levels. These deficiencies adversely affected the ability of the licensee to properly classify events involving a major flood condition. Dominion entered the issue into their corrective action system (CR501482) and provided additional means to determine flood water levels.

The finding is more than minor because it is associated with the Facilities and Equipment attribute of the EP Cornerstone and affected the cornerstone objective to ensure that the

licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The inspectors determined the finding to be of very low safety significance (Green) because an EAL has been rendered ineffective such that a Notification of Unusual Event (NOUE) would not be declared for a flooding event, but because of other EALs, an appropriate declaration could be made in a degraded manner. The finding has a cross-cutting aspect in the area of Human Performance, Resources, in that Dominion personnel did not take provide appropriate procedures to address a Risk-Significant Planning Standard (RSPS) issue completely, accurately, and in a timely manner commensurate with the safety significance because Dominion did not provide a means of reliably and accurately assessing flooding levels that could reach 19 feet above mean sea level. [H.2(d)] (Section 1R01)

REPORT DETAILS

Summary of Plant Status

Millstone Unit 2 and 3 began the inspection period operating at 100 percent power. On October 6, 2012, Unit 2 was shutdown to begin refueling outage 2R21. Unit 2 returned to 100 percent power on November 25, 2012.

Unit 3 reduced power peremptorily to 75 percent on October 29, 2012, in anticipation of the arrival of Storm Sandy and returned power to 100 percent November 1, 2012, after the storm's passing.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 3 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Dominion's readiness for the onset of seasonal cold temperatures. The review focused on the heat trace system, space heaters, tank heaters, and cold weather preparations listed in Dominion procedure C OP 200.13. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), TS, control room logs, and the Corrective Action Program (CAP) to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Dominion's personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Dominion's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 Impending Adverse Weather – Hurricane/Storm Sandy

a. Inspection Scope

The inspectors evaluated Dominion's preparations for Hurricane Sandy on October 29, 2012 (two samples, one on Unit 2 and one on Unit 3). The inspectors reviewed Dominion's UFSAR and procedures to determine the plant areas most likely to be affected by the hurricane force winds and storm surge, and verified that actions recommended by the procedures could reasonably be completed. The inspectors questioned Dominion management and determined actions were being taken to remove or secure potential missile hazards, and that fatigue restrictions were considered in their

planning. The inspectors also walked down the site in order to verify that the potential missile hazards were being addressed.

b. Findings

Introduction. The inspectors identified a Green NCV associated with EP planning standard 10 CFR 50.47(b)(4), and the requirements of Sections IV.B and IV.C of Appendix E to 10 CFR Part 50. Specifically, Dominion did not maintain in effect the Millstone Units 2 and 3 EAL schemes for assessing a site flooding event.

Description. On October 29, 2012, the inspectors responded to Storm Sandy at Millstone Station. During this storm, water level was noted to rise in Long Island Sound to a depth of approximately 8 feet above mean sea level. The inspectors noted that the water level gage used by Dominion to measure the flooding level only extended to 9 feet. EAL TU2 for Destructive Phenomena required declaration of a NOUE for flooding levels that exceeded 19 feet above mean sea level. There were no readily available measuring devices or indication that would read water levels that were above 9 feet.

Interviews with operators during and following the storm indicated that the operators did not have a reliable and repeatable method for determining when water level in Long Island Sound exceeded 9 feet, especially after dark when access to the intake structure and sea wall would be restricted during a major flooding event. As a result, various Shift Managers stated that they would have declared the NOUE at different times based on their personal judgment of other conditions. Surveillance Procedure SP 3665.1 requires operators to measure water level whenever the “Unit 3 intake structure is greater than or equal to 8 feet above mean sea level, USGS datum” and directs entering Technical Requirements Memorandum (TRM) 3.7.6 whenever water level has exceeded 13.0 feet. Some Shift Managers stated they would have declared the NOUE earlier than 19 feet, such as when they had to implement TRM 3.7.6 (Flood Protection) actions at Unit 3, or TRM 3.7.5 actions at Unit 2 (Flood Level); others stated they were not sure when they would declare the NOUE. The accuracy and reliability of the water level assessment was not sufficient to support accurate and timely declaration of the NOUE for a flooding event.

The inspectors identified that Dominion had failed to properly identify that EAL TU2 was degraded because of the inability to accurately measure flood level. The inspectors determined that other thresholds in the Destructive Phenomena EALs, such as wind speed during the storm, could allow the operators to determine that the Destructive Phenomena (TU2) initiating condition was reached for an NOUE. In response to the issues identified by the inspectors, Dominion entered this issue into their CAP and initiated CR501482 to address the deficiencies identified by the inspectors.

Analysis. The inspectors determined that the failure by Dominion to provide reliable and timely indication for operators to adequately implement the flooding EAL was a performance deficiency that was reasonably within their ability to foresee and prevent. The finding is more than minor because it is associated with the Facilities and Equipment attribute of the EP cornerstone and affected the cornerstone objective to ensure that Dominion is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, Dominion’s ability to classify a flooding event was adversely affected because flood levels could not be adequately determined.

In accordance with the IMC 0609, Appendix B, "Emergency Preparedness Significance Determination," issued February 24, 2012, and Table 5.4-1, the inspectors determined that this finding is of very low safety significance (Green) because the performance deficiency was a condition where an EAL has been rendered ineffective such that an NOUE would not be declared for a flooding event. However other EALs within the Destructive Phenomena initiating condition (TU2) would likely be met and an appropriate declaration could be made in a degraded manner.

The finding has a cross-cutting aspect in the area of human performance resources in that Dominion personnel did not ensure that facility equipment was available and adequate to support the RSPS for emergency classification completely, accurately, and in a timely manner commensurate with the safety significance. Specifically, Dominion did not provide a reliable and accurate means to assess EAL TU2 for flooding level at the NOUE event classification [H.2(d)].

Enforcement. Title 10 of the CFR, Section 50.54(q)(2) requires, in part, that a licensee shall follow and maintain the effectiveness of an emergency plan that meets the requirements in Appendix E to this Part and, for nuclear power reactor licensees, the planning standards of § 50.47(b). 10 CFR 50.47(b)(4) requires, in part, that a standard emergency classification and action level scheme is in use by the licensee, the bases of which include facility system and effluent parameters. Contrary to the above, Dominion did not follow and maintain an emergency plan using a standard emergency classification and action level scheme. Specifically, Dominion did not provide procedures and instrumentation to adequately implement the Destructive Phenomena Initiating Condition (TU2) of the Unit 2 and Unit 3 EAL tables. As a result, this deficiency adversely affected Dominion's ability to classify an emergency event involving a flooding event. Because this issue was of very low safety significance (Green) and has been entered into the CAP (CR501482), this issue is being treated as an NCV, consistent with Section 2.3.2 of the NRC's Enforcement policy. (**NCV 05000336/2012005-01 and 05000423/2012005-01, Failure to Adequately Implement Flooding EALs**)

1R04 Equipment Alignment (71111.04Q – 3 samples)

Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

Unit 2

- 'B' Service Water (SW) train during the 'A' SW train maintenance outage on October 25
- 'B' Shutdown Cooling (SDC) System while the 'A' SDC system was out of service (OOS) on October 16

Unit 3

- 'A' Emergency Diesel Generator (EDG) during the extended overhaul of the 'B' EDG on December 10

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

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 5 samples)

.1 Resident Inspector Quarterly Walkdowns

a. Inspection Scope

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

Unit 2

- Containment, Fire Area C-1 on October 9
- Reactor Building Component Cooling Water (RBCCW) Pump and Heat Exchanger Area, Fire Area A-1 on November 6

Unit 3

- Auxiliary Building Auxiliary Filter Bank 1A, Fire Zone AB-10 on October 24
- Turbine Building Fire Area Lube Oil Reservoir and Conditioner TB-4 on December 20
- Turbine Building Fire area Oil Storage Room TB-1 on December 21

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site flooding analysis, and plant procedures to assess susceptibilities involving internal flooding. The inspectors also reviewed the CAP to determine if Dominion identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors also focused on the Unit 3 auxiliary building and auxiliary building filter enclosures (A-10) to verify the adequacy of equipment seals located below the flood line, floor and water penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, control circuits, and temporary or removable flood barriers.

b. Findings

No findings were identified.

1R08 In-service Inspection (71111.08 – 1 sample)

a. Inspection Scope

In-service inspection (ISI) activities can detect precursors to pressure boundary failures in reactor coolant systems (RCS), emergency core cooling systems (ECCS), risk-significant piping and components, and containment systems. Degradation of pressure retaining components in these systems could result in a significant increase in risk. This inspection assessed the effectiveness of Dominion's program for monitoring degradation of vital system boundaries.

Nondestructive Examination (NDE) and Welding Activities (IMC Section 02.01)

During the period October 15 - 25, the inspectors reviewed the essential elements of the Dominion ISI program. The inspectors observed activities related to the monitoring of degradation of the RCS boundary, risk significant piping and components, and containment systems during the Millstone Unit 2 refueling outage 2R21. The inspectors reviewed a sample of NDE activities and discussed the results of the examination with the corporate Level III examiner.

American Society of Mechanical Engineers (ASME) Code Required Examinations

Remote observation of ultrasonic test examination of the reactor vessel control rod drive mechanism nozzles penetrations was accomplished by a record review of ultrasonic testing (UT) examination data records M2-UT-12-001, 005, 006, 007, 009, 010, 011, 012, 013, 014, 015, 017, and 018.

Other Augmented or Industry Initiative Examinations

There were no augmented or industry initiative examinations.

Review of Originally Rejectable Indications Accepted by Evaluation

There were no volumetric or surface examinations from the previous outage with relevant indication(s) that were analytically evaluated and accepted by Dominion for continued service.

PWR Vessel Upper Head Penetration Inspection Activities (IMC Section 02.02)

The inspectors verified the reactor head control rod drive penetration J-groove weld examinations were performed in accordance with requirements of 10 CFR 50.55a(g)(6)(ii)(D) and ASME Boiler and Pressure Vessel Code Case N-729-1, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads." The inspectors observed a sample of reactor head control rod drive penetration J-groove weld ultrasonic, and remote liquid penetrant test examinations. During the period of this inspection, no indications were discovered in the reactor head control rod drive penetration J-groove welds.

Repair/Replacement Consisting of Welding Activities

The inspectors reviewed a complete welding and fabrication package consisting of a revised piping anchor to determine if the welding activities were performed in accordance with ASME Code requirements, or an NRC approved alternative.

Boric Acid Corrosion Control Inspection Activities (IMC Section 02.03)

The inspectors reviewed the boric acid control program with the engineering lead. The inspectors reviewed the photographic evidence of boric acid leaks and discussed various engineering evaluations performed for boric acid found on RCS piping and components. Also, the inspectors verified that degraded or non-conforming conditions are identified properly in Dominion's CAP.

Steam Generator (SG) Tube Inspection Activities (IMC Section 02.04)

During this outage, no testing of the SGs was performed.

Identification and Resolution of Problems (IMC Section 02.05)

The inspectors reviewed a sample of CRs, which identified NDE indications, deficiencies and other nonconforming conditions since the previous refueling outage. The inspectors verified that nonconforming conditions were properly identified, characterized, evaluated, corrective actions identified and dispositioned, and appropriately entered into the CAP.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 4 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed Unit 3 licensed operator simulator training on December 11, which included a series of instrument failures (letdown temperature, SG pressure transmitter, pressurizer level transmitter failures), a failed open atmospheric relief valve resulting in an over-power transient, and a loss of service water. The inspectors observed Unit 2 licensed operator simulator training on December 13. The scenario included a dropped rod, loss of annunciators, and a loss-of-coolant-accident outside of containment. The inspectors evaluated operator performance during the simulated events and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classifications and entry into TS action statements. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems. On December 14, the inspectors observed classroom training on time credited operator actions for Unit 3 operators.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed control room operations for the planned shutdown of Unit 2 at the start of refueling outage 2R21 on October 6. The inspectors observed and reviewed control room briefings, procedure use, crew coordination, and system parameter monitoring as Unit 2 entered Mode 3 operations and verified that the activities met established expectations and standards.

The inspectors observed and reviewed Storm Sandy response operations including condenser back washing, restoration of the south bus and reserve station service transformer (RSST), and boration of the RCS following a rapid down power conducted on Unit 3 on October 30. Additionally, the inspectors verified that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

Licensed Operator Requalification (71111.11B – 1 sample)

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, Inspection Procedure Attachment 71111.11, “Licensed Operator Requalification Program.” The inspection activities were focused primarily on Unit 2 with a review of annual examination results for Unit 3 only.

Examination Results

On January 4, 2013, the results of the biennial written exam and annual operating tests for 2012 were reviewed to determine if pass/fail rates were consistent with the guidance of NUREG-1021, Revision 9, Supplement 1, "Operator Licensing Examination Standards for Power Reactors" and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)" was also performed. The review verified the following:

Unit 2

- Individual pass rate on the dynamic simulator test was greater than 80 percent (Pass rate was 96.4 percent)
- Individual pass rate on the job performance measures of the operating exam was greater than 80 percent (Pass rate was 100 percent)
- Individual pass rate on the written examination was greater than 80 percent (Pass rate was 100 percent)
- More than 80 percent of the individuals passed all portions of the exam (96.4 percent of the individuals passed all portions of the operating examination)
- Crew pass rate was greater than 80 percent (Pass rate was 100 percent)
- The pass rate on re-take exams (individual and crew) was greater than 90% (Pass rate was 100 percent)

Unit 3

- Individual pass rate on the dynamic simulator test was greater than 80 percent (Pass rate was 100 percent)
- Individual pass rate on the job performance measures (JPM) of the operating exam was greater than 80 percent (Pass rate was 100 percent)
- Individual pass rate on the written examination was greater than 80 percent. (The pass rate was 98.0 percent) Note: One licensed senior reactor operator (SRO) failed his biennial written exam and has been restricted from license duties pending completion of his remediation and passing his re-exam. A second SRO has officially requested to drop his license since he is transferring to a department where he no longer needs to maintain a license. One reactor operator has not taken the biennial written exam due to a medical issue, his qualifications have been temporarily removed and he has been restricted from licensed duties pending his recovery, and passing his exam.
- More than 80 percent of the individuals passed all portions of the exam (98 percent of the individuals passed all portions of the examination)
- Crew pass rate was greater than 80 percent (Pass rate was 100 percent)
- The pass rate on re-take exams (individual and crew) was greater than 90% (N/A) Note: One licensed SRO failed his biennial written exam and has been restricted from license duties pending completion of his remediation and passing his re-exam.

Written Examination Quality

The inspectors reviewed two reactor operator and two senior reactor operator biennial written examinations for qualitative and quantitative attributes as specified on Appendix B of Attachment 71111.11, Licensed Operator Requalification.

Operating Test Quality

Eighteen JPMs and four scenarios were reviewed for qualitative and quantitative attributes as specified in Appendix C of Attachment 71111.11, Licensed Operator Requalification.

Licensee Administration of Operating Tests

Observations were made of the dynamic simulator exams and JPMs administered during the week of September 17. These observations included facility evaluations of crew and individual performance during the dynamic simulator exams and individual performance of five JPMs.

Examination Security

The inspectors assessed whether facility staff properly safeguarded exam material. JPMs, scenarios, and written examinations were checked for excessive overlap of test items.

Remedial Training and Re-examination

The remediation plans for one individual that failed his annual operating test, and three individual failures on cyclic exam failures were reviewed to assess the effectiveness of the remedial training.

Conformance with License Conditions

Medical records for 12 individuals were reviewed for compliance with NRC regulations. Proficiency watch records for ten licensed operators were reviewed and verified to ensure that the operators were standing the appropriate number of watches for proficiency credit. In addition, four license reactivation records were reviewed for completeness.

Simulator Performance

Simulator performance and fidelity were reviewed for conformance to the reference plant control room including: four scenario based tests, four transient tests, steady state test, real time test, four normal evolution tests, cycle 21 core performance test for middle of cycle and end of cycle, and a simulator versus plant data comparison for the June 20, 2011 Unit 2 trip.

Problem Identification and Resolution

Recent operating history found in inspection reports and Dominion's CAP was reviewed by the inspectors. The inspectors also reviewed specific events from Dominion's CAP which indicated possible training deficiencies to verify that they had been appropriately addressed. The resident inspectors were also consulted for insights regarding licensed operators' performance. The Plant Issues Matrix and the latest problem identification and resolution report were also reviewed to identify operator performance issues and potential training deficiencies.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 2 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system or component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance work orders, and maintenance rule basis documents to ensure that Dominion was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Dominion staff was reasonable. As applicable, for SSCs classified as (a) (1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a) (2). Additionally, the inspectors ensured that Dominion staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

Unit 2

- Snubbers on October 17

Unit 3

- EDG and Sequencers on November 18

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 6 samples)

a. Inspection Scope

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

Unit 2

- Planned work associated with Main Steam Safety valve testing on October 3 and 4
- Unplanned Orange Risk due to an inoperable 'B' EDG on October 8
- Risk Mitigation Plan for the North bus switchyard work on October 10
- Yellow risk assessment for RCS drain down on November 11

Unit 3

- Emergent Work on the RSST insulator bushing on November 2
- Risk Assessment for the 'B' EDG extended overhaul with 'B' train SSPS, the 'F' circ water bay/pump, and the station air compressor OOS, and medium trip risk due to thunder storms that occurred in the area December 10

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 7 samples)

a. Inspection Scope

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

Unit 2

- OD 000502, Revision 1, 'B' EDG SW pipe degradation and CR489277, 'A' EDG Heat Exchanger differential pressure above the Action Curve on October 23
- CR496366, Measured Flow in 'A' RB HX SW header does not match predictions of model on November 15
- CR 494105, CR 497032, 2-SW-3.2B as left Flowscan test fails acceptance criteria on November 16

Unit 3

- CR493317, RCS leak detection capability following the failure of the radioactive waste panel power supply on October 25
- CR495337, RSST Insulator Oil Leak on November 1
- CR499944, Incorrect level switches installed in the CCP surge tank on December 14
- OD000514, 'A' SW Strainer Discharge Line Through-Wall Leak on December 19

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

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

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 3 samples)

Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to the Unit 2 feedwater regulating valve positioners implemented by engineering change package MP2-10-01111, "Feedwater Regulating Valve Positioner & Reg Bypass Valve Control Mods." The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the upgrade and design change**,** including installation of dual digital positioners. The inspectors performed a walkdown of the modification equipment to verify that it was properly installed and also reviewed the modification acceptance testing to ensure that required design bases functions were tested.

The inspectors evaluated a modification to the Unit 2 electro-hydraulic control system to perform a digital upgrade to the main turbine controls as described in design change MP2-10-01016, "Main Turbine Electro-Hydraulic Control System Digital Upgrade." The inspectors verified that the modification package considered potential impacts to the design bases, licensing bases, and performance capability of the affected systems. The inspectors performed a walkdown of portions of the modification equipment to verify that it was properly installed in accordance with Dominion procedures.

The inspectors evaluated a modification to the Unit 2 RSST which replaced the existing RSST with a new one in accordance with design change MP2-10-01106, "MP2 RSSR Replacement Project, Phase 2 – Final Tie-In." The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results, and conducted field walkdowns of the modifications to verify that the modification and installation did not degrade the design bases, licensing bases, and performance capability of the affected systems.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 5 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the

maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

Unit 2

- Cutting the RSST 6.9KV and 4160V cables for splicing to the new RSST on October 16
- Replacement of the 'B' wide range nuclear instrument detector on October 16
- Replacement of the 201A safety-related battery on October 23

Unit 3

- RSST 'C' phase bushing insulator repairs on November 4
- 'B' EDG following extended (11 day) overhaul on December 11

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Unit 2 maintenance and refueling outage (2R21), which was conducted October 7, through November 23. The inspectors reviewed Dominion's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable TS when taking equipment out of service
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that TS were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of secondary containment as required by TS
- Refueling activities, including fuel handling and fuel receipt inspections
- Fatigue management
- Identification and resolution of problems related to refueling outage activities

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 5 samples)

a. Inspection Scope

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

Unit 2

- SP2730B, Main Steam Safety Valve Testing, Revision 014-02 on October 3
- SP 2613H, Integrated Test of Facility 2 Components (ICCE), Revision 012-03 on October 12
- SP 2401NC, Reactor Protection System Channel C Response Time Test, Revision 003-04 on November 14

Unit 3

- SP31447VB, Trip Actuating Device Operational Test for 4 KV Bus 34D Under voltage, Revision 000-03 on October 18
- SP3646A.2, EDG 'B' Operability Tests, Revision 020-06 on December 13

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Public and Occupational Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01 – 1 sample)

a. Inspection Scope

Radiological Hazard Assessment

The inspectors reviewed the last two radiological surveys from Unit 2 Outage Walkways, Unit 2 Auxiliary 25' Waste gas Compressors, Unit 2 Auxiliary 25' Charging Pumps, Unit 3 Auxiliary 4', Unit 3 Auxiliary 24', and Unit 3 Auxiliary 43'. The inspectors evaluated whether the thoroughness and frequency of the surveys were appropriate for the given new radiological hazard.

The inspectors conducted walkdowns and independent radiation measurements in the facility, including radioactive waste processing, storage, and handling areas to evaluate material and radiological conditions.

The inspectors selected the following risk-significant work activities that involved exposure to radiation.

- Unit 2 ECCS Strainer Cover Installation
- Unit 2 Under Reactor Head Work
- Unit 2 Containment ISI

For these work activities, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if radiological hazards were properly identified (e.g., discrete radioactive hot particles, transuranics and hard to detect nuclides in air samples, transient dose rates and large gradients in radiation dose rates).

The inspectors observed work in potential airborne areas and evaluated whether the air samples from Unit 2 under the reactor head work and Unit 2 pressurizer valve work air sample locations, were representative of the breathing air zone and were properly evaluated. The inspectors evaluated whether continuous air monitors in Unit 2 were located in areas with low background to minimize false alarms and were representative of actual work areas. The inspectors evaluated Dominion's program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

Instructions to Workers

The inspectors selected three containers holding non-exempt licensed radioactive materials that may cause unplanned or inadvertent exposure of workers. The inspectors assessed whether the containers were labeled and controlled in accordance with 10 CFR Part 20 requirements.

The inspectors reviewed the following radiation work permits (RWP) used to access high radiation areas (HRA) and evaluated if the specified work control instructions and control barriers were consistent with TS requirements for HRA.

- 2120400 Unit 2 ECCS Strainer Cover Installation
- 2120326 Unit 2 Insulation
- 2120327 Unit 2 Valve Repairs

For these RWPs, the inspectors assessed whether allowable stay times or permissible dose for radiologically significant work under each RWP were clearly identified. The inspectors evaluated whether electronic personal dosimeter (EPD) alarm set-points were in conformance with survey indications and plant procedural requirements.

The inspectors reviewed one occurrence where a worker's EPD noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately to the off-normal condition. The inspectors assessed whether the issue

was included in the corrective action program and whether compensatory dose evaluations were conducted as appropriate.

For work activities that could suddenly and severely increase radiological conditions, the inspectors assessed Dominion's ability to inform workers of these changes that could significantly impact their occupational dose.

Contamination and Radioactive Material Control

The inspectors observed two locations, Unit 2 Radiological Control Area (RCA) Access/Egress and the Unit 2 Equipment Hatch, where Dominion monitors potentially contaminated material leaving the radiological control area, and inspected the methods used for control, survey, and release of materials from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use and evaluated whether the work was performed in accordance with plant procedures. The inspectors assessed whether the radiation monitoring instrumentation used for equipment release and personnel contamination surveys had appropriate sensitivity for the type(s) of radiation present.

The inspectors reviewed the criteria used for the survey and release of potentially contaminated material. The inspectors evaluated whether there was guidance on how to respond to an alarm that indicates the presence of licensed radioactive material.

The inspectors reviewed Dominion procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters. The inspectors selected three sealed sources, 3132GY, 84CS-15, and 2785GP, from inventory records and assessed whether the sources were accounted for and were tested for loose surface contamination.

The inspectors evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with10 CFR Part 20 requirements.

Radiological Hazards Control and Work Coverage

The inspectors evaluated ambient radiological conditions and performed independent radiation measurements during walkdowns of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, RWPs, and associated worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage and contamination controls. The inspectors evaluated Dominion's use of EPDs in high noise areas that were also HRAs or locked high radiation area (LHRA).

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with Dominion procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that Dominion properly implemented an NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry on a diver to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients.

The inspectors verified there was no work within airborne radioactivity areas with the potential for individual worker internal exposures.

The inspectors assessed applicable containment barrier integrity and the operation of temporary high-efficiency particulate air ventilation systems. The inspectors examined Dominion's physical and programmatic controls for highly activated or contaminated materials stored within spent fuel and other storage pools at Millstone Unit 2. The inspectors assessed whether appropriate controls were in place to preclude inadvertent removal of these materials from the pool. The inspectors examined the posting and physical controls for selected HRAs, LHRAs and very high radiation areas (VHRA) to verify conformance with the occupational performance indicator.

Risk-Significant HRA and VHRA Controls

The inspectors discussed with the Radiation Protection Manager the controls and procedures for high-risk HRAs and VHRAs. The inspectors assessed whether any changes to Dominion procedures substantially reduced the effectiveness and level of worker protection.

The inspectors discussed with first-line health physics supervisors the controls in place for special areas that have the potential to become VHRAs during certain plant operations. The inspectors assessed whether these plant operations require communication beforehand with the health physics group, to allow timely actions to properly post, control, and monitor the radiation hazards including re-access authorization.

The inspectors evaluated Dominion's controls for VHRA and areas with the potential to become a VHRA to ensure that an individual was not able to gain unauthorized access to these VHRAs.

Radiation Worker Performance

The inspectors observed the performance of radiation workers with respect to stated RP work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the RWP controls/limits in place, and whether their behavior reflected the level of radiological hazards present.

The inspectors reviewed one radiological problem report since the last inspection that identified the cause of the event to be human performance errors. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by Dominion to resolve the reported problems.

RP Technician Proficiency

The inspectors observed the performance of the RP technicians with respect to controlling radiation work. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the RWP controls/limits, and whether

their behavior was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed one radiological problem report since the last inspection that found the cause of the event to be RP technician error. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by Dominion to resolve the reported problems.

Problem Identification and Resolution

The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by Dominion at an appropriate threshold and were properly addressed for resolution in Dominion's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by Dominion that involve radiation monitoring and exposure controls. The inspectors assessed Dominion processes for applying operating experience to their plant.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

Radiological Work Planning

The inspectors selected the following work activities that had the highest exposure significance.

- 2120400 Unit 2 ECCS Strainer Cover Installation
- 2120326 Unit 2 Insulation
- 2120327 Unit 2 Valve Repairs

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure reduction requirements. The inspectors determined whether Dominion reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspectors assessed whether Dominion planning identified appropriate dose reduction techniques, considered alternate dose reduction features, and estimated reasonable dose goals. The inspectors evaluated whether ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices and/or heat stress mitigation equipment. The inspectors determined whether work planning considered the use of remote technologies as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspectors assessed the integration of ALARA requirements into work procedure and RWP documents.

Verification of Dose Estimates and Exposure Tracking Systems

The inspectors reviewed the assumptions and basis for the current annual collective dose estimate for accuracy. The inspectors reviewed applicable procedures to determine the methodology for estimating exposures from specific work activities and for department and station collective dose goals.

The inspectors evaluated whether Dominion had established measures to track, trend, and if necessary, to reduce occupational doses for ongoing work activities. The inspectors assessed whether dose threshold criteria were established to prompt additional reviews and/or additional ALARA planning and controls.

The inspectors evaluated the method of adjusting exposure estimates, or replanning work, when unexpected changes in scope or emergent work were encountered. The inspectors assessed whether adjustments to exposure estimates were based on sound RP and ALARA principles or if they were just adjusted to account for failures to plan/control the work.

Radiation Worker Performance

The inspectors observed radiation worker and RP technician performance during work activities being performed in radiation areas, and HRAs. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice and whether there were any procedure or RWP compliance issues.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

The inspectors reviewed Dominion's use of permanent and temporary ventilation to determine whether Dominion uses ventilation systems as part of its engineering controls to control airborne radioactivity. The inspectors reviewed procedural guidance for use of installed plant systems to reduce dose and assessed whether the systems are used, to the extent practicable, during high-risk activities.

The inspectors selected the containment purge installed ventilation system used to mitigate the potential for airborne radioactivity. The inspectors evaluated whether the ventilation system operating parameters were consistent with maintaining concentrations of airborne radioactivity in work areas below the concentrations of an airborne radioactive material area.

The inspectors selected two temporary ventilation system setups used to support work in contaminated areas, Unit 2 pressurizer valve nest welding, and Unit 2 pressurizer spray valve work. The inspectors assessed whether the use of these systems was consistent with Dominion's procedural guidance and the as low as reasonably achievable (ALARA) concept.

The inspectors assessed whether Dominion had established threshold criteria for evaluating levels of airborne beta-emitting and alpha-emitting radionuclides.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151 – 4 samples)

.1 Occupational Exposure Control Effectiveness

a. Inspection Scope

During the week of October 15 - 19, the inspectors sampled licensee submittals for the occupational radiological occurrences PI for the period from the 3rd quarter 2011 through 4th quarter 2011. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed Dominion's assessment of the PI for occupational radiation safety to determine if the related data was adequately assessed and reported.

The inspectors discussed with RP staff, the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed EPD accumulated dose alarms, dose reports, and dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized PI occurrences. The inspectors also conducted walkdowns of numerous LHRA and VHRA area entrances to determine the adequacy of the controls in place for these areas.

b. Findings

No findings were identified.

.2 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled Dominion's submittals for the Safety System Functional Failures performance indicator for both Unit 2 and Unit 3 for the period of October 1, 2011 through September 30, 2012. To determine the accuracy of the PI data reported during those periods, inspectors used definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." The inspectors reviewed Dominion operability assessments, maintenance rule records, CRs, event reports and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.3 Radiological Effluent TS/Offsite Dose Calculation Manual(ODCM) Radiological Effluent Occurrences

a. Inspection Scope

During the week of December 13 through 18, the inspectors sampled Dominion's submittals for the radiological effluent TS/ODCM radiological effluent occurrences PI for the period from the 1st quarter 2011 through 4th quarter 2011. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, to determine if the PI data was reported properly during this period. The inspectors reviewed the public dose assessments for the PI for the Public Radiation Safety cornerstone to determine if related data was accurately calculated and reported.

The inspectors reviewed the Dominion's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous and liquid effluent summary data and the results of associated offsite dose calculations for selected dates between the 1st quarter 2011 through 4th quarter 2011, to determine if indicator results were accurately reported. The inspectors also reviewed Dominion's methods for quantifying gaseous and liquid effluents and determining effluent dose.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 2 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

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

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. The inspectors reviewed Dominion's CAP database to assess corrective actions from apparent cause evaluations (ACEs) and root cause evaluations (RCEs) to verify that corrective actions were appropriate and were being completed in a timely manner.

b. Findings and Observations

No findings were identified.

The inspector's review of nine selected ACEs and one RCE identified that the corrective actions recommended by the cause evaluations were assigned and, in general, were being completed in a timely manner. There were no long term corrective actions identified in the ten cause evaluations reviewed.

The inspectors questioned some of the corrective actions for two of the cause evaluations, ACEs 18991 and 019113. The first cause evaluation, ACE 18991, was on management of LCO work just after the Christmas holiday. There were three corrective actions to discuss the event and one to perform an effectiveness review. With planning and scheduling already being one of Dominion's focus areas, the inspectors questioned if the corrective actions would be sufficient. Additionally, the apparent cause was determined to be lack of preparations and holiday vacations. The inspectors concluded that Dominion missed an opportunity to understand why the lack of preparations and vacations were not identified prior to the LCO window.

The second cause evaluation, ACE 019113, addressed procedural issues associated with backwashing the circulating water intake system. The inspectors noted that, in the past two years, incorrect operating procedures had resulted in one trip and two findings. Corrective action CA 241396 identified implementation of a Performance Analysis & Performance Improvement Instrument (PAPII) on procedure reviews. The inspectors noted that question 3 on the PAPII form indicated that the knowledge and skills of the procedure reviewers were not deficient, yet the Summary of Analysis stated that training was a necessary solution to ensure that operators have the skills necessary to accurately perform procedure reviews. The inspectors noted this is an apparent disconnect between the analysis of the issue and the solution.

.3 Annual Sample: Instrument Setpoint Calibration Issues

a. Inspection Scope

The inspectors performed an in-depth review of Dominion's review, analysis, and corrective actions associated with several CRs regarding out-of-tolerance safety-related instrument setpoints identified by Dominion during routine calibration activities. The safety-related instruments were associated with the reactor protective systems, engineered safeguards actuation systems, EDG breaker control, and other risk-important systems and included Millstone Units 2 and 3. The inspection specifically included a review to ensure Dominion was sensitive to recurring or repeat instrument issues and setpoint drift.

The inspectors assessed Dominion's problem identification threshold, cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of corrective actions to determine whether Dominion was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Dominion's CAP and 10 CFR Part 50, Appendix B, as well as Dominion's maintenance rule program. In addition, the inspectors performed field walkdowns and interviewed engineering and I&C personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

Dominion personnel maintained a low threshold for entering instrument calibration issues into the CAP. The low threshold for generating instrument calibration CRs occurred in part due to procedure instructions within each I&C calibration procedure. A CR was required to be initiated when the as-found data exceeds allowable limits. Additionally, the inspectors determined through several interviews with I&C personnel and system engineers that a low threshold for generating CRs for all unexpected results during calibration activities was an expected action on their part.

For the CRs reviewed, corrective actions were timely and appropriate, and current and past-operability was correctly assessed by Dominion personnel. Additionally, Millstone procedure, ER-AA-MRL-10, Maintenance Rule Program, Revision 4, required the maintenance rule program site owner to review all CRs for maintenance rule applicability and assignment of maintenance rule evaluations. The inspectors noted that for the CRs reviewed, this procedure requirement was being implemented and results were being provided to the CR Team. The inspectors noted that maintenance rule evaluations were appropriately assigned to and completed by the responsible system engineers. The inspectors concluded that the Dominion processes in place for CR generation and associated corrective action reviews and maintenance rule evaluations were adequate. Dominion maintained an appropriate awareness for potential recurring or repeat instrument issues and ensured setpoint drift remained within assumptions of I&C setpoint and uncertainty calculations.

.4 Annual Sample: Unit 2 Service Water System Dissimilar Metal Corrosion

a. Inspection Scope

The inspectors performed an in-depth review of Dominion's review, analysis, and corrective actions associated with several CRs regarding Dominion's actions to resolve issues of concern with galvanic corrosion occurring at dissimilar metal joints in the Unit 2 service water system. Dominion has been progressively replacing coated carbon steel pipe and components in the SW system with super-austenitic stainless steel (AL-6XN) that will resist corrosion without relying on the integrity of internal coatings. AL-6XN steel is galvanically less noble than carbon steel. Joints or transitions where AL-6XN and carbon steel are in direct electrical contact can result in a galvanic cell being created if there is nearby degradation in the carbon steel pipe epoxy coating. Galvanic cells cause accelerated corrosion rates and rapid wastage of the carbon steel which is anodic. This

inspection focused on the effectiveness of the corrective actions associated with Dominion's response to galvanic corrosion in the Unit 2 SW system.

b. Findings and Observations

No findings were identified.

On September 3, 2011, Unit 2 was shutdown to repair a through-wall leak in a SW spool SK2962 in the SW piping to the 'B' EDG as documented in CR441302. Dominion completed RCE 001063, "Unplanned Shutdown due to SW Leak," and determined that the root cause of the shutdown was the failure to recognize, evaluate and mitigate the risks associated with galvanic corrosion in the SW system. Multiple recommended corrective actions to prevent recurrence included implementing best practices for preventing galvanic corrosion in a staged approach over several outages. One of the key recommended corrective actions was to "provide a method to perform the vendor-recommended test of insulation kits after installation." This measure, if it had been enacted, would have ensured that the dissimilar metal joint had been electrically isolated and prevented a galvanic cell from being established and localized corrosion from occurring.

An assessment of the extent of condition concluded that the Unit 2 SW system had two additional through-wall SW leaks in valves 2-SW-297 and 2-SW-43A, and an additional through wall leak occurred on October 26, 2011 on spool SK-912. These leaks were subsequently repaired. Dominion also noted that there were many other carbon steel-to-AL-6XN dissimilar joints throughout the SW system. Despite this extensive vulnerability, Dominion did not implement the corrective action recommended by RCE 001063 to verify that all dissimilar metal joints had been electrically isolated for over one year.

On September 27, 2012, UT inspections identified significant galvanic corrosion and degradation in SW spool SK2953, the identical spool piece to SK2962 in the SW opposite train that had caused the previous shutdown. The degradation was substantial and would have required shutting down Unit 2 within several weeks. With the Unit 2 outage only two weeks away, an insulation kit was correctly installed at the joint between the carbon steel pipe and the AL-6XN flange transition joint to arrest the galvanic corrosion prior to experiencing an active through-wall leak. OD000502 justified continued operation of Unit 2 until repairs could be made during the refueling outage that commenced on October 8, 2012. Dominion formed a team to investigate the extent of condition and took extensive corrective actions to minimize the potential for future galvanic corrosion. The team initiated over 81 CRs that identified and characterized degraded conditions in the Unit 2 SW system from September to November 2012. Apparent Cause Evaluation (ACE) 019271, performed in response to this second failure, subsequently determined that the apparent cause of this repeat event was the organization's failure to implement an adequate performance monitoring program and a lack of performance management and commitment by the responsible engineering organization.

The inspectors determined that Dominion's efforts to identify and correct the galvanic corrosion in the Unit 2 SW system had been implemented just in time to prevent significant degradation. While the timeliness aspects of the corrective actions had very little available margin, the corrective actions were sufficiently extensive to prevent an unplanned shutdown prior to the refueling outage in 2012. The inspectors concluded

that ACE 019271 was thorough and appropriately critical of the engineering organizational performance. Corrective actions taken during the Unit 2 outage in the fall of 2012 to remediate the dissimilar metal transitions were extensive. However, while the vulnerability to galvanic corrosion has been reduced, the threat has not been eliminated due to the extensive number of dissimilar metal joints that still exist throughout the Unit 2 SW system. Some dissimilar metal transitions that can be isolated on line have still not been electrically isolated.

Operability determinations for degraded SW components have relied on calculation techniques similar to the calculations documented in ETE-CNE-2012-1024, which employed a structural analysis method that has been recognized by industry standards as being applicable to piping thinning that is at least a distance of $\sqrt{DT}$ away from a structural discontinuity (where D is component diameter and T is wall thickness). Structural discontinuities are abrupt changes in geometry as encountered in flanges, valves, tees and other engineered piping components. If the degraded area is close to or contains a structural discontinuity, assessment of fitness for service of the thinned area should be based on finite element analysis. Despite this limitation, Dominion assessed fitness for service and operability based on pipe stress equations that were not approved for use in this application by ASME codes because they were within the $\sqrt{DT}$ limitation. Continued reliance on this methodology to predict failure in SW system components may lead to unanticipated outcomes in the future.

In addition, Dominion's operability determinations have assumed galvanic corrosion rates from previously observed rates only to find that the actual in situ corrosion rates had been substantially underestimated. Galvanic corrosion rates in dissimilar metal transitions are highly variable and depend on many factors that can be difficult to assess in the field. Galvanic cells can result in significantly accelerated corrosion rates when compared to other forms of corrosive attack. Dominion requested ASME section XI code relief from the requirement to repair the Unit 2 SW leak on spool piece SK2962 from August of 2011 until the next outage (over 13 months later) based on their estimate of corrosion rates. When the leak rate significantly increased one month later Unit 2 had to be shutdown to repair the leak.

As a corrective action, Dominion has implemented an enhanced corrosion monitoring program that continues to detect corrosive degradation prior to exceeding pipe or component failure limits. This program relies on visual detection of leaks, volumetric examination of vulnerable transitions and verification of electric isolation to prevent galvanic cells from setting up in dissimilar metal joints. However, Dominion determined that it is not practical to electrically isolate all of the dissimilar metal transitions and future galvanic cells can occur if the carbon steel internal pipe coating develops a flaw in the vicinity of a dissimilar metal joint. Continued proactive monitoring of dissimilar metal transitions in the Unit 2 SW system will be a necessary measure to prevent future degradation and leaks.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 4 samples)

.1 (Closed) Licensee Event Report (LER) 05000336/2012-002-00: Completion of Plant Shutdown Required by Technical Specifications

On August 13, Dominion completed a controlled plant shutdown as required by plant TS 3.7.11, Ultimate Heat Sink. Long Island Sound, the ultimate heat sink for Millstone, experienced unusually high temperatures as a result of an extended period of record hot weather. In order to maintain sufficient cooling margin under normal and accident conditions, TS 3.7.11 limits plant operation if ultimate heat sink temperature exceeds 75 degrees Fahrenheit. Millstone reached this limit and complied with all applicable TS which required a plant shutdown. The LER was reviewed. No findings or violations of NRC requirements were identified. This LER is closed.

.2 (Closed) LER 05000423/2011-001-00: Failure to Enter Technical Specification Action Statement

On September 10, 2011, the inspectors identified that Millstone Unit 3's Gamma Metrics wide range nuclear instrumentation had failed a surveillance test. The bandpass filter offset voltage, 3NME*AMPL2, had been left out of alignment with the acceptance criteria defined in Surveillance Procedure SP 3441E01. The condition was not noted when it occurred on August 11, 2011. TS action statement 3.3.3.6.a (1) was entered upon discovery and the equipment was restored to operable status.

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50 Appendix B Criteria XI, "Test Control" for Dominion's failure to adequately control or evaluate surveillance test results required by TS 3.3/4.3.6, "Accident Monitoring Instrumentation." Dominion failed to identify that test acceptance criteria had not been met during a surveillance test on the wide range logarithmic post accident neutron monitor system (Gamma Metric WR LOG monitors). As a result, the NRC identified a failed surveillance test on channel 2 that was undetected for a period of 31 days, in excess of the allowable outage time of seven days.

Description. On September 7, 2011 the inspectors questioned the operability of the Gamma Metrics WR LOG monitors based on prior control room observations and plant computer parameter trending. At that time, the inspectors requested copies of the last surveillance test records and a justification for operability. On September 9, Dominion provided copies of the SP 3441E01, "Gamma-Metric Neutron Flux/Shutdown Margin Monitor Channel Calibration," surveillance tests that indicated channel 2 had failed the last surveillance test on August 10, 2011. An extent of condition review of past surveillance tests for the Gamma Metrics WR LOG monitors indicated additional discrepancies in the testing records.

The Gamma Metrics WR LOG monitors are required to be operable under TS 3.3.3.6, "Accident Monitoring Instrumentation," in plant operating modes one, two and three, and are the only neutron flux monitors qualified for use under post-accident conditions inside containment. The Gamma Metrics monitors ensure that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. The Gamma Metric monitors would be used to assess the Emergency Operations Procedure response to an Anticipated Transient Without Scram (ATWS) event in FR-S.1, "Response to Nuclear Power Generation," if accident conditions inside containment had degraded the accuracy of the normal power range neutron flux monitors. They would also be used to respond to various severe accident scenarios that progress beyond the onset of core damage in the Severe Accident Mitigation Guidelines.

Dominion entered the issue into their CAP (CR442297) and repaired and realigned the Gamma Metrics WR LOG monitor instrument drawer. The Gamma Metrics WR LOG monitor channel 2 was restored to service and TS 3.3.3.6(a) was exited on September 11, 2011.

Analysis. The inspectors determined that Dominion's failure to identify the failed surveillance test was a performance deficiency that was reasonably within Dominion's ability to foresee and correct, and should have been prevented. This finding is more than minor because it is associated with the human performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding) protect the public from radionuclide releases caused by accidents or events. If left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, upon review of the test data as well as subsequent confirmatory testing, Dominion declared the wide range logarithmic accident neutron flux monitor channel 2 I inoperable.

In accordance with IMC 0609.04, Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined this finding is of very low safety significance (Green) because the issue only potentially affected the fuel barrier and did not affect other fission product barriers.

This finding has a cross-cutting aspect in the area of human performance, work practices component because Dominion did not ensure that work activities were appropriately reviewed by supervision. Specifically, Dominion did not ensure that the SP-3441E01 surveillance test results from August 10, 2011 had been properly checked and reviewed by I&C Supervision, and approved by the Shift Manager as required by the work order and surveillance test procedure [H.4(c)].

Enforcement. 10 CFR 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. Test results shall be documented and evaluated to assure that test requirements have been satisfied. Contrary to the above, from August 10, 2011, to September 10, 2011, Dominion failed to identify that the Gamma Metrics monitor channel 'B' had not passed the surveillance test SP-3441E01. Dominion took immediate corrective action to declare the Gamma Metrics monitor inoperable, repair and realign the Gamma Metrics WR LOG Monitor, and restore channel 2 to an operable status. However, because of the very low safety significance (Green) and because it was entered into Dominion's CAP (CR442297), the NRC is treating this as an NCV, consistent with Section 2.3.2 of the NRC's Enforcement Policy. **(NCV 05000423/2012005-02, Failure to Establish Proper Test Controls for the Wide Range Logarithmic Post Accident Neutron Flux Monitors).**

.3 Licensee Event Report (LER) 05000336/2012-001-00: Historical Gaps in High Energy Line Break Barrier

On June 7, 2012, with Unit 2 at 100 percent power, Dominion determined that a series of physical gaps in a high energy line break (HELB) barrier may have rendered the

equipment in the west 480V switchgear room inoperable. Dominion entered TS 3.8.2.1, TS 3.8.2.1(a) action C, and TS 3.3.3.5 action A. The openings were sealed and the switchgear room was returned to operable status at 1605 on June 8, 2012 which met the TS action requirements. Dominion determined that this condition may have existed since initial construction. Historical operation with the west 480V switchgear room inoperable in excess of the above TS action statement allowed times is prohibited by the plant's TSs. Dominion is conducting a detailed formal analysis to determine the extent of the safety impact. A supplement to the LER will be submitted upon completion of the engineering analysis.

b. Findings

Introduction. An unresolved item (URI) was identified for gaps in a HELB barrier for the Unit 2 west 480V switchgear room. During a design basis HELB in the turbine building, steam would enter the switchgear room and could impact the ability of safety related equipment in that room to perform their safety function.

Description. On June 7, 2012, with Unit 2 at 100 percent power, Dominion determined that a series of gaps in a HELB barrier rendered the equipment in the west 480V switchgear room inoperable. Dominion entered TS 3.8.2.1, TS 3.8.2.1(a) action C, and TS 3.3.3.5 action A. The openings were sealed and the switchgear room was returned to operable status at 1605 on June 8, 2012. Dominion determined that this condition may have existed since initial construction. In the past, Unit 2 has implemented compensatory cooling to the west switchgear room when normal ventilation was OOS. Compensatory cooling includes opening one of the doors to the switchgear room. This could allow the steam from the HELB to impact safety related equipment in other areas.

The inspectors determined that there was a performance deficiency in that Dominion did not ensure that the gaps in switchgear room HELB barrier were sealed. Additional information is necessary for the inspectors to determine if the issue is more than minor. The information required is the determination of safety related equipment that would be affected by the HELB. This information will be available upon completion of Dominion's detailed formal analysis.

Upon receipt of the above information, the NRC will assess whether the performance deficiency is more than minor. **(URI 05000336/2012005-00, Gaps in West 480V Switchgear HELB Barrier May Impact Safety Related Equipment).**

.4 Licensee Event Report (LER) 05000336/2012-003-00: Potential for a Loss of Safety Function Due to Postulated Flood Conditions

On October 15, 2012, during walkdowns performed in response to the NRC's 10 CFR 50.54(f) letter while Unit 2 was shutdown in Mode 5, Dominion identified several unsealed electrical conduits connecting the SW pump room in the intake structure to the turbine building. During a design basis flood, this condition could have resulted in flooding of the turbine building such that all auxiliary feedwater pumps could be rendered inoperable. Dominion has also identified other unsealed penetrations in the design basis flood zone. Dominion took prompt corrective actions to seal the identified penetrations. These deficiencies may have existed since initial construction. Additional information is required to determine the aggregate impact of potential flooding from all the leak paths on the safety function of affected equipment is discussed in Section 4OA5.

4OA5 Other Activities

.1 Institute of Nuclear Power Operations (INPO) Report Review

a. Inspection Scope

The inspectors reviewed the report for the INPO plant assessment of Millstone Power Station dated September 6. The inspectors reviewed this report to ensure that any issues identified were consistent with NRC perspectives of Dominion performance and to determine if INPO identified any significant safety issues that required further NRC follow-up.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors verified that Dominion's walkdown packages (MP2-F-2012-001, MP2-F-2012-002, and MP2-F-2012-003) contained the elements as specified in the NEI 12-07 Walkdown Guidance document.

The inspectors accompanied Dominion on their walkdown of selected flood gates, SW and RWST pipe chase, east SW pump enclosure, and the EDG room backflow preventer valves and verified Dominion confirmed the following flood protection features:

- Flood protection feature functionality, using visual observation or review of other documents
- Critical SSC dimensions
- Available physical margin, where applicable

The inspectors independently performed their walkdown of portions of the auxiliary building exterior walls and verified, through visual inspection, that any degradation identified in the walls and penetrations would not prevent their credited function from being performed.

The inspectors verified that non-compliances with current licensing requirements, and issues identified in accordance with the 10 CFR 50.54(f) letter, Item 2.g of Enclosure 4, were entered into Dominion's CAP. In addition, issues identified in response to Item 2.g that could challenge risk significant equipment and Dominion's ability to mitigate the consequences will be subject to additional NRC evaluation.

b. Findings

Introduction. An URI was identified associated with unsealed penetrations in several locations that breach the flood barriers of the Unit 2 turbine and auxiliary buildings.

During a design basis flood, the flood waters that enter through these barriers could impact the ability of safety related equipment to perform their safety function.

Description. On October 15, 2012, during walkdowns performed in response to the NRC's 10 CFR 50.54(f) letter while Unit 2 was shutdown in Mode 5, Dominion identified several unsealed electrical conduits connecting the SW pump room in the intake structure to the turbine building. During a design basis flood, this condition had the potential to cause flooding of the turbine building such that all auxiliary feedwater pumps could be rendered inoperable. Dominion has also identified other unsealed penetrations in the design basis flood zone.

Dominion took prompt corrective actions to seal the identified penetrations. These deficiencies may have existed since initial construction. The inspectors determined that there was a performance deficiency in that Dominion did not ensure that the electrical conduits were sealed to provide adequate flood protection. Additional infor-mation is necessary for the inspectors to determine if the issue is more than minor. The information required is as follows:

- Determine if the conduits that were not sealed at the Unit 2 flood boundary were sealed on the other end;
- Determine the aggregate impact of potential flooding from all leak paths on the safety function of affected components.

Upon receipt of the above information, the NRC will assess whether the performance deficiency is more than minor. **(URI 05000336/2012005-01 Unsealed Penetrations in Flood Barriers May Impact Safety Related Equipment in a Design Basis Flood)**

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

a. Inspection Scope

The inspectors accompanied Dominion on their seismic walkdowns of the 'A' boric acid tank (seismic walkdown checklist (SWC) number MP3-93 in area MP3-WB-005),the 'A' residual heat removal pump suction (SWC MP3-61 in area MP3-WB-022), and the 201A station battery (SWC MP2-WD-SWEL-067 in area MP2-WB-006) during the week of August 6. The inspectors verified that Dominion confirmed that the following seismic features associated with these components were free of potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing or loose hardware
- Anchorage was free of corrosion that is more than mild surface oxidation
- Anchorage was free of visible cracks in the concrete near the anchors
- Anchorage configuration was consistent with plant documentation
- SSCs will not be damaged from impact by nearby equipment or structures
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment
- Attached lines have adequate flexibility to avoid damage

- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area
- The area appears to be free of potentially adverse seismic interactions that could cause a fire in the area
- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding)

The inspectors independently performed walkdowns to verify that the seismic features associated with the 'B' diesel engine starting air tank 'D' (SWC MP-2-WD-SWEL-007 in area MP2-WB-001) and the 'A' charging pump (SWC MP3-WD-SWEL-026 in area MP3-WB-003) were free of potential adverse seismic conditions during the week of August 20.

Observations made during the walkdowns that could not be determined to be acceptable were entered into Dominion's CAP for evaluation.

Additionally, inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the Seismic Walkdown Equipment List and these items were walked down by Dominion.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On January 15, 2013, the inspectors presented the inspection results to Stephen E. Scace, Site Vice President, and other members of the Millstone staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

M. Adams	Plant Manager
L. Armstrong	Manager, Training
A. Arsenault	Nuclear Maintenance Supervisor
R. Acquaro	Unit 3 Shift Manager
G. Auria	Nuclear Chemistry Supervisor
B. Bartron	Supervisor, Licensing
J Beaudoin	Unit 3 Reactor Operator (BOP)
H. Beeman	Supervisor Materials and NDE
T. Berger	Unit 3 Shift Manager
R. Bonner	Electrical Engineering Supervisor
E. Bookmiller	Nuclear Tech Specialist III
B. Bowen	Shift Supervisor HP
E. Brodeur	Unit 3 Shift Manager
C. Chapin	Assistant Operations Manager
C. Chapman	Unit 3 Unit Supervisor
W. Chestnut	Supervisor, Nuclear Shift Operations Unit 2
F. Cietek	Nuclear Engineer, PRA
R. Cimmino	Senior Instructor, Exam Developer
T. Cleary	Licensing Engineer
G. Closius	Licensing Engineer
W. Coté	Training Specialist
L. Crone	Supervisor, Nuclear Chemistry
J. Curling	Manager, Protection Services
T. Davis	Supervisor Nuclear Engineering
S. Dean	Senior Instructor, Exam Developer
D. Delcore	Nuclear Specialist
B. Denny	System Engineer
J. Dorosky	Health Physicist III
E. Dundon	Nuclear Engineer III
M. Finnegan	Supervisor, Health Physics, ISFSI
M. Garza	Unit 2 SRO
A. Gharakhanian	Nuclear Engineer III
T. Gleason	Senior RP Technician
W. Gorman	Supervisor, Instrumentation & Control
J. Grogan	Assistant Operations Manager
K. Grover	Manager, Nuclear Operations
M. Hollis	Unit 3 Unit Supervisor (SRO)
T. Horner	Simulator Supervisor
C. Houska	I&C Technician
C. Janus	Maintenance Rule Coordinator
R. Johnson	Supervisor, Nuclear Maintenance
B. Kelly	Unit 3 Shift Manager
R. Keller	Supervisor Nuclear Engineering I&C
J. Keith	Unit 3 Reactor Operator (TAC)
L. Labaron	System Engineer

J. Laine	Manager, Radiation Protection/Chemistry
M. Lalikos	Welding Engineer
R. Losier	Nuclear Maintenance Supervisor
D. Lowell	System Engineer
P. Ludington	Unit 3 Control Operator
F. Perkins	Unit 3 Shift Technical Advisor
R. MacManus	Director, Nuclear Station Safety & Licensing
D. MacDonald	Manager Nuclear Design Engineering
A. Mangino	Fire Protection Engineer
G. Marshall	Manager, Outage and Planning
M. Martell	Unit 3 Shift Manager
M. Maxson	Manager, Nuclear Oversight
D. Minnich	Senior Instructor
B. Pinkowitz	Senior Instructor
D. Reed	Unit 3 Shift Manager
D. Regan	Supervisor Health Physics Operations
J. Riley	Senior Instructor, Exam Developer
R. Riley	Supervisor, Nuclear Shift Operations Unit 3
C. Ryan	Senior Instructor
M. Roche	Senior Nuclear Chemistry Technician
D. Rowe	Unit 3 Shift Manager
J. Salazar	Unit 3 Unit Supervisor
L. Salyards	Licensing, Nuclear Technology Specialist
S. Scace	Site Vice President
J. Semancik	Director of Engineering
A. Smith	Asset Management
D. Smith	Manager, Emergency Preparedness
S. Smith	Manager, Engineering
M. Socha	Unit 3 Unit Supervisor
J. Spalter	Unit 3 SRO
M. Stark	ISI Manager
T. Stringfellow	Unit 3 Work Control Supervisor (SRO)
T. Thull	BACC Program Manager
S. Turowski	Supervisor, Health Physics Technical Services
C. Vournazos	IT Specialist, Meteorological Data
R. Williamson	Shift Manager, Nuclear Operations Unit 2
B. Wilkens	Fire Marshall
W. Woolery	Unit 2 Shift Manager
M. Wynn	Supervisor Radiological Analysis
R. Zieber	Nuclear Technical Specialist III

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened

05000336/2012005-00	URI	Gaps in West 480V Switchgear HELB Barrier May Impact Safety Related Equipment (Section 4OA3)
05000336/2012005-01	URI	Unsealed Penetrations in Flood Barriers May Impact Safety Related Equipment in a Design Basis Flood (Section 4OA5)

Closed

05000336/2012-002-00	LER	Completion of Plant Shutdown Required by Technical Specifications (Section 4OA3)
05000423/2011-001-00	LER	Failure to Enter Technical Specification Action Statement (Section 4OA3)
05000336, 423/2515/187	TI	Inspections of Near-Term Task Force Recommendation 2.3 – Flooding Walkdown (Section 4OA5)
05000336, 423/2515/188	TI	Inspections of Near-Term Task Force Recommendation 2.3 – Seismic Walkdowns (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
C OP 200.13, Cold Weather Preparations, Revision 003-05
C OP 200.13-002, Unit 2 Cold Weather Preparation Checklist, Revision 002
C OP 200.13-003, Unit 3 Cold Weather Preparation Checklist, Revision 001
C OP 200.6, Storms and Other Hazardous Phenomena (Preparation and Recovery), Revision 002-07
SP 3670.1-001, Mode 1-4 Daily and Shiftly Control Room Rounds, Revision 027-01
SP-3665.1, Flood Level Determination, Revision 005-02
MP-26-EPI-FAP06-002, Millstone Unit 2 EALs, Revision 007
MP-26-EPI-FAP06-003, Millstone Unit 3 EALs, Revision 007
MP-26-EPA-REF02, Millstone Unit 2 EAL Technical Bases Document, Revision 018
MP-26-EPA-REF03, Millstone Unit 3 EAL Technical Bases Document, Revision 016
AOP 2560, Storms, High Winds, and High Tides, Revision 010-12
AOP 3569, Severe Weather Conditions, Revision 018

Miscellaneous
Control Room Logs October 29 to 30, 2012
WO53102485651
WO53102485653

Condition Reports

446391	488967	488969	489753
492259	493227	494218	494230
495217	493955	493976	493979
494010	494012		

Section 1R04: Equipment Alignment

Procedures
OP 2326A-002, SW Alignment Verification, Facility 2, Revision 000-06
OP2310, Shutdown Cooling System Operation, Revision 004-01
OP2207, Plant Cooldown, Revision 029
OP2310, Shutdown Cooling System, Revision 026-01
OP 33346A, EDG, Revision 024-09
OP 3346A-001, EDG 'A' Cooling Water Valve Lineup, Revision 007
OP 3346A-003, EDG 'A' Lube Oil Valve Lineup, Revision 006-02
OP 3346A-005, EDG 'A' Starting Air Valve Lineup, Revision 008-04
OP 3346A-007, EDG 'A' Crankcase Vacuum Valve Lineup, Revision 005
OP 3346A-009, EDG 'A' Instrument Valve Lineup, Revision 006-01
OP 3346A-0011, EDG 'A' Electrical Lineup, Revision 009-02

Condition Reports
491746

Section 1R05: Fire Protection

Procedures
U2-24-FFS, Millstone Unit 2 Firefighting Strategies, Revision 0
U2-24-FPP-FHA, Millstone Unit 2, Fire Hazards Analysis, Revision 12
MNP3 Fire Protection Evaluation Report, Revision 17.3
U3-24-FFS, Millstone Unit 3 Fire Fighting Strategy, Revision 0
U3-24-FFS-BAP01-TB, MPS3 Fire Fighting Strategies Turbine Building
EOP-3509-.32, TB Equipment Mezzanine Fire, Revision 003-01

Miscellaneous
CR499709

Section 1R06: Flood Protection Measures

Miscellaneous
Millstone Unit 3 Fire Protection Evaluation Plan, Revision 17
Deviation Request to NRC contained in Letter W. G. Counsel to B. J. Youngblood, letter B11658 dated August 16, 1985 – Docket No. 50-423
Millstone Unit 3 SSER 4

Section 1R08: In-Service Inspection

Procedures

Procedure Number 54ISI-604-011, Revision 11, January 25, 2012, "AUTOMATED ULTRASONIC EXAMINATION OF OPEN TUBE RPV CLOSURE HEAD PENETRATIONS"
Procedure Number VPROC ENG12-2-012, Revision 000-00, October 9, 2012, "INSTRUCTION BARE METAL EXAMINATION TOP (FS-1)"
VPROC ENG12-2-025, Revision 000-00, October 9, 2012, "NDE ProcedureMulti-Frequency Eddy Current Array Probe Examination of Ventline and RYLIS Nozzle Bores, (54-ISI-494-000)"
VPROC ENG12-2-026, Revision 000-00, October 9, 2012, "NDE Procedure Multi-Frequency Rotating Eddy Current Examination of Thick-Walled Tubular Products (54-ISI-493-005)"
YPROC ENG12-2-027, Revision 000-00, October 9, 2012, "NDE Procedure Multi-Frequency Eddy Current Examination of Nozzle Welds and Regions, (54-ISI-460-004)"
VPROC ENG12-2-028, Revision 000-00, October 9, 2012, "NDE Procedure Ultrasonic Examination of Reactor Vessel Control Rod Drive (CRD) Housing Welds, (54-ISI-194-000)"
VPROC ENG12-2-030, Revision 001-00, October 9, 2012, "NDE Procedure Liquid Penetrant Examination of Reactor Vessel Head ICI Penetrations (54-ISI-247-000)"
EPRI Qualification Certification 54-ISI-610-000, Revision 0, Addenda 0
ER-AA-NDE-802, Revision 2, "Ultrasonic Examination of Austenitic Piping Welds in Accordance with ASME Section XI, Appendix VIII" October 2, 2011
ER-AA-NDE-800, Revision 3, "Appendix VIII Qualified Equipment Tables for PDI Generic Procedures" March 1, 2012
ER-AA-NDE-810, Revision 2, "Ultrasonic Examination of Dissimilar Metal Welds in Accordance with ASME Section XI, Appendix VIII" February 17, 2010
ER-AA-NDE-801, Revision 3, "Ultrasonic Examination of Ferritic Piping Welds in Accordance with ASME Section XI, Appendix VIII" September 24, 2011
ER-AA-NDE-UT-705, Revision 0, "Ultrasonic Examination Procedure of Vessel Nozzle inside Radius Sections" March 1, 2012
ER-AA-NDE-PT-300, Revision 6, "ASME Section XI Liquid Penetrant Examination Procedure" March 6, 2011
ER-AA-NDE-VT-601, Revision 3, "VT-1 Visual Examination Procedure" March 5, 2012

Maintenance Orders/Work Orders

Design Change Work Order 53102485522, "SK-912 - Contingency metal and coatings repairs" December 22, 2011
Design Change Work Order 53102492586, "3CCP*E1A - Divider Plate Repair" January 20, 2012
Design Change Work Order 53102461830, "Remove XJ21B / Inspect P28 Spool Flange/Install XJ21B" September 20, 2011
Boric Acid Corrosion Control Program, CR491914, "HPSI TO LOOP "2A" FT-331 Stop Valve" October 16, 2012

Condition Reports

468864	489475	491078	490946
491061	491056	491054	491047
491039	491036	490972	491078

Section 1R11: Licensed Operator Requalification Program

Procedures

TR-AA-730, Licensed Operator Biennial and Annual Operating Requalification Exam Process, Revision 3

TR-MP-TPG-0300, Millstone Licensed Operator Requalification Program (LORP) Guide, Revision 0
TIG-03, Simulator Training and Examinations, Revision 3
TIG-06, Operator Licenses, Revision 0

Condition Reports
489896, 481136, 467968

Job Performance Measures (JPMs)
A2R, 006, 040, 053, 063, 069, 086, 156, 161, 177, 179, 200, 206, 230, 254, 257, 258, 259, and 260

Simulator Scenarios
AOE-1, 2, 3 and 8.

Simulator Testing Program Documents
NESM - 6.06 Simulator Scenario Based Testing, Revision 6
TR-AA-SIM-400 Simulator Performance Testing, Revision 3
Simulator Fidelity Report, August 2012

Scenario Based Tests
2012 AOE #1, Revision 8, July 2, 2012
2012 AOE #3, Revision 7, July 2, 2012
2012 AOE #8, Revision 7, July 5, 2012
2012 AOE #2, Revision 6, July 18, 2012

Core Performance Tests
NSEM - 6.07, MP2 Sim Cycle 21 EOC Core Test Att 'A' Simulator Core Model Changes April 17, 2012
NSEM - 6.07, MP2 Sim Cycle 21 EOC Core Test Att 'B' MP2 Simulator Reactor Core Test, May 30, 2012

Annual Tests
NSEM - 4.09 Annual Tests:
Cycle 21 Steady State Test at 100%, 65%, 30%, 3/8/2012
Transient T1, Manual Reactor Trip, January 27, 2011
Transient T2, Simultaneous Trip of All Feedwater Pumps, February 7, 2011
Transient T4, Simultaneous Trip of All Reactor Coolant Pumps, June 20, 2011
Transient T11, Maximum Load Rejection, August 25, 2011
NSEM – 4.15, Real Time and Repeatability Simulation Verification December 5, 2011

NSEM-4.10 Normal Evolution Tests
Plant Heatup, August 17, 2012
Load Changes, August 15, 2012
Recovery to Rated Power after a Trip, September 6, 2012
Safety Related Surveillance Testing, December 21, 2011, December 28, 2011, December 29, 2011

Miscellaneous
AOP 3569, Severe Weather Conditions, Revision 17
CR493954
OP 2206, Reactor Shutdown, Revision 11-03

OP 2205, Plant Shutdown, Revision 015-06
LORT Scenario S127
LORT 2012, Millstone Unit 2 E-Plan Training Drill December 13, 2012
AOP-3561, Loss of Reactor Plant Component Cooling Water, Revision 011-02
AOP-3566, Immediate Boration, Revision 010-01
AOP-3571, Instrument Failure Response, Revision 09-07
MP-26-EPI-FAP06, Emergency Action Levels, Revision 007
MP-26-EPA-REF3, EAL Bases Document, Revision 016
C12704L, Operator Credited Actions Lesson Plan by W. Cote on December 14, 2012

Section 1R12: Maintenance Effectiveness

Procedures
ER-AA-MRL-10, Maintenance Rule Program, Revision 4
ER-AA-MRL-100, Implementing Maintenance Rule, Revision 5
ER-AA-BKR-1001, Circuit Breaker Program, Revision 0
ER-AA-SYS-1003, System Performance Monitoring, Revision 3
NF-AA-PRA-101-3060, Probabilistic Risk Assessment Procedures and Methods: Maintenance Rule Performance Criteria, Revision 0
MCC System Health Report 1st Quarter 2012
Plant Health Issues List dated October 28, 2012
Millstone Unit 3 Unavailability Spreadsheet, July 2012
SP 21175, Millstone Unit 2 Snubber Service Life Monitoring, Revision 0

Condition Reports

463624	467614	476034	476445	491912	492761
492596	492599	458433			

Miscellaneous
MRE014640
MRE014828
MRE014919
MRE014926
MRE014861
MRE014941
MRE014403
MRE014601
MRE014602
MRE014623
MRE014662
MRE015222
MRE015243
MRE015394
MRE015459
MRE045684
ACE19057, Millstone Unit 3 EDG Stopped After One Minute Due to Abnormal Frequency
U2-24-SNUB-BAP01, Snubber Examination, Testing, and Service Life Monitoring Program Plan, Revision 0

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
OU-AA-200, Shutdown Risk Management, Revision 6
OU-M2-201, Shutdown Safety Assessment Checklist, Revision 3
SP 2370B, Main Steam Safety Valve Testing, Revision 014-02
WM-AA-100, Work Management, Revision 17
WM-AA-301, Attachment 14 "High Risk Contingency Plan Actions, Unit 2 Main Steam Safety Valve Testing"
NF-AA-PRA-370, PRA Risk Assessment Procedures and Methods: MRule (a)(4) Risk Monitor Guidance, Revision 14
OP 2301E, Draining the RCS (ICCE), Revision 025-01
OP 2301E-005, Preferred RCS Vent Path Alignment, Revision 003-05

Condition Reports
489994
494195

Maintenance Orders/Work Orders
AWO 53102424791
AWO 53102424805

Drawings
PID-25203-26002

Miscellaneous
2R21 Switchyard Work Risk Mitigation Plan
Millstone Unit 2 Shutdown Safety Assessment (SSA) Checklist, October 8, 2012
Shutdown Risk Contingency Plan Guidance for Emergency Trip of 'B' EDG, October 8, 2012
Technical Specifications 3/4.7.1.1 Safety Valves
Unit 2 Shutdown Safety Assessment for RCS Drain Down, November 10, 2012
EOOS risk model for November 2, 2011
EOOS on line risk assessments for:
- December 6 with QSS pump OOS = green (5.8 days)
- December 10 with SSPS, 'F' CWS pump, SAS, and high grid risk (thunder storms and Card line OOS) = green (28.3 days)
- December 10 with SSPS, 'F' CWS pump, SAS, and medium trip risk (thunder storms and Card line OOS) = green (5.3 days)

ESOMS Control Room Narrative Logs for December 2 through December 10, 2012

Section 1R15: Operability Evaluations

Procedures
IT-AA-SQA-101, Software Quality Assurance, Revision 4
SP 2612A-003, 'A' SW Pump and Facility 1 Discharge Check Valve IST, Revision 003-01

Condition Reports

01-05427	500734
493317	500802
495749	499944
495764	500542

Maintenance Orders/Work Orders
AWO53102570316
AWO53102586737

Miscellaneous
ETE-MP-2012-1010, Millstone Unit 2 SW Flowrates/Assumptions for EN21203A/B and Technical Justification for 2-SW-8.1A/B/C full flow position, Revision 2
ETE-MP-2012-1228, SW Header Floe Measurement Methodology during Testing, Revision 0
ETE-MP-2012-1234, Flow Lop Uncertainties in Support of the Millstone Unit 2 SW System IST, Revision 0
TS 3.4.6.1 Leakage Detection Systems and Bases
03-AOV-04039M2, Millstone Unit 2- Actuator Setup Settings for 2-SW-3.2A, 3.2B and 2-SW-8.1A, B and C, Revision 0
92-120, Millstone Unit 2 SWS Design Basis Alignments – Summer & Winter, Revision 5
98-ENG-02645 E2, F-311, F-321, F-331 and F-341 (HPSI) flow loop uncertainty, Revision 0
OD000514
Drawing 25212-26933-133A Sheet 1
Calc 01-ENG-018590M3, Revision 00
OD MP3—48-01
OD000513
CA234689

Section 1R18: Plant Modifications

Procedures
SPROC MNTC12-2-001, Millstone Unit 2 Main Feedwater Control Valve Positioner Replacement, Post-Mod Shutdown Testing, Revision 000-01
SPROC OPS12-2-001, Millstone Unit 2 Main Feedwater Control Valve Positioner Replacement, Post-Mod Startup Testing, Revision 000

Condition Reports

493938	495368	495408	496101	496129	497698
493580	492958	492667			

Maintenance Orders/Work Orders
53102392444
53102524706

Miscellaneous
60846SW, Millstone Unit 2 RSST Replacement Full Lookahead Schedule
DM2-00-0541-0, Feedwater Reg Valve Positioner Replacement & Reg Bypass Valve Control Mods, Revision 0
MP2-10-01111, Feedwater Reg Valve Positioner Replacement & Reg Bypass Valve Control Mods, Revision 0
MP2-10-01106, MP2 RSST Replacement Project, Phase 2 – Final Tie-in, Revision 003
NRC Information Notice 2010-10, Implementation of a Digital Control System under 10 CFR 50.59
DC MP2-10-01016,

Section 1R19: Post-Maintenance Testing

Procedures

C SP 750-002, Millstone Unit 2 – Battery Quarterly Inspection, Revision 001-05
C SP 760, Battery Discharge Test, Revision 004
SP 2401BA, Wide Range Monitor Functional Test, Revision 002-09
SP 2401BC2, Channel 'B' Wide Range Monitor Calibration, Revision 001-09
OP 3346A, EDG, Revision 024-09
OP 3346A-015, EDG 'B' – Operating Log, Revision 013
PT31412J1, MP3-15G-23A, (4.16 KV RSST) Test, Revision 004
ETE-MP-2012-1210, Repair of MP3 RSST M315G23SA High-side Bushing Expansion Chamber, Revision 0
AWO 53102572536, Make repairs to oil leak from top reservoir on C bushing for RSST, Revision 0 with Change 1

Condition Reports

492848	493497	492289	493926
495177	496143	499132	499205
499208	499225	499369	499389
499550	499553	499554	499574
499633	499644	499663	499786
499805	499820	493768	498955
494195	494744	494787	495116
495337	501547		

Maintenance Orders/Work Orders

53102279849	53102300805	53102463539	53102467638
53102570698	53102584270	53102572536	

Miscellaneous

RSST 6.9 KV and 4160 tan delta test results
ACE019353, Work on Millstone Unit 3 'B' Diesel Outage could not be completed in schedule, dated December 11, 2012

Section 1R20: Refueling and Other Outage Activities

Procedures

C SP 760-002, Battery DB2-201B Discharge Inspection, Revision 002-02
EN 21004D, Critical Boron Concentration Measurement, Revision 006-03
EN 21004E, ITC Measurements, Revision 007-00
OP 2202A, Reactor Startup by Dilution ICCE, Revision 000-05
OP 2205, Plant Shutdown, Revision 016-00
OP 2206, Reactor Shutdown, Revision 011-03
OP 2301D, Filling and Venting the RCS, Revision 028-04
OP 2301E, Draining the RCS (ICCE), Revision 025-01
OPS-FH 215, Refueling Machine Operation, Revision 002-01
OU-AA-200, Shutdown Risk Management, Revision 6
SP 21011-001, Moderator Temperature Coefficient, Revision 009-01
SP21018-001, Core Reactivity Balance Surveillance Form, Revision 010-02
SP 2609E-001, EBFS Negative Pressure Test, Facility 1, Revision 008-05
SP 2609E-002, EBFS Negative Pressure Test, Facility 2, Revision 001-06
MP 2712B1, Control of Heavy Loads, Revision 010-06

Condition Reports

488873	490921	495102	495967
494791	494973	495005	494979
494195	494290	494113	493644
493637	493031	492953	492886
492791	492892	492050	492038
492021	492014	491792	490675
490679			

Miscellaneous

NEI 08-05, Industry Initiative on Control of Heavy Loads

M2-EV-02-003, Technical Evaluation for Review of Heavy Load Issues Inside Containment, Revision 0

Section 1R22: Surveillance Testing

Procedures

SP 2370B, Main Steam Safety Valve Testing, Revision 014-02

SP 2703B-001, Main Steam Safety Valve Testing, Revision 011-01

SP 31447VB, Trip Actuating Device Operational Test for 4 KV Bus 34D Undervoltage, Revision 000-03

SPROC OPS12-2-003, Relay K534C Retest, Revision 000-01

OP 3346A, EDG, Revision 024-09

OP 3346A-015, EDG B – Operating Log, Revision 013

SP 3646A.2, EDG Operability Tests, Revision 020-06

SP3646A.7, TS 3.8.1.1 Action b. – One EDG Inoperable, Revision 005-02

Condition Reports

490681	490703	491258	492631
492289	493926	495177	496143
499132	499205	499208	499225
499369	499389	499550	499553
499554	499574	599644	499663
499786	499805	499820	

Maintenance Orders/Work Orders

53M20608493

53102424791

53102424805

53102564545

53102584270

53102532983

Drawings

PID-25203-26002

Miscellaneous

TS 3/4.7.1.1 Safety Valves

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures
RP-AA-104, Internal Radiation Exposure Control Program, Revision 0
RP-AA-105, External Radiation Exposure Control Program, Revision 0
RP-AA-108, Radioactive Material Control Program, Revision 1
RP-AA-122, Skin dose Assessment, Revision 0
RP-AA-201, Access Controls for High and Very High Radiation Areas, Revision 6
RP-AA-202, Radiological Postings, Revision 6
RP-MP-201-2001, Millstone Unit 3 MIDS Very High Radiation Areas, Revision 0
RPM 1.3.2, Dosimetry Issue and Return, Revision 017
RPM 1.3.13, Bioassay Sampling and Analysis, Revision 010-01
RPM 1.3.14, Personnel Dose Calculations and Assessments, Revision 008-03
RPM 2.1.3, Identification and Control of High Radiological Risk Work, Revision 004
RPM 5.1.4, Annual Occupational Exposure Control and Increased Radiation Exposure Authorization, Revision 010-01

Audits, Self-Assessments, and Surveillances
SRA000595, Self-Assessment, Health Physics Standardized Practices, January 11, 2010
SAR001046, Self-Assessment, PCE (Personnel Contamination Event) Reduction Efforts, August 18, 2010
SRA001049, Self-Assessment, TLD/DRD (Thermo luminescent Dosimeter/Direct Reading Dosimeter) Discrepancy Reporting, October 14, 2010
SRA001119, Self-Assessment, 2009 EPRI (Electric Power Research Institute) Radioactive Material Guideline Gap Analysis, June 22, 2010
SRA 001425, Self-Assessment, Improvements to Communication in the RP Department at Millstone, March 31, 2011

Corrective Action Document Name
458369
463045
479090
483995
485330
485406
488248
490917
491196
492059
492258

Surveys

Unit	Rad Survey Figure	Date	Time
2	14B Outage Walkways	10/10/2012	2235
2	14B Outage Walkways	10/11/2012	0645
2	25 Auxiliary Building 25' Waste Gas Compressor	9/9/2012	0900
2	25 Auxiliary Building 25' Waste Gas Compressor	10/7/2012	1330
2	26 Auxiliary Building 25' Charging Pumps	10/3/2012	2315
2	26 Auxiliary Building 25' Charging Pumps	10/11/2012	0210
2	29 Reactor Head Work	10/14/2012	1850
2	29 Reactor Head Work	10/16/2012	0900
2	32 Reactor Head Work	10/6/2012	2215
2	32 Reactor Head Work	10/10/2012	1830
2	32 Reactor Head Work	10/15/2012	0630
3	16 Auxiliary Building 4'	8/14/2012	0000
3	16 Auxiliary Building 4'	9/24/2012	2000
3	18 Auxiliary Building 24'	9/18/2012	1130
3	18 Auxiliary Building 24'	10/2/2012	1305
3	19 Auxiliary Building 43'	9/12/2012	1030
3	19 Auxiliary Building 43'	10/2/2012	0830

Section 2RS2: Occupational ALARA Planning and Controls

Procedures
RP-AA-103, ALARA Program, Revision 1
RP-AA-103-1000, Station and Fleet ALARA Committees, Revision 3
RP-AA-300, ALARA Reviews and Reports, Revision 4
RP-AA-301, ALARA Goals, Revision 1
RP-AA-303, ALARA 5-Year Plan, Revision 0

Corrective Action Document Name
CR-490687

Station ALARA Council Minutes
December 14, 2011
December 18, 2011
July 11, 2012
August 15, 2012
September 4, 2012
October 12, 2012

Section 2RS3: In-Plant Airborne Radioactivity Control and Mitigation

Procedures
RP-AA-224, Airborne Radioactivity Surveys, Revision 1
RPM 2.10.9, Canberra iSolo Operations, Revision 000
RPM 5.4.3, Supplied Breathing Air, Revision 009-02

Corrective Action Document Name
CR485637 CR485638

Section 4OA1: Performance Indicator Verification

Condition Reports
446386 446378 460510 447918 478194

Miscellaneous
LER 336-2011-005
LER 336-2012-001
LER 423-2012-001
LER 423-2012-002
LER 423-2012-003

Procedures
MP-22-REC-BAP01, Radiological Effluent Monitoring and Off-Site Dose Calculation Manual (REMODCM), Revision 027-00

Section 4OA2: Problem Identification and Resolution

Procedures
TR-AA-100, Analysis, Revision 9
ER-AA-MRL-10, Maintenance Rule Program, Revision 4
ER-AA-MRL-100, Implementing Maintenance Rule, Revision 5
PI-AA-200, Corrective Action, Revision 20
SP 3441A02, Intermediate Range Channel Calibration, Revision 004-09

Condition Reports

316602	316661	413146	413316
428365	428472	428866	428868
429274	429425	429450	457960
458091	489553	489724	489739
490404	490405	490465	490515
490603	490940	491081	491100
491234	491295	491508	491764
491915	491995	491996	492003
492016	492025	492140	492163
492169	492717	492176	492177
492194	492204	492207	492089
492234	492240	492244	492272
492436	492440	492470	492607
492609	492612	492745	492871
492957	493028	493068	493070
493074	493094	493086	493215
493233	493236	493240	493241
493380	493632	493674	493576
493601	493670	494114	494785
494796	494801	494823	494829
494835	494836	494916	494925
494965	494977	494993	495103
495233	495329	495443	496022
496713	496752	499151	499647

Cause Evaluations
ACE018661
ACE018723
ACE018913
ACE018965
ACE018991
ACE019057
ACE019090
ACE019111
ACE019113
RCE001071
OD000502 Revision September 30, 2012 documenting the reasonable assurance that the galvanic corrosion in MP2 Spool SK-2963 did not jeopardize the structural integrity of the SW header
RCE0001063, Unplanned Shutdown due to Service Water Leak, dated October 27, 2011
ACE019271, System Monitoring and Problem Mitigation, dated September 20, 2012

Work Orders
53102247471
53102310914
53102372952
53102373194
53102440744
53102441855
53102442123
53102482822
53102488309

Maintenance Rule Evaluations
013822 014662 014671 013850 015787 013786
013821 013201

Other Documents
Unit 2 2405 – Emergency Safeguards Actuation System Health Report with Condition Monitoring Table Q4-2012
Unit 2 2406 – Reactor Protection System Health Report with Condition Monitoring Table Q4-2012
Unit 2 2423 – Foxboro Spec 200 Racks System Health Report with Condition Monitoring Table Q4-2012
Unit 3 3407A – Westinghouse 7300 System Health Report with Condition Monitoring Table Q4 - 2012
Dominion Relief Request PR-04-13 for Temporary Non-Code Compliant Condition of the Class 3 Service Water System 10 inch Emergency Diesel Generator Supply Flange, dated October 18, 2012
ETE-CME-2011-0105, Structural Integrity and System Performance Evaluation of Degraded Flange in 'A' Service Water Pipe to EDG Spool Piece SK-2952, dated August 23, 2011
ETE-CME-2011-0106, Unit 2 Service Water System Al6xn – Post Weld Cleaning and Passivation, dated July 9, 2012
Millstone Unit 2 Service Water Galvanic Corrosion action Determination Tree
Millstone Unit 2 2R21 A Service Water Joint Mitigation for Dissimilar Metal Joints
Millstone Unit 2 Galvanic Corrosion Potential Mitigation, PowerPoint Presentation

Section 4OA3: Followup of Events and Notices of Enforcement Discretion

Procedures
SP 3673.6, "Accident Monitoring Instrumentation," Revision 004-07
SP 3441E01, "Gamma-Metric Neutron Flux/Shutdown Margin Monitor Channel Calibration," Revision 011-01
SP 3441E01-001, "Gamma-Metric Neutron Flux Monitor / Shutdown Margin Monitor Channel 1 Calibration," Revision 008-05
SP 3441E01-002, "Gamma-Metric Neutron Flux Monitor / Shutdown Margin Monitor Channel 2 Calibration," Revision 008-05
SP 3441E01-003, "Gamma-Metric Neutron Flux Monitor Channel 1 at Power Calibration," Revision 008-003
SP 3441E01-004, "Gamma-Metric Neutron Flux Monitor Channel 2 at Power Calibration," Revision 008-003
OP 2206, Reactor Shutdown, Revision 011-03

Condition Reports

373596	437419	440582	442297	442336	443761
443771	444051	444078	444512	444753	444482

Work Orders

53102336608	53102237941	53102383229	53102383232

Miscellaneous
RAS for CR437419 Unable to Adjust Power Range to within acceptance criteria in accordance with SP3441E01," dated August 24, 2011
Instruction Manual No. 009, Neutron Flux Monitor
PHUPE, Unit 3 Gamma-Metrics Surveillance (3441E01) Calculation and Acceptance Criteria Review Errors," dated September 13, 2011
ETE-MP-2011-0111, "MP3 Gamma-Metrics Channel Calibration SP3441E01 Bandpass Filter Offset Voltage," dated September 23, 2011
MRE014175, "SENG – Discovered as left data for Gamma Metrics channel 2 out of acceptance criteria," dated September 10, 2011

Section 4OA5: Other Activities

Condition Reports

484417	484958	484290	484254	484243

Drawings
25212-27046, Machine Location Auxiliary Building Plan Elevation 24'6", Revision 0
450-B49739, Lube System Schematic, Revision 3
25212-11134, Equipment Support Dets Floor Slabs – Aux Bldg, Revision 7
25212-11133, Slab El 24'6" & 28'6" Outline Auxiliary Bldg, Revision 9
25212-20272, Sheet 1, Chemical & Volume Control Piping Aux Bldg Sheet 5, Revision 15
25203-28017, Millstone Power Station Unit 2 Instrument Locator, Revision 21
M-5957, Sheet 1 and 2, Seismic Calculations Millstone Unit 2, Revision 2
2503-27032, DC Equipment Room Layout Aux Bldg El 14'6", Revision 5
D-74-409, Boric Acid Tank 3CHS*TK5A, Revision 13
25212-27046, Machine Location Auxiliary Building Plan El 24'6", Revision 15
25212-27050, Machine Location Auxiliary Building Sections 3-3 and 4-4, Revision 9
25212-11139, Auxiliary Building Floor Plan El 43'6" and El 45'6", Revision 9

25212-20394, Sheet 13, Fabrication Installation Control Drawing, Revision 11
12179-FSK-27-3A, Flow Diagram Low Pressure Safety Injection, Revision 10
25212-20394, Sheet 1, LP Safety Injection Piping ESF Building, Revision 13

Calculations
84-021-894GP, Diesel Air Start System, Revision 0

LIST OF ACRONYMS

ACE	apparent cause evaluation
ADAMS	Agencywide Documents Access and Management System
ALARA	as low as reasonably achievable
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	condition reports
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EAL	emergency action level
ECCS	emergency core cooling system
EDG	emergency diesel generator
EP	emergency preparedness
EPD	electronic personal dosimeter
HELB	high energy line break
HRA	high radiation area
I&C	instrument and controls
IMC	Inspection Manual Chapter
LER	licensee event report
LHRA	locked high radiation area
NCV	non-cited violation
NEI	Nuclear Energy Institute
NOUE	notification of unusual event
NRC	Nuclear Regulatory Commission
ODCM	offsite dose calculation manual
OOS	out of service
PAPII	performance analysis and performance improvement instrument
PARS	Publicly Available Records
PI	performance indicator
RCA	radiological controlled area
RCE	root cause evaluation
RCS	reactor coolant system
RP	radiation protection
RSPS	risk-significant planning standard
RWP	radiation worker permit
SDC	shutdown cooling system
SDP	Significance Determination Process
SG	steam generator
SP	surveillance procedure
SSC	structure, system, or component
SW	service water
SWC	seismic walkdown checklist
TS	technical specifications
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item
UT	ultrasonic testing
VHRA	very high radiation area